EUSDR PA1a

DANUBE COMMISSION – Meeting of Expert Group on hydraulic engineering

Budapest | 18th September 2019
EU Strategy for the Danube Region (EUSDR)

- one of four Macro-regional Strategies of the EU
- established in 2011
- address common challenges together
Working Group structure of Priority Area 1a

WG 1 – Waterway and port infrastructure & management

WG 2 – Business development

WG 3 – Fleet modernisation

WG 4 – River Information Services

WG 5 – Education & jobs

WG 6 – Administrative processes

Action 1.1
Facilitate management of inland waterways in order to provide “Good Navigation Status” and adequate fairway conditions on the Danube and its navigable tributaries.

Action 1.2
Foster the application of an integrative approach in the set-up of navigation projects in order to contribute to the achievement of “Good Ecological Status” and “Favourable Conservation Status”.

Action 1.3
Contribute to service-oriented constructional infrastructure, aimed at the optimisation of lock operation, as well as the availability and quality of mooring places and bridge clearances where necessary.

Action 1.4
Contribute to better multimodal accessibility of inland ports and transhipment sites to other transport modes and their hinterland.
Fairway Rehabilitation & Maintenance Master Plan for the Danube and its navigable tributaries
EU Strategy for the Danube Region
Priority Area 1a – To improve mobility and multimodality: Inland waterways

Fairway Rehabilitation and Maintenance Master Plan Process

- Policy process (ministerial level)
  - Luxemburg Declaration
  - Danube Ministerial Conclusions
  - Danube Ministerial Conclusions
  - Danube Ministerial Conclusions

- Project level (technical inputs /implementation)
  - PA1a Steering Group Initiative
  - Fairway Masterplan
  - National Action Plans

→ process keeps fairway rehabilitation and maintenance on the political agenda
Fairway Rehabilitation and Maintenance Master Plan Process

- Lists **critical locations** as regards fairway rehabilitation and maintenance
  - below 2.5m fairway depth (LNWL) and specified fairway widths
  - Identified by waterway administrations and Danube users (2014)

- Specifies the **required national measures** and **additional investments needed** to reach the recommended minimum Levels of Service
**Example from Slovakia**

<table>
<thead>
<tr>
<th>Key issues</th>
<th>Need for action</th>
</tr>
</thead>
<tbody>
<tr>
<td>SK 01 Level of detail of monitoring data is suboptimal for exact and cost-effective planning of dredging interventions</td>
<td>Support acquisition of up-to-date multi-beam sounding vessels, equipment and software</td>
</tr>
<tr>
<td>SK 02 Out-of-date information technology, missing database for monitoring data</td>
<td>Support establishment of Fairway Management System</td>
</tr>
<tr>
<td>SK 03 Insufficient number of skilled staff to monitor of the fairway</td>
<td>Secure education and provision of well-trained staff in the short, medium and long term</td>
</tr>
<tr>
<td>SK 06 Old and dredging and marking fleet and equipment</td>
<td>Support acquisition of up-to-date dredging and marking vessels and equipment</td>
</tr>
<tr>
<td>SK 07 Lack of staff and resulting missing flexibility in case of urgencies (related to dredging activities)</td>
<td>Secure education and provision of well-trained staff in the short, medium and long term</td>
</tr>
<tr>
<td>SK 08 Frequent need to adjust fairway marking as substitution for dredging activities</td>
<td>Support implementation of semi-automated marking plans based on a common Fairway Management System</td>
</tr>
</tbody>
</table>
EU Strategy for the Danube Region
Priority Area 1a – To improve mobility and multimodality: Inland waterways

2012 2013 2014 2015 2016 2017 2018

Policy process
(ministerial level)
Luxemburg Declaration
Danube Ministerial Conclusions
Danube Ministerial Conclusions
Danube Ministerial Conclusions

PA1a Coordination
PA1a Steering Group Initiative
PA1a Steering Group Appeal
Fairway Masterplan
PA1a Steering Group Appeal
National Action Plans
PA1a Steering Group Appeal
National Action Plans

Project level
(technical inputs /implementation)

NEWADA
FAIRway
FAIRway
FAIRway
FAIRway Danube project

Duration
5 years,
from
1 July 2015
until
30 June 2020

Budget
Total: 23,4 Mn EUR
CEF: 19,7 Mn EUR
30% effective co-funding for AT,
85% for cohesion countries
FAIRway Danube project

Data gathering

- 5 Surveying vessels
- 39 gauging stations

Data processing and analysis

- 1 transnational and 5 national Waterway management systems
- Water level forecast in HU, HR, BG, RO

Respond to data

- 4 Marking vessels
→ monitor the implementation status of the Fairway Rehabilitation and Maintenance Master Plan, as adopted in 2014

→ updated twice per year
Status and outlook on:
- situation at critical locations / fairway availability
- hydrological conditions and water levels
- rehabilitation and maintenance activities
- performed and planned activities regarding key issues
- environmental impacts
- expenditures and budget needs
Status of the Fairway Rehabilitation & Maintenance Master Plan for the Danube and its navigable tributaries

National Action Plans May 2019
EU Strategy for the Danube Region
Priority Area 1a – To improve mobility and multimodality: Inland waterways

Update May 2019: Fairway availability in 2018 (I)

Upper Danube

Water discharge far below multi-annual average, due to extreme heat and low rainfall
Fairway availability statistics

