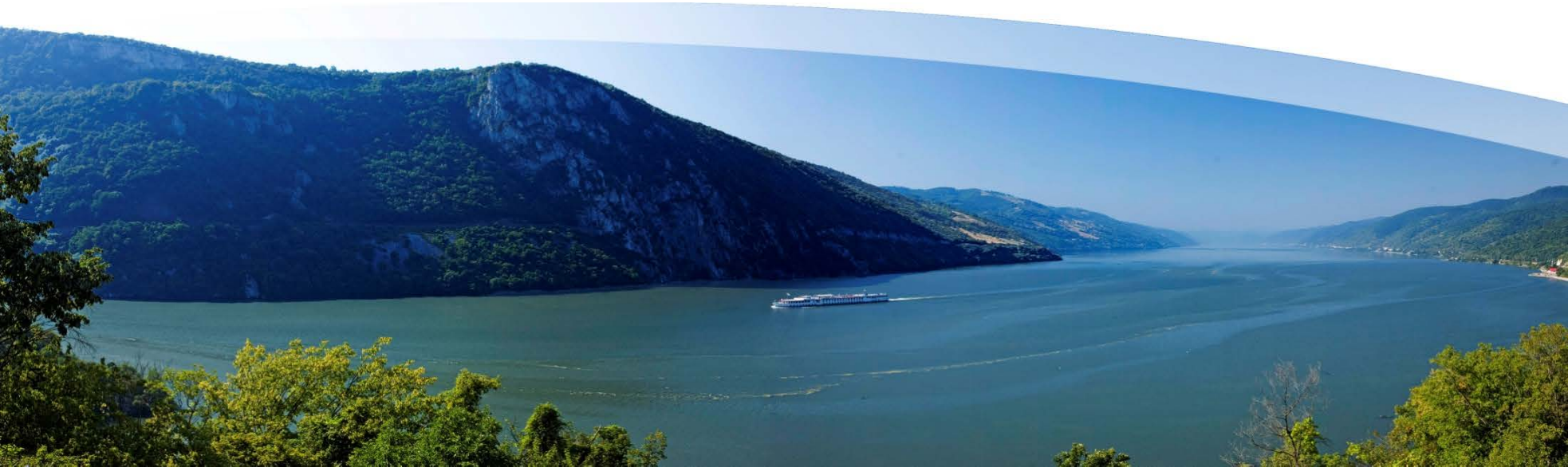
EUSDR PA1a

DANUBE COMMISSION – Meeting of Expert Group on hydraulic engineering

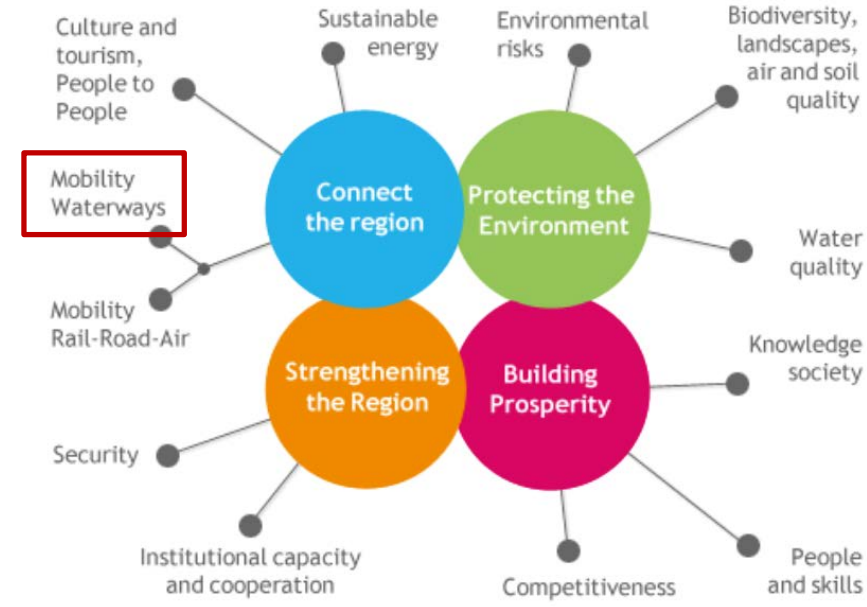
Budapest | 18th September 2019



EUROPEAN UNION
European Regional Development Fund
Bundesministerium Verkehr, Innovation und Technologie
viadonau
Ministerul Transporturilor

EU Strategy for the Danube Region (EUSDR)

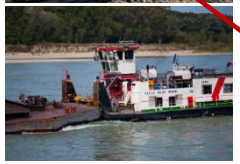
- one of four Macro-regional Strategies of the EU
- established in 2011
- address common challenges together



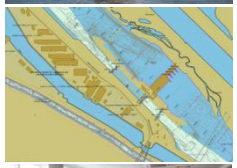
Working Group structure of Priority Area 1a

WG 1 – Waterway and port infrastructure & management

WG 2 – Business development

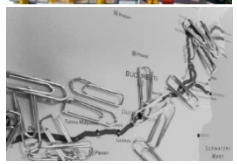


WG 3 – Fleet modernisation



WG 4 – River Information Services

WG 5 – Education & jobs

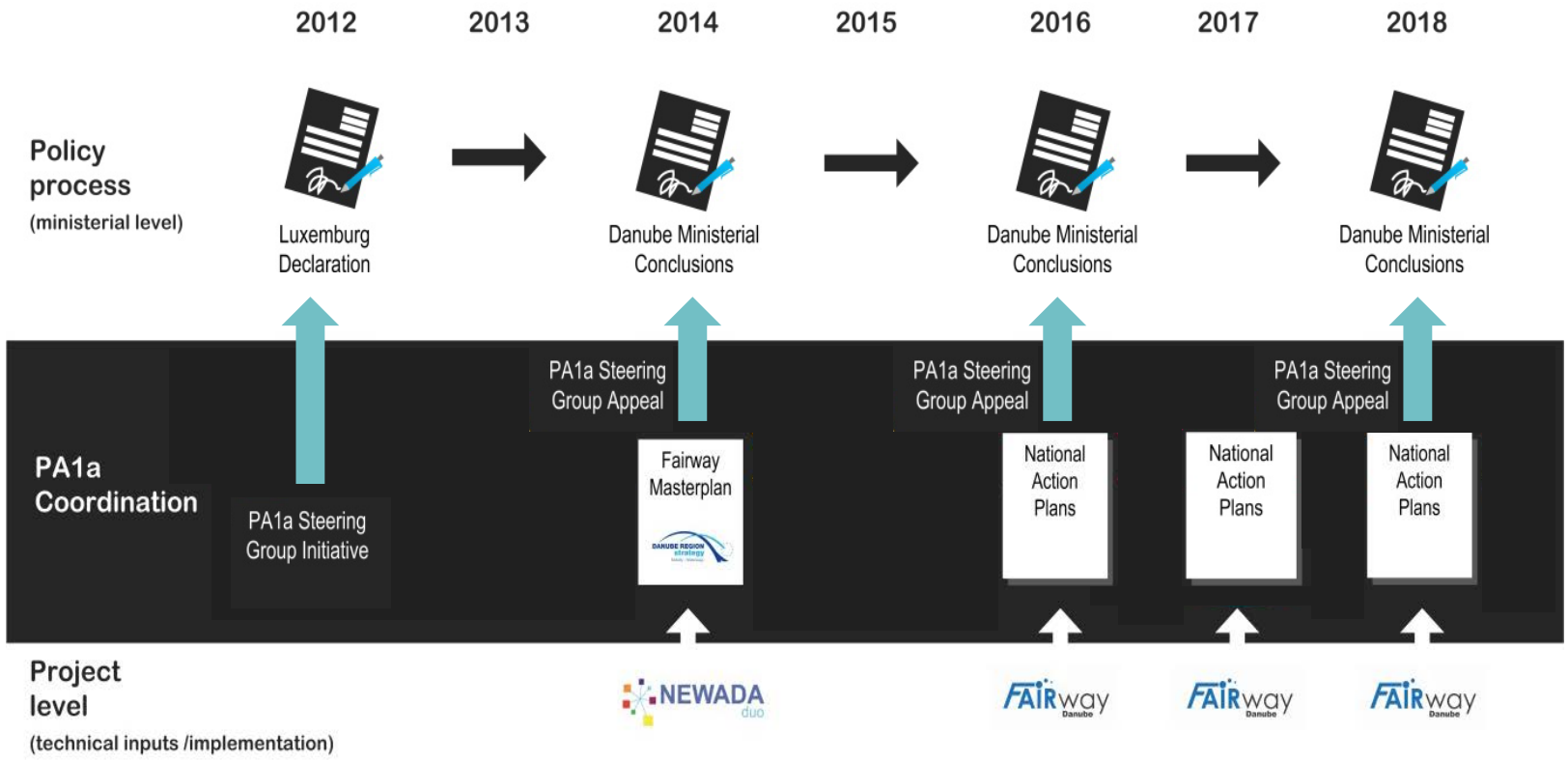


WG 6 – Administrative processes

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

Fairway Rehabilitation and Maintenance Master Plan Process



→ process keeps fairway rehabilitation and maintenance on the political agenda

REPUBLIC OF AUSTRIA
Norbert Hofer
Federal Minister for Transport, Innovation and Technology

REPUBLIC OF BULGARIA
Rossen Jeliazkov
Minister of Transport, Information Technology and Communications

REPUBLIC OF CROATIA
Oleg Butković
Minister of Sea, Transport and Infrastructure

FEDERAL REPUBLIC OF GERMANY
Andreas Scheuer
Federal Minister of Transport and Digital Infrastructure

