

The nexus and transboundary dimensions of renewable energy development: trade-offs and synergies

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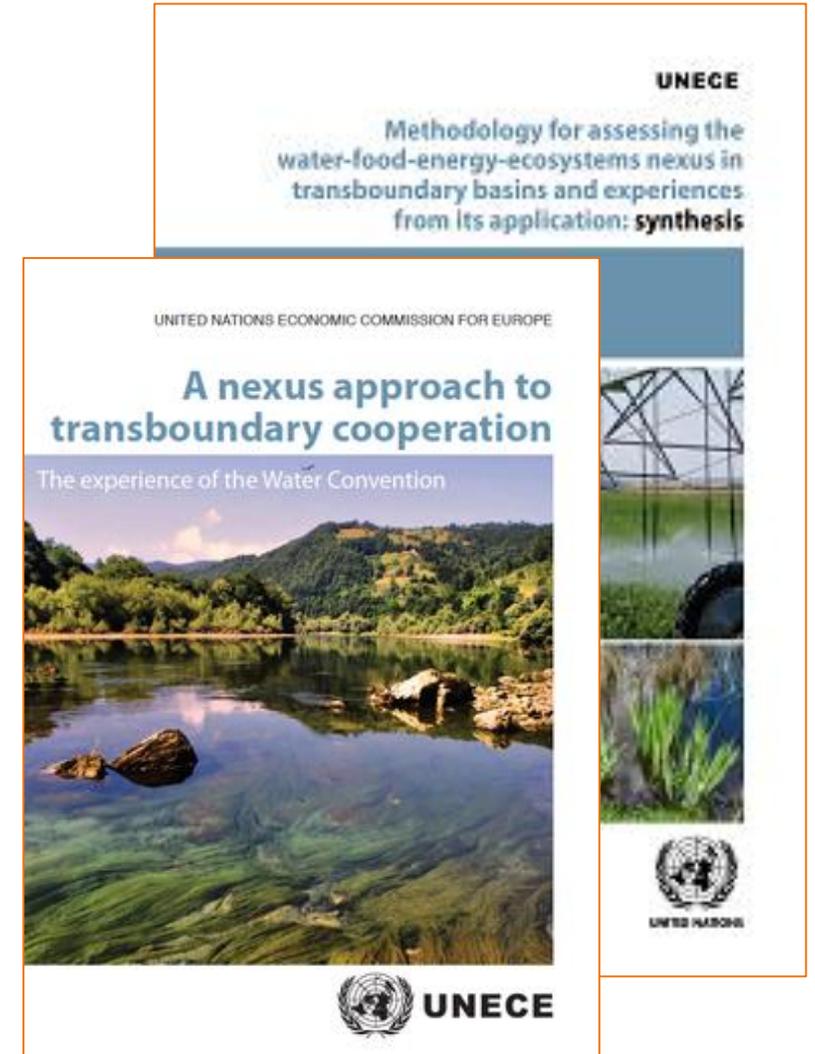
Renewable Energy Hard Talk
Bosnia & Herzegovina

Sarajevo 04-05 December 2018



Nexus work under the Water Convention of UNECE

- Strong **capacity building**, promoting practical addressing of the **transboundary nexus**
 - 5 meetings of the Water-Food-Energy-Ecosystems Nexus Task Force
 - 1 global stocktaking workshop (2016)
- 4 **nexus assessments completed**
- 2 **ongoing projects** in different stages of assessment
- Policy brochure on **renewable energy and nexus**
- Synthesis: **consolidated methodology & summary** published (2018)

