

ASSESSING THE WATER-FOOD-ENERGY-ECOSYSTEMS NEXUS AND BENEFITS OF TRANSBOUNDARY COOPERATION IN THE DRINA RIVER BASIN

Insights from the Podgorica workshop

21-22 April 2016

Unedited working draft (22 June 2016)

This document is the international expert team's attempt to synthesize the intersectoral issues discussed and input provided at the workshop¹, complemented by sources referred to.

The information is many ways incomplete, but the conclusions from the workshop nevertheless provide the direction for an analysis of the jointly identified key intersectoral issues, priority measures and related opportunities in the next steps of the project "Greening economic development in Western Balkans through applying a nexus approach and identification of benefits of transboundary cooperation", implemented in 2016 by UNECE in cooperation with partners, notably the International Sava River Basin Commission (ISRBC).

The focus of the study will be shaped by further inputs and comments by the administrations in the riparian countries as well as other key stakeholders in the course of the participatory process.

1. ISSUES AND SOLUTIONS IDENTIFIED IN THE WORKSHOP

The first chapter is dedicated to the compilation of issues and interactions between sectors and of transboundary relevance, identified throughout the two days of the workshop, via the means of a questionnaire, presentations from different participants and group sessions involving discussions, collection of written inputs and in some cases indicative voting. Firstly presented are the findings from questionnaires distributed during the first sessions of the workshop. Sectoral interlinkages and pressure points were discussed further in two group sessions, one aiming for the identification of interlinkages and their respective importance in the basin, and a second session, to discuss specific topics that derived from the previous session. Additionally, issues not directly pointed out during the workshop but deduced from a preliminary desk study are presented.

1.1. Selected findings from the questionnaires

At the beginning of the workshop the opinion based questionnaire was distributed with the aim of collecting the participants' opinion about different aspects related to sectors of: Energy, Water, Land-Use and Ecosystem services, and of transboundary issues. The analysis

¹ The agenda and materials from the workshop are available at <http://www.unece.org/index.php?id=42800#/>

presented here corresponds to the compilation of the returned questionnaires from fourteen participants.

1. **Sample breakdown:** (Country, sector and area of expertise)

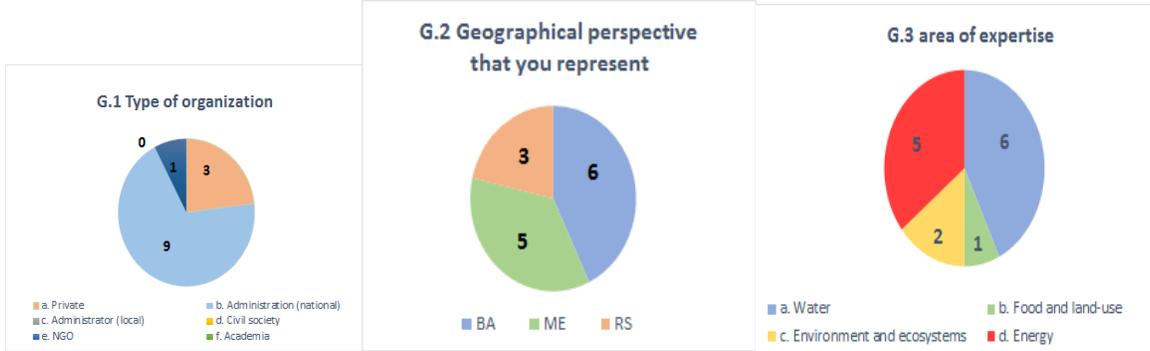


Figure 1. Characterization of the sample used in the analysis of the questionnaires.

The majority of the participants who answered the questionnaire were officials from the administrations of the countries (left chart) followed by the private sector. In terms of geographical perspective, Serbia was the country less represented in the sample, and the area of expertise was dominated by the energy and water sectors.

Looking into the geographical distribution, Serbia has the least participation in this workshop. While Montenegro (the hosting country) and Bosnia and Herzegovina have almost double the number of participants. The same applied when looking at sectoral representation, we notice that Agriculture and Environment sectors were under represented in comparison to Water and Energy sectors. Those figures should be kept in mind while looking at the insights in the coming section. Efforts will also be made in the process to ensure incorporation of the agriculture sector’s views.

2. **Key insights from the opinion based questionnaires:**

Full details of the analysis can be found in the appendix of this report, in this section we try to draw some insights for each sector:

- Participants agree that water availability is an issue in the basin and water shortages have been affecting different activities²: Agriculture, Industry and Domestic.
- The views differ on whether the operation of reservoirs, hydropower and water diversions have limited the availability for downstream water uses or not.
- Water quality is affecting people's health and need to be improved.
- In food and land use related issues, participants agree that A. Most of the food being consumed in the basin is being produced locally, B. The agricultural practices should

² The information provided on this issue was not fully consistent and may have been affected by the uses represented as well as their location in the basin.

be intensified, C. Land degradation is occurring in the basin area. D. Low water availability has affected crop yield, E. Irrigation expansion in the basin will increase agriculture production.

- On the other hand the views clearly differ about whether (A. Local agricultural production and animal husbandry will diminish, B. Agricultural land will be extended, C. Protected areas are limiting economic activities, D. Agricultural production negatively affects water quality.)
- Looking into the energy sector, it is not agreed upon if the energy policies and strategies can secure energy future and if the authorities are giving too much attention to the energy sector, at the expense of other sectors.
- However, there is strong agreement on: A. the importance of electricity trade between riparian countries for energy security, B. The current energy efficiency levels are low.
- It is not (clear / agreed upon) if energy demand will increase in the basin and if there are clear procedures for taking environmental and social concerns into account when applying for the approval of an energy project.
- From the environment sector, there is a strong agreement that human activities are putting significant pressure on the local ecosystems and are exacerbating the frequency of natural disasters. Also participants agree that sufficient measures have been taken to address the issue of ecosystem degradation³. Moreover, the majority of participants see eco-tourism as an activity that can contribute positively to the preservation of environmental quality in the basin and recognize its potential to be economically significant in the basin.
- Looking on to the basin overview, participants highlight that the level of coordination between sectors in the national level and the transboundary level is not adequate⁴.
- The economy in the basin is heavily dependant on a 'single sector'.

