



FAIRway Danube

a milestone for the realization of
the Fairway Rehabilitation and
Maintenance Master Plan

Fairway Rehabilitation and Maintenance Master Plan



Fairway Rehabilitation and Maintenance Master Plan
– Danube and its navigable tributaries

Main objective: **establish stable fairway conditions along the entire Danube**

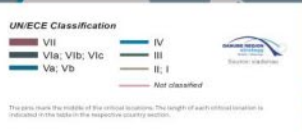
- Initiated in April 2014 by EU Danube Region Strategy (Priority Area 1a)
- Prepared in close cooperation with PA1a, the European Commission and the Danube waterway administrations

EU Strategy for the Danube Region,
Priority Area 1a – To improve mobility



- Endorsed in December 2014, June 2016 and December 2018 by the majority of Danube Transport Ministers
- Significant parts being implemented by the **FAIRway Danube project** (CEF)

- 



- MINISTERUL TRANSPORTURILOR

... but how to deploy this in the field...

Objective



Requirements concerning transport infrastructure and ecology



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Commitment



Fairway Rehabilitation & Maintenance Master Plan



Deployment



Studies (Danube Development Study, DAREM, FAST Danube,...)

Equipment (bg. surveying vessel,...)

Rehabilitation of locks (Gabčíkovo, Iron Gate 1, Danube-Black Sea Canal,...)

Works (AT, RS, RO,...)

... we are on a good track, but more effort is needed ...



monitoring:
National Action
Plans



EU co-financing is
crucial enabler



Co-financed by the European Union
Connecting Europe Facility

FAIRway Danube in a nutshell

Inland waterway
study with pilots

No physical
interventions
(no dredging)

Duration

6 years,
from
1 July 2015
until
31 December 2021

Budget

Total: 21,7 Mn EUR
CEF: 18,2 Mn EUR
27%
effective co-funding for AT,
85%
for cohesion countries

7 partners in
6 Danube riparian
countries

Coordinated by:

Austrian Ministry for Climate Action, Environment,
Energy, Mobility, Innovation and Technology &

via donau-Österreichische Wasserstraßen-
Gesellschaft mbH (viadonau)

viadonau

Website: www.fairwaydanube.eu

Activities within FAIRway Danube

1. Project Management

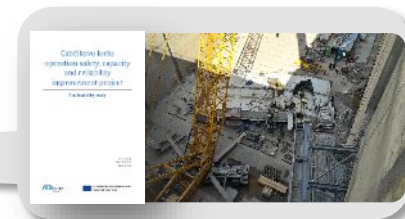
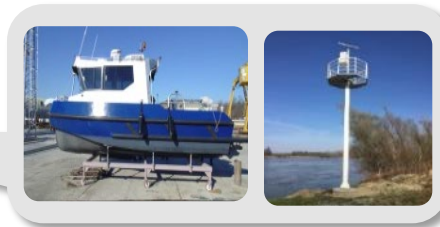
2. Action Plans

3. Procurement

4. Pilots

5. Innovative Approaches

6. Documentation for full deployment




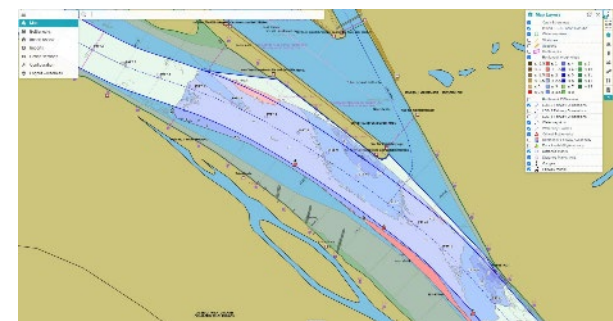
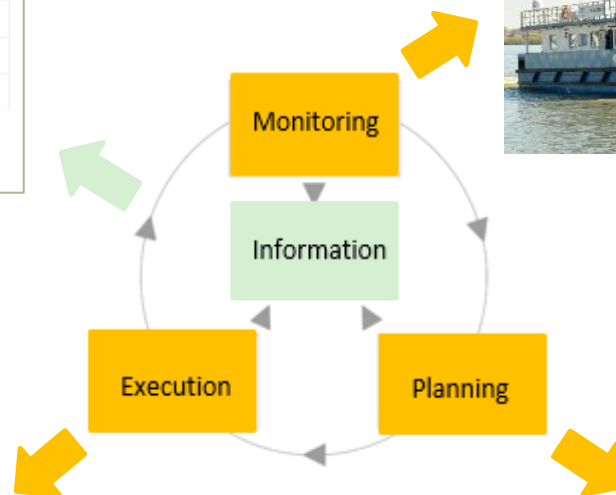
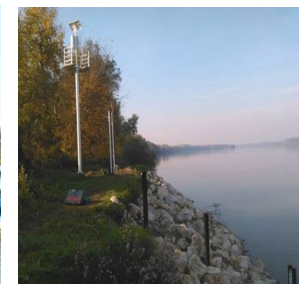
Activities within FAIRway Danube

