

CLIMATE CHANGE ADAPTATION STRATEGY

ICPDR IKSD

Climate Change Adaptation in the Danube River Basin

DANUBE RIVER BASIN MANAGEMENT PLAN

UPDATE 2021

ICPDR IKSD

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Hrvatska // Bosna i Hercegovina // Srbija // Crna Gora // România // България // Moldova // Україна

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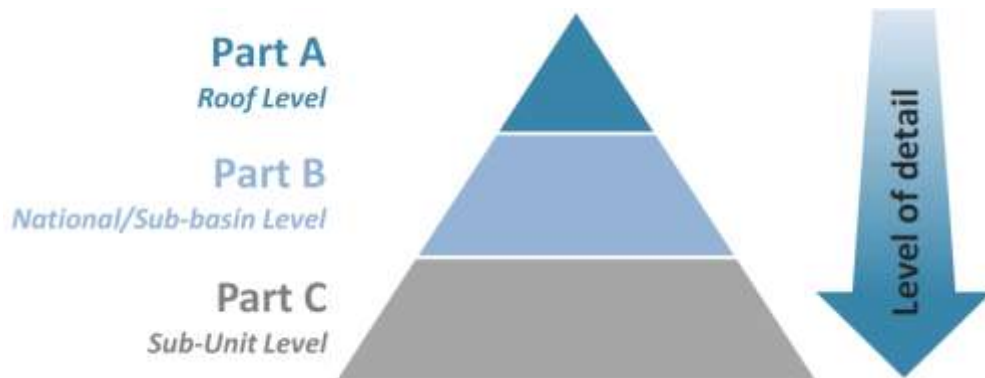
Sixth meeting of the
Global network of basins working on climate change
adaptation, 25 April 2022

Danube River Basin

- 19 countries covering the DRB
- More than 79 million people in a catchment of 800.000 km²
- **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



Water Framework Directive Coordination mechanisms



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

- | | |
|---------------|--|
| Part A | International, basin-wide level - the roof level (ICPDR) |
| Part B | National level and/or the internationally coordinated sub-basin level for selected sub-basins (e.g. Sava and Tisza) |
| Part C | Sub-unit level , 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 km²;
- lakes > 100 km²;
- transitional and coastal waters;
- transboundary groundwater bodies of basin-wide importance.

ICPDR Strategy on Adaptation to Climate Change (2018)



ICPDR Strategy on Adaptation to Climate Change 2012 was **updated** in 2018 taking into account

- **new scientific results** and
- **implementation steps** taken in the Danube countries

Aim and objectives

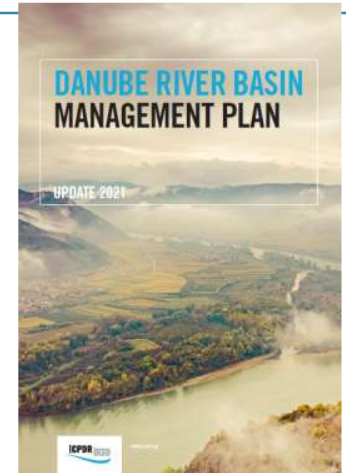
- Offering **guidance** on the integration of climate change adaptation into ICPDR planning processes
- Promoting **action** in a multilateral and transboundary context (**tool-box of measures**)
- Serving as **reference document** influencing national strategies and activities



Two Management Plans for the Danube River Basin



**Danube River Basin
Management Plan**
(Update 2021, adopted
in December 2021)



**Danube Flood Risk
Management Plan**
(Update 2021, adopted
in December 2021)



Significant Water Management Issues

Main pressures on basin-wide level



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
- Updated **every 6 years** (2 years before deadline for next River Basin Management Plan)
- **Effects of Climate Change** newly identified as **SWMI** in **2019/2020**

DRBMP Update 2021



- **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
- References of all significant issues (organic pollution, nutrient pollution, hazardous substances, hydromorphological alterations) and groundwater to
 - **Climate change impacts (pressures)**
 - **Addressing adaptation to climate change impacts (focus on win-win/multi-purpose measures)**



