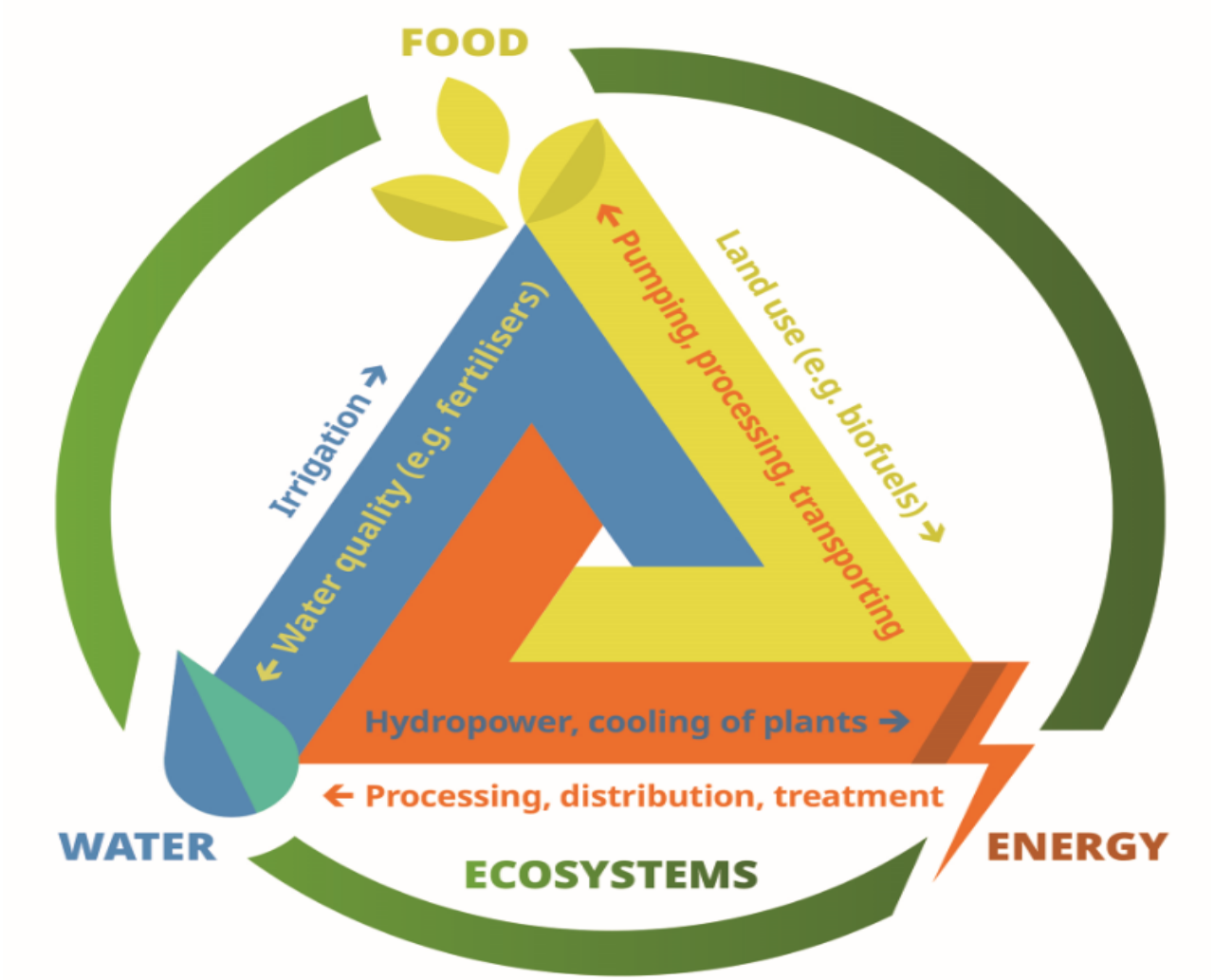
Water-food-energy-ecosystems NEXUS assessment of the Drin basin



Nexus Approach – an introduction

- To optimise overall management of water-energy-food resources while preserving healthy ecosystems
- ✓ Move beyond traditional isolated sectoral thinking - adopt integrated & coordinated cross-sectoral approach
  - In institutional settings, policy making, management practices
- ✓ Better understand the complex and dynamic relationships across sectors
  - Identify interlinkages, trade-offs and synergies
- ✓ Reconcile sectoral interests competing for the same scarce resources – opportunities & solutions with cross-sectoral benefits

