Addressing Water Pollution in a Transboundary River Basin: The Danube River Basin

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Birgit Vogel
on behalf of Mitja Bricelj
ICPDR
From the Black Forest to the Black Sea
Content

- Overview Danube River Basin
- The International Commission for the Protection of the Danube River (ICPDR)
- Key results of the Danube River Basin Management Plan
  - Water status based on transnational monitoring
  - Pollution in the DRB
  - Hydromorphological alterations
- Steps forward
Danube River Basin

- **Most international river basin**
  - 19 countries, 10 along the Danube River
  - DRB means management of 800,000 km²
  - River WB river network >4,000 km² = 25,117 river km
  - 80 Mio inhabitants

- **Characterisation of DRB by many factors**
  - Abiotic/biotic environment, its people and interaction between those components
  - socio-economic situation in DRB = unique
Contracting Parties

- Germany
- Austria
- Czech Republic
- Slovakia
- Hungary
- Slovenia
- Croatia
- Bosnia & Herzegovina
- Serbia
- Montenegro
- Romania
- Bulgaria
- Rep. of Moldova
- Ukraine
- European Union
The DRB

Political and social conditions, the corresponding economic circumstances and existing anthropogenic pressures/impacts on the aquatic environment in the DRB are a challenge for integrated river basin management and need special attention.

Coordination between countries & water sectors plays the key role on international level, can be difficult and is time consuming.
International Commission for the Protection of the Danube River

- ICPDR under the legal framework of the Danube River Protection Convention

- Implementation **EU Water Framework Directive** =
  - highest ICPDR priority
  - Mandatory for EU Member States
  - Non EU Member States committed themselves under declaration
Danube River Basin Management Plan

Adopted by all countries in 2010

Reflects

⇒ Water status of the DRB waters
⇒ Significant Water Management Issues

Includes

⇒ Joint Programme of Measures
⇒ Evaluation of measure implementation will follow toward 2012

Enables

⇒ Conclusions on investment and funding
DRBM Plan

Content

- First time and unique overview on basin-wide issues
  - Transboundary WFD implementation for largest international River Basin District
  - Pressure/impact assessment for all SWMIs
  - Basin-wide analysis on wastewater treatment
  - Nutrient management on a large scale
  - Hydromorphological alterations – first time overview

- Large scale data collection based on DanubeGIS
  - Thematic illustration in 29 maps
  - Comprehensive GIS dataset available that can support the EU Danube Strategy
Identification
Significant Water Management Issues

- Organic Pollution
- Nutrient Pollution
- Hazardous Substances Pollution
- Hydromorphological Alterations

▷ Plus: Transboundary GW bodies of basin-wide importance
DRBM Plan
Visions and Management Objectives

Developed for each Significant Water Management Issue

Innovative RBM approach for basin-wide issues to

⇒ guide toward joint aims in the DRB
⇒ have a coherent approach

Basis for the Joint Programme of Measures
⇒ A heartpiece of the DRBM Plan
DRBM Plan

Key results
Status/Potential of Rivers - 2009

Ecological Status

- Ecological Status Good or above 3,446 rkm (14%)
- Ecological Potential Good or above 2,048 rkm (8%)
- Ecological Status Moderate or worse 6,987 rkm (28%)
- Ecological Potential Moderate or worse 6,284 rkm (25%)
- No data EU MS 346 rkm (1%)
- No data Non EU MS 6,006 rkm (24%)

Chemical Status

- Good 11,180 rkm (45%)
- Failing 6,815 rkm (27%)
- No data EU MS 1,116 rkm (4%)
- No data Non EU MS 6,007 rkm (24%)
Joint Danube Survey 2

World’s largest river research expedition

Unique water quality database

Assessment of general improvement of the Danube River

Specific problems exist at a number of tributaries and downstream of large cities

Hydromorphological alterations
Accident Early Warning System

Principal International Alert Centres in the Danube River Basin

LEGEND
- Border
- Danube River Basin
- Sub-river Basin
  - Metropolis (> 1 Million Inhabitants)
  - Cities (200 000 - 1 Million Inhabitants)
  - Towns (100 000 - 250 000 Inhabitants)