- **Monitoring** of fairway parameters (surveying vessels & gauging stations)
- **Planning** of fairway measures (WAMS/WAMOS)
- **Execution** of fairway optimization (marking vessels)
- **Information** on fairway depth (waterlevel forecast)

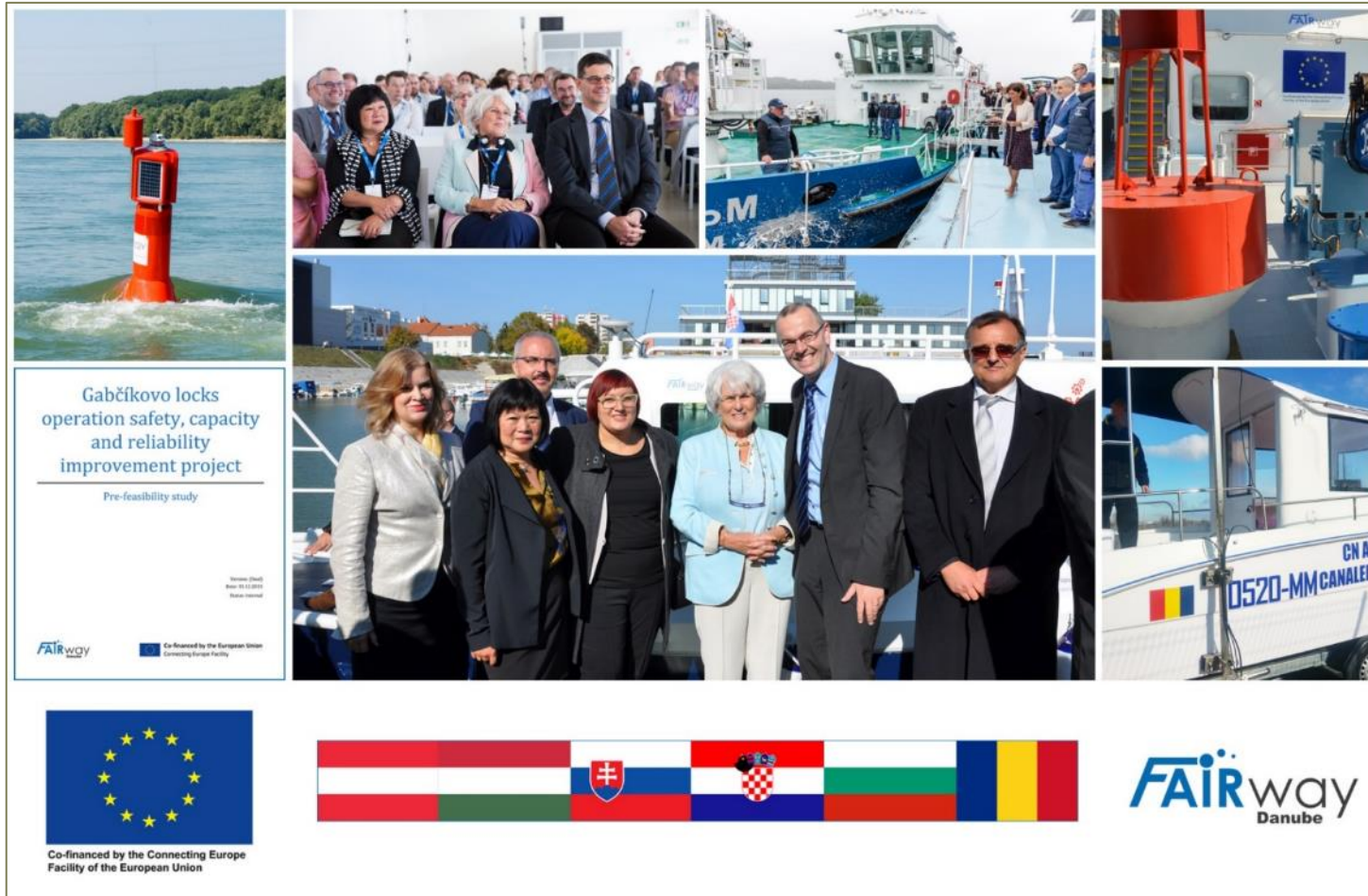
Tabular presentation of the water level

Gauge	05.11.	06.11.	07.11.	08.11.	09.11.
Batina	-17	-13	-8	-1	24
Ajmaš	12	20	32	54	90
Vukovar	12	17	27	42	70

 Co-financed by the European Union
Connecting Europe Facility



Activities within FAIRway Danube



National action plans for status monitoring

- 10 updates between 2015 and 2020
- Under the lead of FAIRway Danube, in cooperation with the EU Danube Region Strategy's Priority Area 1a



National action plans for status monitoring

- Monitor **implementation status** of the Fairway Rehabilitation & Maintenance Master Plan for the Danube and its navigable tributaries.
- **Illustrate planned steps for rehabilitation and maintenance activities** in the Danube riparian countries.

