
Water Management and Agriculture Workshop



Reporting to 2012 JPM implementation on nutrient pollution

||||| Deutschland ||| Österreich ||| Česká republika ||| Slovensko ||| Magyarország ||| Slovenija ||| Hrvatska ||| Bosna i Hercegovina ||| Srbija ||| Crna Gora ||| România ||| България ||| Moldova ||| Україна |||

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Technical Expert, Water Management
Bucharest, 5 – 6 November 2012

Significant Water Management Issues

icpdr iksd

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



Organic
Pollution



Nutrient
Pollution

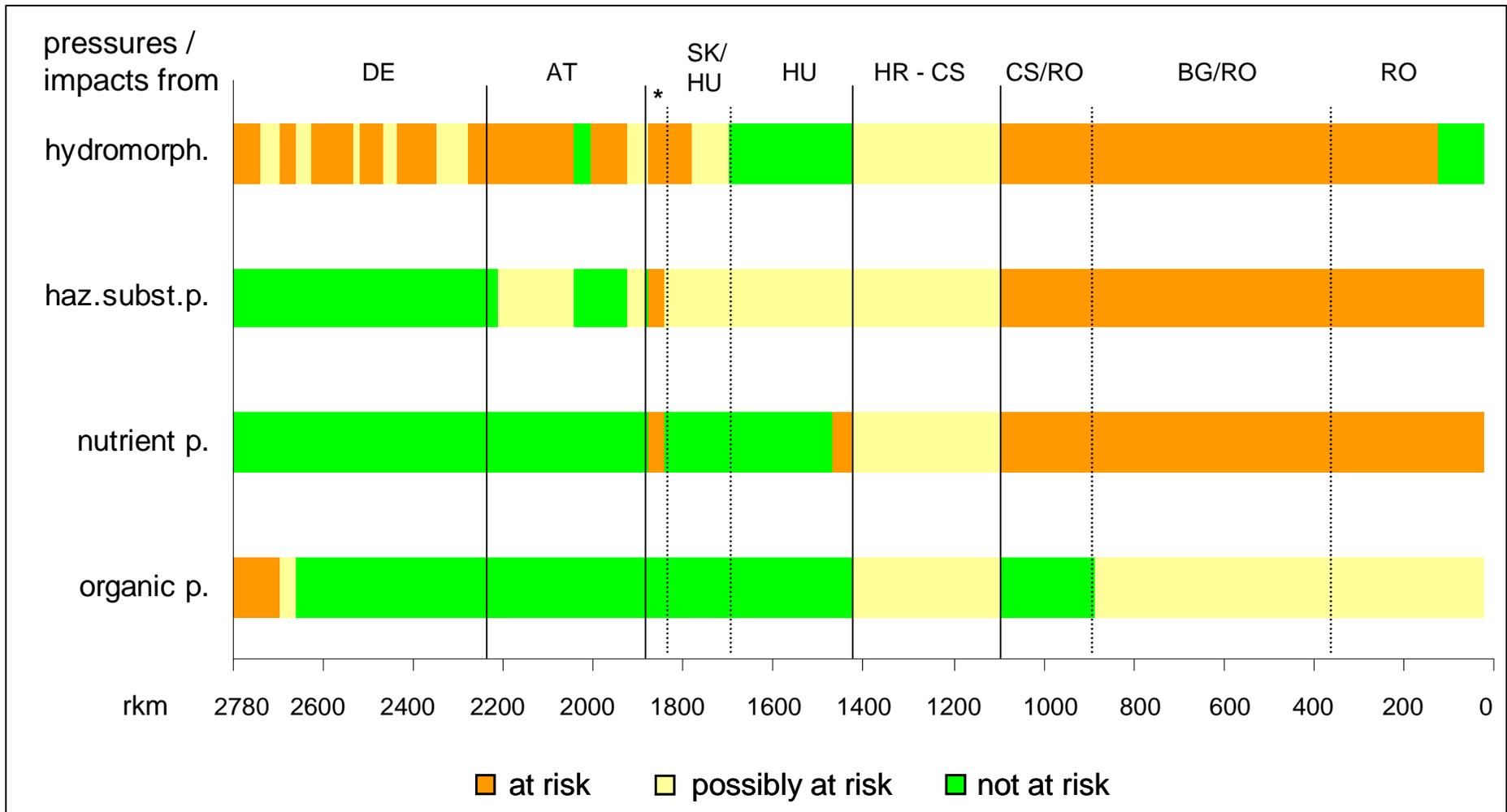


Hazardous
Substances Pollution

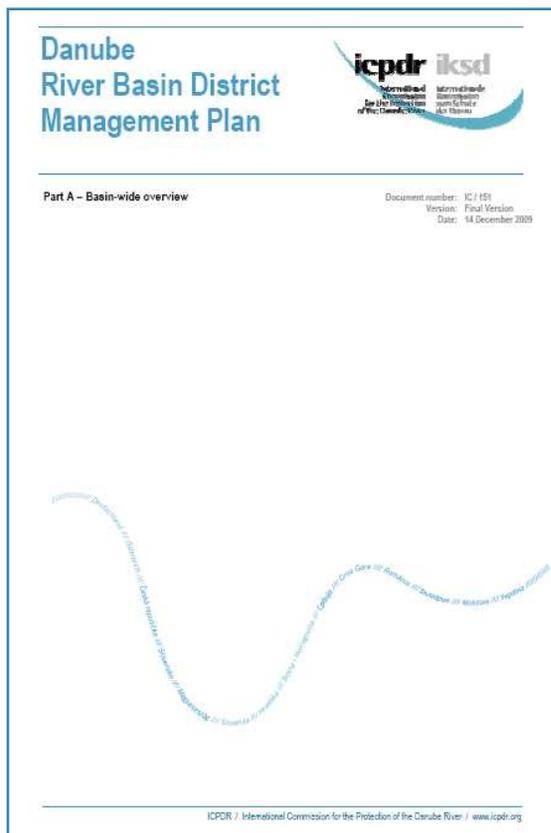


Hydromorphological
Alterations

DRB ANALYSIS – Risk of Failure



Danube River Basin Management Plan



Reflects

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

Includes

- Joint Programme of Measures
- Evaluation on measure implementation

Enables

- Conclusions on investment & funding
- Potential link to Danube Strategy

DRBM Plan



First time & unique overview on basin-wide issues

- Water Framework Directive: Implementation in largest international river basin district world-wide
- Impact of environmental issues (SWMIs)
- Analysis of wastewater treatment
- **Nutrient management on a large scale**
- Hydromorphological alterations

Joint Programme of Measures in the DRB



SWIMI
Organic Poll.

SWIMI
Nutrients

SWIMI
Haz. Subst.

