

Hydropower Sustainability Forum

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River Basin Planning and Sustainable Hydropower: The Danube River Basin Experience



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Multiconsult

DANUBE RIVER BASIN –

800.000 km²; 15 contracting parties cooperating under ICPDR



BASIS FOR PLANNING & MANAGEMENT

IN THE DANUBE RIVER BASIN TOWARDS SUSTAINABLE HYDROPOWER



**RIVER BASIN
MANAGEMENT & PLANNING CYCLE**

**PLANNING AND MANAGEMENT
TOOLS**

**IMPLEMENTATION AND
COORDINATION MECHANISM**

6-YEARS FREQUENCY

The Danube Basin District

River basin characteristics, impact of land use and inventory of protected areas required

Part A – Basin-wide overview

Short: "Danube Basin Analysis (WFA)"

Danube River Basin Management Plan

Part A – Basin-wide overview

The Danube River Basin District Management Plan

The Danube River Basin District Management Plan

Part A – Basin-wide overview

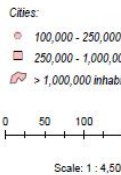


LEGEND

Surface Water Body Monitoring Stations:

- Operational Monitoring Stations (OM)
- Surveillance Monitoring Stations (SM1*)
- Surveillance Monitoring Stations (SM2**)

- Danube River Basin District
- Danube River
- Tributaries (with catchment area > 4,000 km²)
- Lake water bodies (with surface area > 100 km²)
- Transitional water bodies
- Coastal water bodies
- Canals
- National borders



