

Renewable energies and identifying intersectoral opportunities in the water-food-energy- ecosystems nexus

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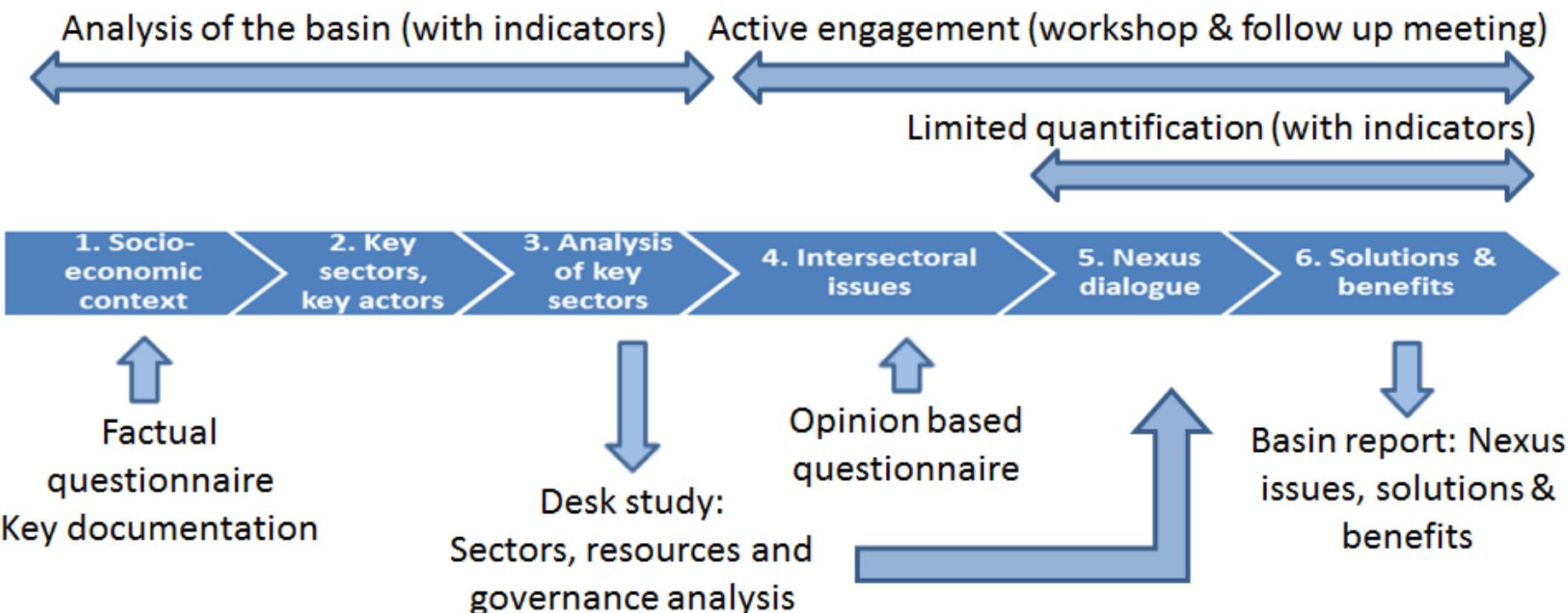


Convention of the Protection and Use of Transboundary Watercourses and International Lakes



Nexus assessment methodology

- Developed under the UNECE Water Convention (Task Force on the Water-Food-Energy-Ecosystems Nexus)
- Adapts to the context and the specific issues; application to 5 transboundary basins demonstrates value for engaging different sectors into a dialogue
- Provides for identification of cooperative ways to tackle nexus challenges in a non-prescriptive, inclusive and indicative manner highlighting a broad range of potential opportunities.