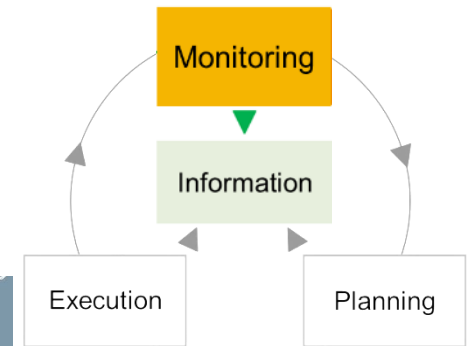


Key information & parameters:

- Fairway availability
- Hydrological conditions
- Rehabilitation and maintenance activities
- Key issues
- Environmental impacts
- Expenditures and budget needs

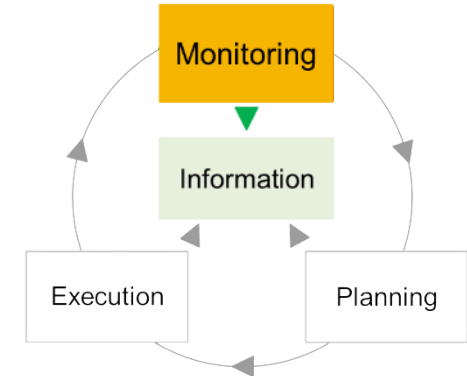
Monitoring

- New surveying vessels in Slovakia, Hungary, Croatia, Bulgaria and Romania
- 9 new gauging stations in Croatia, 8 new gauging stations in Romania (ACN) and 10 new gauging stations in Bulgaria
- coming in 2020: 10 gauging stations in Romania (AFDJ)



Monitoring

New **surveying vessels** equipped with multibeam echo sounder - collect hydrographic riverbed data and information on critical fairway sections in regular intervals



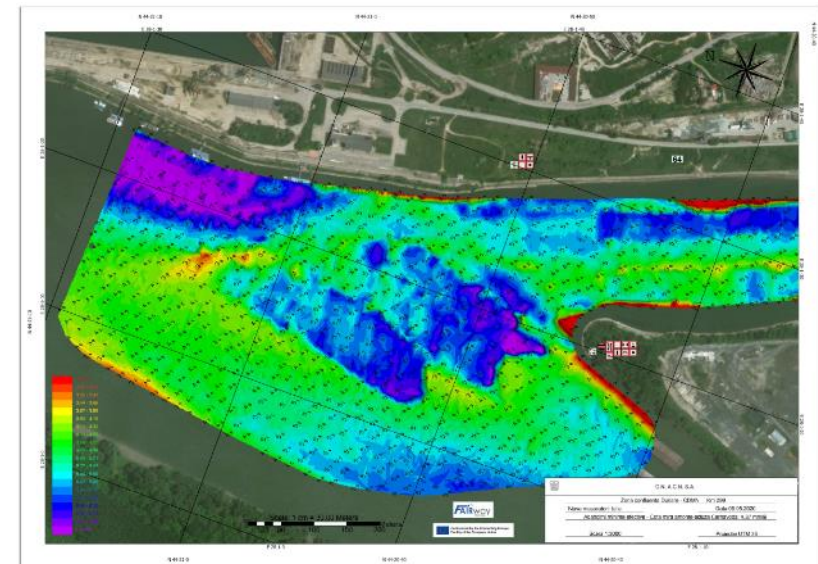
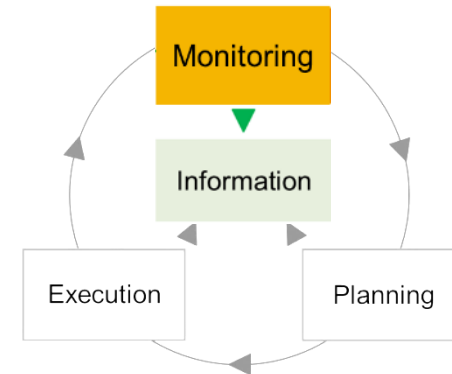
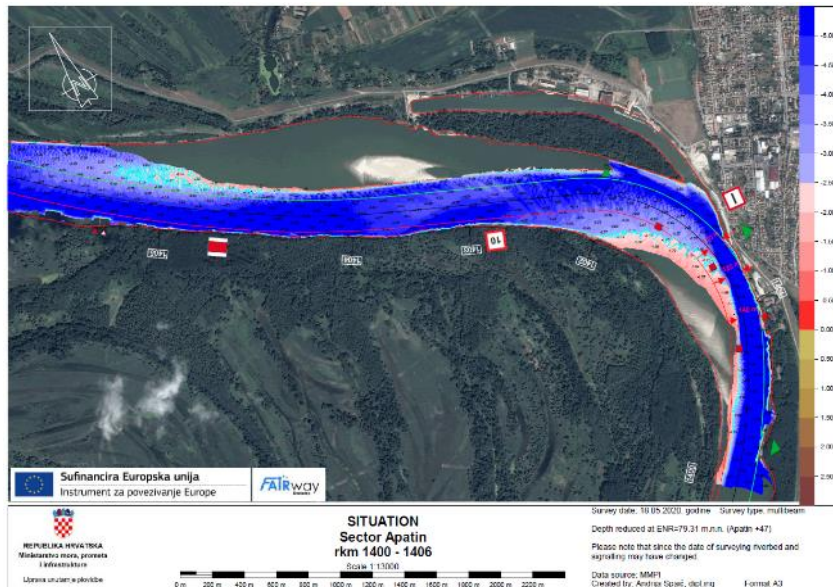
Gauging stations monitor hydrological data 24/7