Sub-river Basin
1. Upper Danube (D,A)
2. Inn (A,D)
3. Austrian Danube (A)
4. Morava (CZ,A,SK)
5. Váh - Hron (SK,CZ,H)
6. Pannonian Central Danube (A,SK,H,RO)
7. Drava - Mura (A,SLO,HR,RO)
8. Sava (SLO,HR,BIH,YU)
9. Tisa (SK,UA,RO,H,YU)
10. Banat - Eastern Serbia (RO)
11. Velika Morava (YU,BG)
12. Mizia - Dobrudzha (BG)
13. Muntenia (RO)
14. Prut - Siret (UA,MD,RO)
15. Delta - Liman (MD,UA,RO)

Scale: 1: 4 500 000
Basic Facts

Reference Situation:

- **6,224 agglomerations > 2,000 PE** in the DRB:
  - 2,000 – 10,000 PE: 4,969 agglomerations
  - > 10,000 PE: 1,255 agglomerations

- Many agglomerations without wastewater treatment or sewerage connection
  - No wastewater collection: more than 2,900 agglomerations = 12.6% of the generated load

Scenarios used as tool for indication 2015 and beyond
Key Conclusions

- **Considerable reduction** through measures of Baseline Scenario-UWWT to be implemented by 2015 but achievement of WFD environmental objectives on the basin-wide scale 2015 not ensured

- Significant efforts still need to be undertaken for next RBM cycles
Key Conclusions

Nitrogen

- **N emissions** to surface waters in 2015: 12% lower. Load to the Black Sea: but still far above (40%) the load of the 1960’s.
- Management objectives and EU WFD objectives not ensured by 2015
- **P emissions** to surface waters in 2015: 25 % lower. Load to the Black Sea still above (15%) that of the 1960’s

Phosphorous

Introduction of Phosphate free detergents throughout the DRB
Key Conclusions

Lack of knowledge on hazardous substances in the Danube River Basin

Environmental objectives will not be achieved and further measures are needed

About 60% of the basin population depends on groundwater

Nitrates are the major groundwater contaminants

Groundwater use needs proper balance
Hydromorphological Alterations

Natural  

Driver/Pressure  

HYMO alterations
<table>
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<tr>
<th>Hydromorphological Alterations</th>
<th>4 HYMO Components</th>
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</thead>
<tbody>
<tr>
<td>River and Habitat Continuity Interruption</td>
<td>Disconnection of Adjacent Wetlands/Floodplains</td>
</tr>
<tr>
<td>Hydrological Alterations</td>
<td>Future Infrastructure Projects</td>
</tr>
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</table>
River and Habitat Continuity Interruption

- **Danube River**
- **DRBD tributaries**
- **All DRBD rivers**

### Data Table

<table>
<thead>
<tr>
<th>Category</th>
<th>2009</th>
<th>2015</th>
<th>2015 (implemented 2021/2027)</th>
<th>Art. 4(4) (less stringent env. objectives)</th>
<th>Exemptions WFD Art. 4(5)</th>
<th>No measures yet indicated EU MS</th>
<th>No measures yet indicated Non EU MS</th>
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<tbody>
<tr>
<td>River continuity interruptions 2009</td>
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<td>51</td>
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<td>Fish migration aids to be constructed by 2015</td>
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<td>773</td>
<td>773</td>
<td>824</td>
<td>686</td>
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<td>824</td>
<td>932</td>
<td>686</td>
<td>69</td>
<td>37</td>
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</table>
Regarding all four components significant efforts will be needed beyond 2015 to ensure the WFD environmental objectives.

Ensure that future infrastructure projects are performed in a way that further impacts are prevented.

Joint measures to ensure free migration for sturgeon species.
Next Steps

Full implementation of the Joint Programme of Measures

Development of a Climate Change Adaption Strategy toward 2015

Addressing sediment management

Integration in EU Danube Strategy

The Plan will be reflected in decisions at national and local levels across all sectors
Thank you for your attention!
For further information see www.icpdr.org