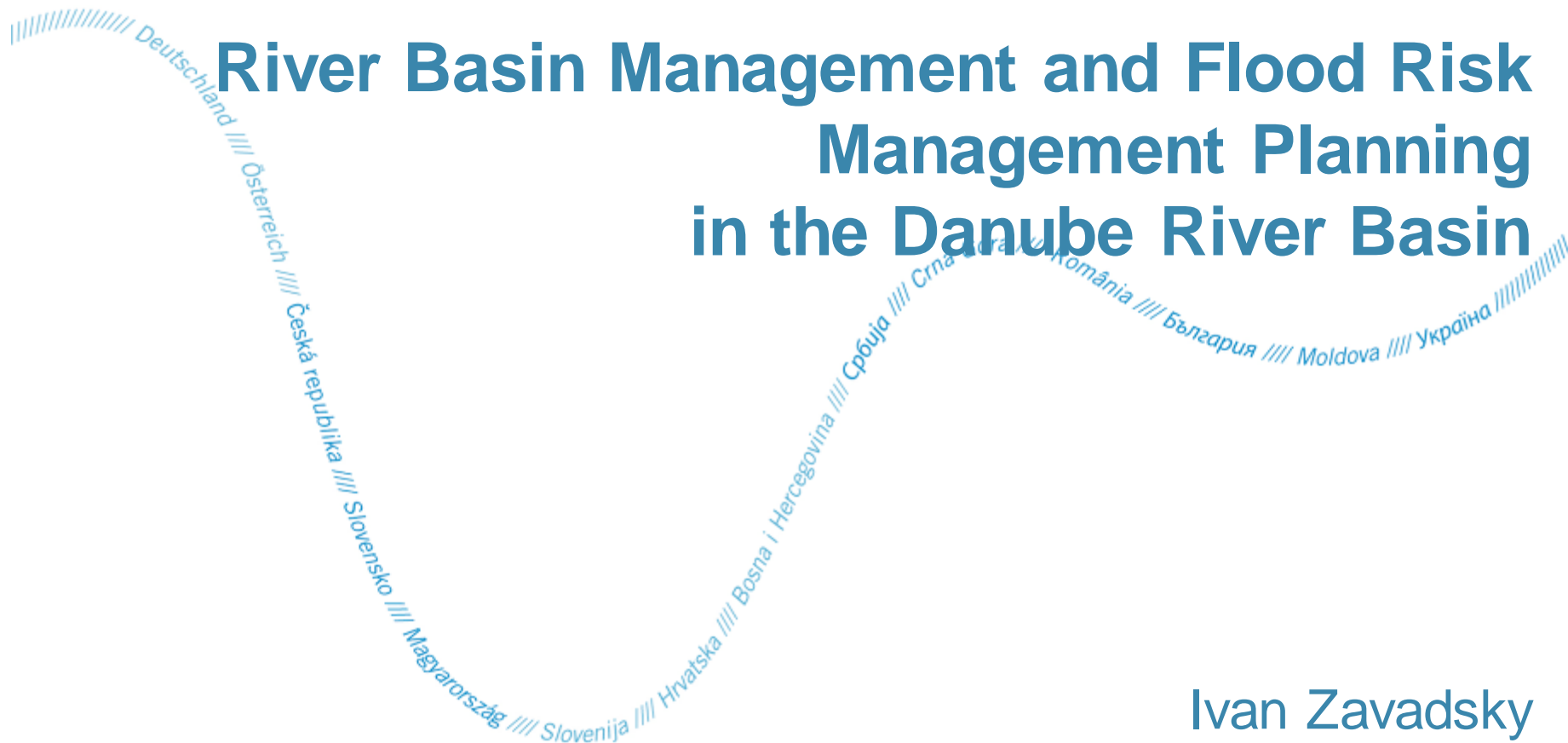


# River Basin Management and Flood Risk Management Planning in the Danube River Basin

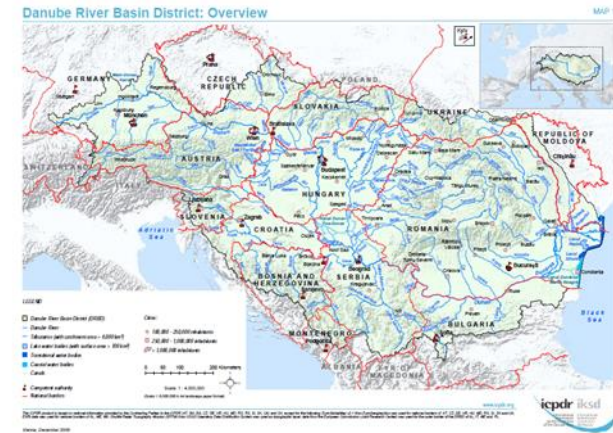


Ivan Zavadsky  
ICPDR Executive Secretary  
9 December 2021

# The ICPDR ...



- 19 countries covering the DRB
- More than 79 million people in a catchment of 800.000 km<sup>2</sup>
- **Contracting parties to the ICPDR**
  - Nine EU-MS: DE, AT, CZ, SK, HU, SI, HR, RO and BG; and European Union
  - Five non-EU Member States: BA, RS, ME, MD, UA



# Danube River Protection Convention (DRPC)



signed 29 June 1994, Sofia (Bulgaria)



Protection of water & ecological resources



Sustainable use of water



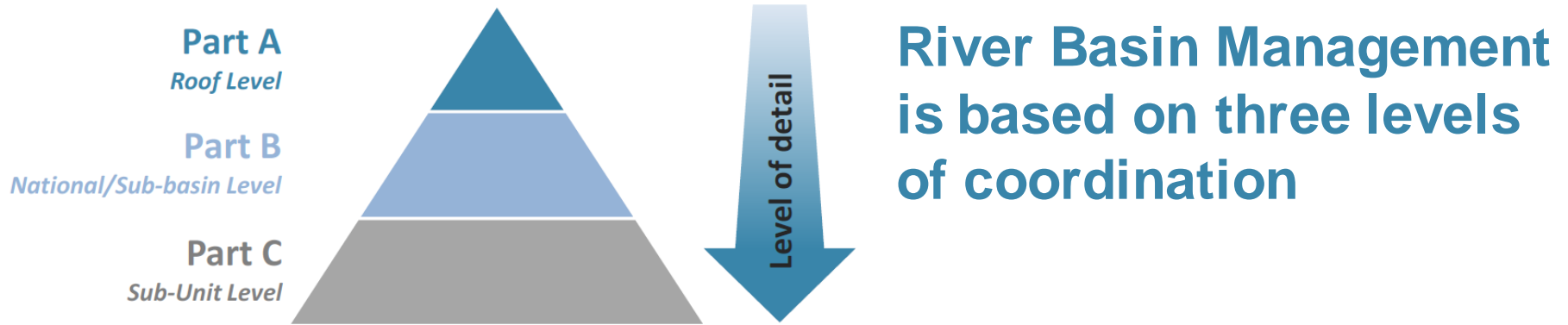
Reduce nutrients & hazardous substances



Manage floods & ice hazards

- Forms the overall **legal instrument** for co-operation on **transboundary water management** in the Danube River Basin
- Applies to countries with **territories of more than 2000 km<sup>2</sup>** within the Danube Basin
- Foresees establishment of the **International Commission for the Protection of the Danube River**

# Water Framework Directive Coordination mechanisms



**River Basin Management  
is based on three levels  
of coordination**

- |               |  |
|---------------|--|
| <b>Part A</b> | International, <b>basin-wide level</b> - the roof level ( <b>ICPDR</b> )   |
| <b>Part B</b> | <b>National level</b> and/or the internationally coordinated sub-basin level for selected sub-basins (e.g. Sava and Tisza) |
| <b>Part C</b> | <b>Sub-unit level</b> , defined as management units within the national territory  |

The information increases in detail from **Part A** to **Parts B** and **C**, **Part A covers**