Monitoring

Surveying results published on Danube FIS-Portal

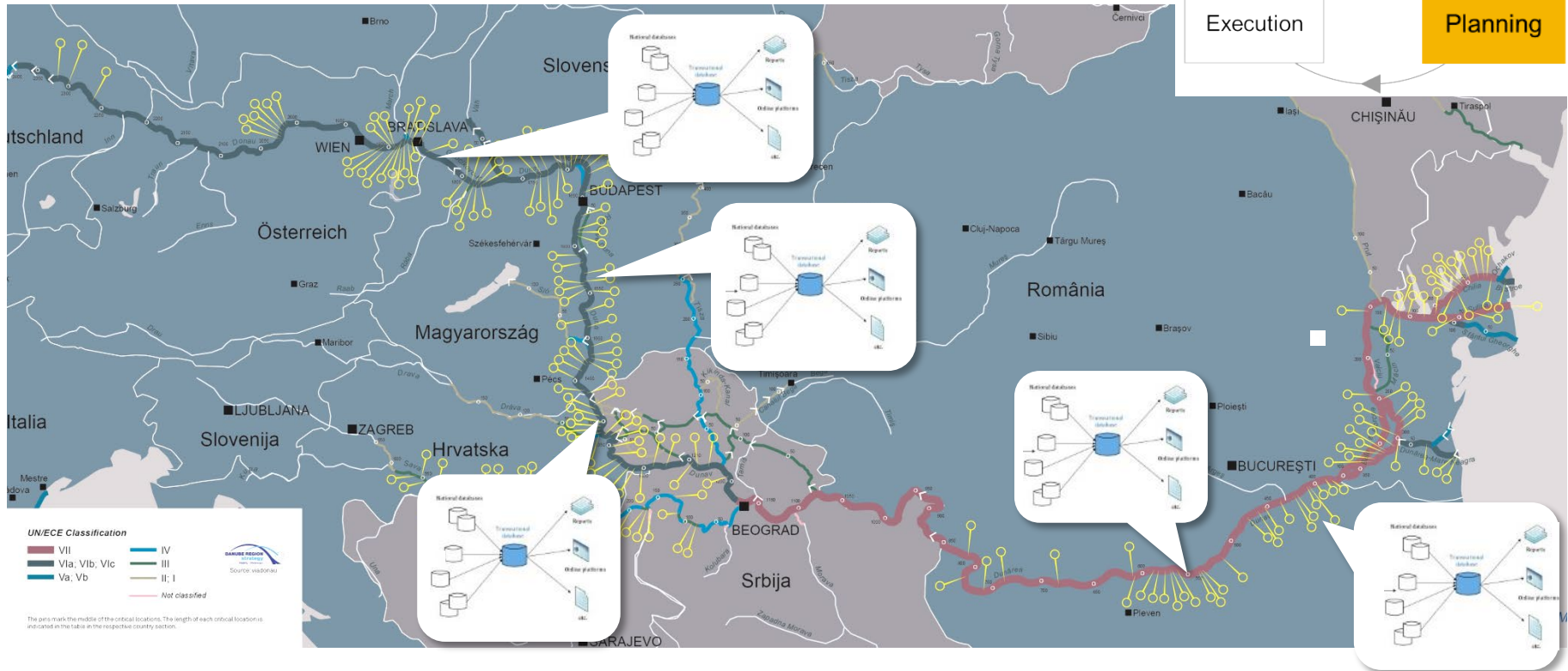
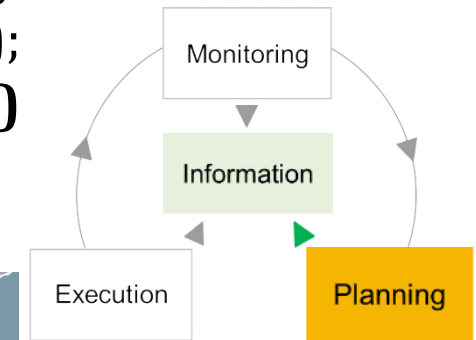
Shallow section information for Apatin (May 2020)