1.2. Insights from the workshop

Presentations by country representatives allowed for flagging most pressing issues in the basin. Pressure points across sectors and countries were also mentioned in the interventions and during QA discussions.

Some common points related to the variability of the flow regime of the rivers in the basin and how activities affected these. Hydropower operation was often mentioned as directly impacting the flow regime, mostly due to the inexistence of a consistent communication procedure amongst the three countries. Wastewater treatment and the current practices of solid waste disposal are another key problem in the region, which all countries pointed as a

³ It should be noted that even if many replies to the questionnaire indicated this view, in the discussions during the workshop, a number of concerns related to degradation of the environment were raised.

⁴ Views from the agriculture sector would be needed to complement the picture.

priority in the basin due to the impacts on water quality, ecosystems and operation of hydropower plants. Climate change was another concern in the region. The uncertainty of the effects of changing precipitation patterns and the intensification of extreme events such as floods, and increased frequency and severity of droughts, raised concerns over impacts to agriculture, seasonal water availability, hydropower operation and overall impact on power generation (increase production from coal thermal power plants).

Although the basin, and its resources, are shared unevenly between the countries, it was of common agreement that it is of high importance at the national level. Governance issues related to the different sectors were frequently mentioned as a key challenge and were commonly pointed out as of extreme importance in addressing the issues known in the region. There was a common will that the project would contribute to improving efficiency and consistency of collaboration between the riparian countries.

1.2.1. First group session: identification of intersectoral issues and their relative importance in the Drina River Basin

The first group session discussed and refined the Drina-related issues on the basis of those identified in the Sava Nexus Assessment. The groups had the task of validating the identified issues, signal other specific interactions and discuss their importance in the context of the basin. Interactions were then mapped in the nexus diagram to provide an integrated overview of the pressures and how these impacted, directly or indirectly, on other sectors.

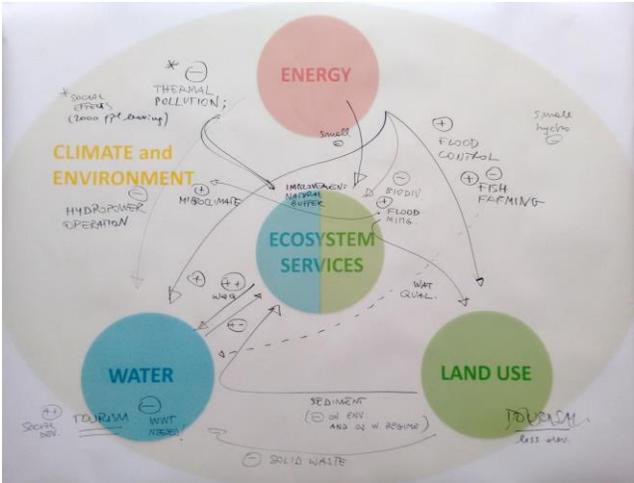


Figure 2. Nexus interlinkages diagram produced by one of the working groups.

Across the three groups there was convergence in the outcomes. Presented below is a list of interlinkages identified during this session, which have been categorised in sub-nexus groups for simplification.

- **energy(-centred) - water - ecosystems nexus:** hydropower plants operation impact water resources, as they alter the flow regime and affect ecosystems. Operation is not synchronised in an adequate manner across the basin. New hydropower plants will likely exacerbate the existing impacts to the water sector and ecosystems,

although uncertainty surrounds the new developments, which are strategic from the point of view of energy security, production of affordable electricity, accomplishment of renewable energy (RE) and CO₂ emissions targets. Also electricity generation by thermal power plants was identified as impacting ecosystems from thermal pollution.

- **energy - land use - ecosystems nexus:** operation of hydropower plants could represent a paramount role in flood protection. On the other hand, the barriers created along the river would affect habitats, increase the need for fish farming solutions, which should not be seen as the only option for preservation of aquatic species.
- **water - land use - ecosystems nexus:** ecosystem services naturally regulate water quality and these function should not be neglected. The lack or insufficiency of wastewater treatment facilities affects water quality in the basin. Water quality is still considered to be good but this status varies across the tributaries. Disposal of solid waste is also an issue in the region, which impacts on water resources and water-related activities, while contributing to habitat degradation. Sediment and gravel extraction was highlighted as a land use issue, which then impacts water flow and ecosystems. The economic potential for water resources to provide for the economic development through tourism activities, in combination with the ecosystems dimension, was another interesting insight from this session.

1.2.2. Second group session: exploring intersectoral linkages and influences on intersectoral themes

The first set of group discussions, described on section 1.2.1., allowed for the identification of three thematic areas where intersectoral linkages are critical in the basin. These were as follows: 1) Rural Development; 2) Dams and water flow; and, 3) Water Quality.

For each thematic area, the working groups identified the main issues and pointed out possible solutions, assigning a priority for action based on the relative importance given to each issue from each participant's experience and knowledge of the regional context. The compilation of the different discussions is presented in the table below.