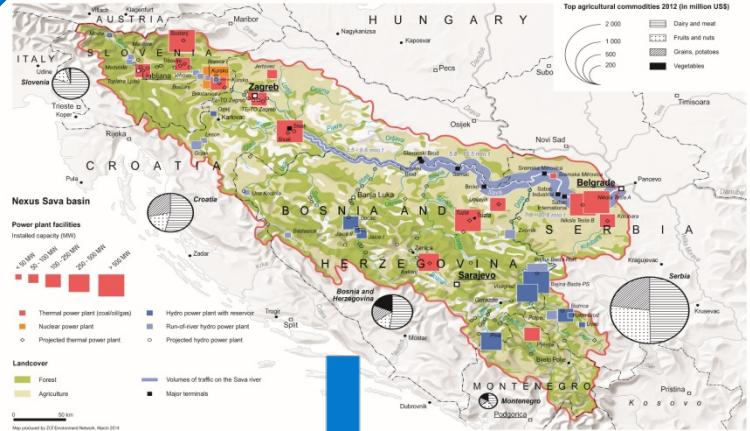
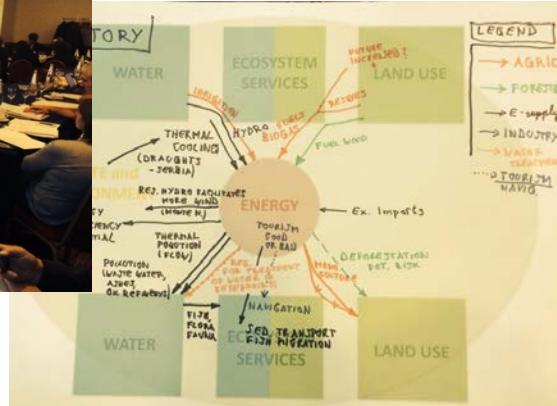


Participatory process for joint identification of issues and dialogue informed by analysis



Workshop

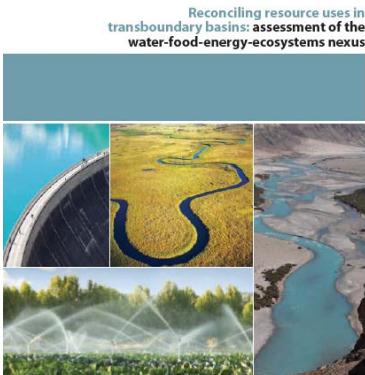
General basin diagnostic



Conclusions & Quantification of selected priority issues

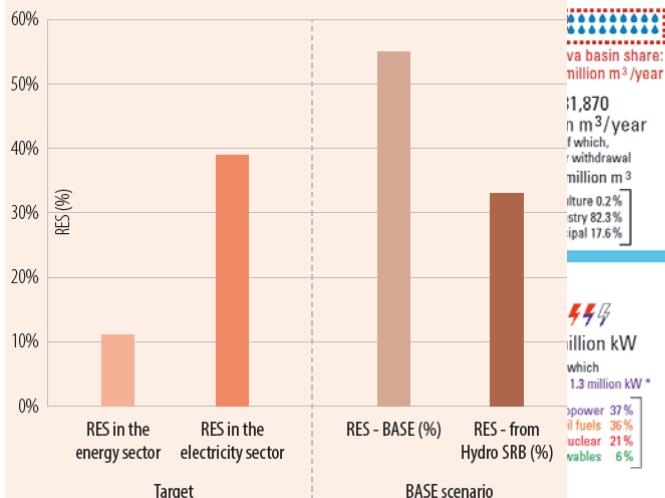
Indicator-based analysis

dissemination



Reconciling resource uses in transboundary basins: assessment of the water-food-energy-ecosystems nexus

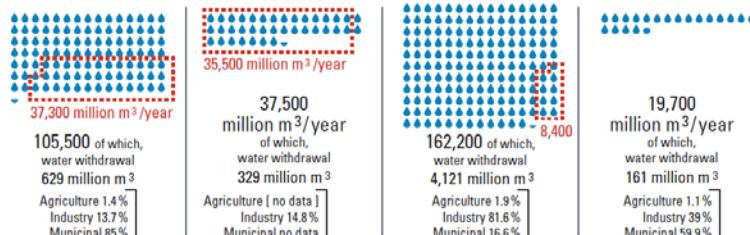
Renewable Energy Sources (RES) contribution to the electricity generation in the Sava River Basin (SRB) region in the baseline scenario^b



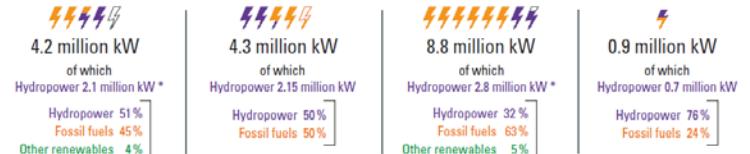
Slovenia

Croatia Bosnia Herzegovina Serbia² Montenegro

TOTAL RENEWABLE FRESHWATER RESOURCES



INSTALLED ELECTRICITY GENERATING CAPACITY & HYDROPOWER



*including pumped storage

^bincluding pumped storage

Nexus opportunities (examples)



Isonzo/ Soča
 Link RES generation to existing agriculture infrastructure (small hydropower, solar, biomass); improve river continuity and increase drought resilience