Shallow section information for Cernavoda canal (May 2020)

Planning

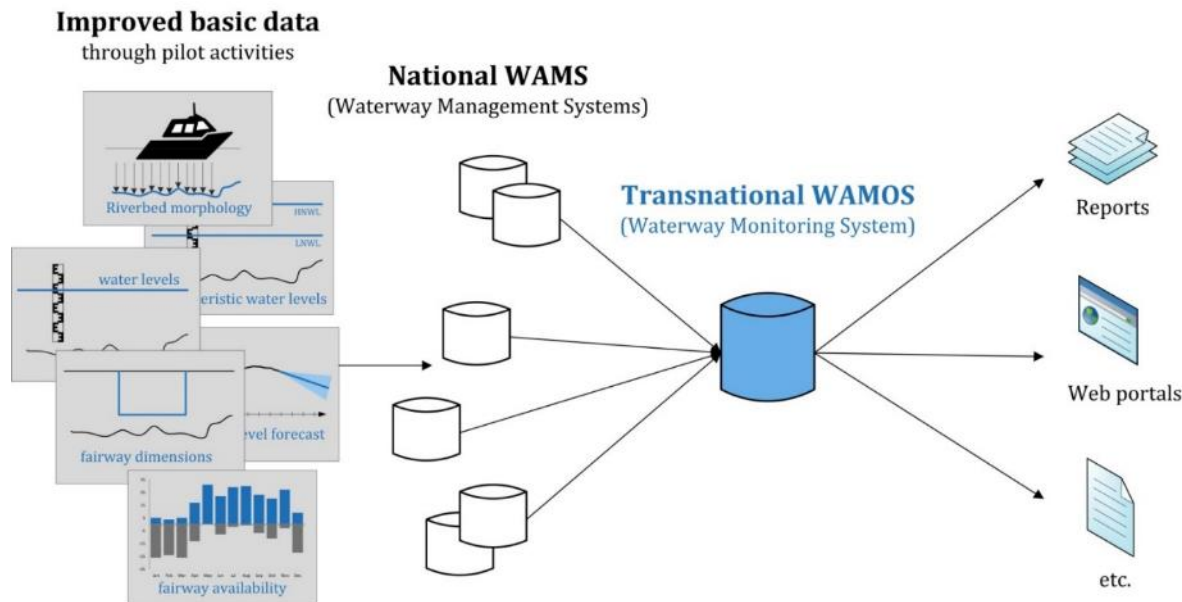
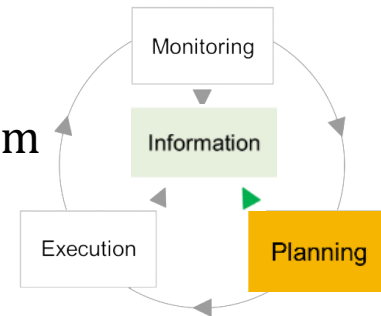
Coming in 2020: national **WAMS** to support waterway administrations in planning (SK, HU, HR, RO, BG);
transnational Waterway Monitoring System (WAMOS)
for consistent data



Planning

WAMS (national): **W**aterway **A**sset **M**anagement **S**ystem

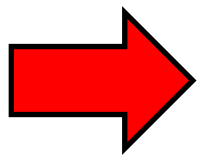
WAMOS (transnational/ common database): **W**aterway **M**onitoring **S**ystem



1. Compile & display basic fairway information

2. Analyse and evaluate basic data

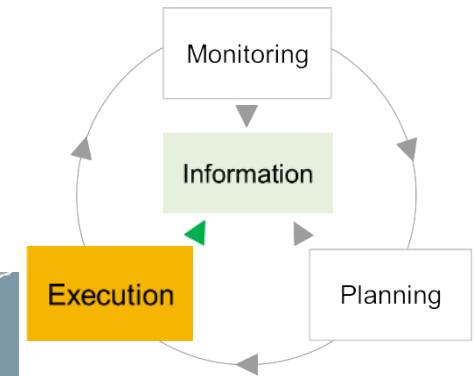
3. Extract relevant information



PILOT OPERATION STARTED ON OCTOBER 2019!