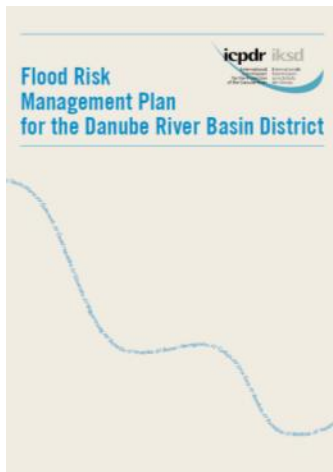
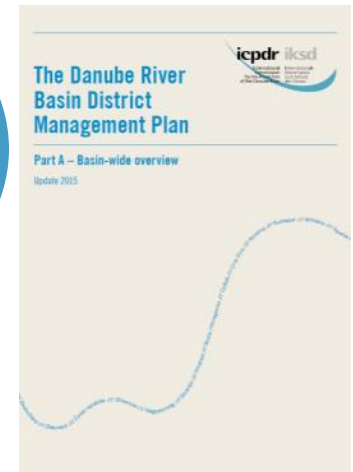
- rivers with catchment areas > 4,000 km<sup>2</sup>;
- lakes > 100 km<sup>2</sup>;
- transitional and coastal waters;
- transboundary groundwater bodies of basin-wide importance.

# Two Management Plans for the Danube River Basin

**ICPDR** IKSD



**Danube River Basin  
Management Plan**  
*(Update 2021 in  
progress)*



**Danube Flood Risk  
Management Plan**  
*(Update 2021 in  
progress)*





# Significant Water Management Issues

## Main pressures on basin-wide level

ICPDR IKSD



Organic  
Pollution



Nutrient  
Pollution



Hazardous  
Substances  
Pollution



Hydromorphological  
Alterations



Effects of Climate  
Change (drought,  
water scarcity,  
extreme hydrological  
phenomena and other  
impacts)

- **Priority pressures for actions** requiring **joint actions** by Danube countries
- Addressed in **Danube River Basin Management Plan**, updates every six years

# Organic Pollution: Progress 2009-2021



- Significant **progress** even in a short period (2005-2018), shift to more **enhanced** technologies
- Improvement of wastewater infrastructure for ca **40 million PE**, on-going or planned projects for 25 million PE
- **Country investments** in wastewater sector: ca. 22 billion EUR (2005-2016, DRB parts), in total more than 40 billion EUR (without DE)

# Hydromorphological Alterations: ICPDR IKSD Progress 2009-2021



Hydromorphological  
Alterations

- Numerous hydromorphological measures have been implemented addressing mitigation of
  - **hydrological alterations** like impoundments, water abstractions and hydropeaking,
  - **improvement of river continuity** (building of fish passes),
  - reconnection of **wetlands/floodplains** and
  - improvement of **morphological conditions** (river restoration projects).
- More than **60 implemented measures related to the improvement of hydrological alterations**, mainly to impoundments and water abstractions
- More than **120 fish migration aids** were completed; as for 8 fish migration aids the construction is on-going
- More than than **60,000 ha of wetlands/floodplains** partly or totally reconnected; for additional 4,500 ha the construction of reconnection is still ongoing



---

# Additional activities: Adaptation Climate Change

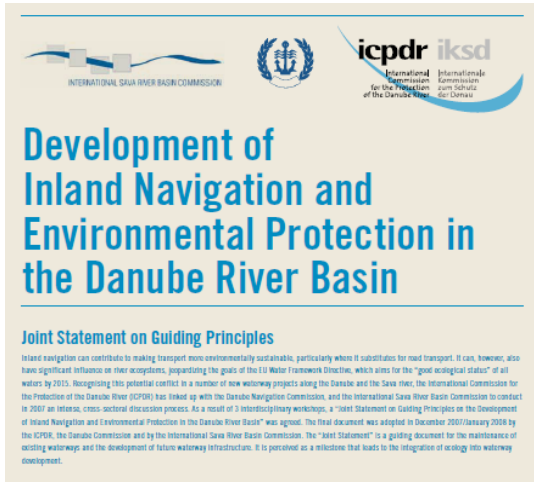
---



- As a **leader and pioneer among transboundary river basin commissions** in responding to climate change, the ICPDR adopted the first ICPDR Strategy on Adaptation to Climate Change in 2012, which was updated in 2018
- New **significant management issue “Effects of Climate Change (Drought, Water Scarcity, Extreme Hydrological Phenomena and other Impacts)”** has a prominent role in DRBMP Update 2021
- Planned **Danube Hydrological Information System (HIS)** will provide basic hydrological and meteorological near real time data in a standard format and, if possible, validated long-term data series, for flood risk management
- Developing an improved **Water Balance for the Danube River Basin** as an element for facing the expected upcoming water quantity challenge