Several SWIMs measures



affected by



SWMI Nutrients Pressures assessment



**MONERIS – a model for point
source and diffuse source
emissions calculations**
Inclusion of wetlands!

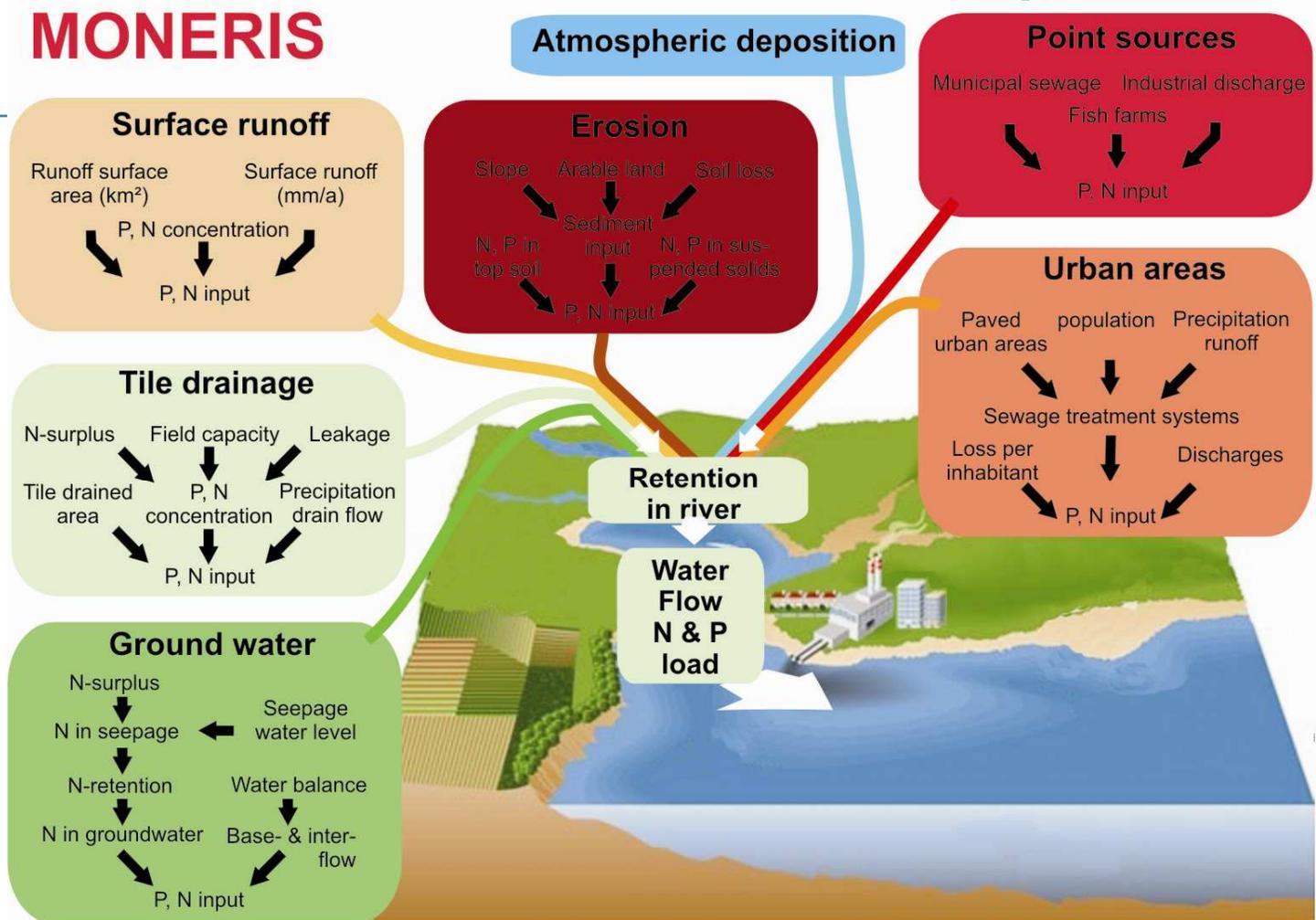


Model to answer the questions

The model is well established in Europe

The model results are comparable with such of deterministic dynamic models

The model includes the main processes in relation to the sources and pathways of nutrient inputs into the surface waters as well as retention.