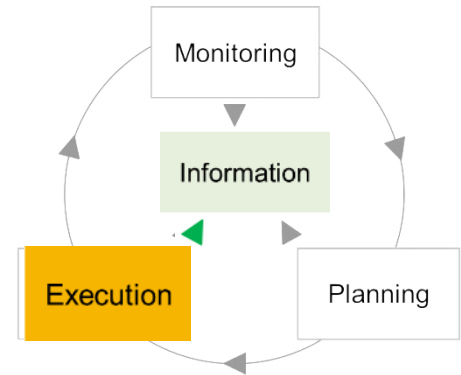
Execution

- In total, 4 new and 3 upgraded marking vessels are in operation in Slovakia, Hungary, Croatia, Romania (AFDJ) and Bulgaria;**



Execution

- Marking vessels are equipped with single-beam technology
- Facilitated navigation experience and improved positioning of buoys.
- Marking results are published in Danube FIS Portal (www.danubeportal.com)



New marking vessels

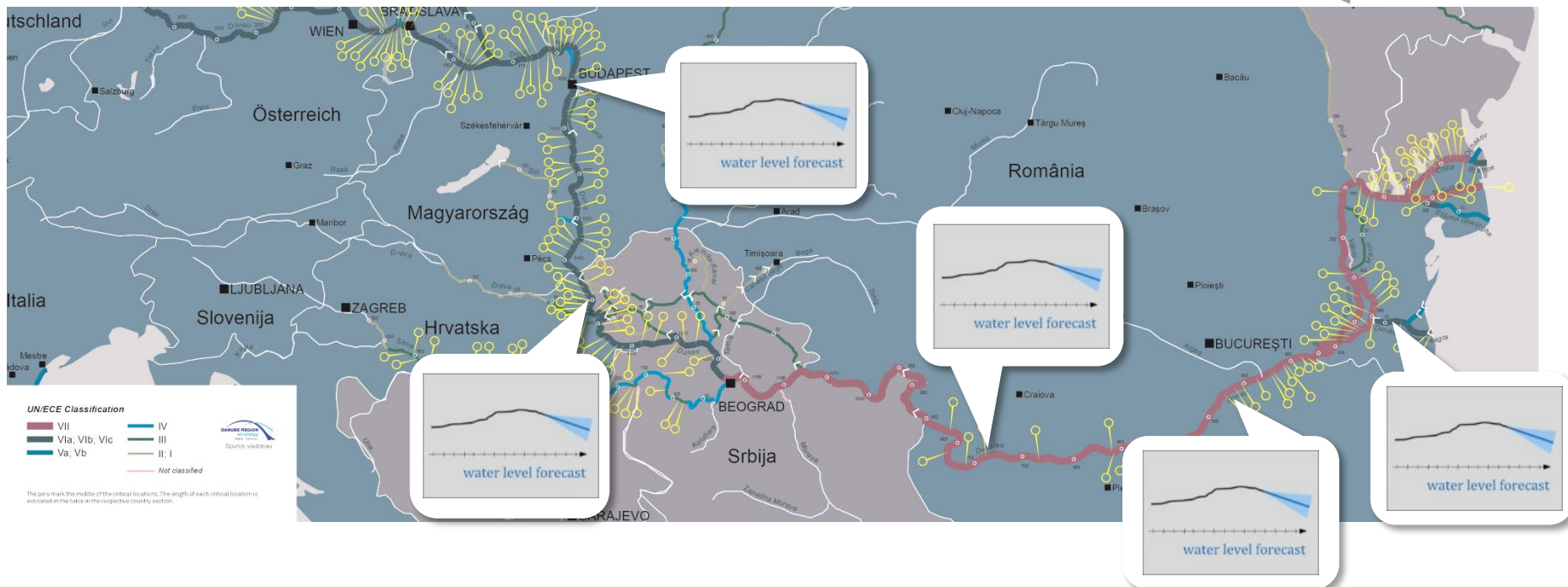
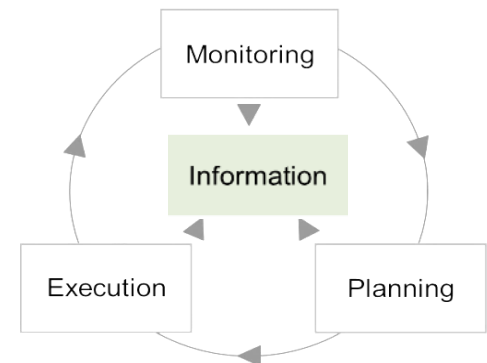