# Additional activities: Integration Issues

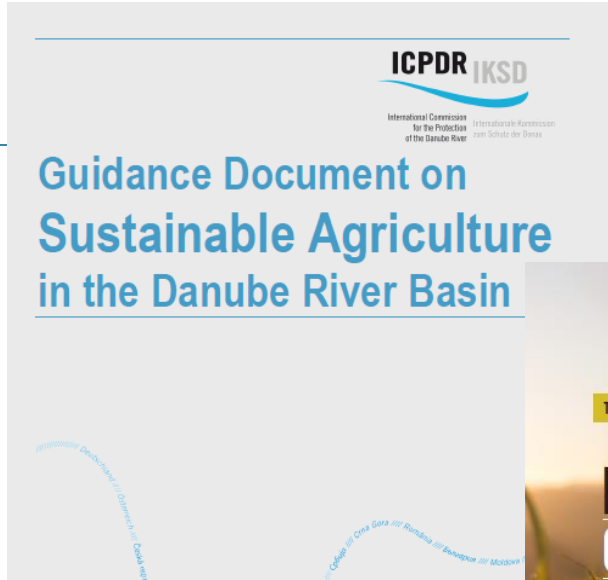
**ICPDR** IKSD



**Development of Inland Navigation and Environmental Protection in the Danube River Basin**

**Joint Statement on Guiding Principles**

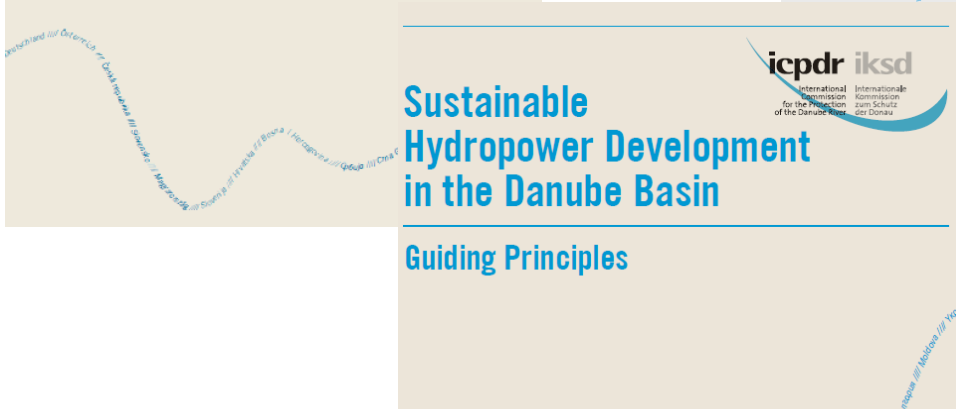
Inland navigation can contribute to making transport more environmentally sustainable, particularly where it substitutes for road transport. It can, however, also have significant influence on river ecosystems, jeopardizing the goals of the EU Water Framework Directive, which aims for the "good ecological status" of all waters by 2015. Recognizing this potential conflict in a number of new waterway projects along the Danube and the Save river, the International Commission for the Protection of the Danube River (ICPDR) has joined up with the Danube Navigation Commission and the International Save River Basin Commission to conduct in 2007 an intense, cross-sectoral discussion process. As a result of 3 interdisciplinary workshops, a "Joint Statement on Guiding Principles on the Development of Inland Navigation and Environmental Protection in the Danube River Basin" was agreed. The final document was adopted in December 2007/January 2008 by the ICPDR, the Danube Commission and by the International Save River Basin Commission. The "Joint Statement" is a guiding document for the maintenance of existing waterways and the development of future waterway infrastructure. It is perceived as a milestone that leads to the integration of ecology into waterway development.