Table 1. Summary of nexus interlinkages and solutions per thematic area discussed in the second group session of the participatory workshop

Thematic Area	#	Issues	Solutions	Priority for action	Nexus effect
A. Rural Development	1	Limited Agricultural production	Increasing agricultural production	1	L, W
			Implementation of 'best practices' in agriculture sector	2	L, E
			Increasing efficiency of the irrigation system	1	W

			Implementation of sustainable organic farming	2	L, E
	2	Limited industrial activity and high unemployment	Increase Biomass-Wood products	1	L, W, E
			Establishing Limestone factory	3	E, Es
	3	Unutilized tourism potential in the basin	Education people about Ecotourism and geotourism	1	L, W, E
			Nature conservation	3	L, W, E
			Building simple Paths/infrastructure for tourists to reach to important biodiversity area	2	L, W, E
B. Dams and water flow	1	Poor coordination over dam operation / flood protection	Improving coordination across countries	1	W, E
			Regulate the practice of hydropeaking	2	EcoS, E
			Hydropower to support RE deployment	2	W, E
			Enforce legislation on fish passes	2	L (Food), W, EcoS
C. Water Quality	1	Wastewater and solid waste		1	L, W
	1.1	Waste deposits on river banks	Implementation of regulation for waste deposits	1	L, W
	1.2	Contamination of arable land downstream	Creation of landfills at a safe distance from flood-prone areas and river banks	1	L, W
	1.3	Cost of waste removal from rivers (floating waste)	coherent management of waste between the riparian countries	1	L, W
	1.4	Risks of curtailment of hydropower production		1	L, W, E
	2	Water-energy nexus	Multi-purpose reservoirs (existing and new projects)	1	L, W, E, EcoS
	2.1	Water-energy nexus impact on ecosystems	Environmental flow regulation	1	W, E, EcoS

	2.2	Thermal pollution of watercourses by thermal power production (Cehotina river by Pljevlja TPP in Montenegro)	Regulation and monitoring of the operation of TPP, and of their impacts to water systems and ecosystems	1	W, E, EcoS
	2.3	Ash deposits (tailings dam) of thermal power plants	Ensuring tailings dams do not leak or pose a risk to ecosystems and population	1	L, W, E, EcoS
	2.4	Operation of hydropower plants, especially of large reservoirs	Articulated management of hydropower plants in the basin (e.g. cascade systems)	1	W, E, EcoS

1.3. Other issues (desk study)

- + Any findings worth mentioning from the desk study
 - Migration to urban centres due to lack of opportunities in rural areas
 - Pollution from industrial activities (pulp and paper, mining)

2. CLUSTERS OF SOLUTIONS WITH DESCRIPTION

2.1. (Co-)optimizing flow regulation (including flood protection, integration of non-hydro renewables, taking into account environmental flow requirements etc.) and (co-)optimizing development of possible additional hydropower capacity.

There is currently low (or rather, informal, not institutionalized) cooperation among countries on the operation of dams in the Drina River Basin. At the same time, there is an urgent need to mitigate the risk against floods (World Bank, 2014). Currently, the only form of cooperation on flood risks at basin level is an alert system (Information from the workshop: **additional information and references on this issue are needed, notably about the EU Floods Directive related coordination as well as the Protocol on Flood Protection to the FASRB**). Flow regulation is sub-optimal because all hydropower plants in the basin mostly operate on a single unit base (GEF, 2015) rather than as strongly coordinated through some entity or arrangement. If the use of flow-regulation infrastructure and related communications were optimized, the damage from high or low water flows could be minimized, thus serving not only flood response but also hydropower generation.

Also, all riparian countries plan to develop new hydropower in the basin - in line with their commitments to increase their share of renewables to mitigate climate change (i.e. National Renewable Energy Action Plans and Intended Nationally Determined Contributions) as well as to improve security and/or produce for export (e.g. to Italy). Building new infrastructure will make coordination on dams operation more urgent.

For political reasons, it is difficult to coordinate water management across countries, and currently only bilateral agreements exist (for instance, special cooperation on hydropower between the Federation of Bosnia and Herzegovina as well as Republika Srpska (Information from the workshop)).

Possible solution/Strategic orientation: Coordinating the construction and operation of dams.

Policy package for flow regulation and hydropower expansion

Institutions	- To develop a legal framework on the obligations of all interested participants in the use of water resources in the Drina River Basin.
Information	- Better intersectoral communication (e.g. for protecting agricultural land); Development of forecasting models in the Drina (climate? hydrology?); To give suggestions (or experience) in solving the issue of sediment accumulation in riverbeds; Sharing of information and data
Instruments	- Management of flash floods; Harmonizing legislation (Regulate the practice of hydropeaking, Develop and enforce environmental legislation (including on environmental flows, Environmental Impact Assessment, Enforce legislation on fish passes), permitting
Infrastructure	- Updating estimates of Hydropower potential on the Drina River Basin taking into account environmental considerations, revisiting feasibility studies with the current economic outlook and societal needs; Increase the share of Renewable Energy to reduce dependence on coal.
International coordination and cooperation	- International legislation harmonization and unification; Better interstate cooperation (developing agreements/cooperation arrangements in specific fields); Cooperation between electricity producers and water management (bodies?);

Proposed analysis (with quantification): Investigation on the coordination in operation of existing hydropower plants and of the impacts of hydropower development in the basin

According to a recent estimation from GEF, 60% of the basin’s hydropower potential is still to be exploited (GEF, 2015). But there are barriers to the expansion of renewables

(including hydropower), as reflected by the fact that investments in renewable energy are actually decreasing in all countries [REN21 & UNECE Renewable Energy Status Report, 2015]. These barriers include: 1) financial issues (e.g. subsidies for fossil fuels, cost of switching into renewable energies, innovative financing solutions emerging slowly), 2) environmental protection considerations, 3) institutional/administrative complexities (e.g. the energy market and entry issues, licencing and permitting etc.) (Information from the workshop, 2016; REN21 & UNECE Renewable Energy Status Report, 2015).

- To what degree can the Drina respond to RE targets for climate change mitigation considering these barriers?
- What would be the main intersectoral trade-offs (related to environment and to the exploitability of the river's resources for other uses such as tourism)?
- What are the challenges in governance that need to be overcome to improve coordination in hydropower in the basin?

Note: This calculation may involve the use of hydrologic modelling (using the hydrologic model developed through ISRBC), reservoir simulation (using the upgraded hydrological model of ISRBC which will be finalized soon).

2.2. Promoting rural development (including through modernizing agriculture by improving practices, increasing productivity, improving quality etc.)

Agriculture is the main economic sector in the Drina River Basin. In the Serbian part of the Drina River Basin, the agricultural land accounts for 56 %, In Montenegro the agriculture covers 37% of the state land and in Bosnia and Herzegovina agricultural land covers 38% of the state land (World Bank 2014). Its share in the GDP is significant in the three riparian countries.