- shallowest point of the surveyed riverbed in relation to the rising and falling water levels
Fairway availability statistics

- No. of days on which 2.5m fairway depth would have been possible due to the hydrological conditions (No. of days ≥ Low Navigable Water Level)
- No. of days on which 2.5m fairway depth were actually achieved (or not)
Update May 2019: Fairway availability in 2018 (II)

Central Danube

water discharge far below multi-annual average, due to extreme heat and low rainfall
Update May 2019: Fairway availability in 2018 (III)

Lower Danube

- Water discharge far below multi-annual average, due to extreme heat and low rainfall
Availabilty of fairway depth at critical sections 2018
But: Improvements compared to previous years

Bulgaria – critical sector Belene 2017

Available fairway depths (in days) 2017, rkm 568 - 561 (Milka/Belene/Coundur)

Bulgaria – critical sector Belene 2018

Available fairway depths and water level information (in days) 2018, rkm 568 - 561 (Milka/Belene/Coundur)

dredging

→ key issues of the Fairway Master Plan are gradually addressed
→ timely surveying and dredging, active fairway realignment
Example: Surveying Belene area (Bulgaria), before and after dredging in 2018
Example: Impacts of surveying/dredging in Belene area (Bulgaria)

Investments and increased activity level show effect:
• Pro-active waterway management
• Timely surveying
• active realignment of fairway
• Targeted dredging

> Maintenance target could almost be reached despite the bad hydrological circumstances
EU Strategy for the Danube Region
Priority Area 1a – To improve mobility and multimodality: Inland waterways

- FAIRway surveying vessel
- FAIRway marking vessel
- FAIRway WAMS
- DaReM dredgers
- Marking craft: 233x (AtoNs)
- Hydraulic engine: FAIRway surveying vessel, FAIRway marking vessel, FAIRway WAMS
- FAIRway WAMS: drone operation
- 325x (115 AIS) HUMARK
- FAIRway WAMS for 3 gauges
- HUMARK
- FAIRway gauges: dredging
EU Strategy for the Danube Region
Priority Area 1a – To improve mobility and multimodality: Inland waterways

- FAIRway water level forecast
- FAIRway surveying vessel
- FAIRway gauges (10x)
- FAIRway WAMS
- FAIRway marking vessel
- dredging at bottlenecks
- SWIM dredger & 2 nat. budget dredgers
- FAIRway gauges
- FAIRway WAMS
- FAIRway single-beam
- FAIRway gauges
- FAIRway WAMS

dredging at bottlenecks
hydraulic engin. & dredging (Danube & Sava)
150x (AIS)
Conclusions

• increased visibility of the navigability issues through regular National Action Plan Updates
• implementation of the Master Plan is well under way
• more budget is being allocated for the implementation of the Master Plan
• necessary to keep the current momentum → project pipeline and (maintenance) budgets
PA1a coordinators

**Austria**

- Bundesministerium Verkehr, Innovation und Technologie
- viadonau

  = Coordinator

  = Technical Secretariat

Vera Hofbauer
vera.hofbauer@bmvit.gv.at

Gert-Jan Muilerman
gert-jan.muilerman@viadonau.org

Viktoria Weissenburger
viktoria.weissenburger@viadonau.org

**Romania**

= Coordinator & Technical Secretariat

Cristina Cuc
cristina.cuc@mt.ro

Monica Patrichi
monica.patrichi@mt.ro
Digitalization of the Waterway within FAIRway Danube (Sub-Act 3.3/4.2)

WAMOS
(WAterway MOnitoring System)
WAMOS – System Environment

Improved basic data through pilot activities

National WAMS (Waterway Management Systems)

Transnational WAMOS (Waterway Monitoring System)

- Reports
- Web portals
- etc.
WAMOS – Motivation & Opportunities

- Digitalization of fairway related data
- Harmonization of basic data
  - Catalogue of required data (common data format)
  - Common procedures
  - Common documentation & reporting tools
- Compile and displaying of basic fairway data
- Analysing and evaluation of basic fairway data
- Extract the relevant information
  - Deriving of statements (incl. budget, dredging activities, planning,...)
  - Reporting, Generation of common User Information
WAMOS – Basic Data (Inputs)

- **ECDIS – layer (D4D-Portal, Datawarehouse for Danube)**
  - Published ECDIS – charts are available in WAMOS
  - Verification of ECDIS-charts within WAMOS

- **ERDMS (European Reference Data Management System – RIS-Index)**
  - Static data of the fairway (incl. hectometres, gauging stations, reference waterlevels (LDC, RN, HDC), objects and referenced meta data,...)
  - Verification of RIS-Index within WAMOS

- **National Waterway Asset Management Systems (WAMS)**
  - Delivery of GIS-data (incl. sounding results, fairway dimensions,...)
  - Bottleneck-Webservice (static data referenced to the bottleneck area)
  - Available FAIRway Depths-Webservice (calculation of available depths within the fairway)
  - Waterlevel Gauge Measurements (water levels according to NtS 4.0 standard)
WAMOS – Outputs I

- Extract Waterlevels for every gauge available on the Danube (according to NtS 4.0 standard)
WAMOS – Outputs II

➤ Extract Available Fairway Depths for Stretches & Individual bottlenecks (example – Vienna East – Freudenau to the border of Slovakia)
WAMOS – Outputs III – user information