Upgraded marking equipment

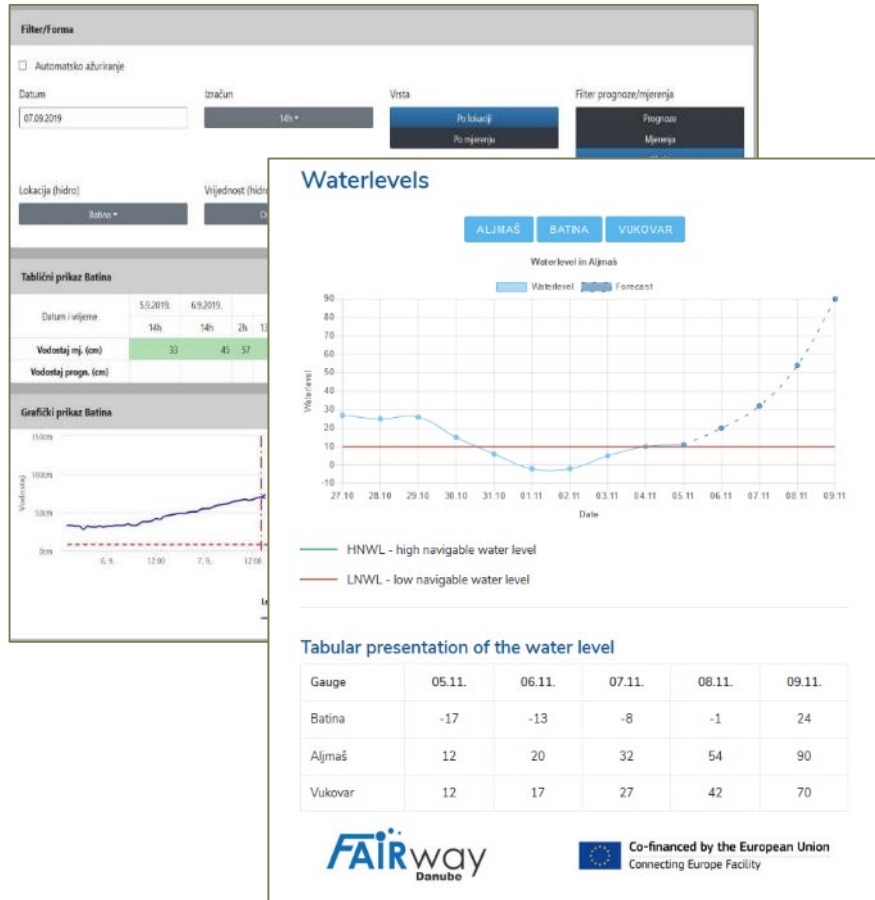


Information

- **New water level forecast** for important gauges in **Hungary and Croatia** introduced
- Coming in 2020: New/enhanced level forecast for important gauges in Romania (AFDJ+ACN) as well as Bulgaria



Information: Water-level Forecast Pilot in Croatia



→ Water-level forecast for 5 days available internally for gauges:

- Batina;
- Aljmaš;
- Dalj;
- Vukovar;
- Ilok

→ Water-level forecast for 5 days **PUBLICLY** available for gauges:

- Aljmaš;
- Batina;
- Vukovar,

Information: Water-level Forecast Pilot

Lower Danube

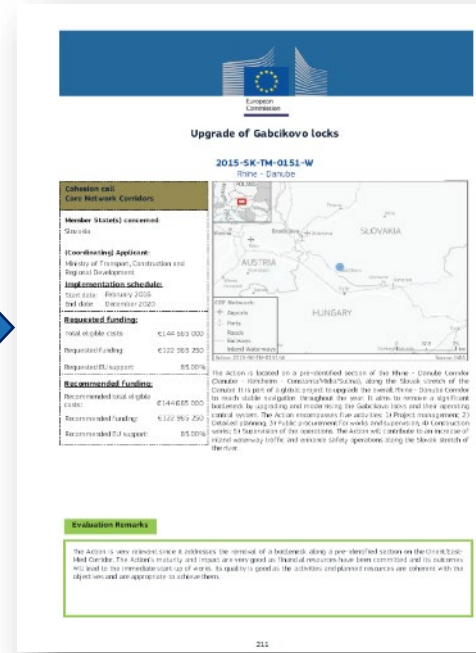
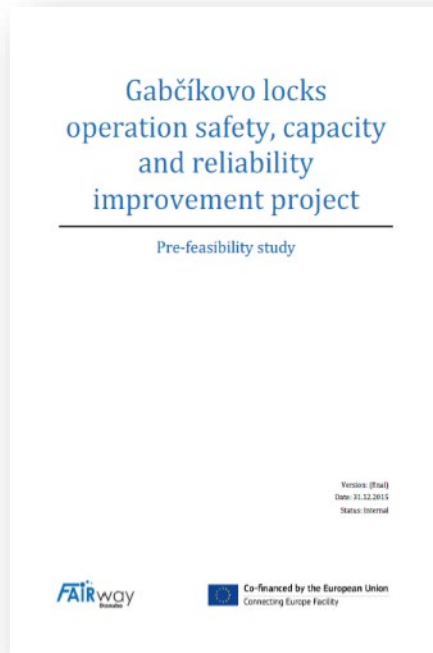
Location	Km	Water level	Variation	24H	48H	72H	96H	120H	Measured temperature	Last update
Sulina	0	59 cm	4						19,0 °C	02/06/2020
Tulcea	71	97 cm	1	97	96	96	98	102	19,0 °C	02/06/2020
Isaccea	103	140 cm	2	119	118	119	122	129	19,2 °C	02/06/2020
Galati	150	160 cm	3	156	153	155	164	174	19,2 °C	02/06/2020
Braila	170	147 cm	0	141	137	138	146	158	19,5 °C	02/06/2020
Harsova	253	110 cm	2	100	96	102	118	135	19,5 °C	02/06/2020
Cernavoda	300	38 cm	-3	27	23	32	49	64	19,5 °C	02/06/2020
Calarasi	370	47 cm	-10	37	37	46	64	77	19,5 °C	02/06/2020
Oltenita	430	82 cm	-12	77	83	96	112	118	19,5 °C	02/06/2020
Giurgiu	493	48 cm	-12	48	62	82	96	98	19,5 °C	02/06/2020
Zimnicea	554	95 cm	-7	104	126	145	153	151	19,5 °C	02/06/2020
Turnu Magurele	597	81 cm	0	96	117	132	135	129	19,5 °C	02/06/2020
Corabia	630	47 cm	-1	69	92	104	102	95	19,5 °C	02/06/2020
Bechet	679	106 cm	14	139	158	164	158	148	19,7 °C	02/06/2020
Rast	738	114 cm	56						19,5 °C	02/06/2020
Calafat	795	122 cm	86	163	157	142	130	121	19,5 °C	02/06/2020
Cetate	811	181 cm	85						19,5 °C	02/06/2020
Gruia	851	150 cm	64	210	189	175	163	154	20,0 °C	02/06/2020
Drobeta Turnu Severin	931	680 cm	-78						20,0 °C	02/06/2020
Orsova	954	2530 cm	5						20,0 °C	02/06/2020
Drencova	1015	987 cm	1						20,0 °C	02/06/2020
Moldova Veche	1048	720 cm	-8						20,0 °C	02/06/2020
Bazias	1072	580 cm	-6						20,0 °C	02/06/2020