Despite the high importance of the agriculture sector, the irrigation schemes are extremely simple. All countries have plans to increase the irrigated land to mitigate the risk of droughts and to improve the economic performance. 43 700 ha is planned in the short term. (World Bank 2015).

During session 1, the representative of the Ministry of Agriculture and Rural Development explained the focus of the agriculture sector in Montenegro being on quality of products rather than competition on the quantities of production. Therefore the interest in organic food and farming is growing in Montenegro. There are 48000 holdings in Montenegro and almost all of them are of small size of about 4.6 hectares. The overall agricultural land is 309000 hectares. The production of wine is an important activity in ME and there are 64 small wineries. Two years ago, ME adopted a binding code of "good agricultural practices", however, this is limited only if the farmer receives funds from the national budget or pre-accession funds.

In Bosnia and Herzegovina, the policies for agriculture are mainly at the entity level. In the territory of the Federation of Bosnia and Herzegovina, there is no information about the area

being irrigated, however, official data suggests 0.2% of arable lands are being irrigated. In the Republika of Srpska, irrigation systems are built for 1.8% of the arable lands.

Possible solution/Strategic orientation:

In the lights of the issues mentioned in the presentations of local experts, the participants in the work group one about “Rural development”, highlighted the importance of modernizing agriculture sector. Participants stressed on a) *increasing the share of agricultural production* to meet the local demand and increase food security. B) As well as the Implementation of *sustainable organic farming*. C) They also recommend the Implementation of *'best practices'* in agriculture sector. D) Also to develop modern high efficiency irrigation systems that will reduce the high waste of water. It was also concluded that rural development that exploits the synergies of improved agricultural productivity, nature-related tourism and renewable energy is a promising opportunity to explore. The potential effects of climate change and exposure to hydrological extremes should be taken into account.

Policy package for modernizing agriculture: [This part needs to be developed with input from the authorities and organizations in the agriculture.]

Institutions	- To be added
Information	- Better intersectoral communication (e.g. for protecting agricultural land); Development of forecasting models in the Drina; To give suggestions (or experience) in solving the issue of sedimentation; Sharing of information and data (e.g. making a joint web portal with measure data of all countries in Drina basin.)
Instruments	- Protection of agriculture land; Ensuring enough drinking water and water for agriculture in the basin; improvement of water control (esp. flood control).
Infrastructure	- landfills reconstruction; improve irrigation schemes to conserve water; improvement water supplying; focus on economy development. Synergies with developing tourism and small-scale renewable energies?
International coordination and cooperation	- International legislation harmonization and unification; Better interstate cooperation (signing of special contract of cooperation for individual fields);

Possible analysis (with quantification): The land use for agriculture can be investigated using land use models, this can target the increase the use of land in agriculture and increase of irrigation in the (existing land, or expanded). The water requirement and the yield change can also be investigated using models.

Alternatively qualitative description of actions that contribute to rural development, maybe building on synergies with tourism, environment protection and/or renewable energies

could be developed. If any of the countries has good experience from some policy, technology etc. that would be good to show.

[Some concrete suggestions are needed here from the Ministries of Agriculture in the riparian countries as well as other relevant organizations working in this area, including notably FAO.]

2.3. Improving management and regulation of solid waste

The discussion group was limited in scope and size, with only four participants taking part in the discussion. The two main issues identified were given the same priority for action along with a set of solutions. Means and methods of quantification were not explored in the analysis as most of the issues are related with management and governance aspects which should be taken into account in solution 2.4. "Broadening the scope of transboundary cooperation".

2.3.1. Wastewater and solid waste

Significant and problematic interactions exist between the use of land and water from a waste management perspective. This is evident with the accumulation of solid waste by the river banks in the region, especially during flooding events when the waste is transported along the river affecting water quality, contaminating arable land and requiring waste collection so not to affect the operation of hydropower plants. This issue is identified in the different countries and is currently being dealt with at a local level, i.e. Foča municipality, and occasionally when action is needed to remove floating waste from the river. The described interaction is an indicative example of upstream activities affecting downstream regions, but also suggesting that multiple sectors/uses and riparian countries would benefit from addressing the issue

Possible solutions/Strategic orientation

During the second group session, three solutions were pointed out in the discussion. These include 1) implementation of regulation for waste deposits; 2) creation of landfills at a safe distance to river banks so to avoid the transport of waste through the river; 3) coherence in management of the waste between the different countries.

2.3.2. The water and energy nexus

The complex water-energy nexus, and its interaction with ecosystem services, was identified as another priority in the region, with the same importance as the previously described issue. The operation of thermal power plants, i.e. Pljevlja in the Cehotina River, Montenegro is responsible for thermal pollution in the river (REC, 2011) and in this way damaging ecosystems; ash deposits are also a problem, and tailings dams/ash ponds can affect the water bodies and the surroundings. Operation of hydropower plants and large reservoirs also impact on water quality; on the other hand, water availability and the different uses of water can impact hydropower generation.

Possible solutions/Strategic orientation

A few solutions were identified to address the previous nexus issue, such as: 1) adapting the operation of reservoirs to meet different purposes of water use in existing, when possible, and for new hydro generation projects; 2) implementation of environmental flows regulation as it does not exist in all countries; and, 3) the adequate maintenance and handling of waste from thermal power plants.

It was stressed that all solutions would need to be designed in cooperation to effectively address the causes in the different fronts. Unilateral implementation of solutions would not guarantee that issues would be effectively resolved, due to the many factors involved.