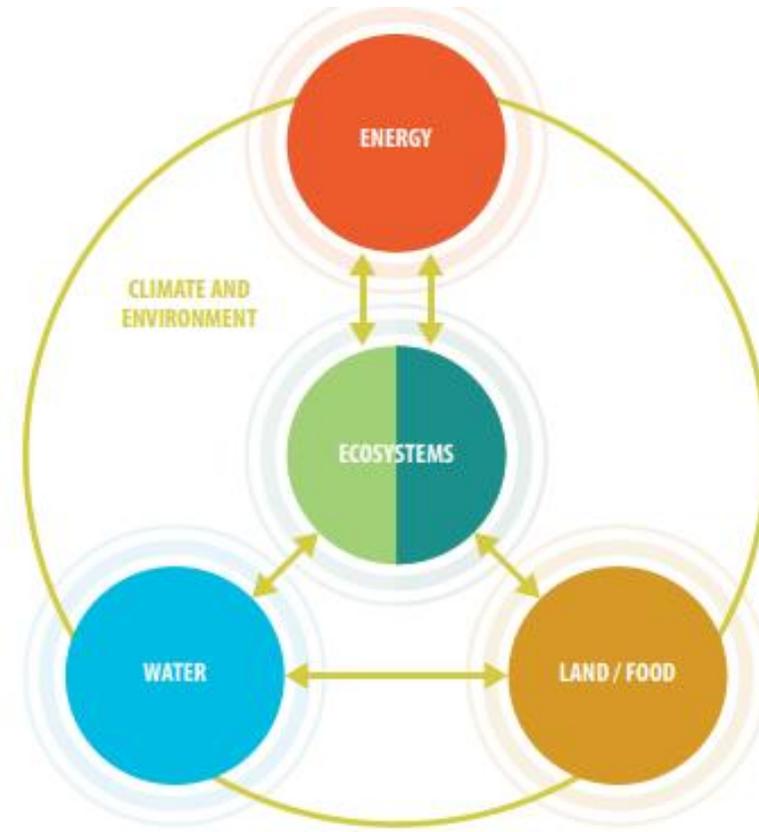
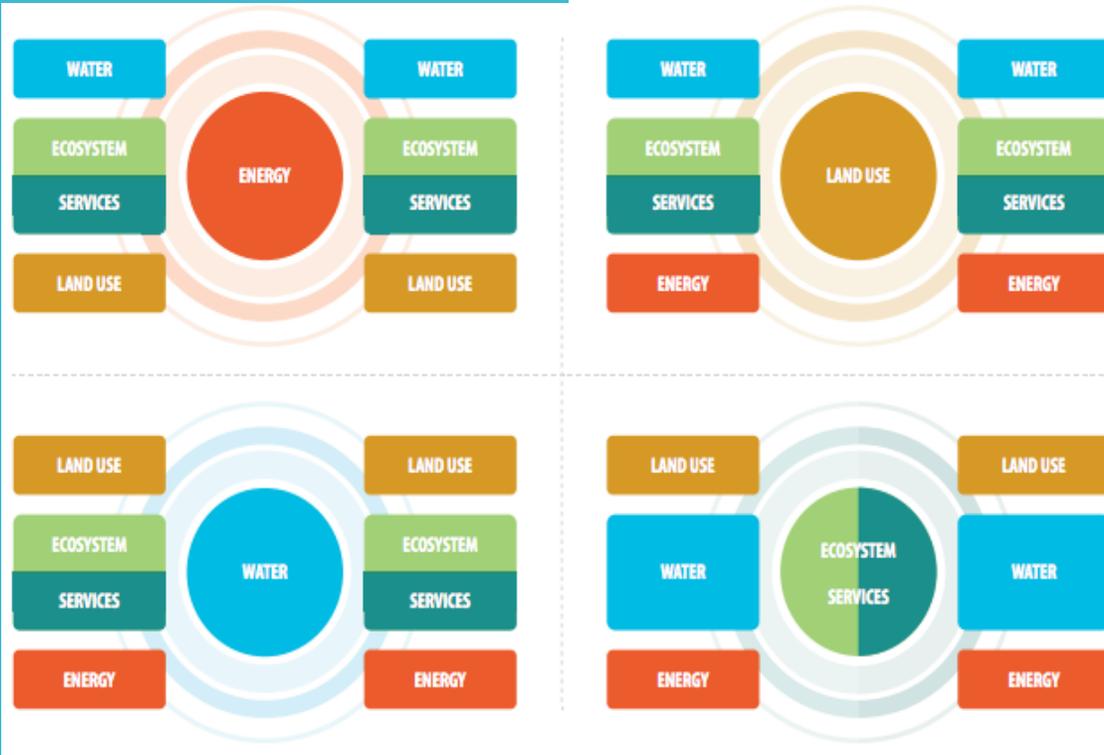




* United Nations administered territory under the UN Security Council Resolution 1244 (1999)



Nexus dialogue



trade-offs, impacts, synergies



renewable energy & nexus

Decreasing cost of technology
-> RE a competitive option

Energy/water nexus

- Reduce water-intensity of power sector
- Enhance reliability of water supply
- Water & energy efficiency
- Energy from wastewater treatment