Nexus Assessment process in the Drin basin

- ✓Drin Core Group (DCG) steers activities, in framework of Drin CORDA process, aligned to SAP
- ✓2018-2019: Phase I Nexus Assessment in context of TDA (GEF “Drin Project”) - Key interlinkages through TB consultation process
- ✓2020-2021: Phase II Nexus Assessment

  - to understand and explore interface of HPP operations and flood events & damages
  - Mapping of biomass/forestry interlinkages & options to enhance coordination

PHASES I AND II

The Nexus analysis of the Drin River Basin is carried out following the Transboundary Basin Assessment Methodology.

The analytical work divided in two phases:

- Phase I includes the *identification* of Nexus issues of priority *and a qualitative assessment*, for each of the priority issues of linkages/benefits/trade-offs, among the Nexus sectors.
- Phase II comprises the use of modelling tools to support the *quantitative assessment of selected key linkages/benefits/trade-offs* via an analysis of resource flows and their development under different developmental/climatic scenarios.

SCOPING THE NEXUS ANALYSIS : ENERGY AND AGRICULTURE AND DRIN TB ISSUES

Main challenges in the basin :

i. Unsustainable use of water and other natural resources;

ii. Hydro-morphologic interventions altering the nature of the hydrological system and the supported ecosystems, as well as exacerbating flood incidents;

iii. Untreated or poorly treated wastewater and unsustainable agricultural practices;

iv. Unsustainable solid waste management;

v. Unsustainable forestry management and deforestation, as well as fishing practices and hunting;

vi. Unsustainable tourism;

vii. Non-integrated policies, management schemes and cooperation efforts at national and transboundary level.

SCOPING THE NEXUS ANALYSIS : MAPPING INTERSECTORAL LINKAGES

Sector	Water	Agriculture/land	Ecosystems/environment
Energy	- Role of hydropower in flood management - Impact of energy policy and power trade on water resource use in the basin	- Role of biomass production in sustainable forest management	- Impact of logging on forest degradation, erosion, and sedimentation - Environmental impact of hydro development - Incoherencies between renewables plans/climate action/ energy security and environment preservation
Water		- Water demand for irrigation (likely to increase due to climate change and potentially driven by trade)	- Poor/inexistent wastewater treatment, exacerbated by urbanization and tourism (at given locations and seasons)
Agriculture/land			- Impact of agricultural pollution on water related ecosystems (e.g. eutrophication) - Illegal or uncontrolled fishing, hunting, and logging

CONTENT OF NEXUS THEMATIC REPORT (PHASE I)

Part 1: Overview of socio-economic situation; nexus resources (i.e. energy, water, agriculture/use of land resources, ecosystems); governance frameworks (sectoral, multi/sectoral; national, regional, Drin river basin).

Main sources: other thematic reports to the TDA, direct input from national experts.

Part 2: Three topics that emerged as central in the energy-resource nexus interface in the basin:

1. **Hydropower and flooding** (and broader energy cooperation)
2. **Biomass and forest management** (and its environmental implications)
3. **Evolution of agriculture and irrigation** (and trade aspects)

These are analysed by looking at resource flows/uses and related mechanisms of governance.