**ICPDR** IKSD

International Commission for the Protection of the Danube River / Internationale Kommission zum Schutz der Donau

**Guidance Document on Sustainable Agriculture in the Danube River Basin**



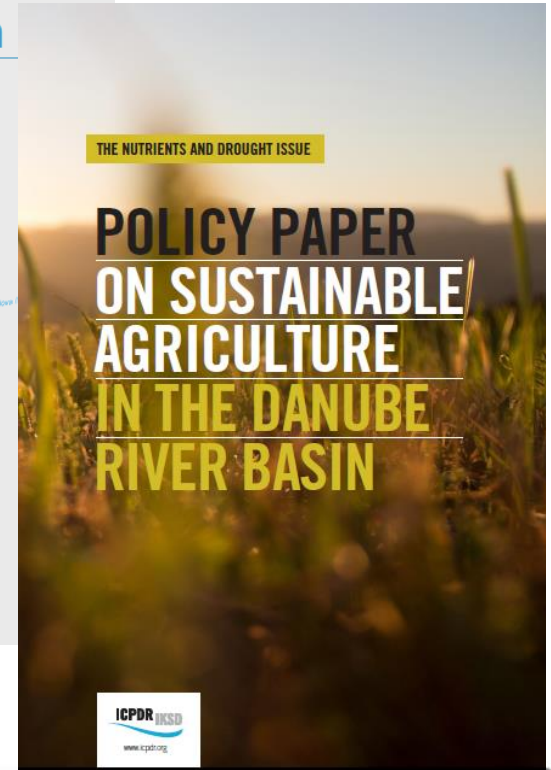
**ICPDR** IKSD

International Commission for the Protection of the Danube River / Internationale Kommission zum Schutz der Donau

**Sustainable Hydropower Development in the Danube Basin**

**Guiding Principles**

for the Protection of the Danube River



**THE NUTRIENTS AND DROUGHT ISSUE**

**POLICY PAPER ON SUSTAINABLE AGRICULTURE IN THE DANUBE RIVER BASIN**

**ICPDR** IKSD

www.icpdrrg.org



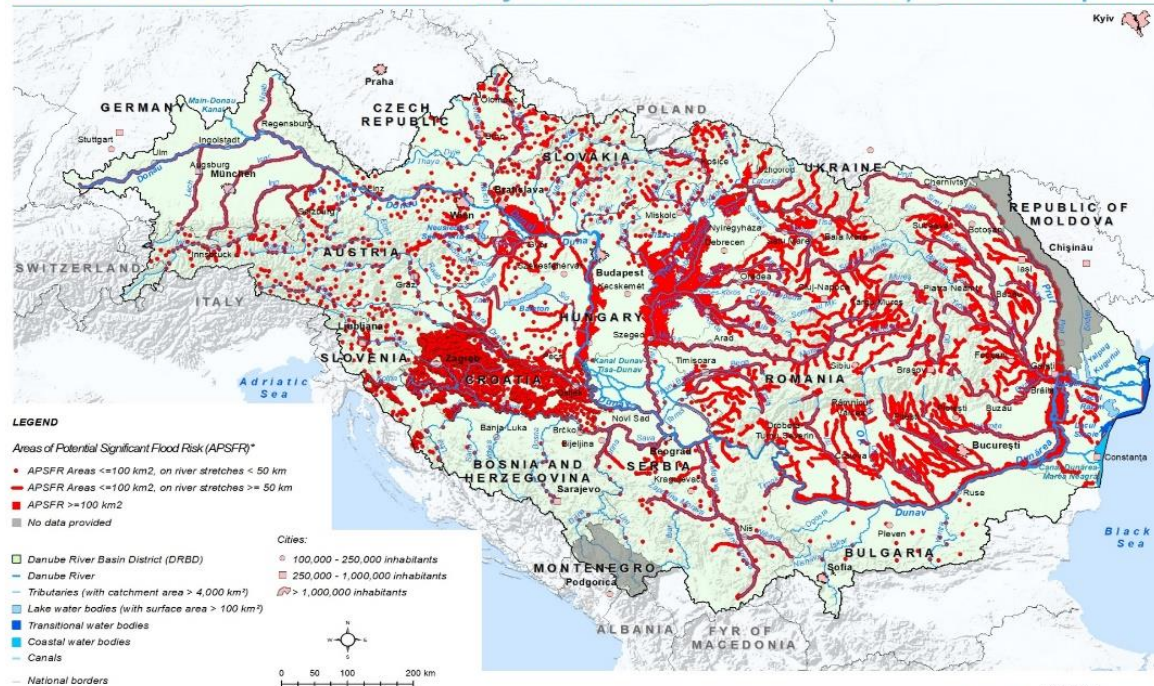
Picture: FAO-FIGIS



Picture: FAO-FIGIS

# Flood Risk Assessment

Danube River Basin District: Preliminary Flood Risk Assessment (PFRA) - 2019 data update



