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# SEDIMENT ROLE IN NEXUS SOLUTIONS IN DRINA RIVER BASIN

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# SCOPING STUDY ON EROSION AND SEDIMENTATION IN THE DRINA RIVER BASIN

### **Objectives**

- To provide a consistent picture about the occurrence of sedimentation and erosion in the basin and related existing problems, using data available in the three basinsharing countries (Montenegro, Bosnia and Herzegovina and Serbia).
- To use a combination geological/earth scientific and engineering expertise with water management and hydraulic infrastructure expertise + knowledge of the regional and the SRB level institutional and policy framework
- To develop datasets and geographical information system (GIS) shapefiles and share these with the authorities/institutions of the riparian countries.

#### Activities

- Collection of data from national authorities
- Situation analysis
- Identification of sources of sediment in the Drina River basin
- Identification of areas with a deficit/surplus of sediment in the Drina River Basin
- Analysis of the anthropogenic impact on erosion/deposition
- Identification of possible measures
- Proposal of priority measures

## Areas prone to erosion (loss of arable land, torrential floods)



#### Total I+II: 5% or 1045 km<sup>2</sup> Total I+II+III: 33,6 % or 6710 km<sup>2</sup>

Erosion area Potential erosion area Sub-basin Border of the DRB

## **Sedimentation of HPP**

#### reservoirs (loss of energy production)

- Reservoir volumes reduced 3-50%
- Difficult to compare with erosion rates



# **Lower Drina – erosion/sedimentation**

(loss of arable land, floods, state border?)



# **Proposal of key measures in DRB**

- Develop and update erosion maps to guide actions
- Apply and monitor erosion control measures
- Raise awareness, promote and exchange good practice
- Establish sediment monitoring system
  - > Set a network of sediment monitoring stations
  - In cooperation with HPP operators regularly survey the existing reservoirs and analyse the sedimentation process development
  - Investigate sediment quality, especially of sediments retained in reservoirs
  - Regularly survey cross sections along the Drina River and the main tributaries.

# Cost of anti-erosion and torrent control works

	Type of work	Area (ha)	Total (Mio Eur)
Biological works	Afforestation	12,000	18
	Forest reclamation	3,000	3
	Pastures and meadows planting	12,500	6
Biotechnical works	Masonry, wickerwork, trenches and terraces	50,000	7.5
Technical works	Regulation of torrents (different structures)	170,000	59.5
Other	Preparation of cadasters	20,000	2
	Maintenance	20,000	20
TOTAL			116

# SEDIMENT AND RIVER MORPHOLOGY STUDY GEF/SCCF West Balkans Drina River Basin Management Project

- Available data on sediment regime of the Drina and major tributaries scarce, low quality and outdated
- Field measurements (limited scope due to Covid 19)
- New analysis of suspended and bed load in DRB



## **RECOMMENDATION:**

- Establishment of the sediment monitoring
  system (Sediment Management Protocol, ISRBC)
  - Initial phase: 1-2 locations at Lim, Upper and Lower Drina (at existing gauge stations)
  - Turbidimeters + field measurements
- Surveys of river cross-sections
- Analysis of HPP reservoir sedimentation based on new and simultaneus survey