Policy package for water quality issues

Institutions	<ul style="list-style-type: none"> - preservation of biodiversity: <ul style="list-style-type: none"> a. To define contact persons or coordinators from the countries b. To make an assessment of impact to the environment c. To do everything according to the national and international law - top-down and bottom-up communication regional-national - intersectoral cooperation - involvement of the responsible institutions <ul style="list-style-type: none"> a. To make a legal framework for obligations of all interested participants in usage of water in Drina river basin b. To make an assessment of impact to the environment before all activities that may have a significant impacts
Information	<ul style="list-style-type: none"> - sharing of information and data; international cooperation in collecting and processing data – monitoring; - surface water – development of water quality monitoring in accordance with WFD; - to identify at one place all positive and all negative impacts of water usage (Drina); - cadastre of sources and pollution in Drina basin - making a joint web portal with measure data of all countries in Drina basin - better intersectoral communication - development of joint network of stations for water quality in Drina basin as a part of national network - coordinated monitoring of water quality in the basin with harmonisation of methodology of sampling and analyses - making a network of automatic stations for water quality on international river parts of Drina - study: ecological status of water in Drina basin – status and needs
Instruments	<ul style="list-style-type: none"> - protection of agriculture land - impact on flora and fauna, wastewater treatment - planning and valorization of benefits of multiple users of accumulation usage - harmonizing legal regulations - joint protocols and standards for monitoring of water resources
Infrastructure	<ul style="list-style-type: none"> - landfills reconstruction

	<ul style="list-style-type: none"> - construction wastewater treatment plants (WWTP) and sewage (including the improvement sewage treatment in rural areas and introducing wastewater treatment plants in municipalities)
<i>International coordination and cooperation</i>	<ul style="list-style-type: none"> - international legislation harmonization and unification - better interstate cooperation – developing appropriate cooperation arrangements in specific fields - Cross-border cooperation on waste management

Proposed analysis (qualitative): The analysis of the issues in this thematic area would focus mainly on the review of existing legislation on the topic, how sectors address the problem, and differences between countries. It would build upon good practices and expansion towards a transboundary solution based on the solutions suggested and others that may apply, perhaps through the harmonization of regulation (existing and new).

2.4. Broadening the scope of transboundary cooperation and developing it further

There are robust water governance mechanisms at the regional level of the Sava River Basin, of which the Drina is a sub-basin. First of all, the Framework Agreement on the Sava River Basin (“FASRB”) establishes a legal framework for basin cooperation. The FASRB has an implementing body, the International Sava River Basin Commission (“ISRBC”). The ISRBC coordinates creation of intersectoral plans like the Sava River Basin Management Plan for the EU Water Framework Directive.

However, there are some gaps in regional planning that the ISRBC does not cover. Even though the mandate of the ISRBC is broad, its platform is currently not used for discussing the potential effects of plans in the fields of agriculture and energy, and the participation of these sectors remains limited. There is little similar organization for these sectors, and most of what exists on the regional level is driven by EU policies and Directives. However, there is a Strategy on Implementation of the Framework Agreement on the Sava River Basin that aims to foster further integration of these sectors with water policies.

Some additional regional planning takes place at the Sava River Basin level in the form of transboundary Environmental Impact Assessments (“EIAs”) that are conducted under the auspices of the Espoo Convention and that relate to nexus sectors like water and energy. Currently, Strategic Environmental Assessments also have great potential for integrating regional nexus thinking into policy making.

Finally, there are also robust water governance mechanisms in place at the regional level of the Danube River Basin, which affect its sub-basin the Sava and in turn the Sava’s sub-basin Drina. There are two important conventions in place for the Danube with associated bodies:

the Danube River Protection Convention and associated International Commission for the Protection of the Danube Basin (“ICPDR”), and the Convention Regarding the Regime of Navigation on the Danube and associated Danube Commission. The ISRBC works with these organizations on inter-sectoral cooperation initiatives.

The three countries are in the process of adjusting their national frameworks in accordance with the 2030 Sustainable Development Agenda, which will provide an opportunity for increasing intersectoral coordination. Transboundary cooperation is also tightly linked with meeting the Sustainable Development Goals (SDGs), as well as improving governance mechanisms for related policy making and decision-making. The ISRBC can play an expanded coordinating role in some related areas. The existing institutional, policy and legislative analysis will need to be further reviewed as the countries take in the outcomes from the 2015 developments.

Issue: Cooperation on water does not formally involve all riparian countries. Notably, Montenegro is not fully engaged in the ISRBC (Montenegro has not yet ratified the FASRB) although it participates as an observer in activities at the technical level. Also, some issues at basin level require intersectoral coordination while the mandate of the ISRBC and ICPDR - main coordinating bodies playing a role in basin-level governance – is limited to water management.

Possible solution/Strategic orientation: Broadening the scope of cooperation, (both geographically and intersectorally). Solutions under this cluster could be grouped in a) transboundary cooperation, with emphasis on cooperation mechanisms, geographical scale, and planning cycles, in the context of global policy developments and the 2030 Agenda; and 2) building knowledge and capacity at the national level, boosting capacities for support of knowledge-based policy and decision-making.

Policy package: [to be developed]

- *Institutions:*
- *Information:* Better intersectoral communication
- *Instruments:*
- *Infrastructure:*
- *International coordination and cooperation:* International legislation harmonization and unification

3. BENEFITS

One of the improvements of the Drina basin report over previous nexus assessments in other basins will be the inclusion of a chapter on the benefits of cooperating in the management of the basin’s resources. It is expected that this will help to support the implementation of the solutions identified in previous chapters of the report. This will be

done by applying the UNECE policy guidance on the benefits of transboundary water cooperation⁵ but adapted to the Drina context.

An assessment of the benefits of cooperating in the managing the Drina basin resources should try to focus on the “outcomes” of cooperation, not on activities or outputs. While sector experts in the basin have a good knowledge of how improved cooperation can help the management of basin resources, there is a need to present the benefits of cooperation in a way that shows how the population in the three Drina countries will benefit.