\* The information about APFSR in Bulgaria is not final due to uncompleted activities on PFRA and APFSR designation. This ICPDR product is based on national APFSR information provided by Contracting Parties to the ICPDR (AT, BA, BG, CZ, DE, HR, HU, RO, RS, SI, SK and UA). More details on the methodologies used for identification of APFSR at the national level and the definition of significance criteria are provided in the report "Preliminary Flood Risk Assessment in the Danube River Basin", chapter 5.1. National borders data was provided by the Contracting Parties to the ICPDR and CH. ESRI data was used for national borders of AL, IL, MK, Shaded Relief, topographic Mission (SRTM) from USGS Openness Data Distribution System was used as a background layer. Data from the European Commission Joint Research Centre was used for the sub-border of the DRBD of AL, IT, ME and PL. Vienna, January 2020



# Flood Hazard and Risk Maps

Flood Hazard and Flooding Scenarios

DFRM Plan Update 2021 - MAP 1



This ICPDR product is based on national information provided by the Contracting Parties to the ICPDR (AT, BA, BG, CZ, DE, HR, HU, ME, MD, RO, RS, SI, SK, UA) and CH. EuroGlobeMap data from EuroGeographics was used for all national borders except for AL, BA, ME where the data from the EPRF Worked Countries was used. Shuttle Radar Topography Mission (SRTM) from USGS Seamless Data Distribution System was used as elevation data layer; data from the European Commission (Joint Research Center) was used for the coast border of the EPRDF of AL, IT, ME and PL.

Flood Risk and Economic Activity - Low Probability Scenario

DFRM Plan Update 2021 - MAP 3c



Legend: Major cities, Danube River Basin District, Danube River, Tributaries, Lake water bodies, Transitional water bodies, Coastal water bodies, National borders, Canals. Scale: 1:4,000,000. Source: ICPDR 2021.

Flood Risk and Population

DFRM Plan Update 2021 - MAP 2



Legend: Major cities, Danube River Basin District, Danube River, Tributaries, Lake water bodies, Transitional water bodies, Coastal water bodies, National borders, Canals. Scale: 1:4,000,000. Source: ICPDR 2021.

---

# Danube Flood Risk Management Plan – Update 2021

---



1. Introduction
2. Conclusions of the preliminary flood risk assessment
3. Conclusions on flood hazard maps and flood risk maps
4. Objectives
5. Measures and their prioritisation
6. Water retention
7. Coordination with WFD
8. Cost-benefit analysis
9. Impacts of climate change
10. International coordination
11. Promoting the solidarity principle
12. Public information and consultation
13. Conclusions and next steps.



---

# Appropriate objectives

---



Basin-wide objectives of DFRMP - they are linked to the respective measures and reconfirmed for 2021:

- ✓ Avoidance of new risks
- ✓ Reduction of existing risks
- ✓ Strengthening resilience
- ✓ Raising awareness
- ✓ Solidarity principle

---

# Annex 2: Measures & projects supporting DFRMP 2021

---



**Strategic level measures:** Measures with downstream effect and measures applicable in more countries of the basin

- natural water retention,
- warning systems,
- awareness rising,
- reduction of risk from contaminated sites in floodplain areas.

**Projects & project ideas identified by FP EG:**

- Reflect the objectives and priorities set in DFRMP
- Basin-wide / transboundary character

---

# Implementation progress

---



- Progress in achieving objectives is addressed primarily through the implementation of the best practices projects;
- Progress in implementing measures demonstrated through achievements of international projects;
- Giving priority to measures with positive up/downstream effects such as natural water retention, warning systems, reduction of risk from contaminated sites in floodplain areas or exchange of information;

# Further information

ICPDR IKSD



Home



Public Consultation on Draft River Basin and Flood Risk Management Plans 2021

Vienna, 31 March 2021. The Danube River Basin



(Press Release) World Water Day 2021: valuing the water of our shared basin

VIFNNA, 22 March 2021 – World Water Day 2021 is

Welcome to ICPDR.org!



We invite you to browse through our website and sincerely hope we can

[www.icpdr.org](http://www.icpdr.org)