SDG 7



Energy

Energy/food nexus

- Decouple agrifood chain from fossil fuels
- Reduce post-harvest losses

SDG 15

SDG 13

Energy/Climate
- Reduction of GHG emissions

SDG 6



Water

Ecosystems



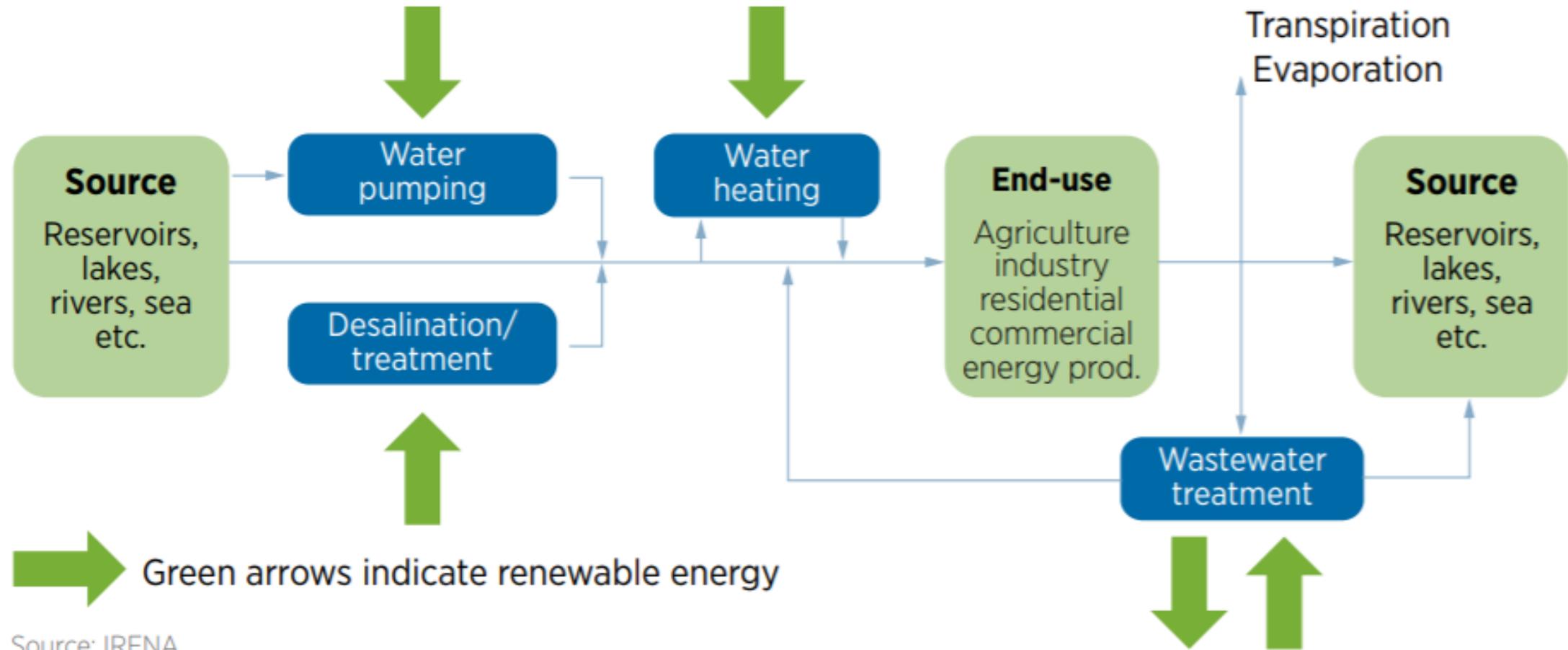
SDG 2

Food