The hydrological forecasts for 24 - 120 hours anticipation are elaborated by the National Institute of Hydrology and Water Management - INHGA (www.inhga.ro).

Protocol Agreement for common water-level forecast for Lower Danube (RO - AFDJ, RO - ACN and BG – IAPPD)

Lock Rehabilitation in Slovakia

- FAIRway Danube prepared **pre-feasibility study** on rehabilitation of Gabčíkovo locks
- Works project (€ 145 Mn.)
- Permanent operation of both lock chambers → improved efficiency



Innovative Approaches

Include studies such as on:

- aerial photo monitoring concepts,
- identification of the optimum speed at navigable canals,
- recalculation of Low Navigable Water Levels on the lower Danube,
- development of an AIS AtoN application concept



Expected impact of FAIRway Danube: improved fairway conditions

Coordinated approach
give insight on national circumstances and coordinate planned actions

Updated **national action plans** twice a year



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Collect, analyze and publish **basic data**

5 surveying vessels and **37 gauges**,
3 years **pilot operation**,
improved **water level forecasts**

Use available depths:
relocate the fairway

4 marking vessels,
3 years **pilot operation**





Test **innovative approaches**,


Preparatory studies for Váh and Gabčíkovo


AIS AtoNs, drones for monitoring, etc.
Studies on the navigability of the Váh and the upgrade of Gabčíkovo

Partners & Beneficiaries


 Austrian Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology


 Ministry of Transport, Construction and Regional Development of the Slovak Republic and Slovak Water Management Enterprise (SVP);

 Ministry for Innovation and Technology

 Ministry of the Sea, Transport and Infrastructure;

 Executive Agency “Exploration and Maintenance of the Danube River” (EAEMDR);

 River Administration of the Lower Danube Galati (AFDJ);

 Administration of the Navigable Canals (ACN);

Stakeholders & Advisory Board

Stakeholders

- *Waterway and Canal Administrations*
- *Waterway users (operators of cargo and cruiseships)*
- *Logistics service-providers (port and terminal operators)*
- *Lock operators*
- *Industry plants located along the Danube*
- *Governmental authorities*
- *River Commissions*
- *NGOs*

Advisory Board

- *Danube Commission (DC)*
- *Directorate for Inland Waterways (Plovput)*
- *European Barge Union (EBU)*
- *European Federation of Inland Ports (EFIP)*
- *European Skippers Association (ESO)*
- *International Commission for the Protection of the Danube River (ICPDR)*
- *IG RiverCruise*
- *Inland Navigation Europe (INE)*
- *International Sava River Basin Commission (ISRBC)*
- *Koninklijke BLN-Schuttevaer*
- *Ministry of Infrastructure of Ukraine*
- *Port of Constanta*
- *Pro Danube International (PDI)*

Stakeholder involvement in 2019

Advisory Committee and Steering Committee 04.12.2019



User Fora:

- RO: 27.03.2019
- BG: 28.05.2019
- HR: 22.11.2019
- HU: 13.11.2019
- SK: 25.11.2019





Thank you for your attention.



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