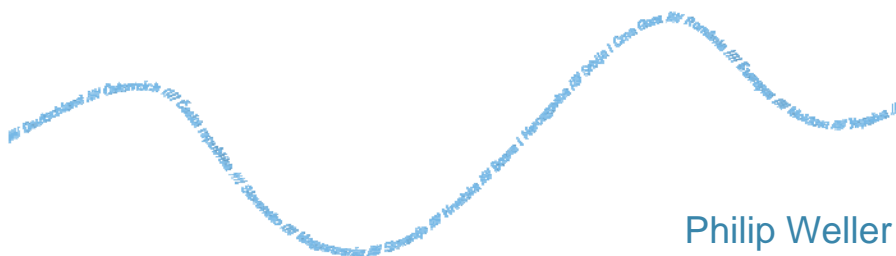


# The Danube Experience



## Dealing with Hydromorphological Issues – the Danube Experience



Philip Weller  
Executive Secretary, ICPDR

# Danube River Basin- Overview



The Danube River Basin is the most international river basin  
in the world



- 19 countries sharing the basin
- EU members, accession countries, non EU countries
- very different social, economic and political situation

- *catchment area ~ 800.000 km<sup>2</sup>*
- *Danube River length - 2.875 km*
- *population ~ 81 mil*

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# The Danube River Protection Convention







Signed  
on 29 June 1994  
in Sofia - Bulgaria

The DRPC  
is a legal frame for cooperation to assure the protection of  
water and ecological resources and their sustainable use  
in the Danube River Basin

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## Contracting Parties



- |   |  |
|---|--|
|  Germany                       |  Bosnia & Herzegovina |
|  Austria                       |  Serbia               |
|  Czech Republic                |  Romania              |
|  Slovakia                      |  Bulgaria             |
|  Hungary                       |  Republic of Moldova  |
|  Slovenia                      |  Ukraine              |
|  Croatia                       |  European Union       |
|  Montenegro (under discussion) |  |

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## ICPDR - International Commission for the Protection of the Danube River



to implement the goals of the Convention:

- Strengthen international cooperation
- Ensure sustainable water management
- Ensure conservation, improvement and rational use of surface waters and ground water
- Reduce inputs of nutrients and hazardous substances
- Control floods and ice hazards
- Reduce pollution loads of the Black Sea

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## Implementation of EU WFD



### River Basin Management Expert Group ( RBM EG )

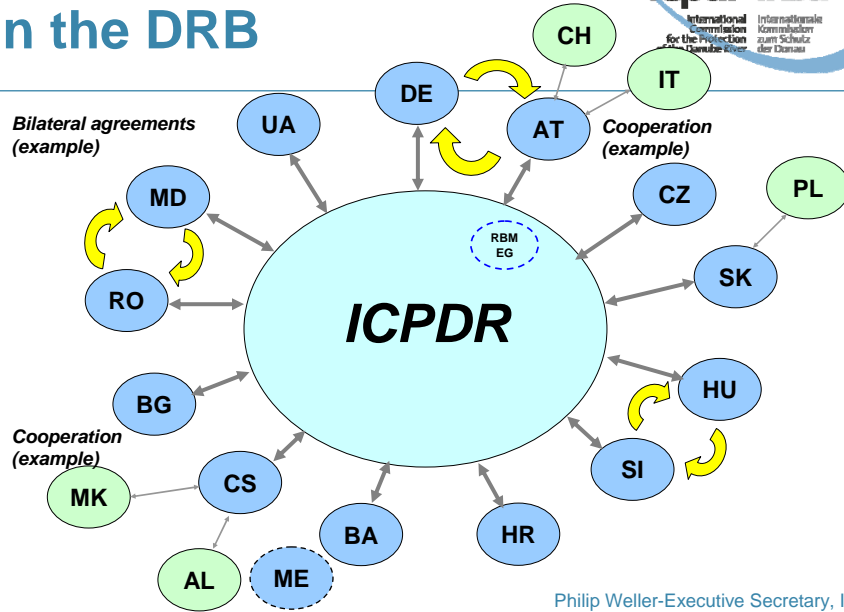
#### 3<sup>rd</sup> Plenary Session of the ICPDR

27-28 November 2000, Sofia - BG

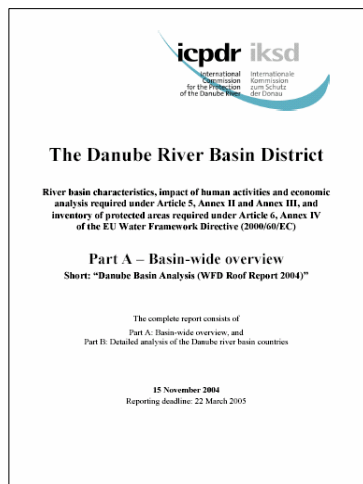
- . implementation of **WFD has highest priority** for ICPDR
- . **ICPDR is platform for coordination**
- . **Contracting Parties will make all efforts** to achieve a coordinated river basin management plan for the Danube River Basin

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# Coordination mechanisms in the DRB