Water/food nexus

- Improve access to and sustainability of water supply for agriculture use

Figure 2.2 Renewable energy across the water supply chain



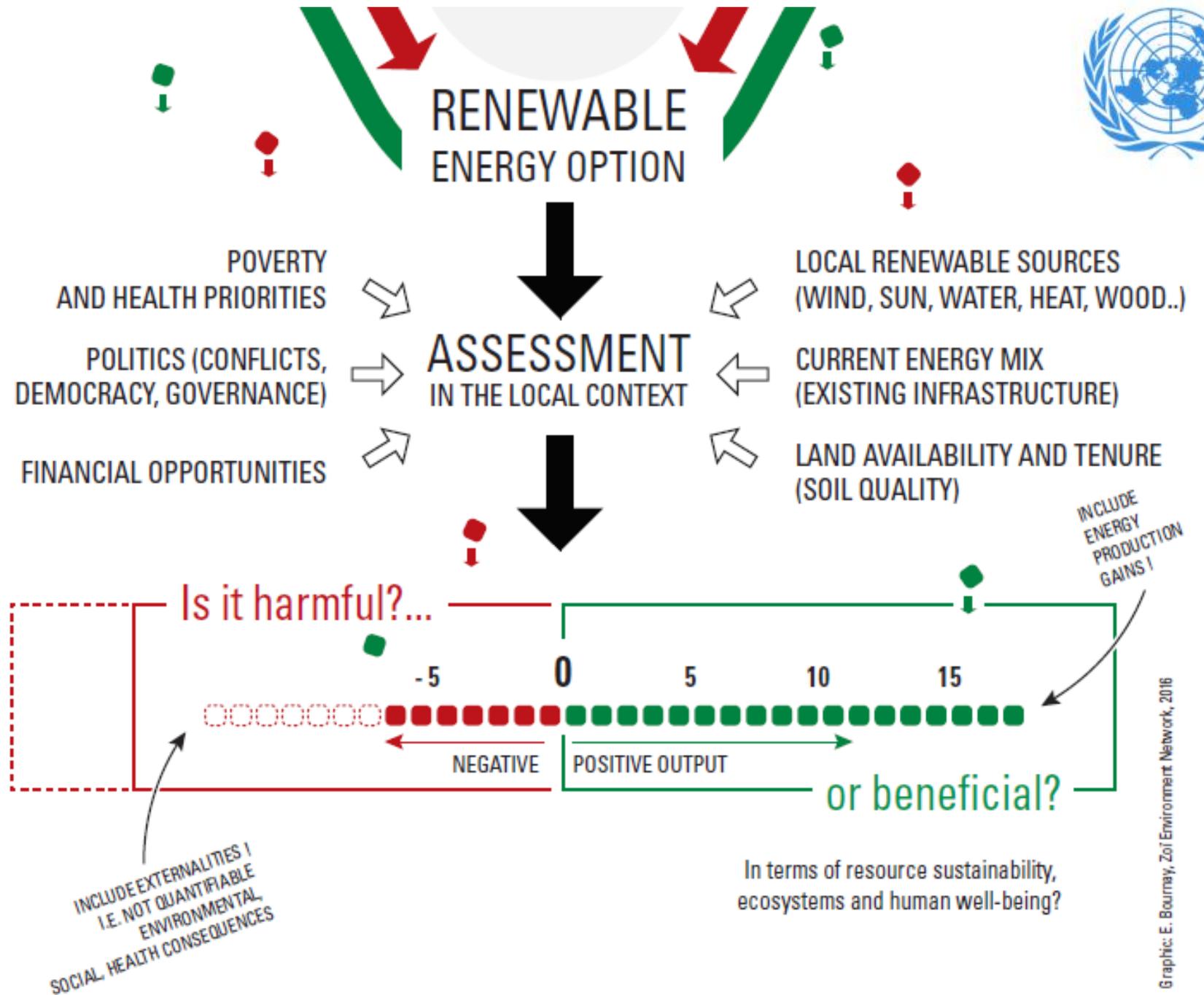
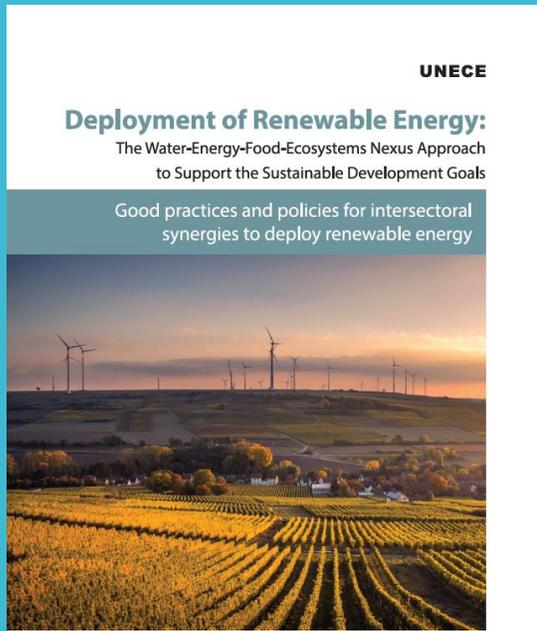
Source: IRENA



