10th Meeting on the Follow-up of the Joint Statement on Guiding Principles for the Development of Inland Navigation and Environmental Protection in the Danube Basin

INLAND WATERWAY ON SAVA RIVER (km 300 - km 329)

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SUMMARY

Ministry of the Sea, Transport and Infrastructure:
- Introduction

Institut IGH/Hidrokonzalt projektiranje:
- Hydrological analysis
- Hydraulic analysis
- Optimal solution

Elektroprojekt:
- Environmental study
INTRODUCTION

- **Beneficiary:**
  Ministry of the Sea, Transport and Infrastructure, Croatia, Zagreb
  (Originally: Agency for Inland Waterways, Croatia, Vukovar)
- Preparation of EIA Study and Design Documentation for the river Sava IW section between rkm 329 to 315 and 312+200 to 300
- EU co-funding: CONNECTING EUROPE FACILITY (CEF)
- Grant contract signed in October 2017
- Project duration: Jan 2018- Dec 2020
- Sava River – border between Croatia and Bosnia and Herzegovina
INTRODUCTION

• Most critical section of Sava river inland waterway between Belgrade (Serbia) and Sisak (Croatia) between km 320 and km 329 (Jaruge-Novki Grad)

• Part of European agreement on main inland waterways of international importance (AGN)

• Currently: Class III

• Intention: Class IV
HYDROLOGICAL ANALYSIS

- Hydrological stations: Slavonski Brod (km 378), Slavonski Šamac (km 306) and Županja stepenica (km 262)
- Stationarity and homogeneity analyses
- Water-level/discharge duration curves
- Adopted duration curves/values
HYDRAULIC ANALYSIS

- 1D (HEC-RAS 5.0.6)
- Length 104 km, 544 cross sections
- Critical values km 300 – km 329
- Critical sections:
  - Jaruge – Novi Grad (km 320 – km 329)
  - Slavonski Šamac downstream (km 310 – km 312.2)
- 2D hydraulic analysis (HEC-RAS 5.0.7)
• Analyzed potential solutions:
  - Bottom deepening along the waterway
  - Groynes construction along critical sections
  - Combination of bottom deepening and groynes construction

• Multiple-criteria analysis

• Section km 300 - km 312:
  - km 304.2 – km 304.7 – bottom deepening
  - km 307.3 – km 307.8 – bottom deepening
  - km 308.4 – km 308.9 – bottom deepening
  - km 310 – 312.2 (Slavonski Šamac downstream)
  - combination of bottom deepening + groynes
OPTIMAL SOLUTION

Section km 315 - km 329

• km 316 – km 317: bottom deepening

• km 320 – km 329 (Jaruge – Novi Grad): combination of bottom deepening and groynes construction
Pursuant to National legislation the project must undergo EIA and Main Assessment for NATURA2000 procedure.

EIA & Main scope:

- Aquisition of special requests for EIA content from competent ministries and authorities
- Research and description of current state of environment (biodiversity – flora/fauna, water body status, hydrology, hydrogeology.....)
- Assessment of possible impact of project on each environmental component
EIA & Main Assessment scope continued:

- Programme of measures (*mitigation* of possible adverse impacts on the environment)

- EIA procedure with the Ministry of Environmental Protection and Energetics (EIA committee meetings, public participation…)

**Good practice examples (proposed mitigation measures):**

- Return of dredged sediment to downstream reaches or suitable locations
- Construction of declined groynes

THANK YOU FOR YOUR ATTENTION