HUNGARY
László Palkovics
Minister of Innovation and Technology

ROMANIA
Lucian Șova
Minister of Transport

SLOVAK REPUBLIC
Árpád Érsek
Minister of Transport and Construction

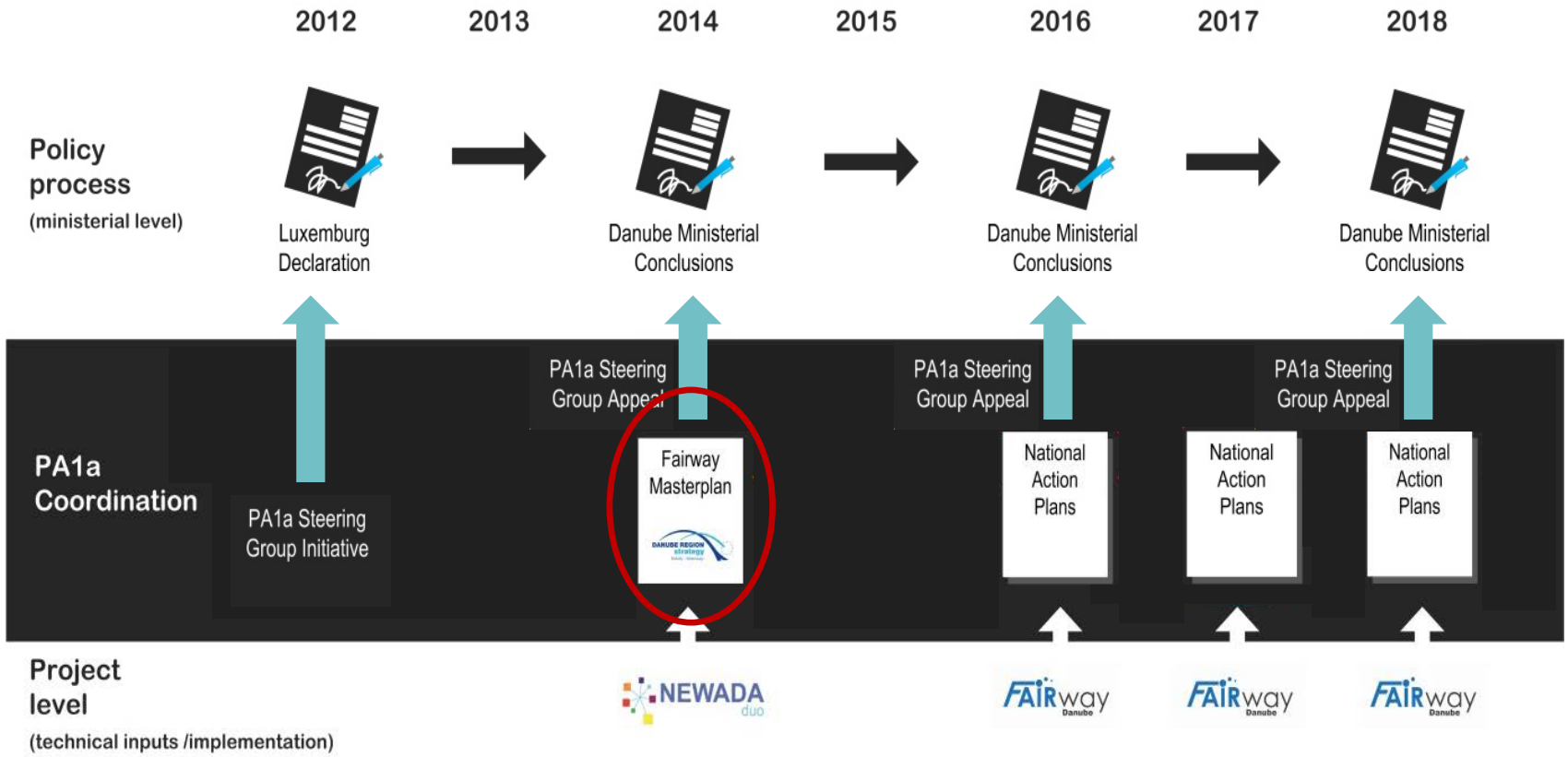
BOSNIA AND HERZEGOVINA
Ismir Jusko
Minister of Communication and Transport

REPUBLIC OF MOLDOVA
Chiril Gaburici
Minister of Economy Infrastructure

UKRAINE
Volodymyr Omelyan
Minister of Infrastructure

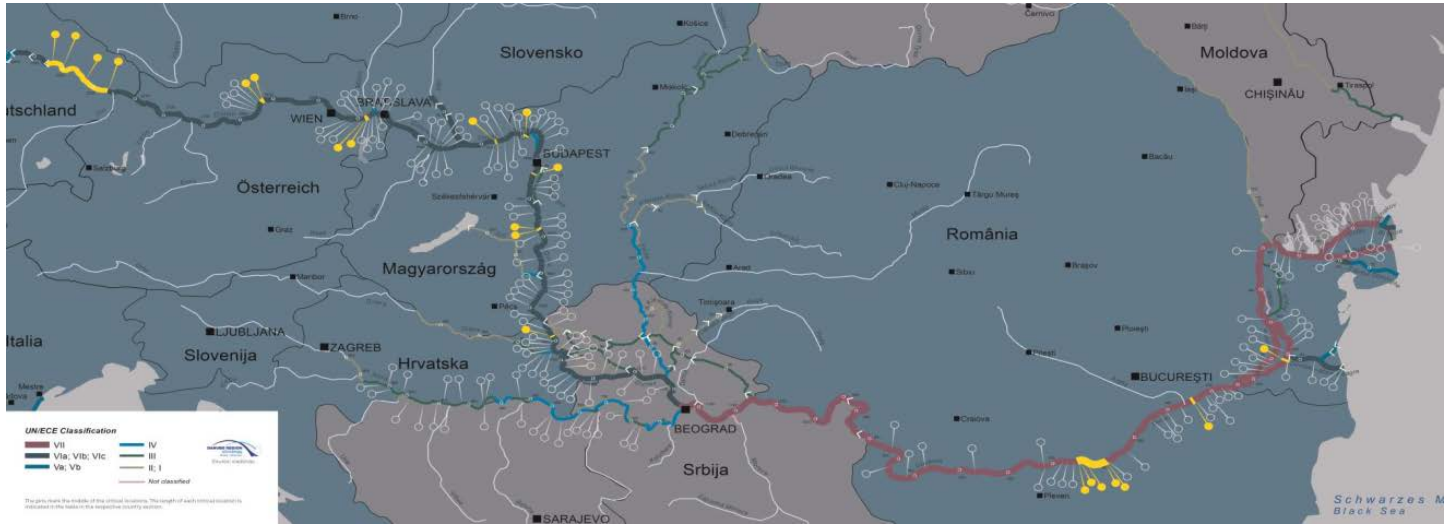
REPUBLIC OF SERBIA
Zorana Mihajlović
Minister of Construction Transport and Infrastructure

Danube Ministerial Conclusions
3/12/2018


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
National Action Plans
Project level
(technical inputs /implementation)
NEWADA
FAIRway
FAIRway
FAIRway

Fairway Rehabilitation and Maintenance Master Plan Process

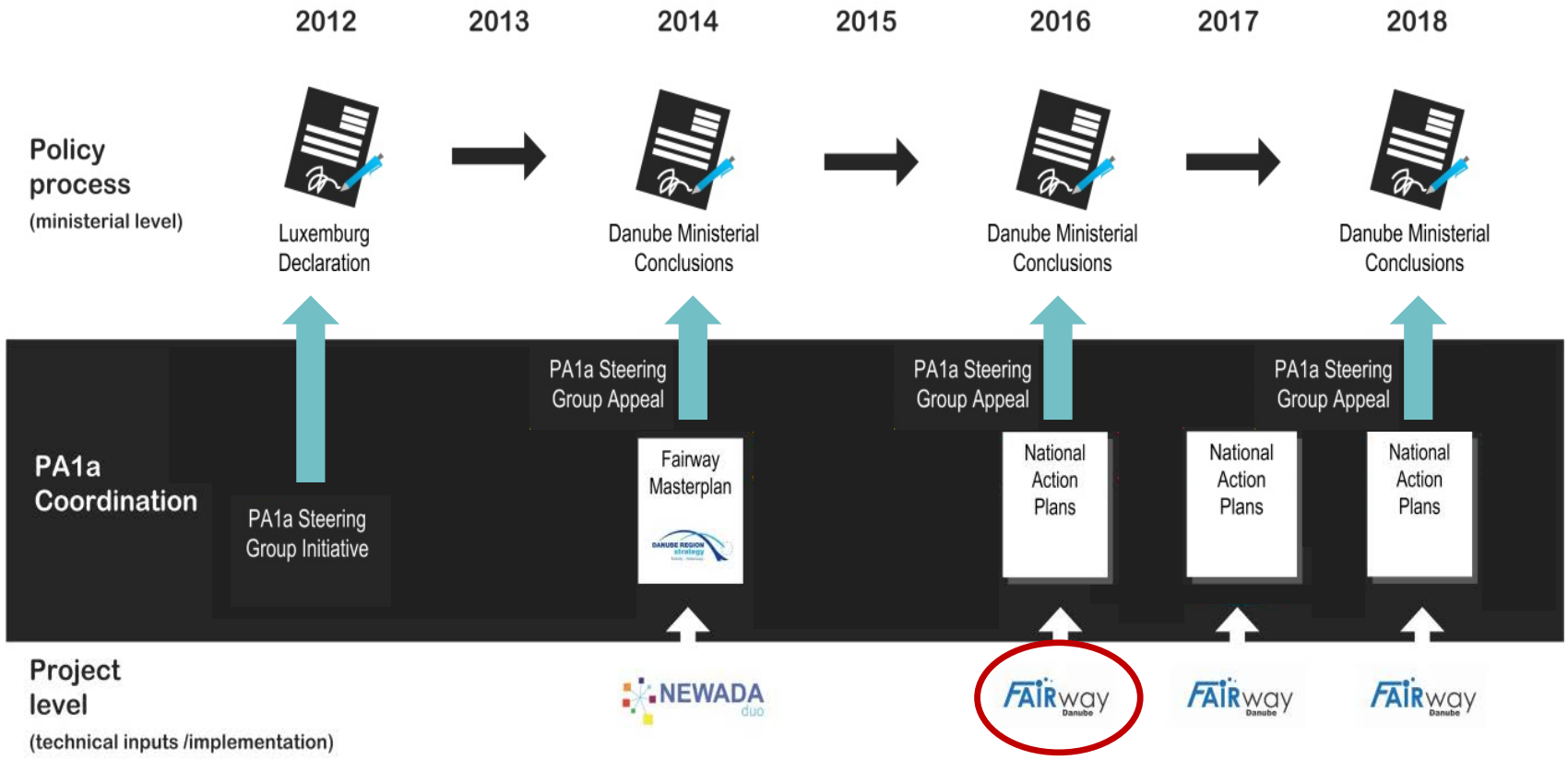
- Lists **critical locations** as regards fairway rehabilitation and maintenance
  - **below 2.5m fairway depth (LNWL)** and specified fairway widths
  - Identified by waterway administrations and Danube users (2014)