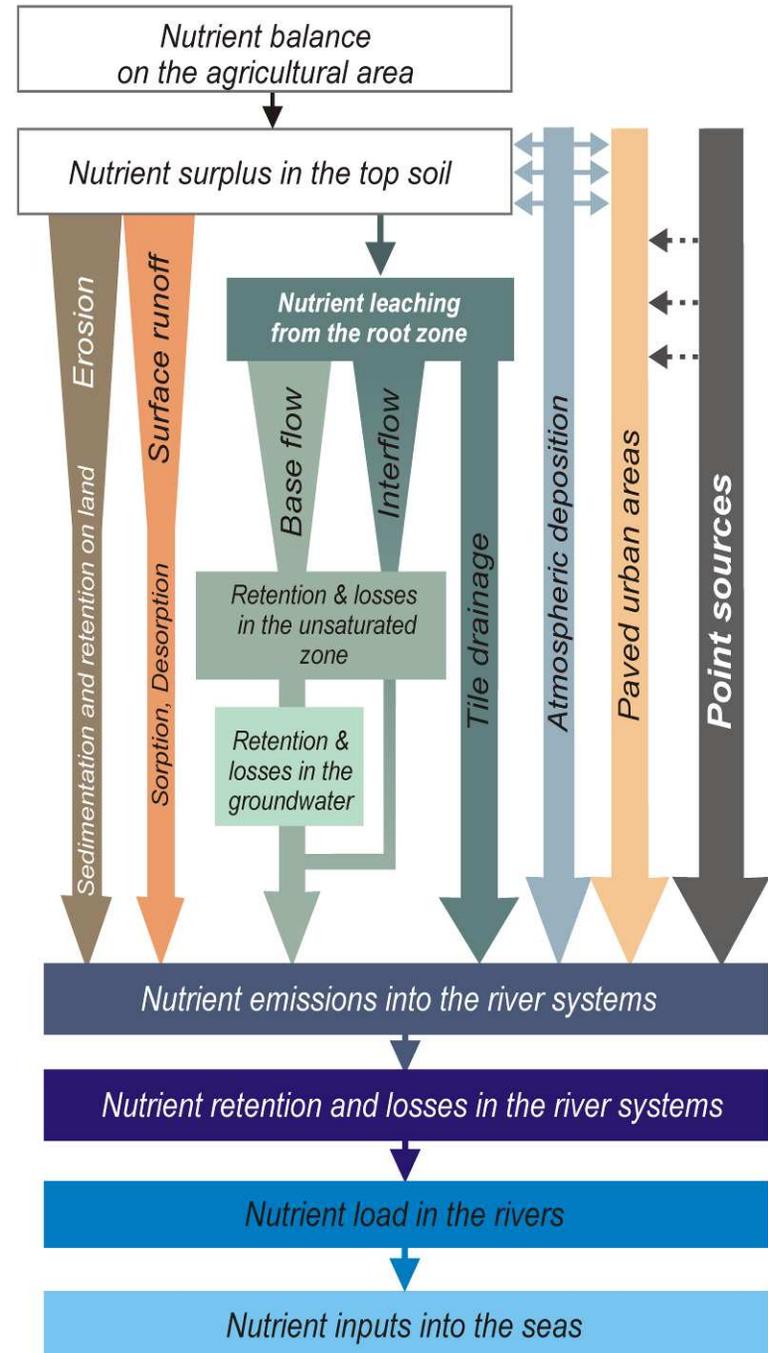
MONERIS decision support and mgt tool

Concept for **integration of data** required by the EU directives for MONERIS calculations