Some nexus insights from discussion at the Hard Talk

- Sustainability of projects increasingly important (more pressure on developers), including for RE
- Environmentally friendly solutions and RE investments in non-energy (e.g. agriculture) not incentivised; subsidies misplaced (fossil fuels)
- Room for improving remote/decentralised use of energy in rural areas (heating and power)
- Prominence of biomass as a RE source for BiH. Sustainable biomass = sustainable forestry (resource) + incentive for biomass investments (process) + incentive for efficiency (use)
- Overall: RE deployment not smooth, and the **local context** is all-scoping, design, feasibility, impact, benefits

The context of RE projects





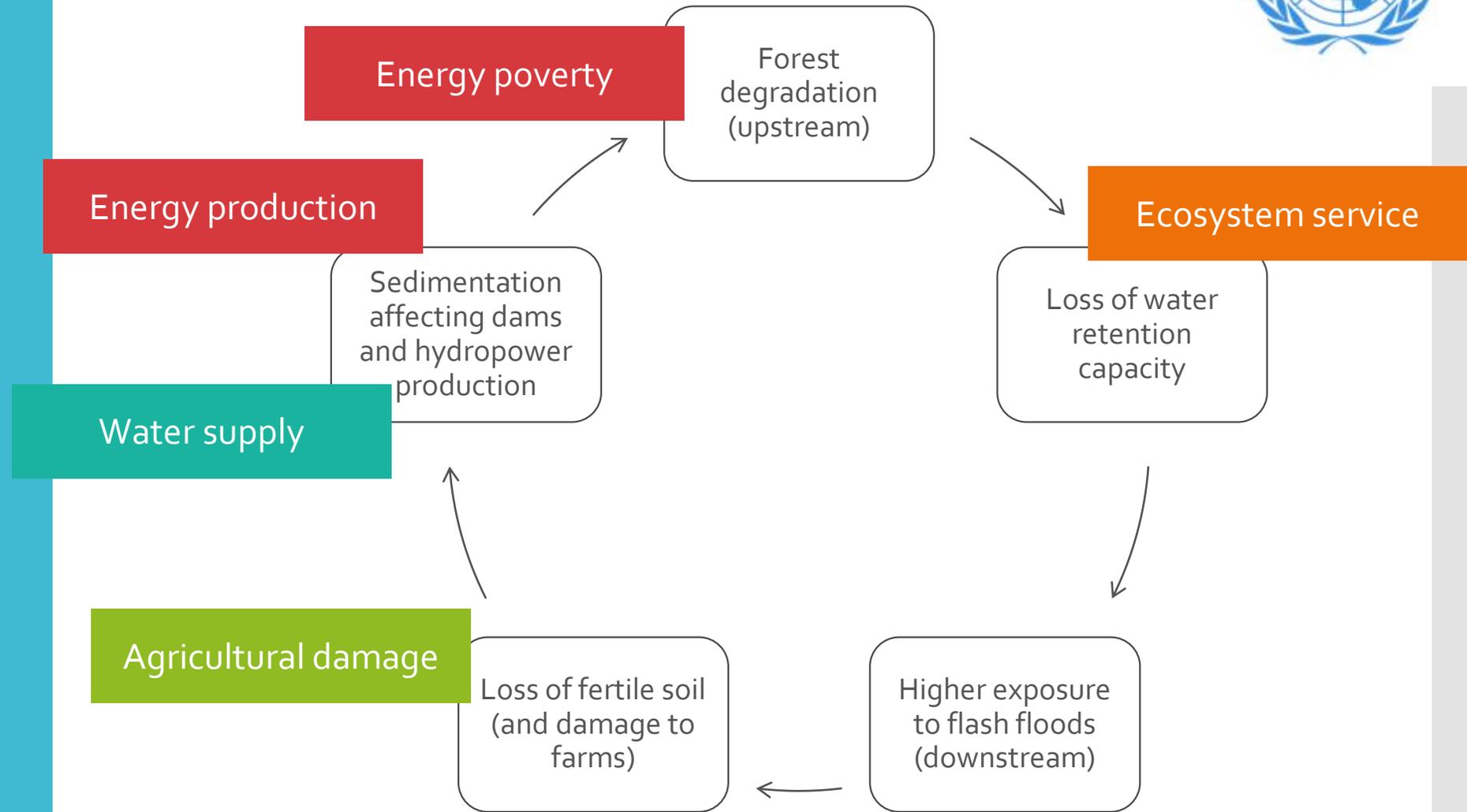
RE solutions, practically speaking - e.g. in the Drina River Basin