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

Example from Slovakia

	Key issues	*Need for action*
SK 01	Level of detail of monitoring data is suboptimal for exact and cost-effective planning of dredging interventions	Support acquisition of up-to-date multi-beam sounding vessels, equipment and software
SK 02	Out-of-date information technology, missing database for monitoring data	Support establishment of Fairway Management System
SK 03	Insufficient number of skilled staff to monitor of the fairway	Secure education and provision of well-trained staff in the short, medium and long term
SK 06	Old and dredging and marking fleet and equipment	Support acquisition of up-to-date dredging and marking vessels and equipment
SK 07	Lack of staff and resulting missing flexibility in case of urgencies (related to dredging activities).	Secure education and provision of well-trained staff in the short, medium and long term
SK 08	Frequent need to adjust fairway marking as substitution for dredging activities	Support implementation of semi-automated marking plans based on a common Fairway Management System


2012
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Luxemburg Declaration
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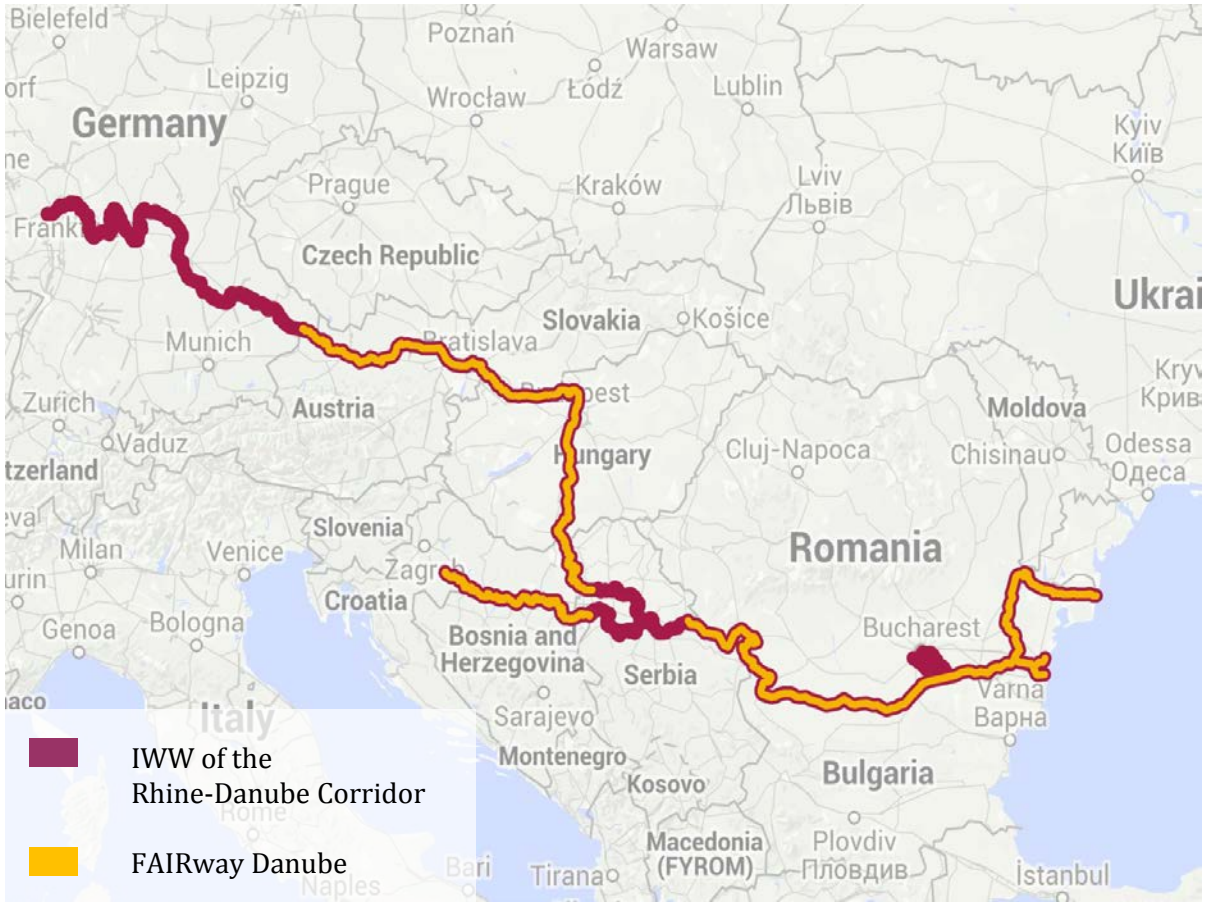
PA1a Steering Group Appeal
National Action Plans
Project level
(technical inputs /implementation)
NEWADA
FAIRway
FAIRway
FAIRway

FAIRway Danube project



Duration
5 years,

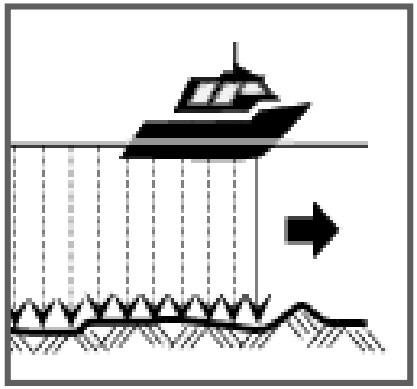
from
1 July 2015
until
30 June 2020

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

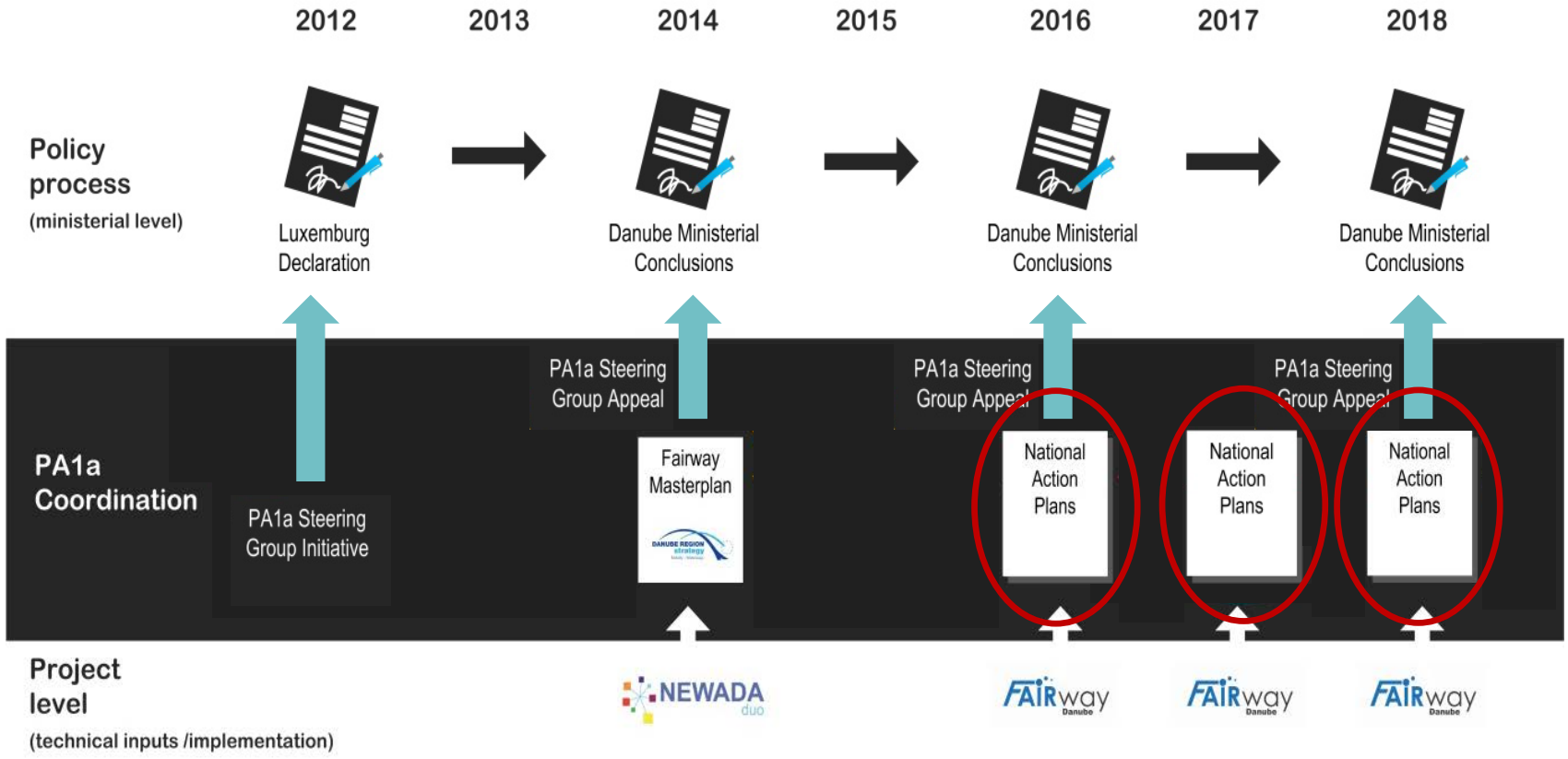
Data processing and analysis

1 transnational and
5 national
Waterway
management
systems

Water level
forecast
in
HU, HR, BG, RO

Respond to data

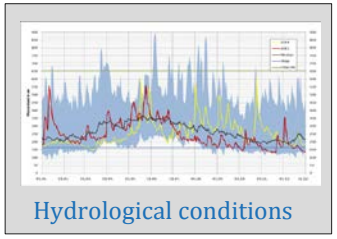
4 Marking vessels

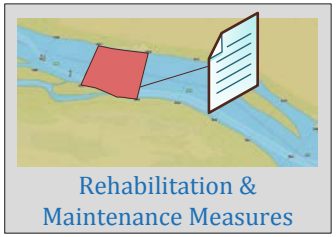


→ monitor the implementation status of the Fairway Rehabilitation and Maintenance Master Plan, as adopted in 2014