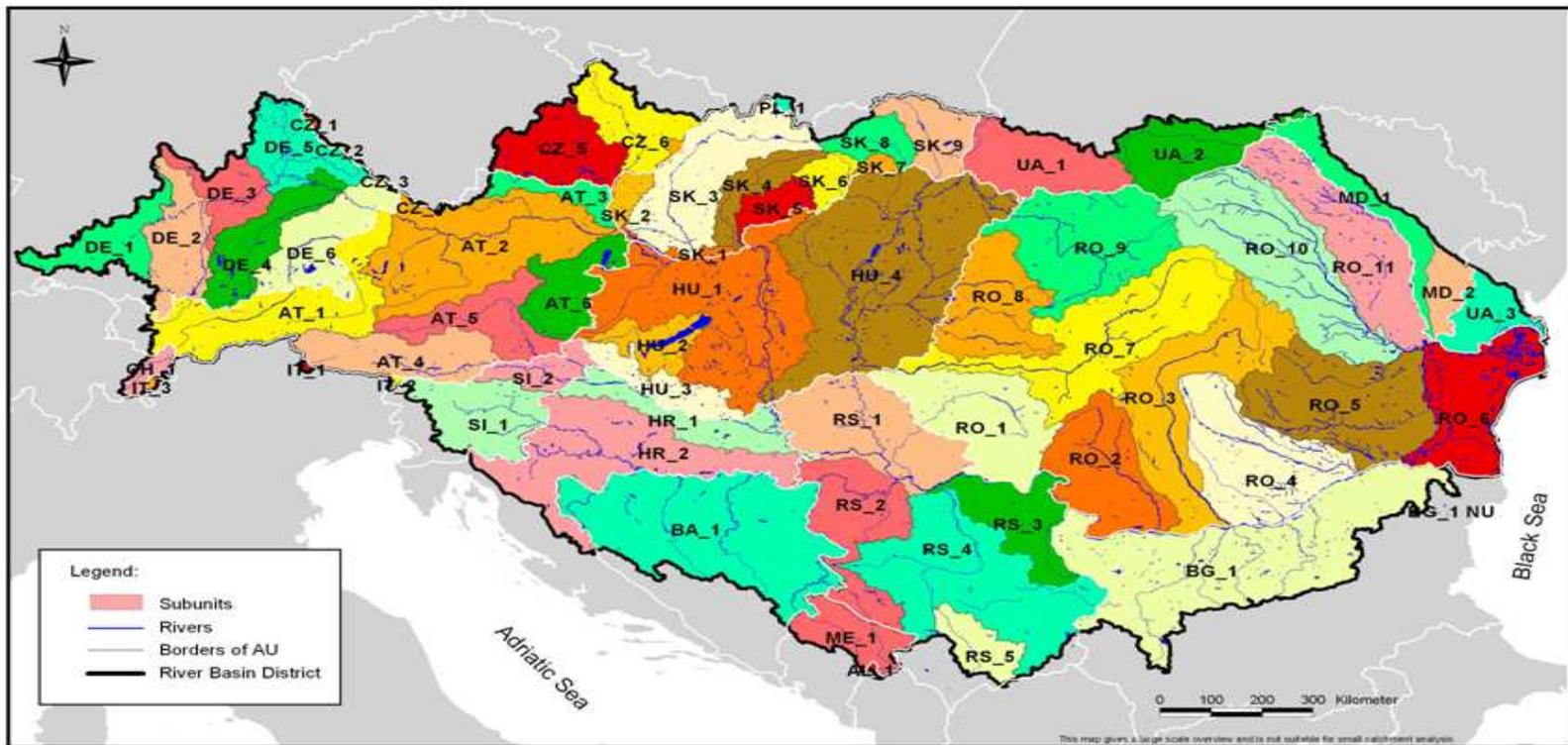
Basin wide overview of point and diffuse pollution sources

Calculation of scenarios for possible changes of nutrients loads within the Danube river systems and into the Black Sea

Evaluation of Program of Measures



The AU's (918) can be combined to 67 SU's, 21 sub-basins and 19 countries!!



<p>UNDP-GEF Danube Regional Project: MONERIS upgrade for estimation Point and Diffuse Emissions of Nitrogen and Phosphorus in the Danube River Basin District</p> <p>Institute of Freshwater Ecology and Inland Fisheries</p>  	<p>Subunits within the Danube Basin River District</p>	<p>Data Sources: DEM 100m grid derived from NASA SRTM data Country data of basin boundaries and river net works harmonized by IGB</p>
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Scenarios development (1)



Baseline Scenario – Agriculture 2015 - moderate agricultural development.

Agricultural Scenario-Nutrients 1 2015

N surplus of Danube countries as EU 15 in the year 2000 (i.e. 57 kg/ha/a). No change in atmospheric deposition will occur.

Agricultural Scenario-Nutrients 2 2015

N balance will be same

No change in atmospheric deposition will take place and N surplus in the remaining countries stays unchanged.



Scenarios development (2)



Urban wastewater treatment scenarios

Phosphate Ban Scenario-Nutrients (PBan-Nut)

Baseline Scenario-Nutrients (BS-Nut-2015)

Overall scenario combining the agreed most likely developments in different sectors:

