

CLIMATE CHANGE ADAPTATION STRATEGY

ICPDR IKSD

Climate Change Adaptation in the Danube River Basin

DANUBE RIVER BASIN MANAGEMENT PLAN

UPDATE 2021

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

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- Danube River Basin, the ICPDR and its Coordination Mechanisms
 - ICPDR Strategy on Adaptation to Climate Change (2018)
 - Danube River Basin Management Plan(ning)
 - Significant Water Management Issues
 - Climate Change and Pollution, Hydromorphology and Groundwater
 - Additional related ICPDR activities
 - ICPDR Approach for Integrating Climate Change Adaptation

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



Danube River Protection Convention (DRPC)



signed 29 June 1994, Sofia (Bulgaria)



Protection of water & ecological resources



Sustainable use of water



Reduce nutrients & hazardous substances

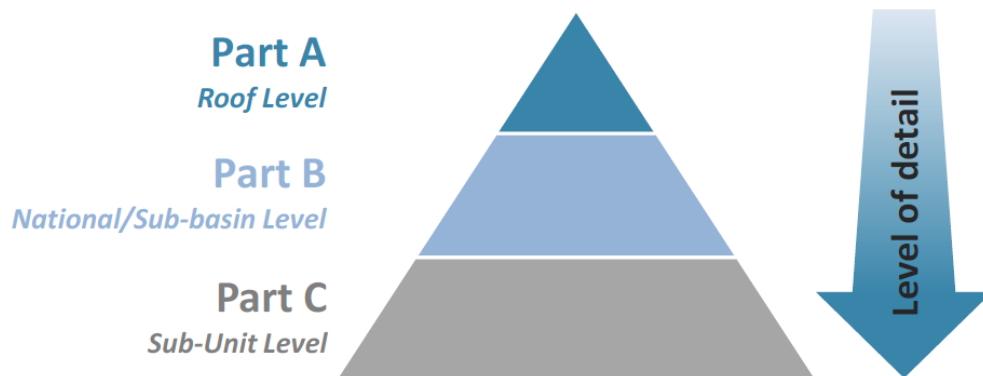


Manage floods & ice hazards

- 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 km²** 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

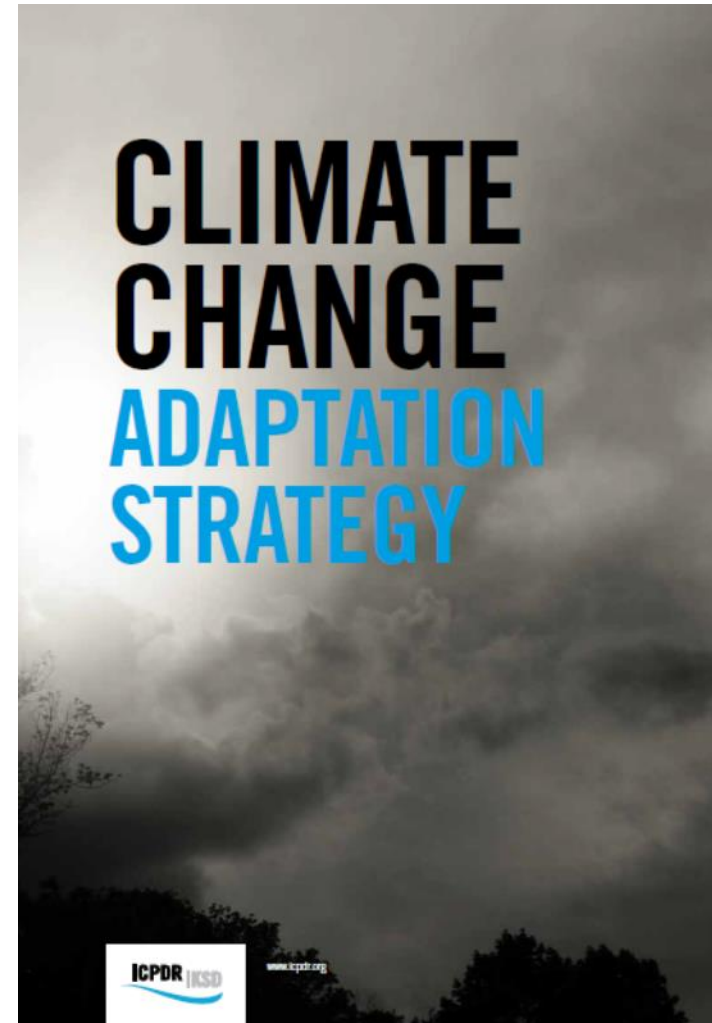
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|---------------|----------------------------------------------------------------------------------------------------------------------------|
| Part A | International, basin-wide level - the roof level (ICPDR) |
| Part B | National level and/or the 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)