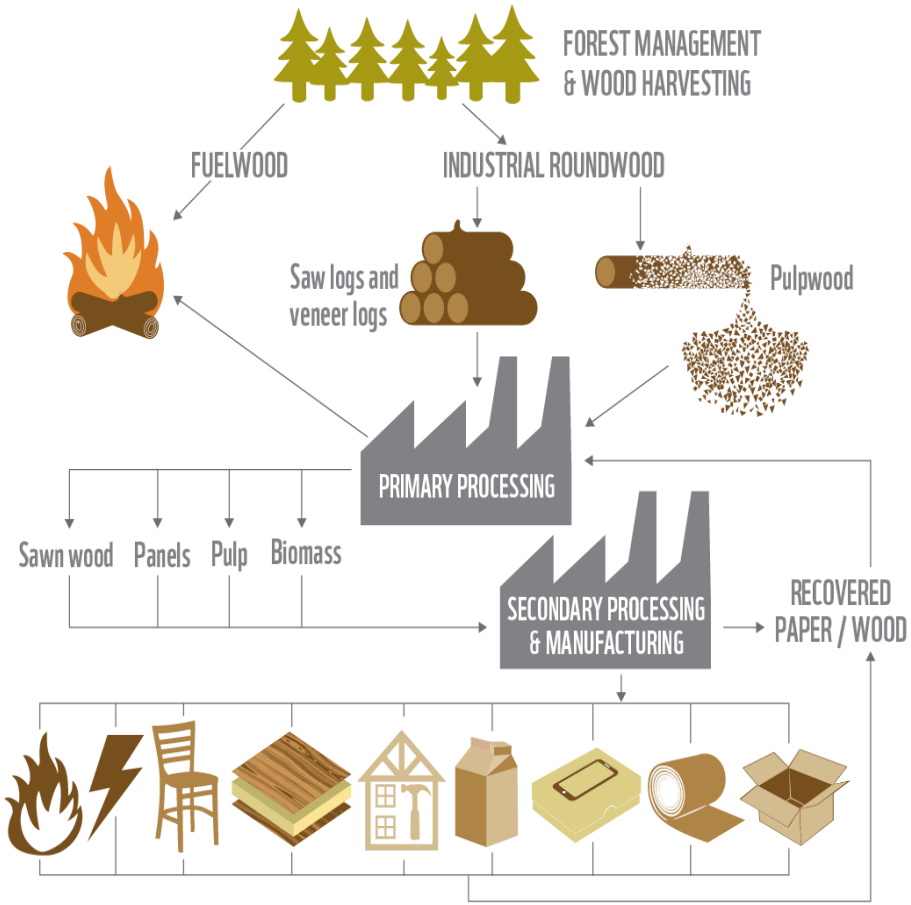
HYDROPOWER COOPERATION AT TRANSBOUNDARY LEVEL

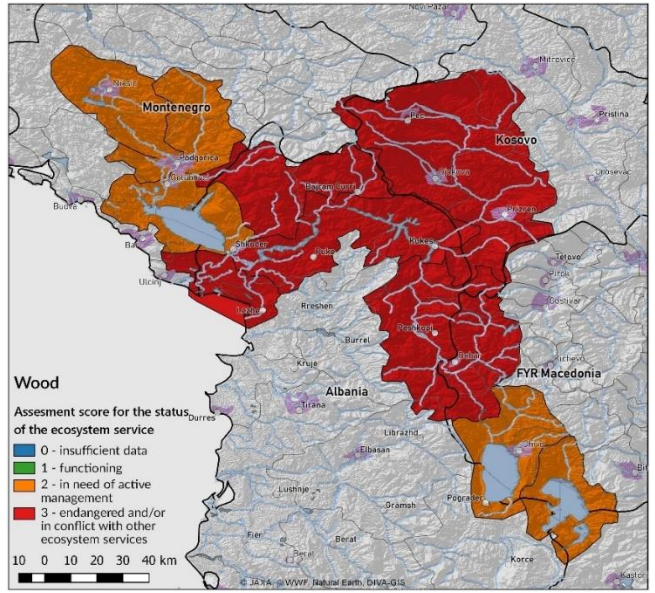
1. Coordination under normal flow conditions, In this case, a lack of coordination does not increase flood risk. However it potentially reduces the revenue for hydropower operators. – *evaluation of cost and benefits of cascade optimization on the Albanian side (KfW, EBRD and others - ongoing)*
2. Coordination under high flow conditions (i.e. emergency). Here, lack of coordination can increase flood risk. - *relatively effective both within Albania and North Macedonia; room to technically improve this cooperation with the help of specific modelling tools and a more detailed mapping of flood risk areas*

Both types of cooperation need to be understood at transboundary level where coordination between operators, as well between operators and authorities in charge of flood prevention and management, is lower.