urban wastewater

agriculture

atmospheric deposition

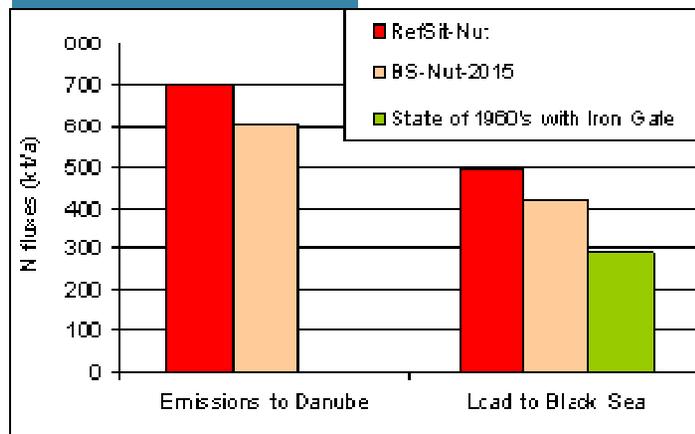


Nutrient
Pollution

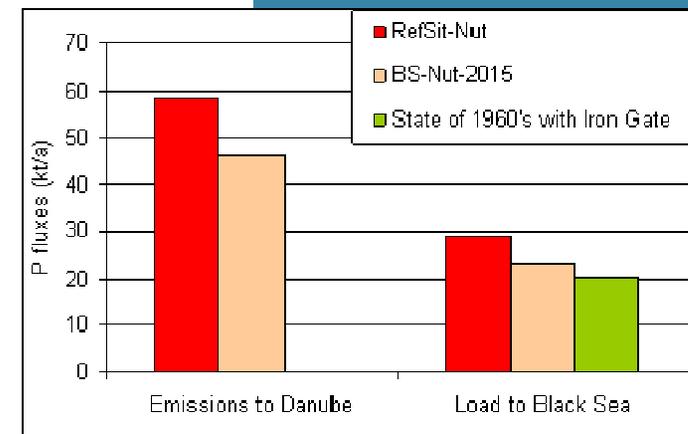
Key Conclusions: nutrients pollution reduction by 2015



Nitrogen



Phosphorous



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

⇒ **Introduction of Phosphate free detergents in the DRB**

Agricultural Measures in JPM/DRBM Plan



Broad range of measures in place in Danube countries to address agricultural influences on water

Key lines of action explicitly highlighted in DRBMP

- building storage capacity for manure
- strengthen advisory services and training
- focus on nutrient reduction and pesticides/herbicides use reduction
- land use management

Assessment of measures – legal frame



Implementation of Nitrates Directive

Implementation of UWWTD

Implementation CAP – RDPs

Use of P - free Detergents

Implementation of the ICPDR recommendations on
BAP

Nutrients reduction measures



The implementation of the agreed management objectives to achieve the ICPDR's basin-wide vision for nutrient pollution – is done generally through a wide range of measure types:

enforcement, codes of good practices, metering and tariffs, awareness raising and education, voluntary agreements.

Inter-linkages between the organic and nutrient pollution



The national PoM includes

- measures related to the improvement of wastewater treatment and the application of BAT for industry and agriculture, and as well
- measures to control diffuse nutrient pollution, measures to reduce phosphate emissions from household laundry and dishwasher detergents, and, finally,
- measures addressing the nitrogen pollution from atmospheric deposition.

Packages of agricultural measures related to farming practices and land use management



- Afforestation of agricultural land
- Restrictions of some agricultural activities on slopes
- Prohibition periods for applying fertilizer and manure
- Avoiding the application of fertilisers and manure to high-risk areas
- Limitation of N and P application on agricultural land
- The introduction of the CGAP
- Agricultural organic farming
- Buffer stripes
- Erosion-minimizing cultivation systems
- Establishment of wetlands
- On farm Nutrient Balances Farm
- Advice/Extension Services

Implementation of the Nitrates Directive (1)



The integration of the ND into WFD is central to ensure the legal alignment of the Nitrates Action Programmes (NAP) and RBMP/POMs.

Since its agreement in 1991, implementation in the Danube countries has evolved and as the evidence base has grown in the designation of Nitrate Vulnerable Zones (NVZs) and introduction of a strengthened range of measures in the NAP that farms within NVZs must comply with.

Action programmes have been established in the EU Member States by either applying the whole territory approach or in the designated Nitrate Vulnerable Zones under the Nitrates Directive.

Different Danube countries have taken different approaches regarding the designation of NVZs. The whole territorial approach was applied by Austria, Germany and Slovenia, while in Czech Republic, Hungary, Romania, Slovakia and Bulgaria, NVZs were identified.