→ 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

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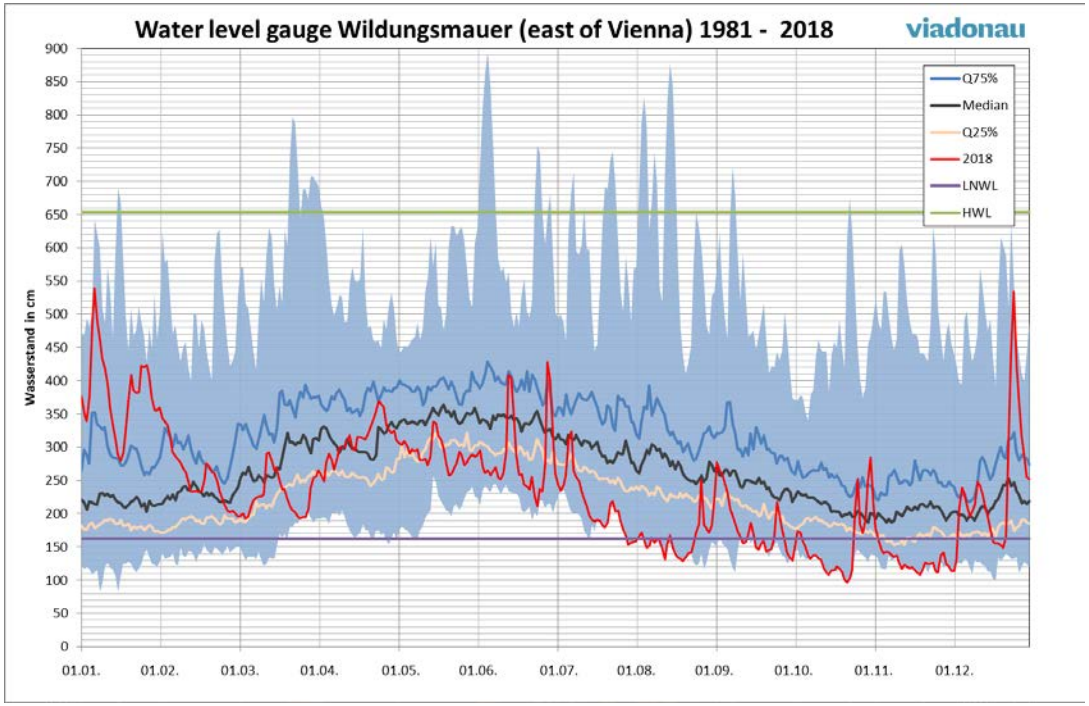
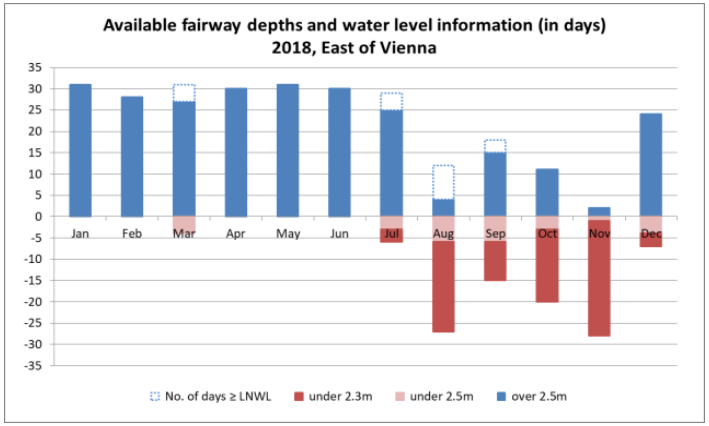
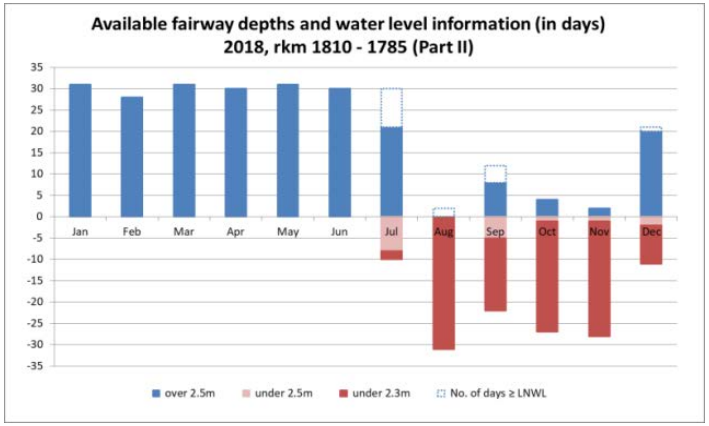
viadonau
Ministerul Transporturilor

Update May 2019: Fairway availability in 2018 (I)

Upper Danube

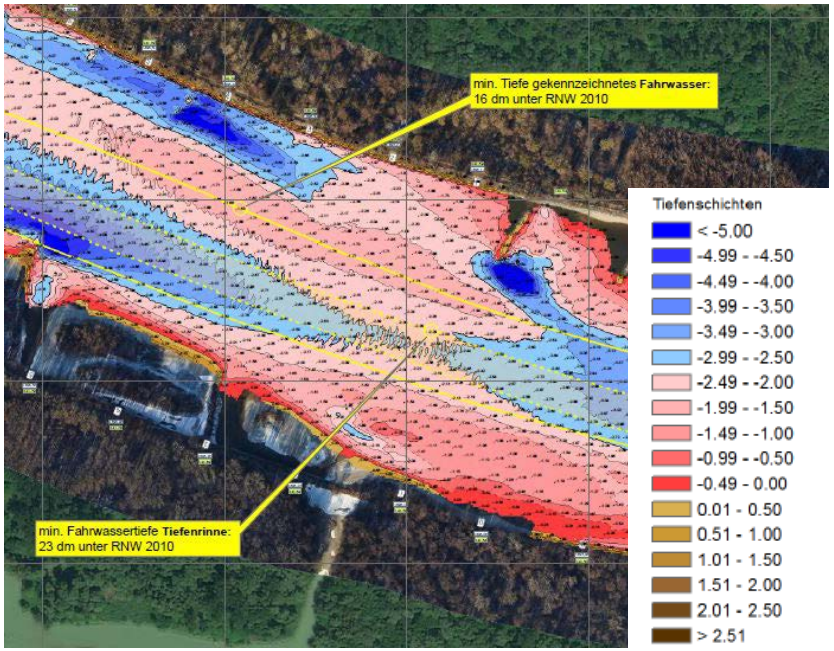


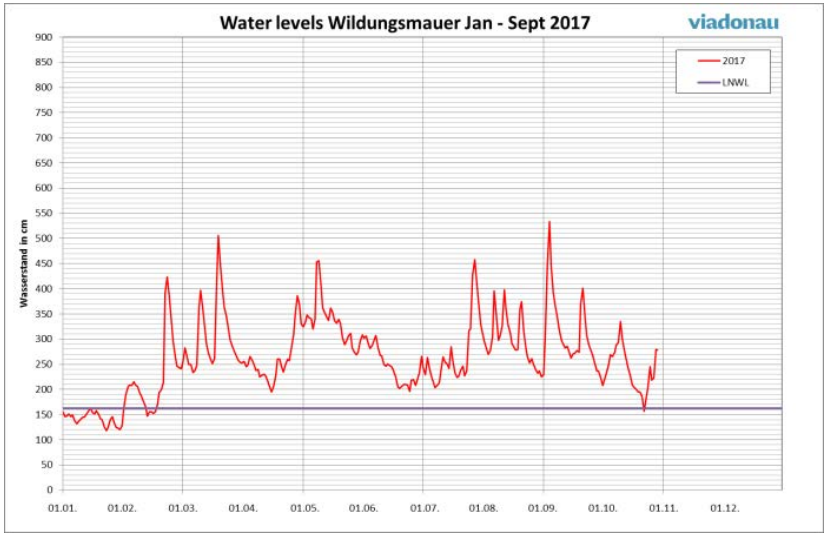




water discharge far below multi-annual average, due to extreme heat and low rainfall

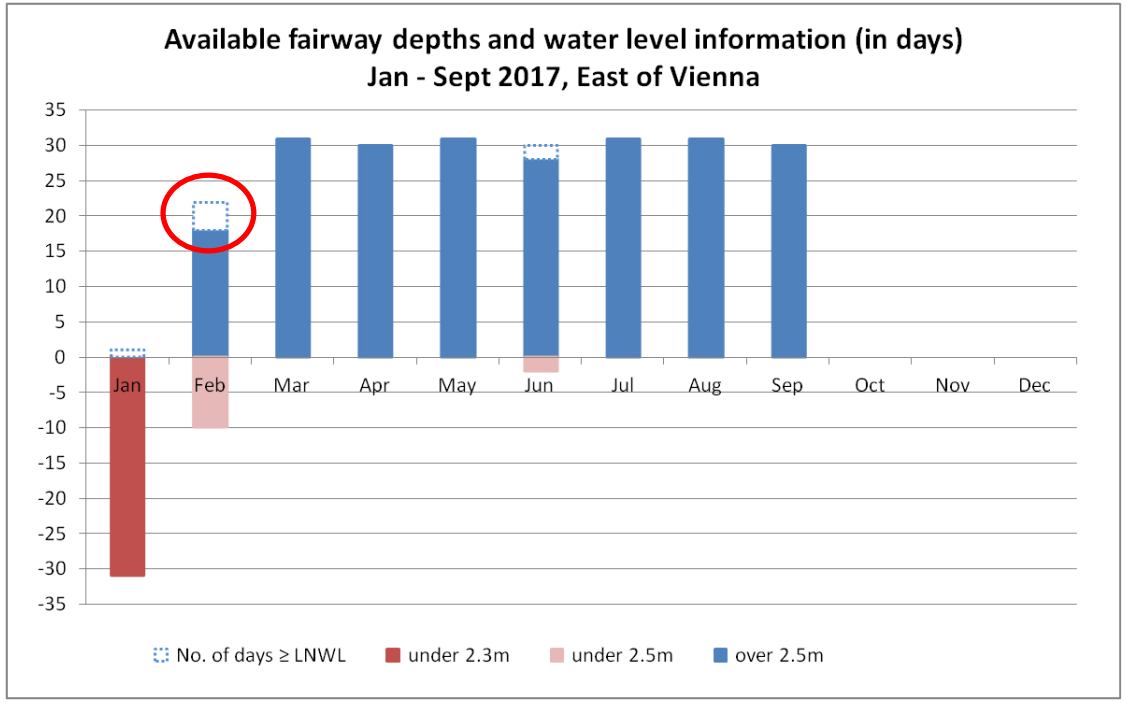
Fairway availability statistics

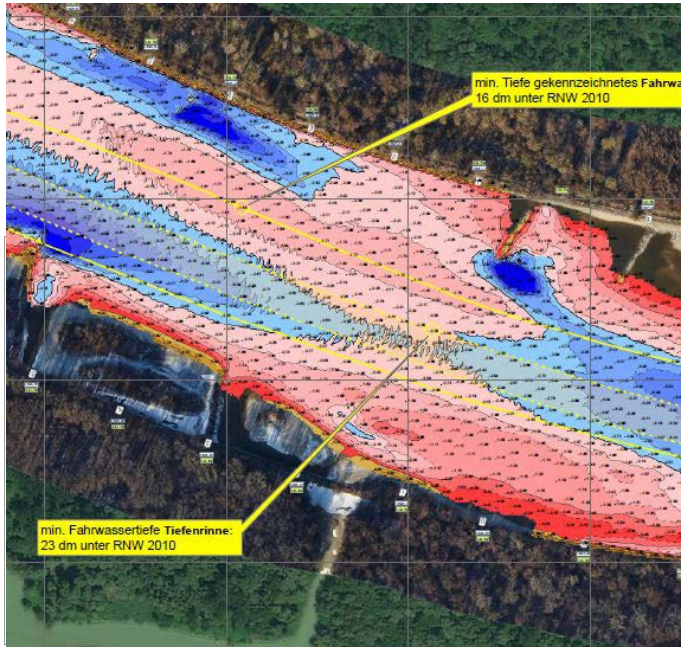




- shallowest point of the surveyed riverbed in relation to the rising and falling water levels