- 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
- **Danube Ministerial Meeting in February 2016**, Ministers asked “*to foresee an update of its strategy, ... , in 2018 ... in time for the next planning cycle of the EU Water Framework Directive and EU Floods Directive*”.
- ICPDR nominated **Germany, Austria and Serbia** to steer process



ICPDR Strategy on Adaptation to Climate Change (2018)

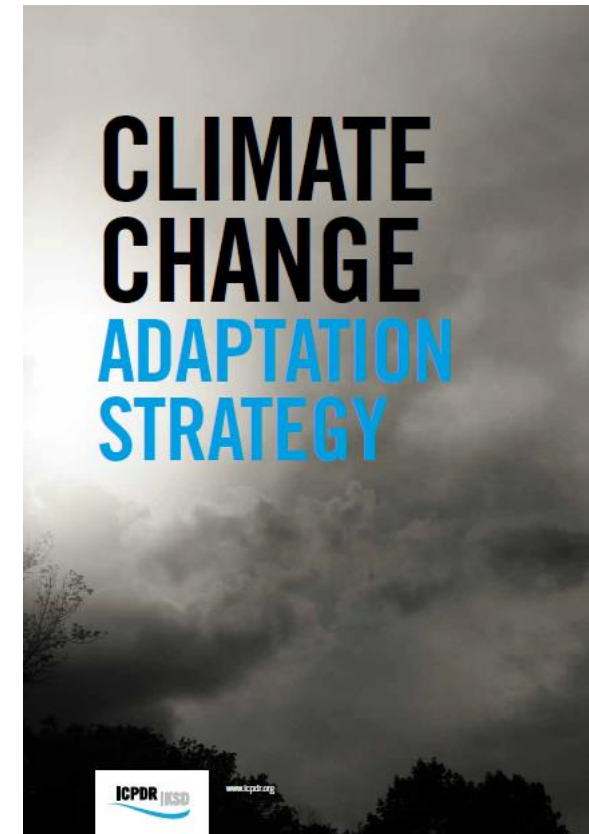
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ICPDR Strategy on Adaptation to Climate Change 2012 was **updated** in 2018 taking into account

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

Aim and objectives

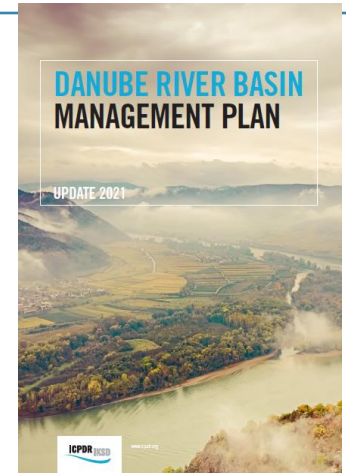
- Offering **guidance** on the integration of climate change adaptation into ICPDR planning processes
- Promoting **action** in a multilateral and transboundary context (**tool-box of measures**)
- Serving as **reference document** influencing national strategies and activities



Two Management Plans for the Danube River Basin



Danube River Basin Management Plan (Update 2021)



Danube Flood Risk Management Plan (Update 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**

Progress in DRBMP Update 2021 (work in progress)

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- **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 (e.g. water retention, wastewater reuse for irrigation, water saving measures)

Climate Change and Hydromorphology

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- 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 (e.g. restoration of floodplains/wetlands, river revitalization, ecological flow)
- Implementation of concept “**Giving more space to rivers**” and **emphasis on green measures** (natural based solutions)
- Close link to measures foreseen in the **Danube Flood Risk Management Plan**

Climate Change and Groundwater

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- **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** (e.g. application of water saving methods and water regulation to protect groundwater quantity, prevention of soil degradation)

Additional related ICPDR activities **ICPDR** IKSD

- 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

For more information:

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