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

Climate Change and Pollution

- Negative influences on water quality **by (summer) droughts**
 - Water quality problems caused by point source effluents more severe as response to **high-water temperature**
 - **Increased pollutant loads** may occur via heavy rainfall events and floods
 - Climate change effects may amplify the consequences of **inappropriate land management practices (sediment, nutrients, hazardous substances)**
- Several **multi-purpose measures** can be identified that are **able to address climate change impacts** while beneficial also for pollution reduction such as
- water retention,
 - wastewater reuse for irrigation,
 - water saving measures

Climate Change and Hydromorphology

- Climate change affect river ecosystems by **causing changes in hydrological regime (river flow)**
- Negative effects of climate change will be more evident on **hydromorphological altered rivers**
- **Free-flowing rivers** in protected watersheds are expected to be the most **resistant and resilient** to climate change

- Several **HYMO measures** contribute to minimize effects of climate change such as
 - restoration of floodplains/wetlands,
 - river revitalization,
 - ecological flow

- Implementation of concept “**Giving more space to rivers**” and **emphasis on green measures** (natural based solutions)

Climate Change and Groundwater

- **Effects of climate change on groundwater** may include e.g. long term decline in groundwater storage or increased frequency and severity of groundwater droughts
- Advisable to **use the measures already in place** and to strengthen the general measures, **which address climate change impacts**
- **Existing groundwater-related measures** address the improvement of the quantitative and chemical status **supporting climate change adaptation** such as
 - application of water saving methods and water regulation to protect groundwater quantity,
 - prevention of soil degradation

Additional related ICPDR activities

- Danube basin wide monitoring activities regularly take place via the **ICPDR Transnational Monitoring Network (TNMN)** including the monitoring of impacts of climate change
- 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
- Drought management and water allocation show a need for **Developing an improved Water Balance** for the Danube River Basin as an element for facing the expected upcoming water quantity challenge
- Guidance document on **Sustainable Agriculture** covers climate change aspects

ICPDR Approach for Integrating Climate Change Adaptation



- **Joint understanding** of scenarios, impacts and adaptation measures and sharing a scientific knowledge base is essential
- Strategy does not include a separate programme of measures, but relevant action is **incorporated in the DRBMP and DFRMP** (ongoing process, six years cycle)
- **Key cross-cutting issue** all ICPDR Expert Groups and Task Groups are mandated to fully integrate climate change adaptation in the development of DRBMP and DFRMP
- Strategy focuses on issues relevant at the Danube basin-wide level (level A) and **needs to be complemented** with further detailed planning on adaptation at sub-basin, national and/or sub-unit level

Danube Declaration 2022 and adapting to Climate Change



Adapting to Climate Change

(6) *welcome* the objectives and key messages of the updated ICPDR Climate Adaptation Strategy (2018).

(7) *reaffirm* the “Effects of Climate Change (drought, water scarcity, extreme hydrological phenomena and other impacts)” as a new significant water management issue for the Danube River Basin.

We call for actions to be undertaken in the years 2022 to 2027:

(8) developing sustainable adaptation measures to urgently enhance resilience of aquatic ecosystems to climate change impacts, supporting water balance activities and enhancing cooperation and exchange of good practices on adaptation measures to climate change impacts.



A poster for the Danube Declaration. At the top right is the ICPDR IKSD logo. Below it is the text: 'International Commission for the Protection of the Danube River' and 'Internationale Kommission zum Schutz der Donau'. The main title is 'Danube Declaration' in large blue letters. Below that is 'Adopted at the ICPDR Ministerial Meeting 8th February 2022'. The subtitle is 'A Vision for Integrated Water Management in Our Shared Basin: Building a Sustainable Future in the Danube River Basin'. The bottom half of the poster features a stylized map of the Danube River Basin with different colored regions. To the right of the map is a blue circular icon containing a document and a pencil. Below the map are several small blue icons representing people and water waves.

For more information:

<https://www.icpdr.org/main/activities-projects/climate-change-adaptation>