Fairway availability statistics

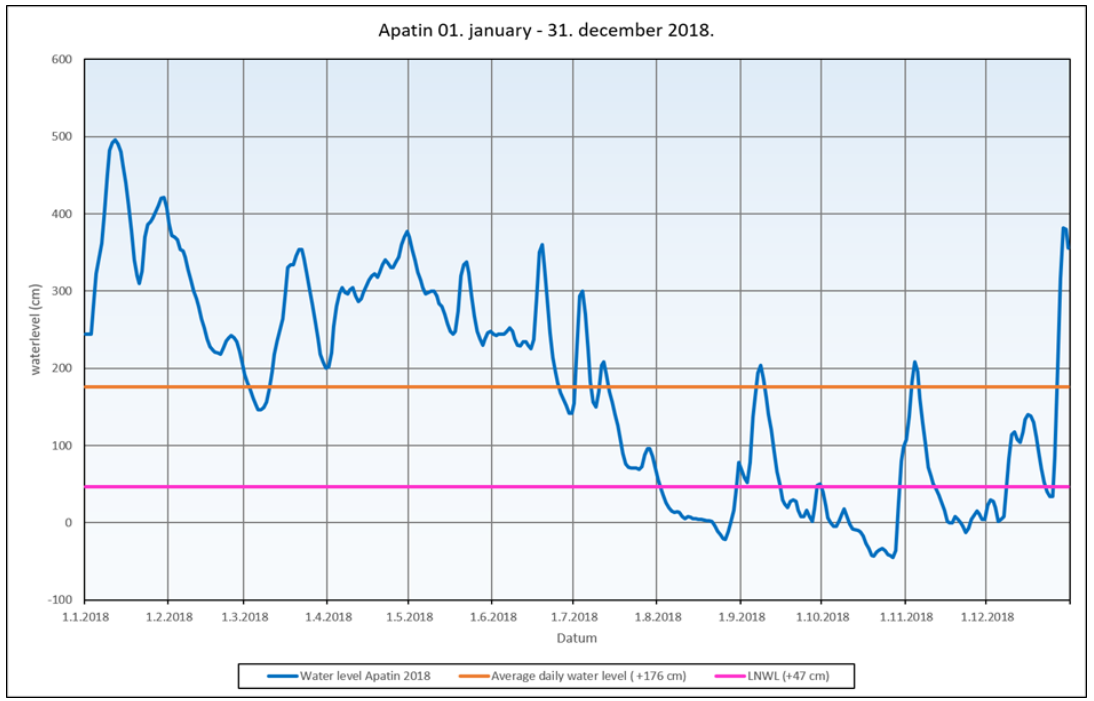


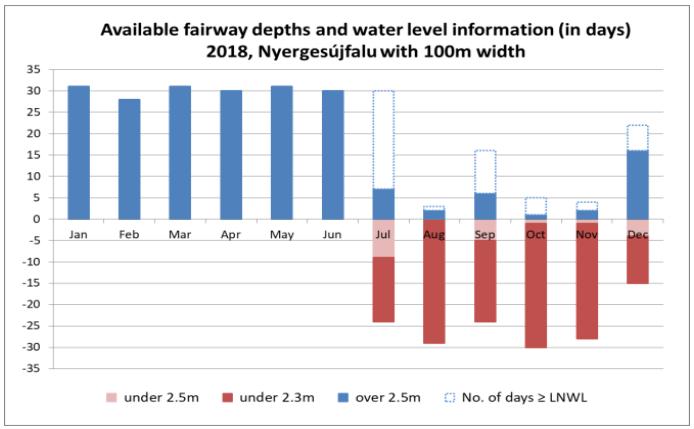


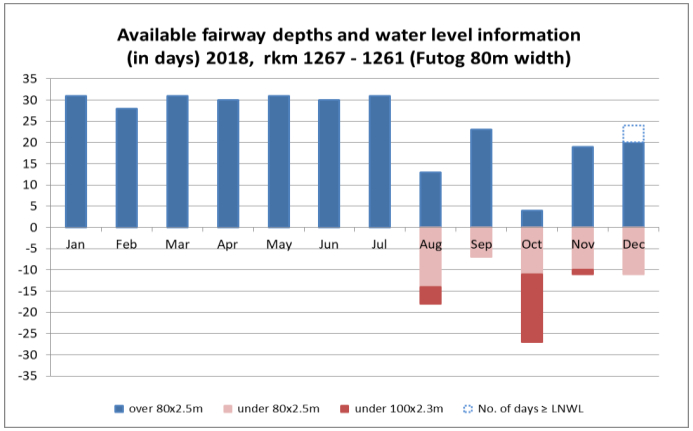
- No. of days on which 2.5m fairway depth would have been possible due to the hydrological conditions (No. of days ≥ Low Navigable Water Level)
- No. of days on which 2.5m fairway depth were actually achieved (or not)

Update May 2019: Fairway availability in 2018 (II)

Central Danube



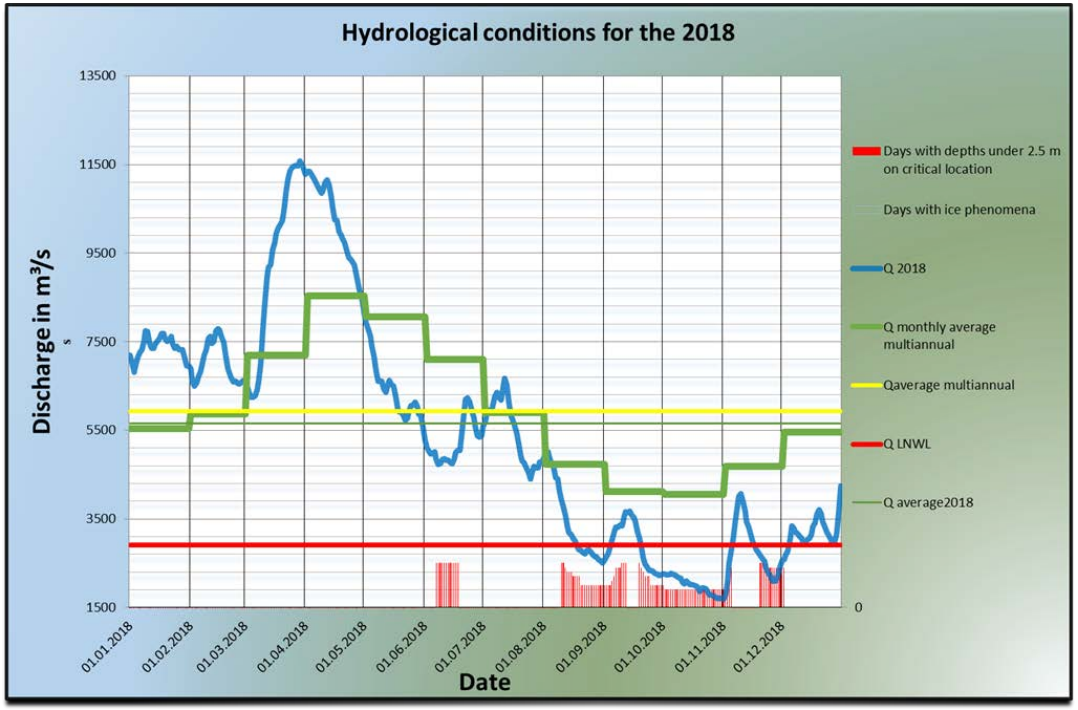


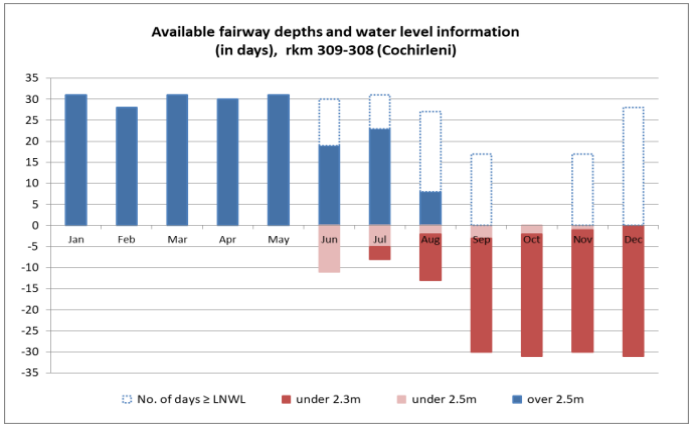


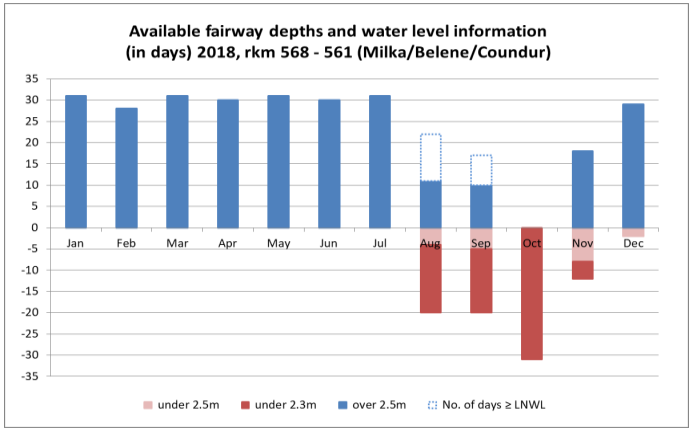
water discharge far below multi-annual average, due to extreme heat and low rainfall