Sava
 Develop hydropower sustainably and integrate other renewable energies

Alazani/Ganykh
 Facilitate access to modern energy sources and energy trade; minimize impacts from new hydropower development; catchment management to control erosion

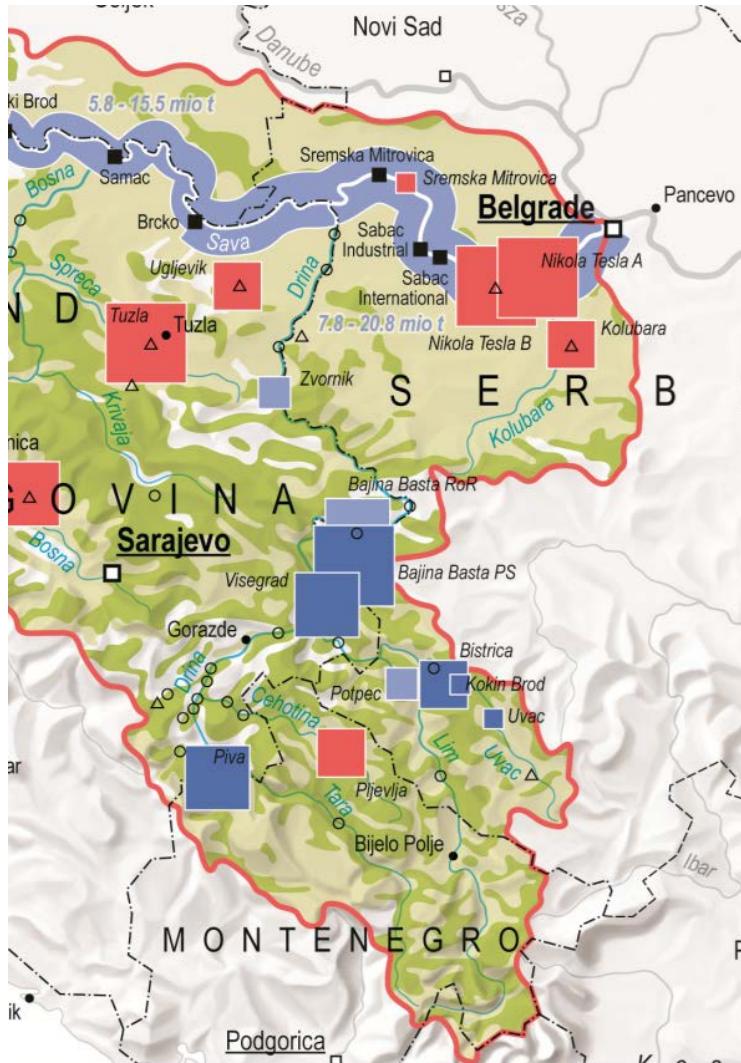
Syr Darya
 Promote restoring and vitalizing energy market, develop the currently minimal trade in agricultural products; improve efficiency in energy generation, transmission and use; improve efficiency in water use (esp. in agriculture)

The context of the GERE cooperation

- Without an intersectoral approach, International commitments about doubling the share of renewable energy in the global energy mix (SE4ALL), and providing affordable, reliable, sustainable, and modern energy for all (SDG 7) risk being difficult to reach without affecting negatively achievement of other Sustainable Development Goals (on water, food security)
- Energy sector's development in shared basins has transboundary effects, requiring coordination. Risks to businesses also. Cooperation frameworks needed!
- REN21-UNECE Renewable Energy Status Report highlights both the challenges the UNECE region, and opportunities, potential.
- GERE workplan 2016-2017: Facilitate exchange of know-how, best practices and lessons learned
- UNECE Water Convention's cooperation with SED/GERE on the project "Greening economic development in Western Balkans through applying a nexus approach and identification of benefits of transboundary cooperation" funded by Italian Ministry for the Environment, Land and the Sea (Drina project).
- In the Drina project, energy sector targets are looked at together with the rural development and agriculture needs, as well as the needs of other water users such as tourism, while at the same time taking into account protection of ecosystems

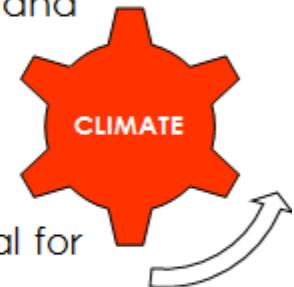
Exploring interlinkages in the Drina River Basin: focus on energy