# EU Water Framework Directive



## Danube Basin Analysis (WFD Roof Report)

Approved at the Ministerial Meeting – Vienna, 13 December 2004

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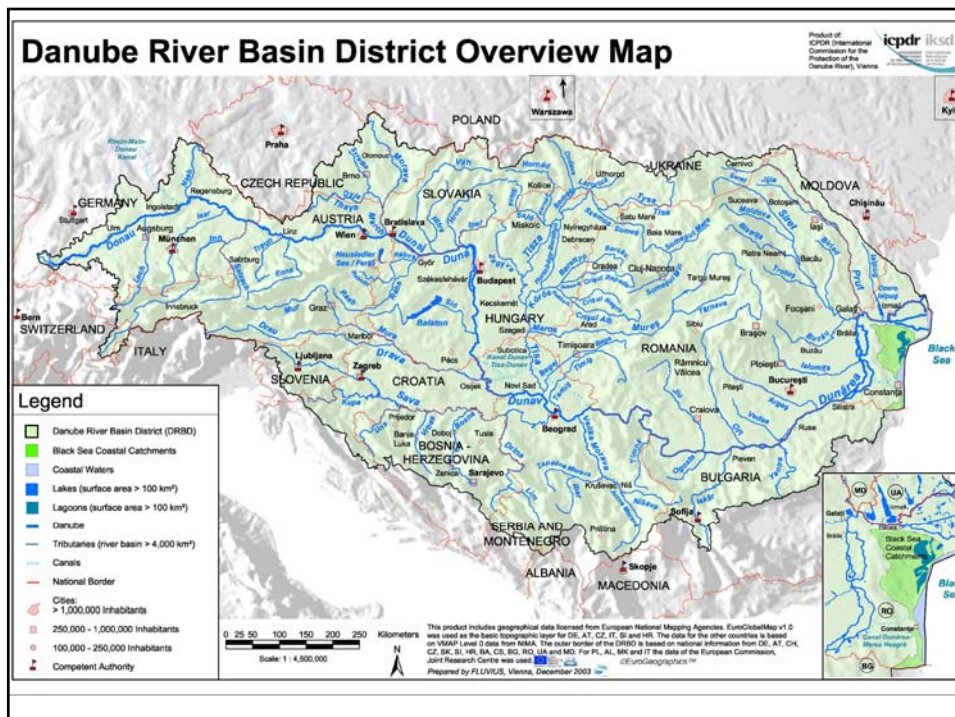
# PART A: Basin-wide overview



## The DRB Analysis deals with

- all rivers with catchments of  $> 4000 \text{ km}^2$
- all lakes with an area of  $> 100 \text{ km}^2$
- transitional and coastal waters (overview)
- the main navigation canals
- all transboundary groundwater bodies with an area of  $> 4000 \text{ km}^2$

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# Key Water Management Issues

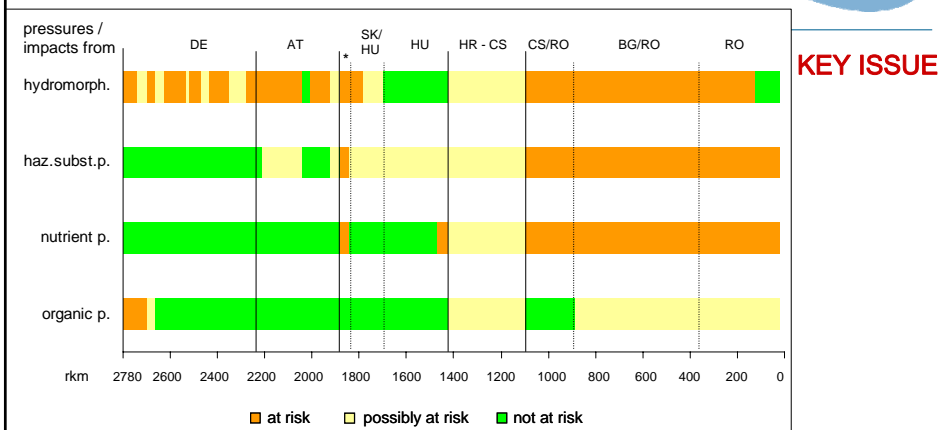


Based on the findings of the Danube River Basin Analysis :

1. Organic pollution
2. Nutrient pollution
3. Pollution resulting from hazardous substances
4. Hydromorphological alterations

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# Results – Risk of Failure



**4 key water management issues identified**

Hydromorphological alterations (HMA) are one of the key issues in the Danube River Basin

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# Three HYMO Key Driving Forces



1. Hydropower generation
2. Flood defence
3. Navigation



## Minor Driving Forces

- ⇒ Water abstraction
- ⇒ Gravel abstraction
- ⇒ Recreational activities



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## Which Pressures?