Update May 2019: Fairway availability in 2018 (III)

Lower Danube

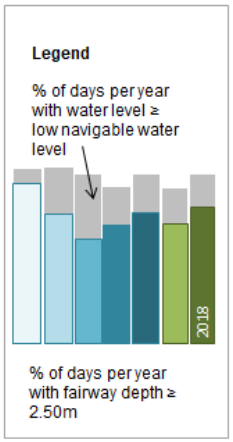


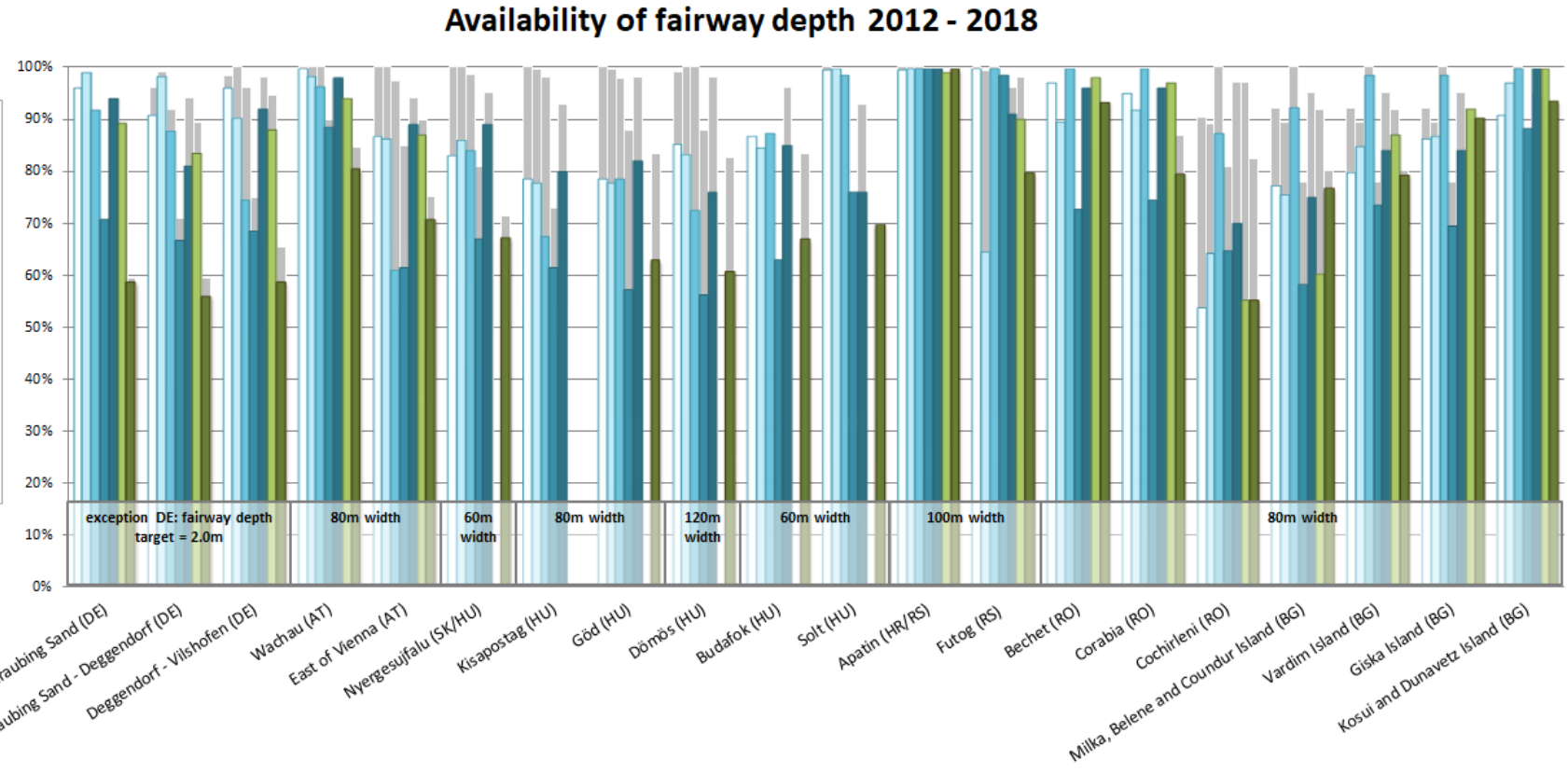




water discharge far below multi-annual average, due to extreme heat and low rainfall

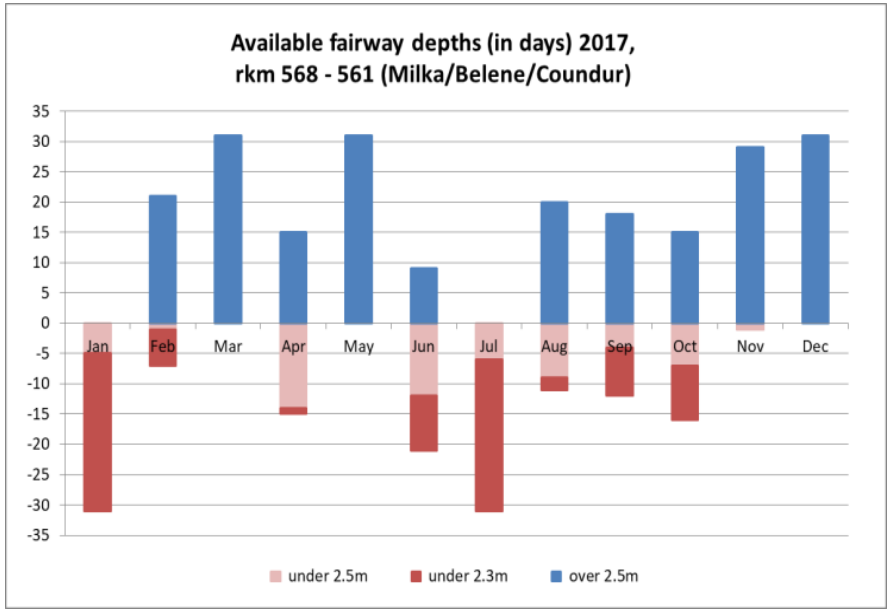
Availability of fairway depth at critical sections 2018