Bosnia and Herzegovina, Montenegro, Serbia



ENERGY SECTOR

- Current practice of hydropower operation
- Hydropower expansion in the basin and the role of regional projects
- Foreign investments in the power generation sector (cooperation mechanisms)
- Energy security and added potential for electricity exports



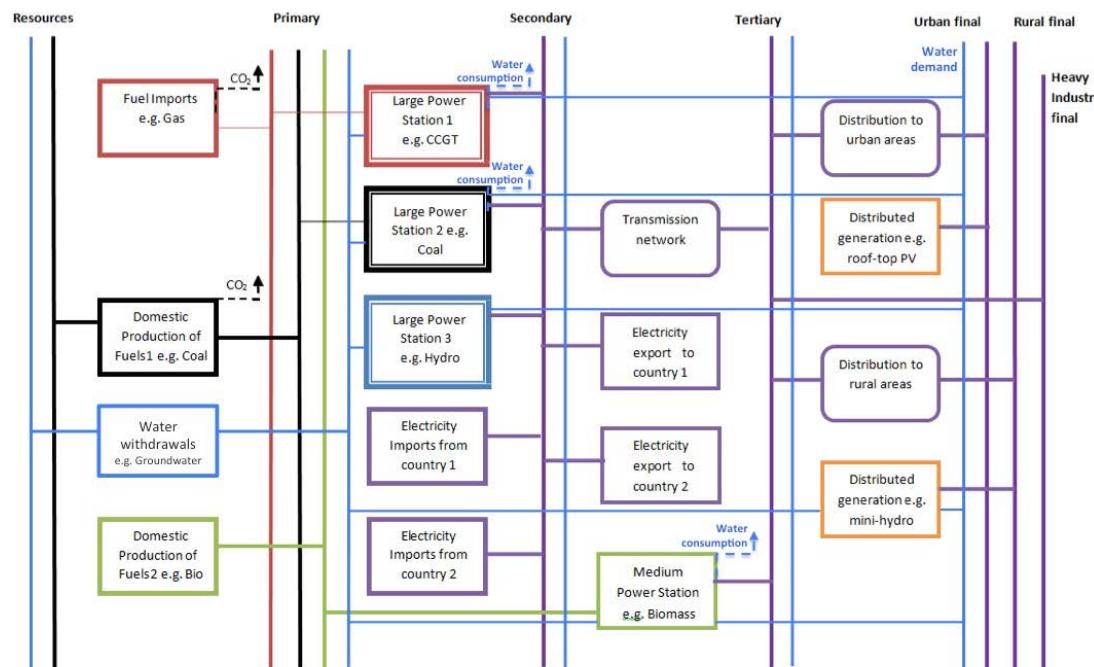
WATER

ECOSYSTEMS

LAND-USE

Integrated water-energy analysis - basis for identifying opportunities

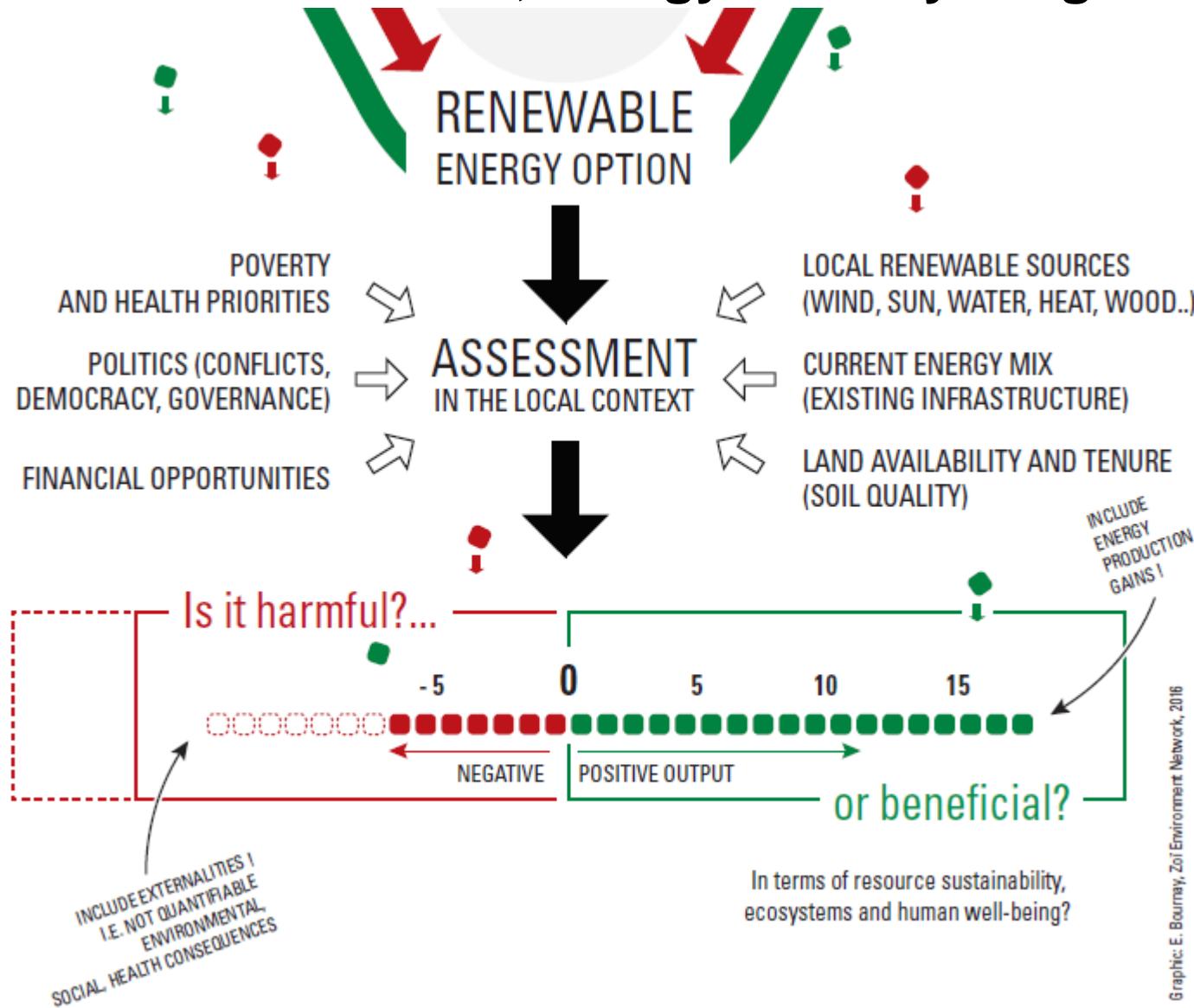
The water-energy model took into account...



- Electricity demand of the Drina countries;
- Countries' load profile;
- Existing and planned electricity generation facilities;
- NREAP targets;
- CO₂ emission factors;
- Water consumption factors of thermal power plants;
- Electricity trade in the region;
- Inflows at selected hydropower plants locations.

Renewable energy can be good for many reasons

Cost, emission reduction, energy security off-grid...



The Nexus Approach to Do Renewable Energy (RE) Right: Recommendations for Action



Possible Recommendations/Priorities	Relevant Nexus Interlinkages, Development Opportunities And Trade-Offs	Available tools (examples)
Ensure full & fair access to the existing grid for electricity from RE	Reduction of environmental impact through a better coordinated and integrated use of RE	National and regional grid codes adapted to RE
Energy system of the future in planning grid infrastructure	Better synergies from coordination with other sectors	Nexus assessment, specifically multi-resource scenarios