How does this link to the countries' energy plans? → Phase II

2. BIOMASS AND FOREST MANAGEMENT





Forest products and livelihoods:

- **wood and wood products (dominant)**
- **mushroom, berries, herbs**
- **nature-related tourism (increasingly important)**

Forest related ecosystem services bring

- **economic, social, and environmental benefits (they overlap)**
- **carbon capture and storage, water treatment, flood protection**

- **Only sustainably managed forests can preserve all services**
- **Modernizing the biomass value chain is a key element for sustainable forest management**

3. EVOLUTION OF AGRICULTURE AND IRRIGATION

Types of crops and animals that farmers invest in depend on:

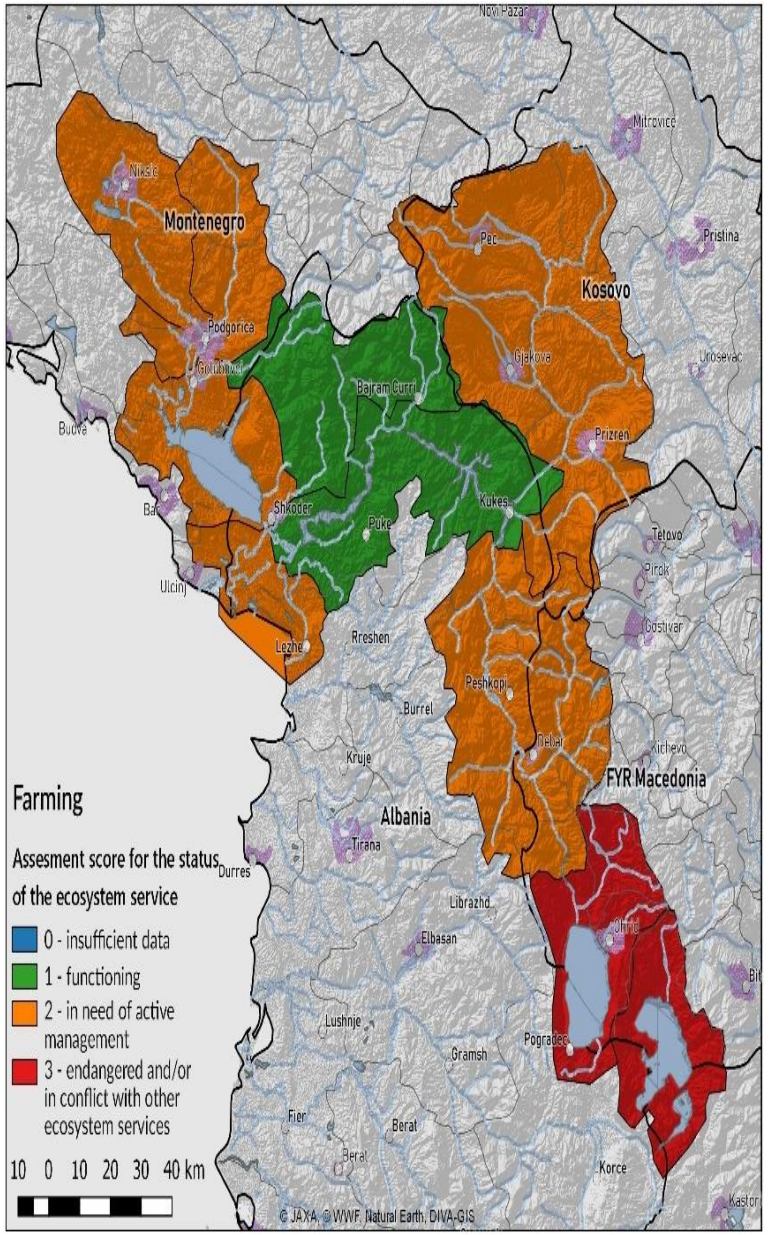
- agricultural markets, support schemes and investment opportunities.

These choices have impact on:

- the demand of water (and other inputs), environment, and local economy.

Climate change impact calls for the sector to be more resilient

The impact of agricultural activities is transboundary, need to understand the broad implications of future agricultural policies and the regional potential of sustainable agriculture.



SEE Nexus Project – Brief

Financed by ADA – Implemented by GWP-Med in partnership with UNECE

Promote the Nexus approach in SEE – catalyse related actions

- Mapping of level of integration (institutional, policy etc)
- Enhanced capacities and raised awareness
- Assessments to identify interlinkages among sectors
- Concrete suggestions for priority interventions

Project activities in the Drin basin

Participatory consultation process

- DCG, Stakeholders' Conferences, Experts' Working Groups
- Synergies with related ongoing projects

Two capacity building workshops

- Forest Management and water regulation
- Climate-Land-Energy-Water integrated modelling

Two gender workshops (Dec 2020 & Oct 2021)

Project Documents / Investment fiches for 2 priority interventions

Nexus Roadmap – assisting in the operationalisation of cross-sectoral activities in Drin SAP