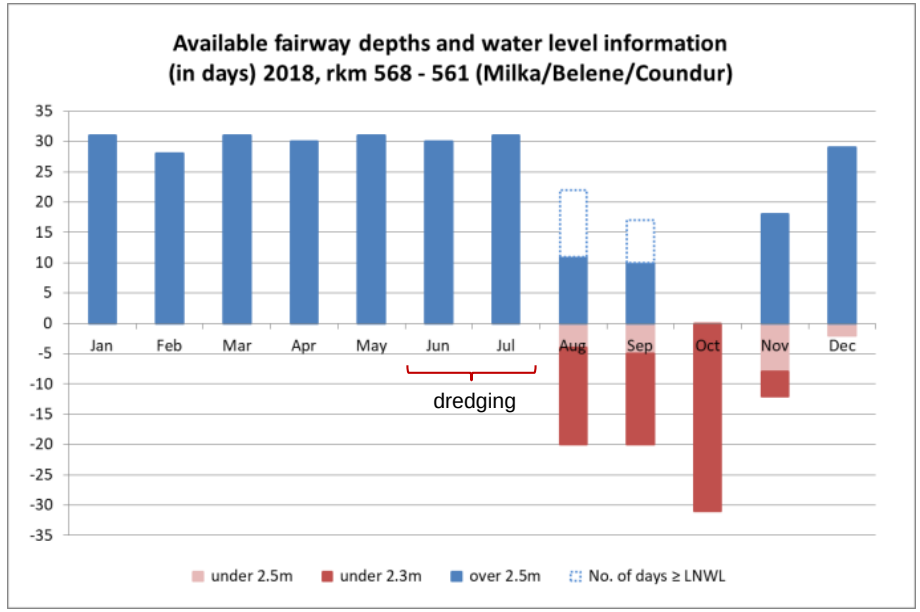


But: Improvements compared to previous years

Bulgaria – critical sector Belene 2017

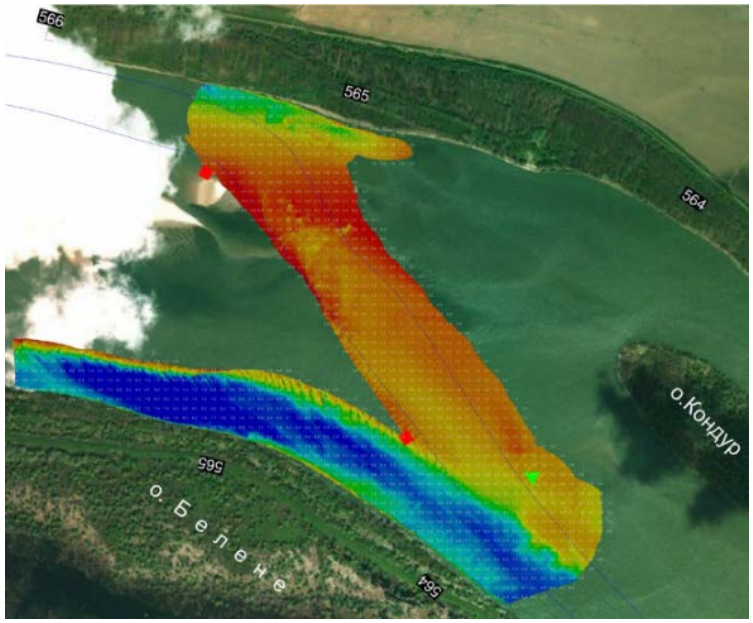


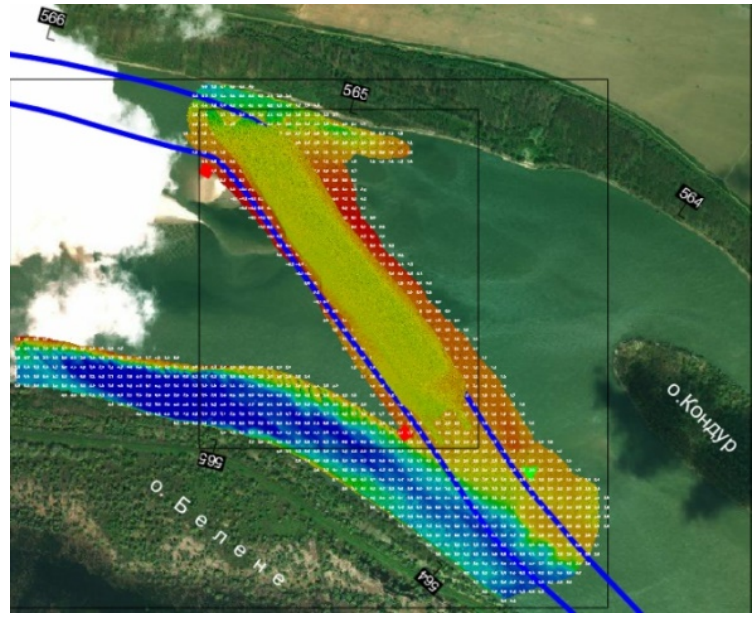
Bulgaria – critical sector Belene 2018



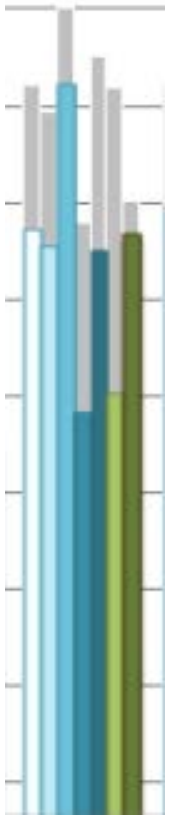
→ key issues of the Fairway Master Plan are gradually addressed
→ timely surveying and dredging, active fairway realignment

Example: Surveying Belene area (Bulgaria), before and after dredging in 2018





Example: Impacts of surveying/dredging in Belene area (Bulgaria)



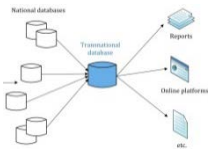
Investments and increased activity level show effect:

- Pro-active waterway management
- Timely surveying
- active realignment of fairway
- Targeted dredging

> Maintenance target could almost be reached despite the bad hydrological circumstances

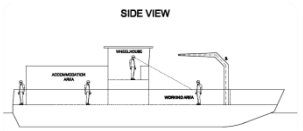

FAIRway surveying vessel


FAIRway marking vessel


FAIRway WAMS

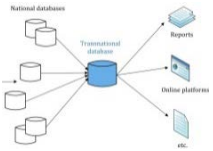

DaReM dredgers


FAIRway surveying vessel



FAIRway marking vessel modern. (3x) & 3x new HUMARK vessels


325x (115 AIS) HUMARK


FAIRway WAMS


drone operation

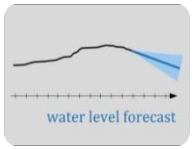

marking craft


233x (AtoNs)

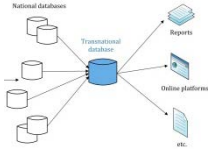

hydraulic engin.


FAIRway surveying vessel


FAIRway marking vessel

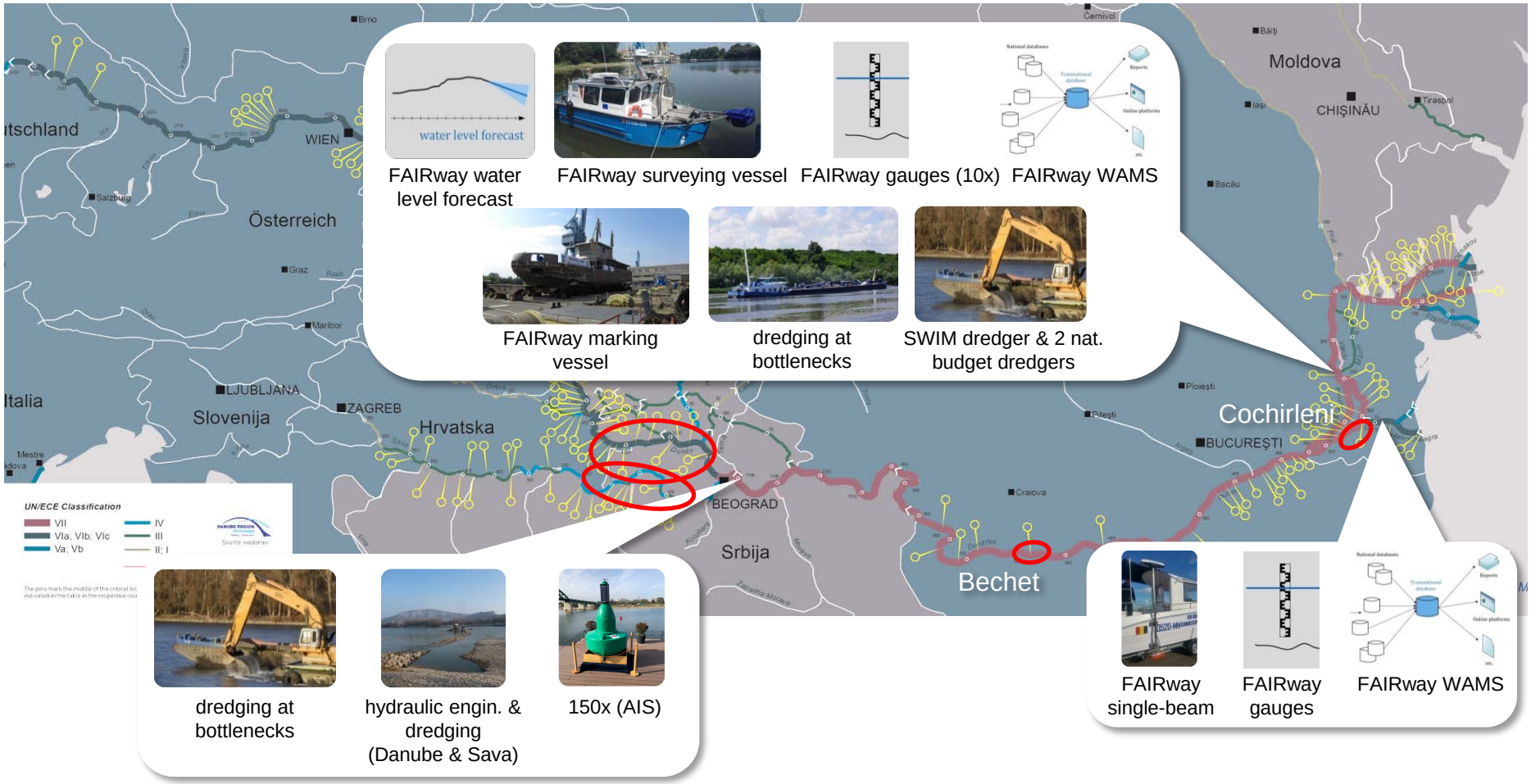


for 3 gauges


FAIRway WAMS


FAIRway gauges


dredging



FAIRway water level forecast

FAIRway surveying vessel

FAIRway gauges (10x)

FAIRway WAMS

FAIRway marking vessel

dredging at bottlenecks

SWIM dredger & 2 nat. budget dredgers

dredging at bottlenecks

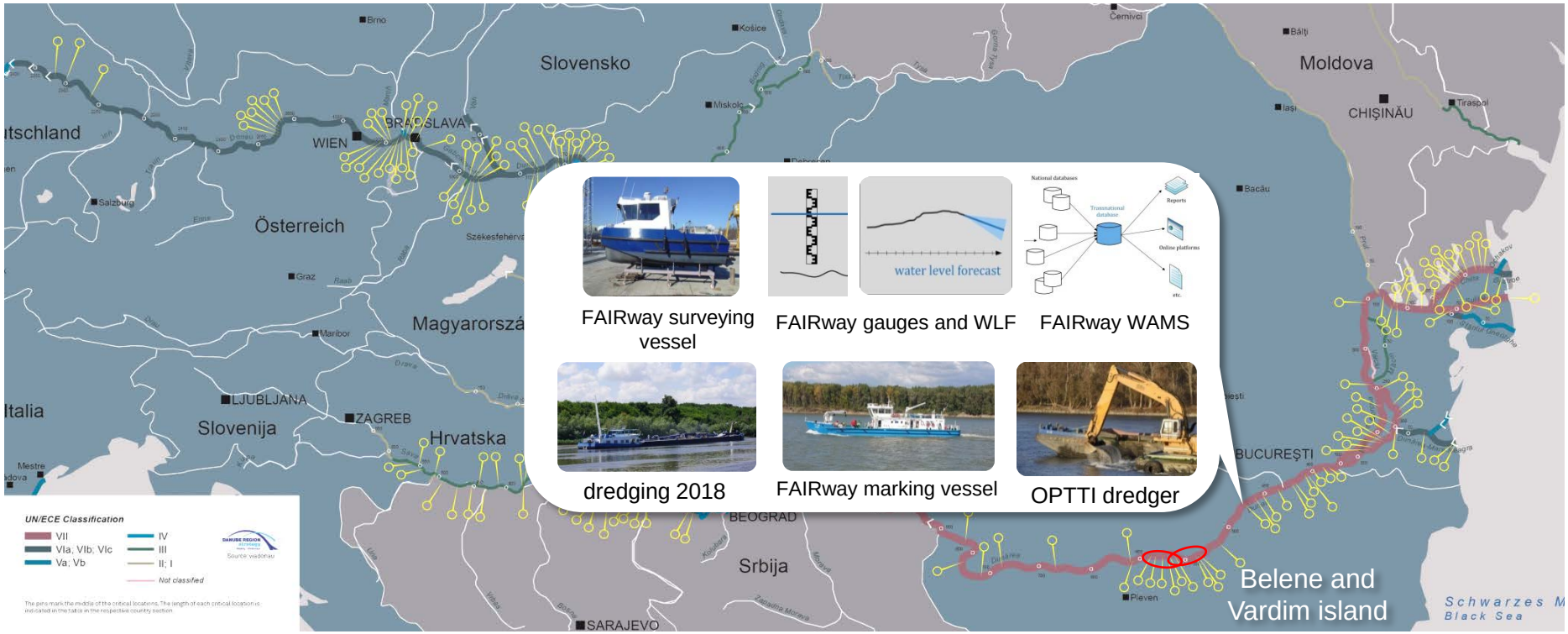
hydraulic engin. & dredging (Danube & Sava)