Decrease systems costs	Evaluation of multiple use options to broaden the funding base and consensus	Nexus assessment, specifically nexus mapping. Guidelines.
Targeted instruments to reduce renewable energy financing costs.	Energy efficiency to slow the burden of investment in new capacity. Reduction of investment risks with a nexus approach.	De-risking. SEA, EIA for seeking acceptable options, reconciling with environment.

Final conclusions and contact

- Renewable energy policies need to be redesigned and the development of RE made more sustainable, taking into account economic circumstances, development challenges, renewable energy potential, other sectors' and environment's needs, and transboundary impacts.
- **Beneficial to explore how to integrate into energy policies and investment plans intersectoral links and synergies that exist between developing renewable energy generation as well as use and protection of water resources and the environment.**
- **Intersectoral (nexus) assessments can inform a dialogue for more transparent choices about the trade-offs, and help reconcile between development and environmental objectives.**
- The nexus assessment methodology is widely applicable – use and further development encouraged to promote dialogue.
- Cooperation between the nexus Task Force and GERE helps to raise awareness and to share experience.
- UNECE invites to the global workshop and Task Force meeting (Geneva, 6-8 December 2016): Various intersectoral assessment approaches and good practices to be presented and discussed.
 - **More information:** <http://unece.org/env/water>
 - <http://www.unece.org/env/water/nexus.html>
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