RE investments could help addressing some pressing issues in the basin:

- Responses to floods are inadequate -> improve dam management? Nature-based solutions (floodplains, forests)?
- Waste is poorly managed – > valorize it?
- Lack of opportunities in agriculture/rural economy – > can RE investments add value to agriculture-, tourism-, forestry-related livelihoods?



Nexus dynamics - e.g. biomass use: cross- sectoral & transboundary effects





Proposed nexus criteria for RE development

1) Maximizing synergies: opportunities for investing in Renewable Energy while achieving cross-sectoral benefits

(*Financing* challenges with renewable energy projects call for new financing models and partnerships that make use of synergies cooperating across sectors and borders)

2) Addressing trade-offs: a checklist for minimizing negative impacts and enhancing sustainability

	Water	Agriculture, forestry, rural development	Environmental & Social	Transboundary
Hydropower	Multi-purpose dams <ul style="list-style-type: none"> Enhanced flood control Controlling access to water for different uses Buffering low flows 	Multi-purpose dams / small scale hydro <ul style="list-style-type: none"> Access to irrigation Integration of micro hydro when renovating agricultural infrastructure	<ul style="list-style-type: none"> Multi-purpose dams Ensured environmental flows Possibility to also capitalize on solar synergies by adding FPVs 	Coordination of hydropower cascades
Bioenergy (biomass, biogas)	<ul style="list-style-type: none"> Use of floodplains for biomass. Biogas from wastewater treatment. 	<ul style="list-style-type: none"> Use of biomass from agricultural residues or forestry Sustainable reforestation and forest management, in order to guarantee long-term resource planning and fuel supply. Usage of byproducts (fertilizer, etc.) 	<ul style="list-style-type: none"> Beneficial use of waste Decrease of indoor pollution due to cleaner fuels and technologies and move away from traditional biomass 	Sustainable forestry as a means for flood protection
Wind and solar	Treatment of water from polluting industrial plants or other sources (?)	Renewable energy for productive uses (e.g. irrigation, pumping)	<ul style="list-style-type: none"> Small scale projects for decentralized access (e.g. remote touristic) Replacement of technologies with higher environmental impacts. Employment opportunities in new technologies. 	

Proposed criteria	Current application of criteria	Applicability for:		
Environmental assessment		Hydropower	Biomass	Wind/Solar
EIA/SEA in a domestic context	<ul style="list-style-type: none"> • Capacity lacking in administration • Quality needs improvement 			
EIA/SEA in a transboundary context	No			
Strategic assessment and planning				
Domestic inter-sectoral impact assessment of RE projects	Not assessed			
Transboundary inter-sectoral impact of RE projects	Not assessed			
Public participation and transparency				
Level of domestic public participation in new RE projects	Weak			
Level of transboundary public participation in new RE	No			



Group discussion

3 groups, by RE technology:

- Hydropower
- Bioenergy (incl. wood biomass)
- Solar/Wind

To be discussed (each group):

*Synergies** between the development of your RE technology and one or more of the following: water, agriculture/forestry/rural development, environment & social impact, transboundary relations.

*benefits across sectors -> innovative financing

Environmental sustainability of your RE technology. What is the most pressing issue?



Outcome of group discussion

-> Pick 1 promising synergy (large scale or small scale)

1) Sectors involved/who benefits?

- agriculture/farmers, water/the water utility, industry/manufacturing etc.

2) How can it be financed?

- international, national, municipal, public, private, etc.

3) What needs to be done in order to implement it in BiH?

- think about yesterday's discussion (e.g. community based projects, auctions..) & more broadly about inter-sectoral coordination issues/gaps

4) How to ensure sustainability of the investment (both if large scale project or many small scale projects)?

- think about yesterday's discussion (e.g. public participation, transparency..) & find inspiration in the Discussion Paper's last table