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

Sustainable Hydropower Development in the Danube Basin

Guiding Principles

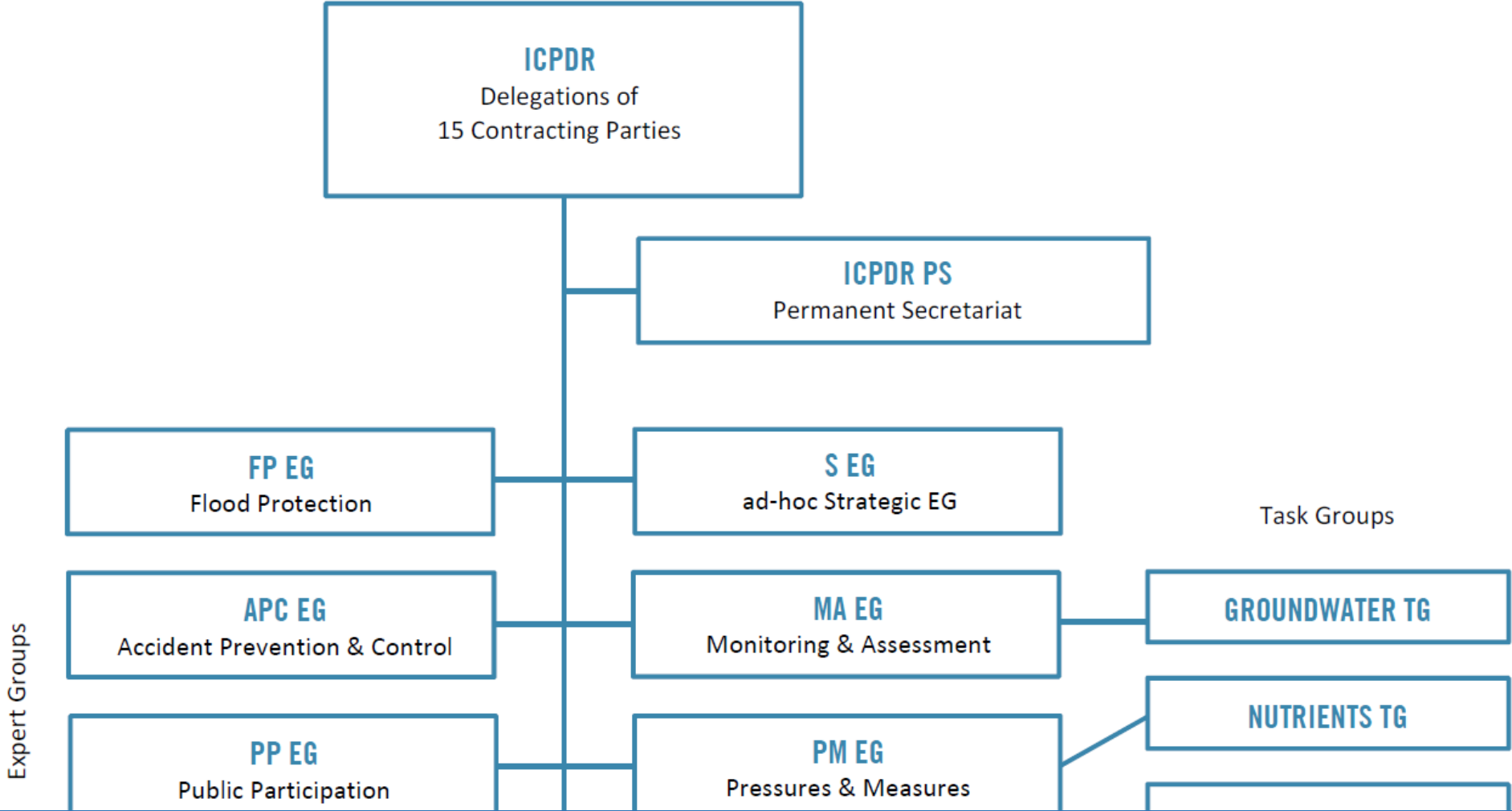
2013 adopted by all ICPDR countries

For public bodies and competent authorities responsible for the planning and authorization of hydropower as well as NGOs - national, regional and local level in charge of energy, environment and water management.

2004

The complete report consists of Part A and Part B
 18 March 2005, Reporting deadline:

IMPLEMENTATION AND COORDINATION MECHANISM



How to plan and manage hydropower towards basin-wide aims through national implementation?

SELECTED EXAMPLE: IMPLEMENTATION & SOLUTIONS

IN THE DANUBE RIVER BASIN TOWARDS SUSTAINABLE HYDROPOWER



PRESSURES from Hydropower – as of 2015

Alteration of River Continuity for Fish Migration - Current Situation 2015

DRBM Plan - Update 2015 - MAP 9



* The barriers are related to different water uses. More detailed information is available in the chapter 2 of the DRBM Plan - Update 2015.

This ICPRD product is based on national information provided by the Contracting Parties to the ICPRD (AT, BA, BG, CZ, DE, HR, HU, ME, MD, RO, RS, SI, SK, UA) and CH. EuroGlobalMap data from EuroGeographics was used for all national borders except for AL, BA, ME where the data from the ESRI World 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 outer border of the DRBD of AL, IT, ME and PL.

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WATER STATUS based on ALL Identified Pressures



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JOINT PLANNING Tool/Overview for Basin-Wide Level



The ecological prioritisation approach (Part A) is not meant to substitute the similar national approaches, but to outline the basin-wide perspective. Low restoration priority indicated on the basin-wide level does not imply that no measures should be undertaken on the national level, as all fish species need open river continuity. On the other hand, ecological prioritisation is only one of the many aspects in deciding which measures to adopt and implement. Final decision will be taken at the national level.

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IMPLEMENTATION from 2015 to 2021

Alterations of River Continuity for Fish Migration - Expected Improvements by 2021