DRIVER	Hydropower Generation	Flood Defence	Navigation
POSSIBLE PRESSURES	alteration of sediment transport	floodplain reduction	bed stabilisation dredging
	<b>Overlapping Pressures</b>		
	disruption longi-tudinal continuity		
		bank reinforcements	
	disruption of lateral continuity alteration of river course and channelform/profile alteration of hydraulic/hydrological characteristics		

# Pressure Facts in DRB



## Hydropower generation

- 700 large dams identified in DRB
- 30% of Danube River itself is impounded
- upper Danube (AT and D) affected by hydropower chains – provisionally HMWB.
- same for Iron Gate section (damming effect up to Belgarde – about 275 km)
- Tributaries:
  - River Lech: 90% of length impounded (32 hydropower dams)
  - River Olt: 615 km long; last 307 km impounded by 24 hydropower dams

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# Pressure Facts in DRB



## Flood defence

- Danube River regulated over 80% of its length
- Floodplain loss within DRB: only about 20% of former floodplains remain today (modifications since 150 years)
  - In Hungary 2,12 million ha were dyked
- Tributaries: **Tisza**
  - 84% loss of floodplains – 7542 km<sup>2</sup> down to 1215 km<sup>2</sup>
  - shortening of river course (cut off meanders) by 32%
  - strongly regulated on more 70%

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## Pressure Facts in DRB



### Navigation

- Pressure relevant in Danube River itself and lower tributaries
- Upper Danube: construction of lateral dams since end of 19<sup>th</sup> century
- Hungary: Danube course was shortened (cut off meanders) from 472 km to 417 km
- 78 harbours between Kehlheim and Black Sea
- AT: 60% river bed deepening effected by dredging activities and increased regulations
- Dredged canals in Danube Delta since beginning of 20<sup>th</sup> century. 1700 km of channels

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# Consequence after Analysis



Issue papers are being drafted for each key water management issue  
One on Hydromorphological Alterations

- activity since beginning 2006
- in frame of RBM EG
- version 4.0
- following the EU wide activity on hydromorphology – in line

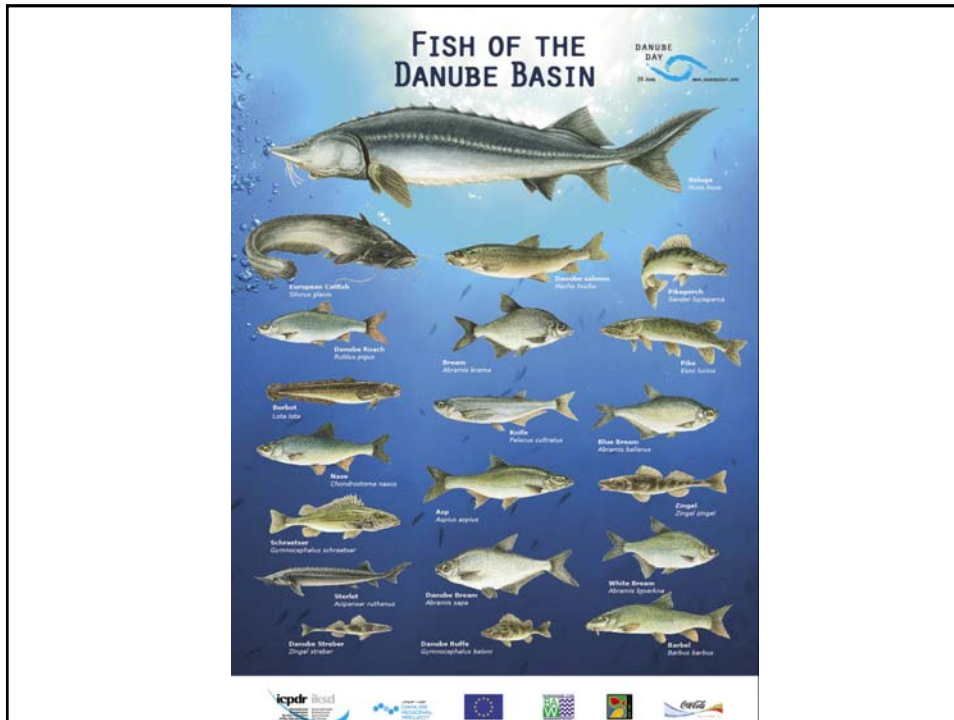
- ⇒ provides overall strategy and guidance on issue
- ⇒ basis for development of PoM: relevant management approach for measures and achievement of good ecological status (basin wide scale)

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# Action Programme on Sustainable Flood Protection in the Danube River Basin



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## Joint statement on cooperation



- General commitment to exchange information among Commissions responsible for navigation and environmental protection
- Agreed by presidents of the Danube Commission, Central Commission for the Navigation on the Rhine (CCNR), International Commission for the Protection of the Rhine (ICPR), International Sava River Basin Commission (ISRBC) and the ICPDR

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## Consensus building process: navigation



- Inland navigation can contribute to making transport more environmentally sustainable ...
  - but it can also have significant influence on river ecosystems.
- Intensive, cross-sectoral consensus-building
- to generate a joint statement on principles and criteria for sustainable navigation (incl. infrastructure development and maintenance)

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## Invited Parties



- Environmental Protection Ministries
- Transport Navigation Ministries
- EU Commission
- River Commission
- Business
- NGOs

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Thank you for your attention

[www.icpdr.org](http://www.icpdr.org)  
[icpdr@unvienna.org](mailto:icpdr@unvienna.org)

Philip Weller-Executive Secretary, ICPDR