Participants at the workshop identified a number of potential benefits of increased cooperation in managing basin resources in the Drina, summarised in the following table:

Economic benefits	Social and environmental benefits
<ul style="list-style-type: none"> • 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 of flood risks and developing protective infrastructure) • Development of the tourism sector 	<ul style="list-style-type: none"> • 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)
Regional economic integration benefits	Geo-political benefits
<ul style="list-style-type: none"> • 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 thank to cross-border economic activity. 	<ul style="list-style-type: none"> • 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

Developing stronger cooperation requires convincing key decision-makers and stakeholders. Participants at the workshop identified national governments (in some cases at premier level) as the key stakeholder to be convinced of the benefits of managing the Drina resources together. A number of other stakeholders should also be targeted, in particular ministries of finance, relevant ministerial representatives, ministries of finance,

⁵ The document is available at <http://www.unece.org/index.php?id=41340>

mayors, local populations, and project financiers/funders. The results of the voting exercise undertaken at the workshop are showed in the following table:

Actor	Votes
Mayors	4
Project Financiers	4
Ministerial representatives with competent responsibilities for the Drina	3
National governments & premier	14
Bosko	1
Ourselves	3
Local population	4
Ministries of Finance	3
Ministry of Agriculture	1

The workshop participants concluded that a general description of the benefits of cooperating in the management of the Drina resources would not be enough, and more in-depth assessment of the benefits of specific nexus solutions should be developed. It will rarely be possible to assign monetary values to those benefits, but it should always be possible to develop qualitative descriptions and in some cases quantitative descriptions.

4. REFERENCES

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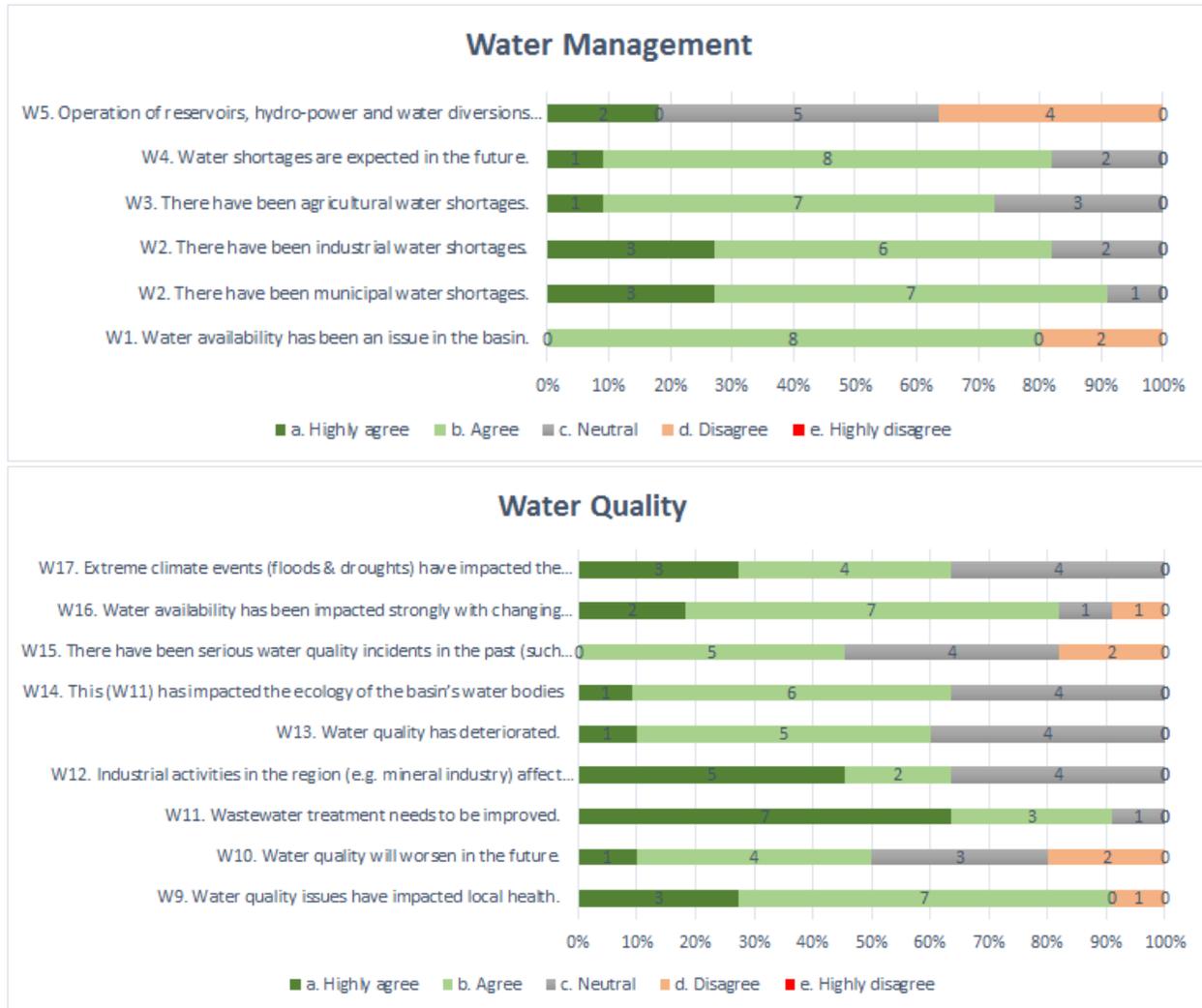
<http://www.ren21.net/wp-content/uploads/2016/03/web-REN21-UNECE.pdf>

Regional Environment Center (REC), 2011. *Pollution in the Drina River Basin. An inventory of potential sources*. Hungary: The Regional Environment Center for Central and Eastern Europe.

