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INTERNATIONAL SAVA RIVER BASIN COMMISSION



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# OVERVIEW

- Chapter 7 - Improving water quality and solid waste management (C. Sundin, T. Avellan, D. Jabucar, S. Stec)
- Governance Issues in Chapters 5-7
- Chapter 8 – Improving Governance in the Drina River Basin (S. Stec)

# PROPOSED SOLUTIONS CLUSTERS TO EXPLORE



**Improving water quality and management of solid waste**



**Promoting rural development**



**(Co-)optimizing hydro power plants operation**

# CH. 7 IMPROVING WATER QUALITY AND SOLID WASTE MANAGEMENT



## Key issues:

1. Insufficient waste & wastewater treatment and disposal, impacting land and water resources in the basin.
2. Poor cooperation on permitting, and a water permit separate from other permits.
3. Jurisdiction over water is fragmented.

# WATER QUALITY– CURRENT STATUS

## Surface water

- Upstream areas good/excellent
- Although not comprehensive, the quality declines downstream
- Findings of heavy metals in surface water nearby antimony mines and exploration of gravel and quartz sand have

## Groundwater

- Quality and monitoring mostly unknown or lacking
- High occurrence of karst make groundwater potential high for exploitation - groundwater is the biggest source for drinking water.
- Untreated wastewater, mining, waste disposal big threat



# SOURCE OF POLLUTION – BY COUNTRY

	Serbia	Montenegro	Bosnia and Herzegovina
WEA	14	50	7 (FBH) & fbh9 (RS)
WED	43	26	62 (Republika of Srpska)
Examples of sources	Industrial plants	Landfills & Illegal dumping	RS: Wastewater treatment plants FBH: Mining activities
Examples of activities or deposition	No treatment of industrial waste,	Non-sanitary	RS: Insufficient or no treatment FBH: No treatment of waste
Example of consequence	Discharge of untreated water	Leakage to surface- and groundwater	RS & FBH: Discharge of untreated water and heavy metals

WED = Water-endangering deposition

# SOURCE OF POLLUTION – IN WATERSHED

- Three main sources identified:
  1. Municipal wastewater – ***no or low treatment of water***
  2. Hazardous and industrial waste and wastewater – ***seldom treated***
  3. Solid waste from municipal and industrial sites – ***illegally dumped or use of non-sanitary landfills***
- Additional concerns: floods spreading contaminated water and soil, irrigations schemes & hydropower plants by acting as incubators of bacteria and eutrophication

# MONITORING

- Considerable amount of data needed – challenge of collection
- Fragmentation - Data held by many institutions, not shared enough
- Different level of the data availability and quality
- Difficult comparison as country methodologies differ



# MONITORING

- Institutions in charge:

*Montenegro: Hydro-meteorology and Seismology of Montenegro IHMS*

*Serbia: Serbian Environmental Protection Agency SEPA*

*Federation of Bosnia and Herzegovina: Sava River Watershed Agency of the Federation of Bosnia and Herzegovina*

*Republika of Srpska: Public Institution “Vode Srpske” from Bijeljina*

# SOLID WASTE

Table 19: Solid waste production and treatment

Item	BiH	Montenegro	Serbia	Total
Number of towns in basin	10	7	8	25
Number of inhabitants	310,000	146,000	210,000	676,000
Produced waste (tonnes/year)	90,000	35,000	60,000	185,000
Treated waste (tonnes/year)	0	0	0	0
Released into the river (tonnes/year)	20,000	12,000	23,000	55,000

ICPDR, 2008

# SUGGESTED ACTION – TO MAKE

1. Increase the monitoring of the water quality system by, for instance, inter-agency cooperation
2. Improve data to be coherent and be spatially covered for both surface and groundwater
3. Adopt and follow directives and sustainable practises on water and waste
4. Develop sanitary landfills, operate treatment plants and have 100% coverage of both waste and wastewater collection
5. Transboundary cooperation on wastewater and solid waste management

# SUGGESTED ACTION – TO IMPLEMENT

- Infrastructure:

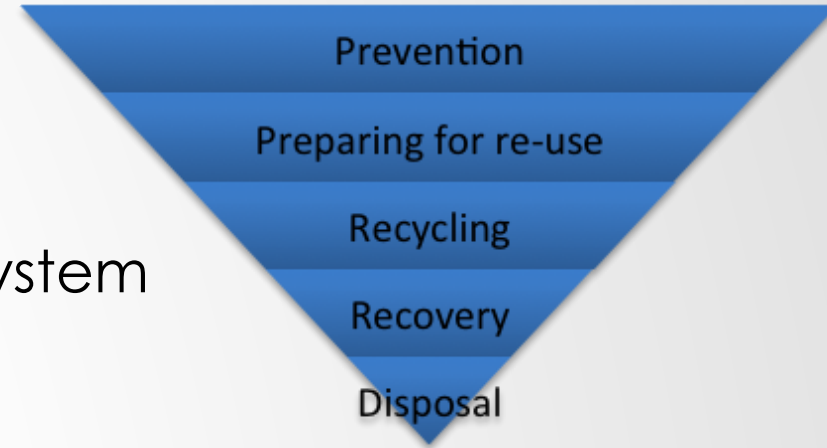
Construct and operate (existing) wastewater treatment plants

Waste collection and recycling - waste hierarchy

- Soft assignments:

Model of hydrological and/or hydrogeological system

Cost-benefit Analysis – estimate “cost” of current operation



# GOVERNANCE ISSUES – CH. 5 – CO-OPTIMIZING FLOW REGULATION

1. What is the optimal arrangement for cooperation on hydro operations?
2. How to incorporate basin-level/ecosystem approach into hydro policies/plans? Transboundary EIA/SEA etc.
3. How to account for differences in planning cycles?
4. Cooperation on common standards/methodologies for ecological flows.
5. Cooperation on energy efficiency/renewable energy.
6. Stakeholder engagement/transparency in above processes.

# GOVERNANCE ISSUES – CH. 6 – PROMOTING RURAL DEVELOPMENT

1. What institutional arrangements are appropriate for coordinating transboundary and intersectoral impacts from changes in land use (including increased irrigation)?
2. How best to promote organic farming in the basin?
3. How best to promote transboundary cooperation on eco-tourism?
4. How best to manage and implement changes related to climate change impacts on agriculture/eco-tourism?
5. How best to involve farmer based organizations?



# GOVERNANCE ISSUES – CH. 7 – WATER QUALITY AND SOLID WASTE MANAGEMENT

1. Increase the monitoring of the water quality system by, for instance, inter-agency cooperation.
2. Most policy/legislative issues can be addressed through accession process.
3. Transboundary, basin-level platform for cooperation on practical implementation issues, capacity-building, stakeholder engagement etc., on wastewater and solid waste management

# CH. 8 BROADENING & DEVELOPING SCOPE OF COOPERATION

1. Harmonization, strengthening, inclusion.
2. Assess and address differences in geographical scope, timeliness and subject matters (existing cooperative mechanisms).
3. Make nexus assessment continuous and sustainable.
4. Expand the use of instruments aimed at integration.
5. Decide on a permanent basin-level cooperation mechanism – “Drina Platform”.
6. Continuous capacity-building and awareness-raising.



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