Implementation of the Nitrates Directive (2)



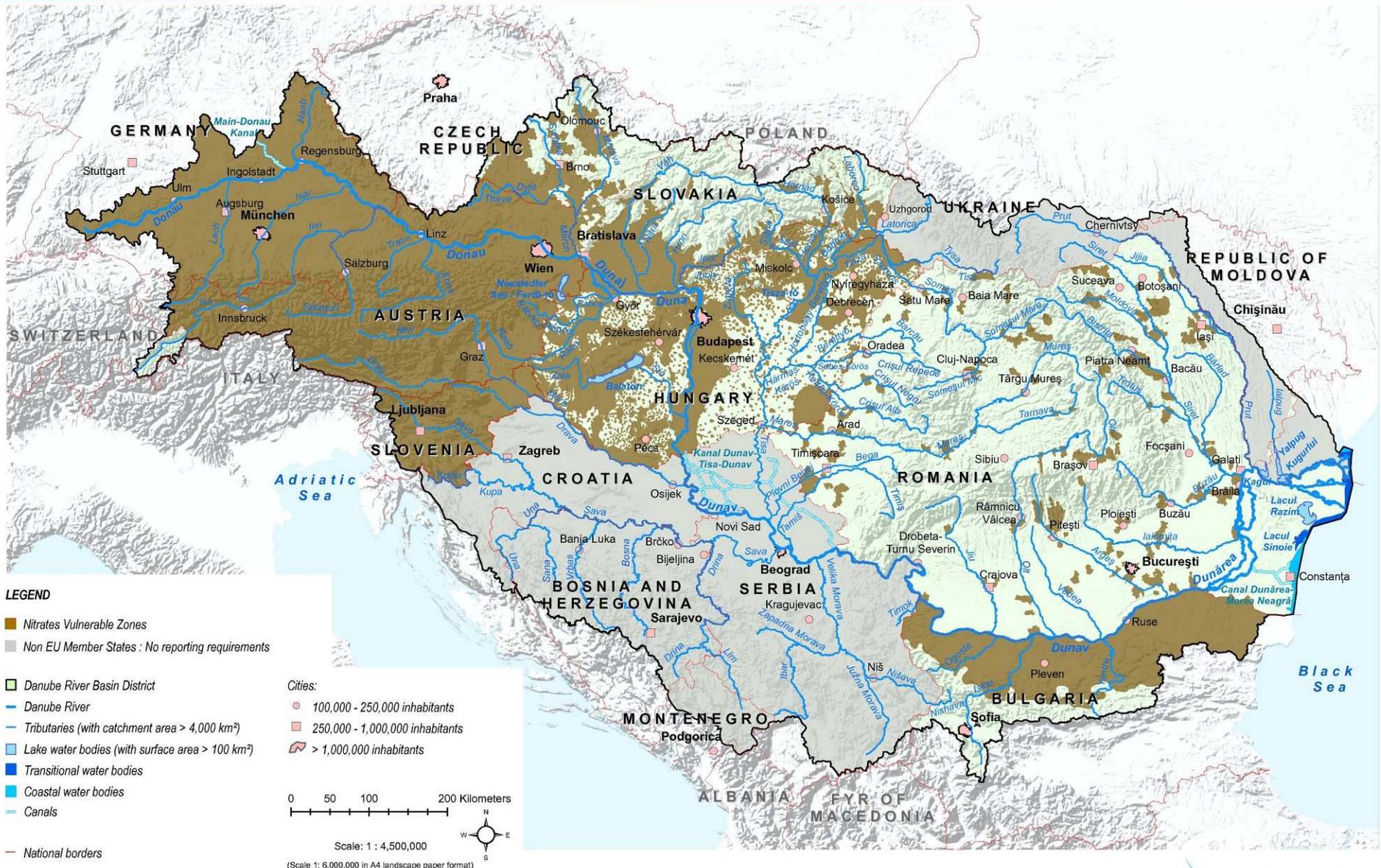
The implementation process of Nitrates Directive is ongoing in all MS as a continuous activity.