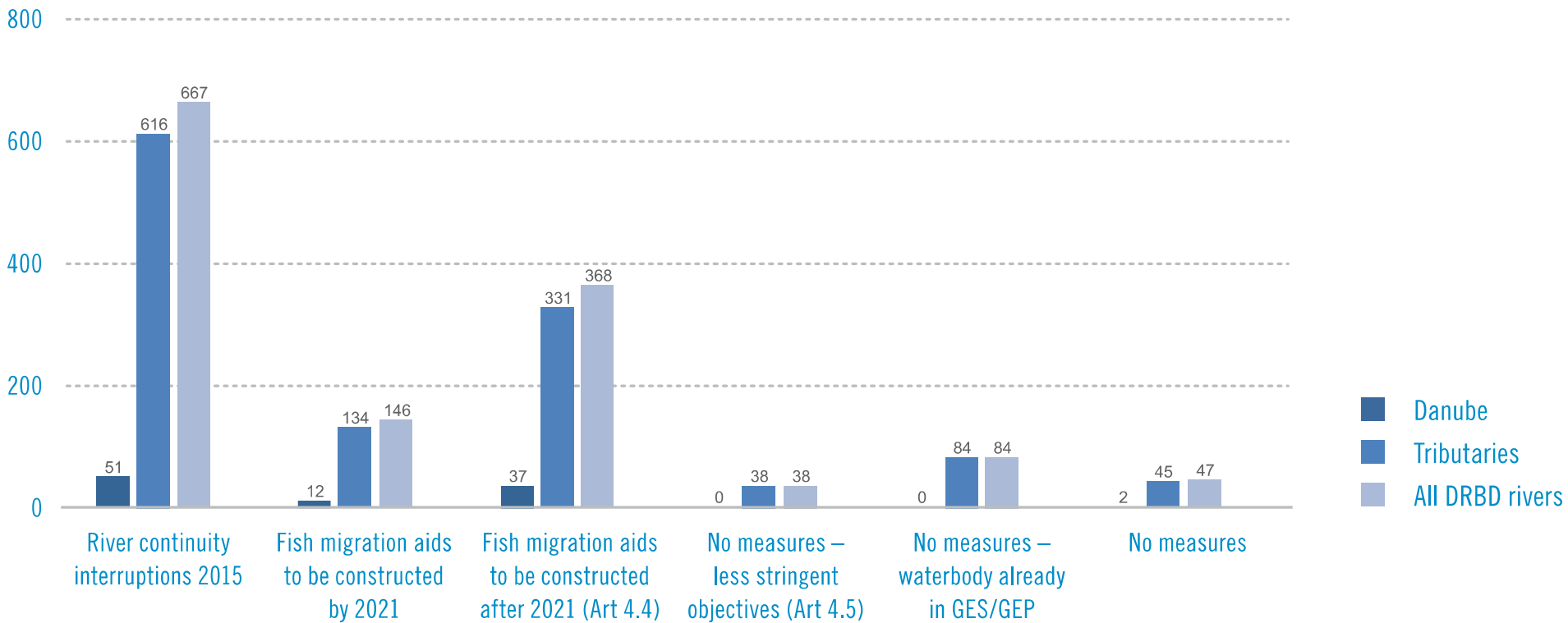
DRBM Plan - Update 2015 - MAP 34



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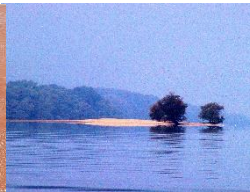
IMPLEMENTATION from 2015 to 2021

improvement measures towards sustainable hydropower



CHALLENGES IN INTERNATIONAL BASINS

TOWARDS SUSTAINABLE HYDROPOWER



- ⊙ **Effective linkage between national and international level**
 - ⊙ Implementation oriented and beyond theory
 - ⊙ Full understanding of basin-wide situation by national level and respective efforts as well as measure implementation
- ⊙ **Full involvement AND commitment of/by hydropower sector**
 - ⊙ Often problematic – how to overcome the challenge?

Possible Solutions ?

- ⊙ Thorough monitoring programmes that identify pressures/impacts
- ⊙ Clear planning strategy with identified management aims to be achieved
- ⊙ Transparent presentation of results, pressures and impacts to all stakeholders
- ⊙ Highlight and ensure economic benefits (hydropower) as far as possible
- ⊙ Communicate implementation successes AND failures

Thank you for your attention !

In case of questions, please contact:

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Pressures Stemming from Hydropower

Hydrological Alterations - Impoundments: Current Situation 2015

DRBM Plan - Update 2015 - MAP 12



* This map illustrates full water bodies which are affected by impoundments. The exact locations of individual impoundments are not visualised.

This ICPCR product is based on national information provided by the Contracting Parties to the ICPCR (AT, BA, BG, CZ, DE, HR, HU, ME, MD, RO, RS, SI, SK, UA) and CH. EuroGlobalMap data from EuroGeographics was used for all national borders except for AL, BA, ME where the data from the ESRG World 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 outer border of the DRBD of AL, IT, ME and PL.

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Pressures Stemming from Hydropower

Hydrological Alterations - Hydropeaking: Current Situation 2015

DRBM Plan - Update 2015 - MAP 14



* Significant hydrological alterations with water level fluctuation >1m/day or known/observed negative effects on biology. This map illustrates full water bodies which are affected by hydropeaking. The exact locations of individual pressures from hydropeaking are not visualised.

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