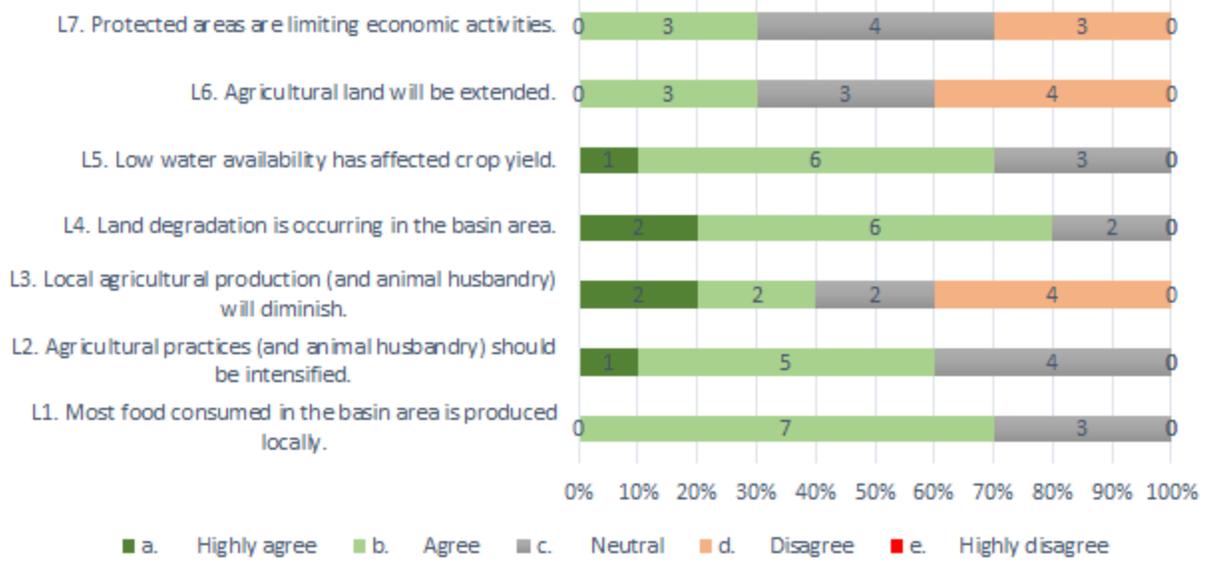
5. APPENDIX

APPENDIX A. Results of the questionnaires

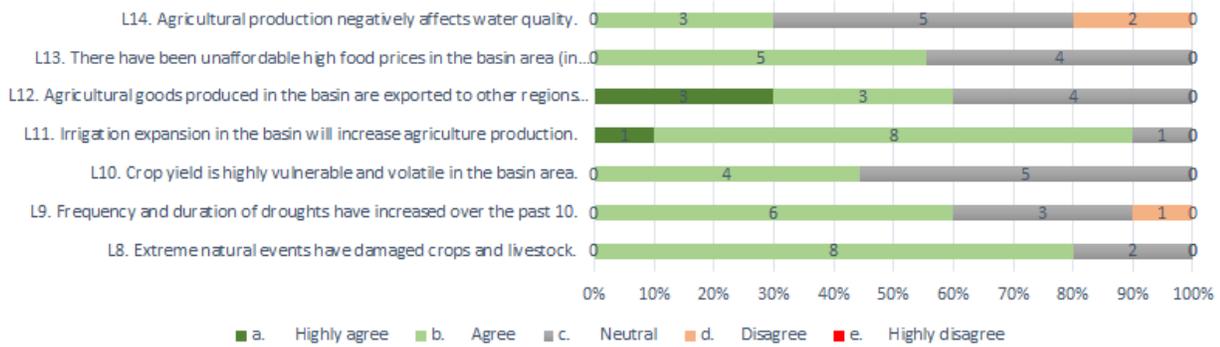
This section of the appendix shows the details results and findings gathered from the opinion based questionnaires.