If necessary, each 4th year a new Action program can be established and should be implemented. The implementation in non MS is within a range of 2019 – 2021 (B&H and HR) for its full implementation.

Specific actions towards the Nitrates Directive implementation:

- Update of the codes of good agricultural practices
- Further designate or enforce Nitrate Vulnerable Zones.
- Refine requirements/restrictions related to manure storage, management and application.
- Improved accounting of water use
- Implement/enforce controls related to agricultural practices
- Enforce regulatory requirements on pesticides related to Directive 91/414/EEC to reduce pesticide pollution.

Danube River Basin District: Nitrates Vulnerable Zones



The map illustrates data provided by the countries under the European Commission's reporting requirements for the EU Nitrates Directive (period 2004 - 2007). In December 2008, RD re-designated the vulnerable zones and informed the European Commission in August 2009. According to the last updates the RD vulnerable zones area has increased from 7% to 58%. This ICPDR product is based on national information provided by the Contracting Parties to the ICPDR (AT, BA, BG, CZ, DE, HR, HU, MD, RO, RS, SI, SK, UA) and CH, except for the following: EuroGlobalMap v2.1 from EuroGeographics was used for national borders of AT, CZ, DE, HR, HU, MD, RO, SI, SK and UA; ESRI data was used for national borders of AL, ME, MK; Shuttle Radar Topography Mission (SRTM) from USGS Seamless Data Distribution System was used as topographic layer; data from the European Commission (Joint Research Center) was used for the outer border of the DRBD of AL, IT, ME and PL.

Assessing first results

The implementation of the Nitrates Directive in the EU MS, an improved application of the concept of BAP in Non EU MS and the reductions in nutrient pollution achieved in the UWWT with N and P removal for agglomerations >10,000 PE **will reduce the nutrient pollution considerable!**

Thank You!

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The screenshot shows the ICPDR website homepage. On the left, there are two main navigation menus. The first menu, titled 'Danube Basin', includes links for 'RIVER BASIN', 'COUNTRIES', and 'BLACK SEA'. The second menu, titled 'Issues', includes links for 'ECOSYSTEMS', 'WATER QUALITY', 'WATER POLLUTION', 'GROUNDWATER', 'FLOODS & DRIBBLES', 'DAMS & STRUCTURES', and 'RIVER BASIN MANAGEMENT'. To the right of these menus is a 'Sectors' menu with links for 'RURAL IMPACTS', 'MUNICIPALITIES', 'INDUSTRY', 'AGRICULTURE', 'NAVIGATION', and 'NATURE PROTECTION'. Below the 'Sectors' menu is an 'ICPDR' menu with links for 'ABOUT US', 'PROJECTS & PROGRAMMES', 'PUBLICATIONS', 'MEETINGS & EVENTS', and 'THE CONVENTION'. At the top right of the page, there is a search bar and a language selector.

ICPDR - International Commission for the Protection of the Danube River
Working for the Danube River Basin and its People

Danube Day

Welcome to ICPDR website!
We hope that this website inspires anyone wishing to know more about the environmental issues affecting the Danube river basin. And that it is a good source for everyone interested in ensuring the sustainable development of the most international river basin in the world.

Mr Wolfgang Stalzer
ICPDR President 2012

AUSTRIA TAKES OVER ICPDR PRESIDENCY
In the framework of a ceremony held in Vienna today, Austria took over the presidency of the International Commission for the Protection of the Danube River (ICPDR). The former President, Mykola Malenkovskiy of Ukraine, passes his office on to Wolfgang Stalzer of Austria.

DANUBE WATCH 3-4/2011
The new issue of the Danube Watch is out. Click here to read the full magazine online.

CZECH VERSION OF THE PLATINA MANUAL PUBLISHED
The recent publication of a Czech version of the PLATINA Manual is a major step in promoting good practices in inland navigation and waterway planning. The translated manual was...

INLAND WATERWAYS COMES TOGETHER TO ADDRESS DIFFERENCES
A groundbreaking conference in Brussels has seen two traditionally opposing waterways groups come together to discuss how to co-operate for the benefit of Europe's rivers and canals.

www.icpdr.org