150x (AIS)

FAIRway single-beam

FAIRway gauges

FAIRway WAMS


Slovensko
Moldova
CHIȘINĂU
WIEN
BRATISLAVA
Österreich
Magyarország
Hrvatska
Slovenija
Srbija
BEOGRAD
SARAJEVO
BUCUREȘTI
Belene and
Vardim island
Schwarzes M
Black Sea
FAIRway surveying vessel
FAIRway gauges and WLF
water level forecast
FAIRway WAMS
dredging 2018
FAIRway marking vessel
OPTTI dredger
UN/ECE Classification
VII
VIa; VIb; VIc
Va; Vb
IV
III
II; I
Not classified

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 = Coordinator

viadonau = Technical Secretariat

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Guvernul României — Ministerul Transporturilor

= Coordinator & Technical Secretariat

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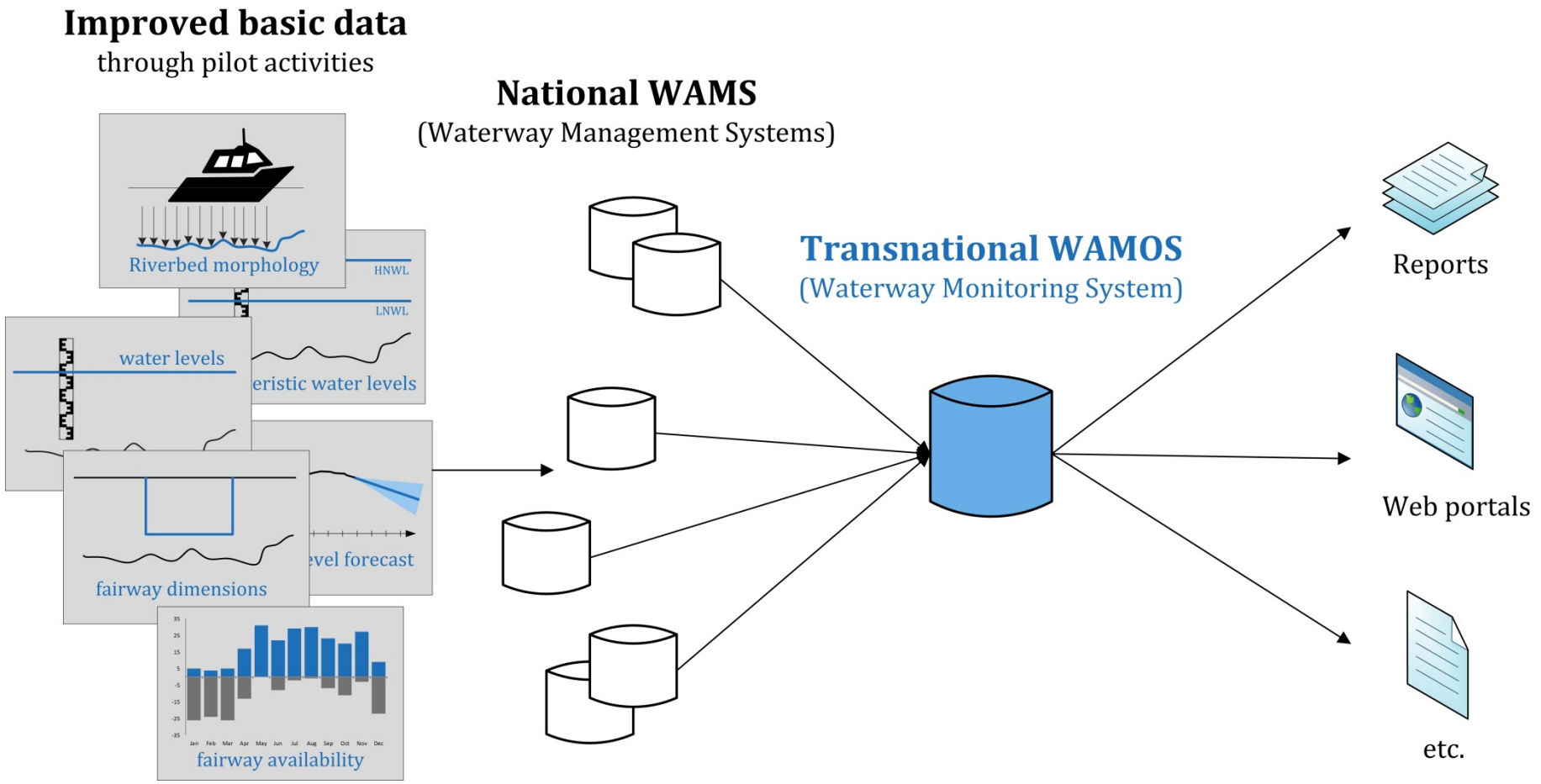
Co-financed by the European Union
Connecting Europe Facility

FAIRway Danube

Digitalization of the Waterway within FAIRway Danube
(Sub-Act 3.3/4.2)

WAMOS
(WAterway MOnitoring System)

WAMOS – System Environment



WAMOS – Motivation & Opportunities

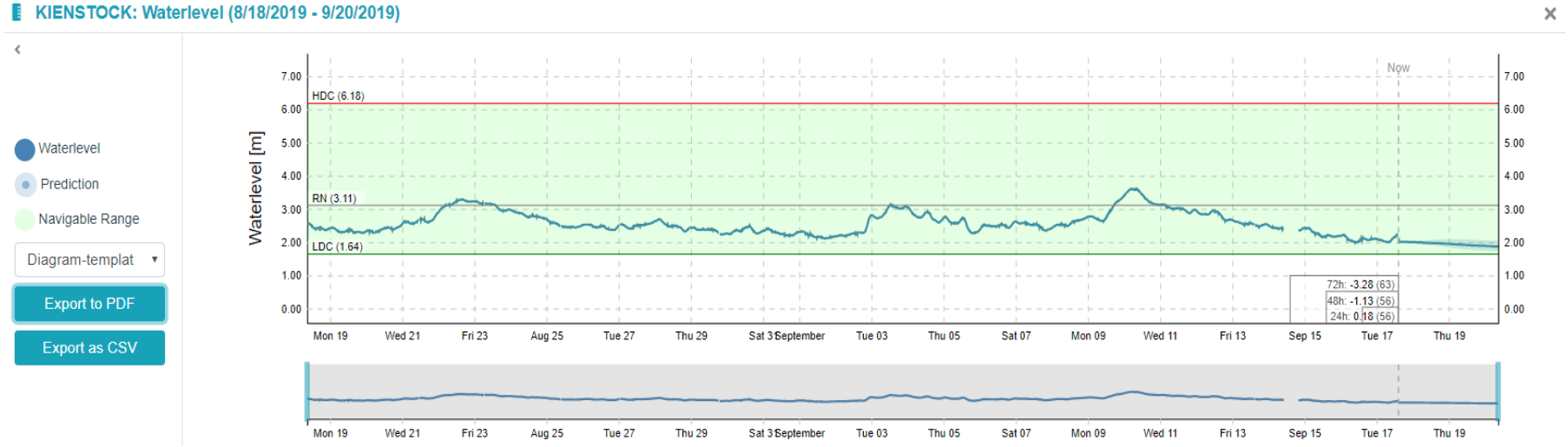
- Digitalization of fairway related data
- Harmonization of basic data
  - ✓ Catalogue of required data (common data format)
  - ✓ Common procedures
  - ✓ Common documentation & reporting tools
- Compile and displaying of basic fairway data
- Analysing and evaluation of basic fairway data
- Extract the 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 Sytems (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)

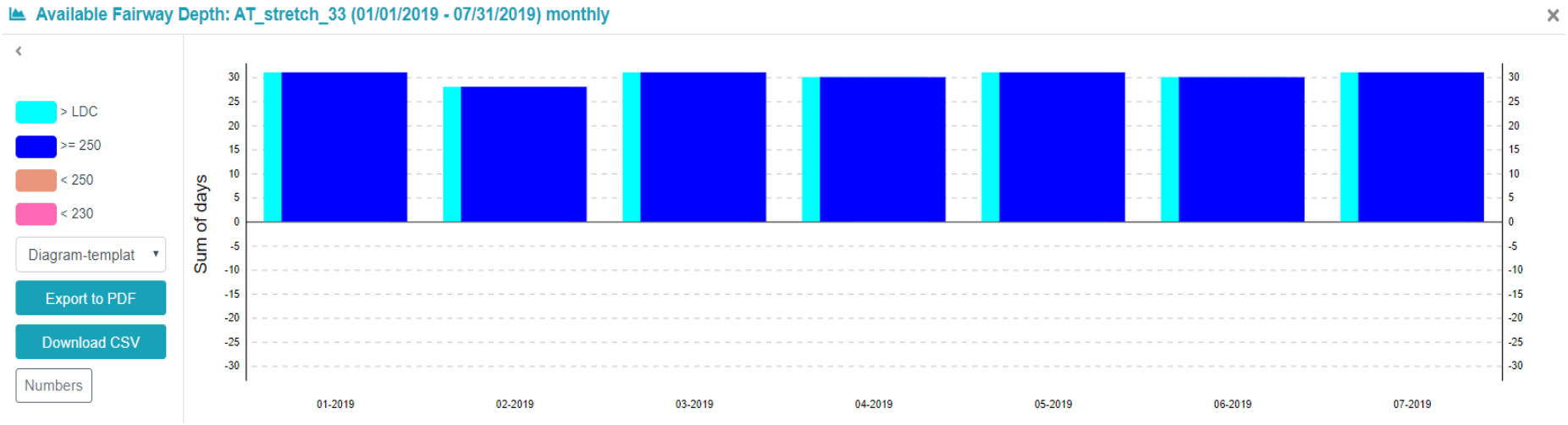
WAMOS – Outputs I

- Extract <u>Waterlevels</u> for every gauge available on the Danube (according to NtS 4.0 standard)



WAMOS – Outputs II

- Extract <u>Available Fairway Depths</u> for Stretches & Individual bottlenecks (example – Vienna East – Freudenau to the border of Slovakia)



WAMOS – Outputs III – user information