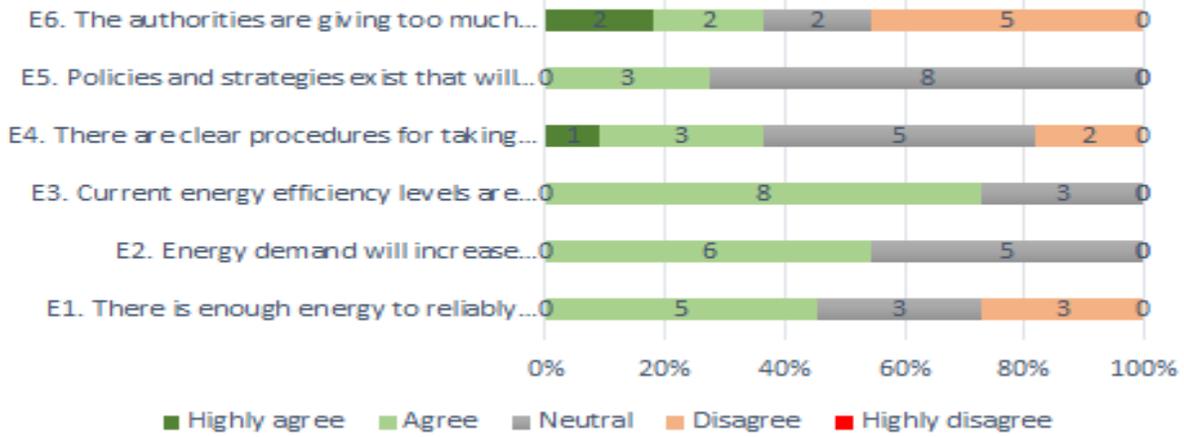
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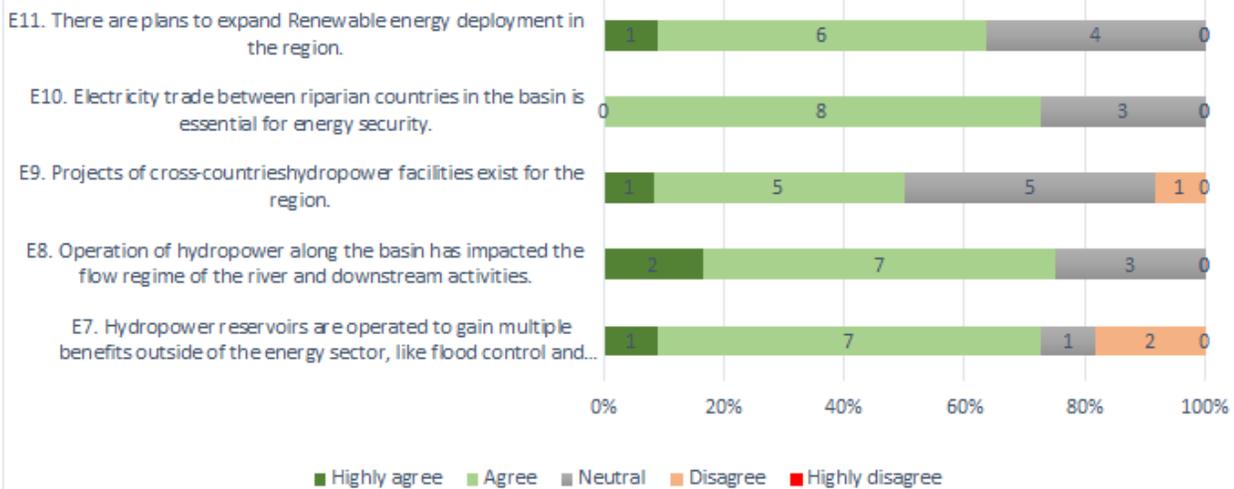
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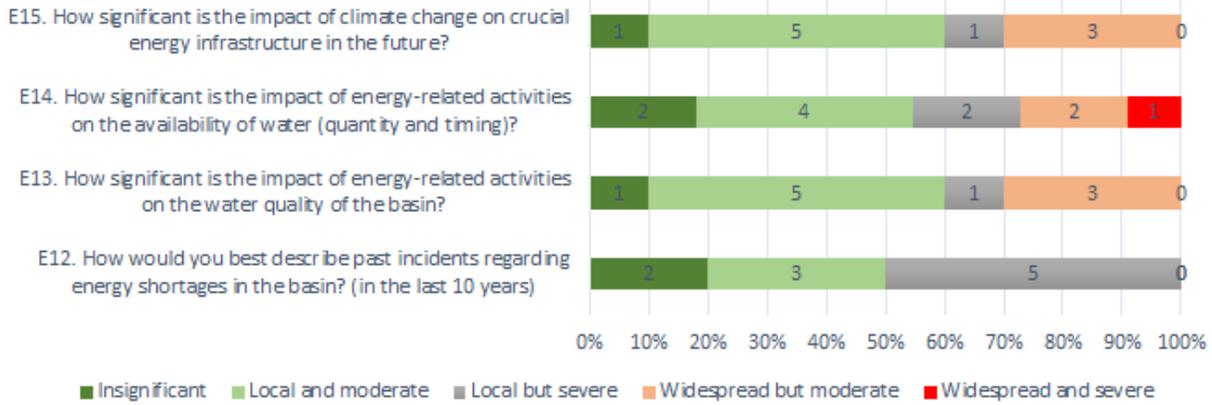
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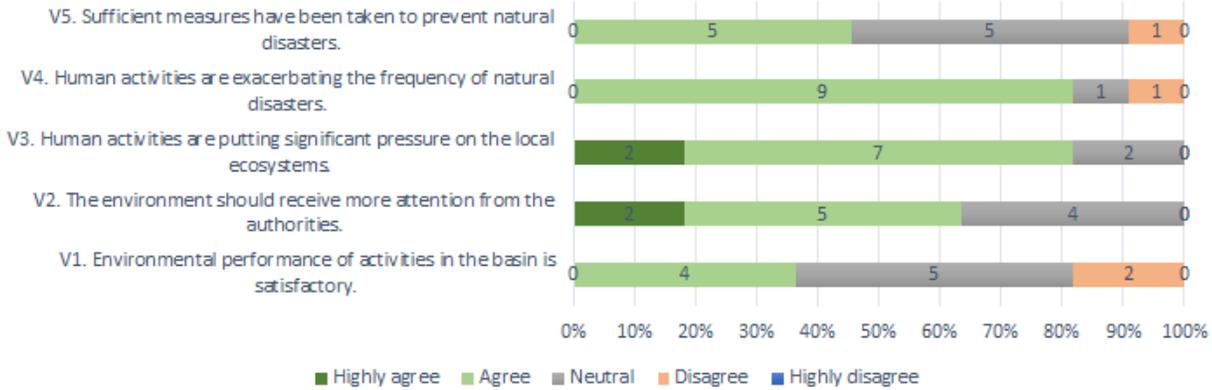
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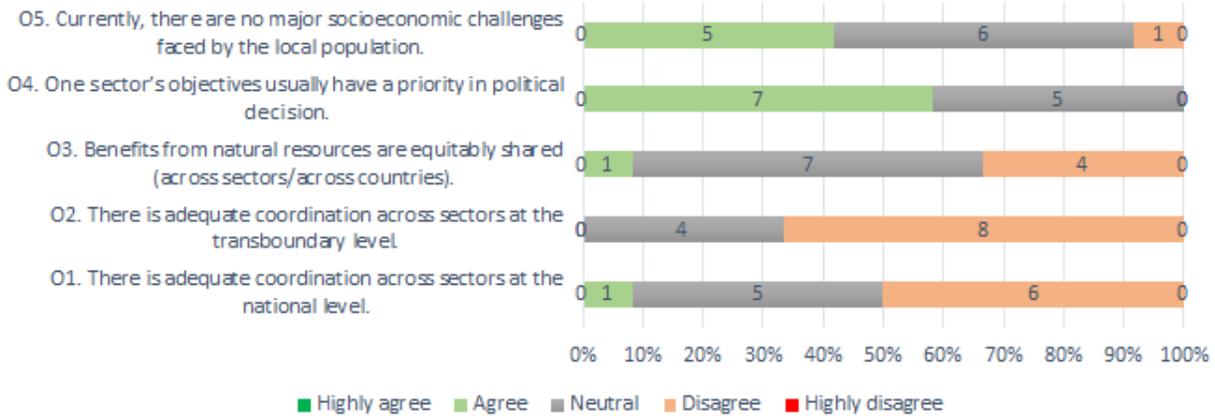
Energy



Environment



Basin Overview



Basin Overview

