

# Pollution control in the Danube River Basin



International Commission  
for the Protection  
of the Danube River

Internationale Kommission  
zum Schutz der Donau

## Challenges and future directions



Deutschland

България // Moldova // Україна

Magyarország // Slovenija // Hrvatska

Adam Kovacs  
ICPDR



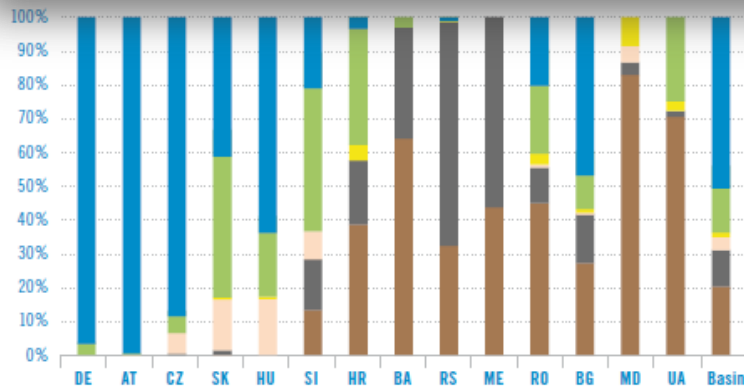
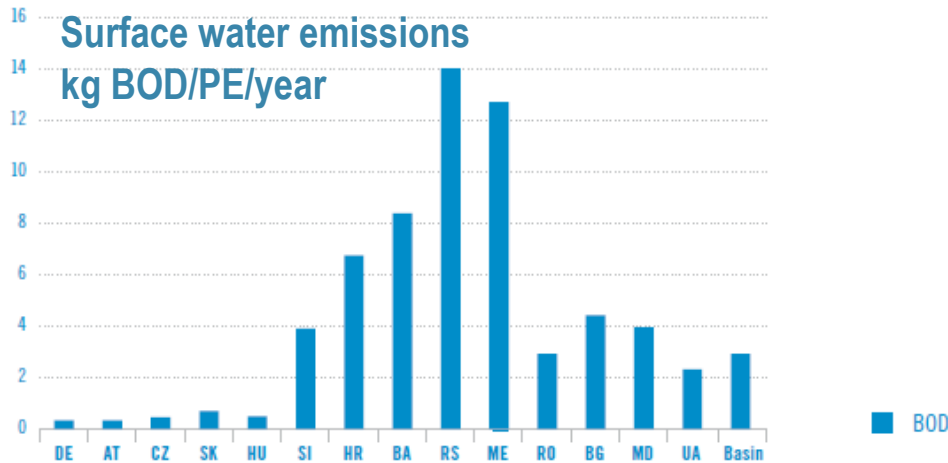
Side event on 'Flood Protection and Water Management related issues in the Danube Region'

# Setting the scene

- **DRBMP – Update 2015** – priorities for water management in the DRB
- **Ministerial Declaration** (2016) – political mandate for ICPDR
- **Significant Water Management Issues** in the DRB (pollution related):
  - Organic pollution – wastewater management
  - Nutrient pollution – sustainable agriculture
  - Hazardous substances pollution – modelling and monitoring
  - *Accidental pollution* – risk assessment and tailings

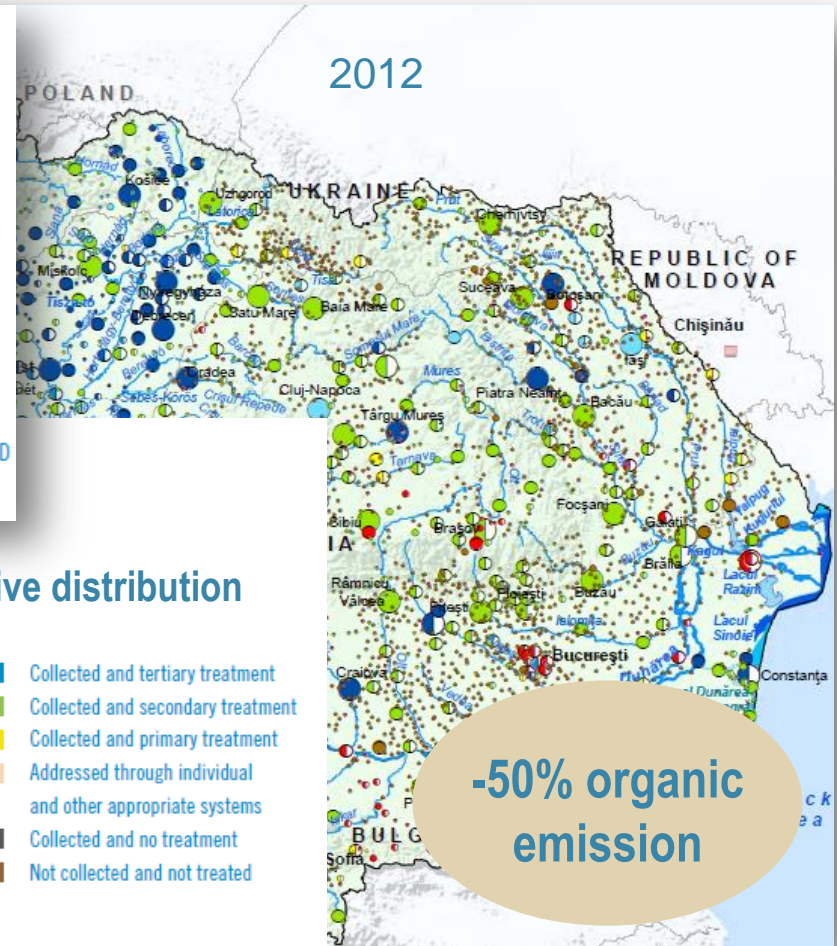


# Organic pollution – current status (wastewater)



PE relative distribution

- Collected and tertiary treatment
- Collected and secondary treatment
- Collected and primary treatment
- Addressed through individual and other appropriate systems
- Collected and no treatment
- Not collected and not treated



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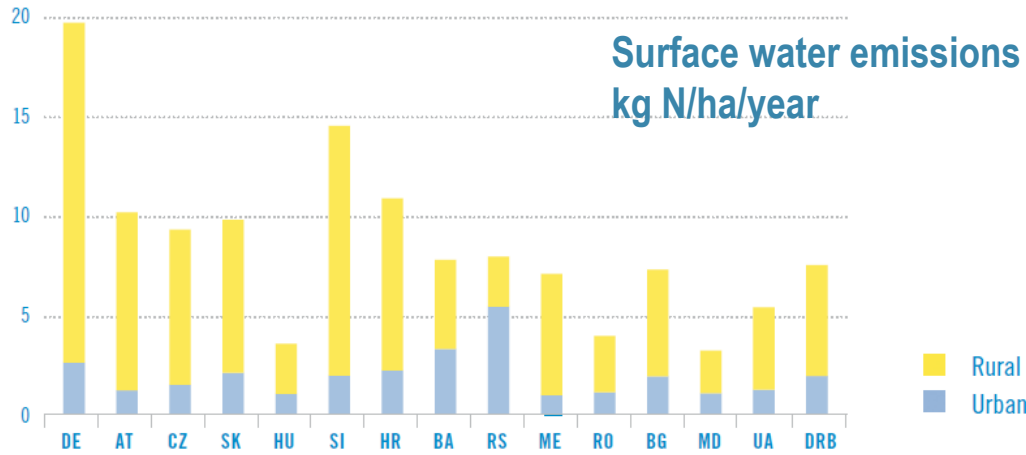
# Wastewater management – planned activities



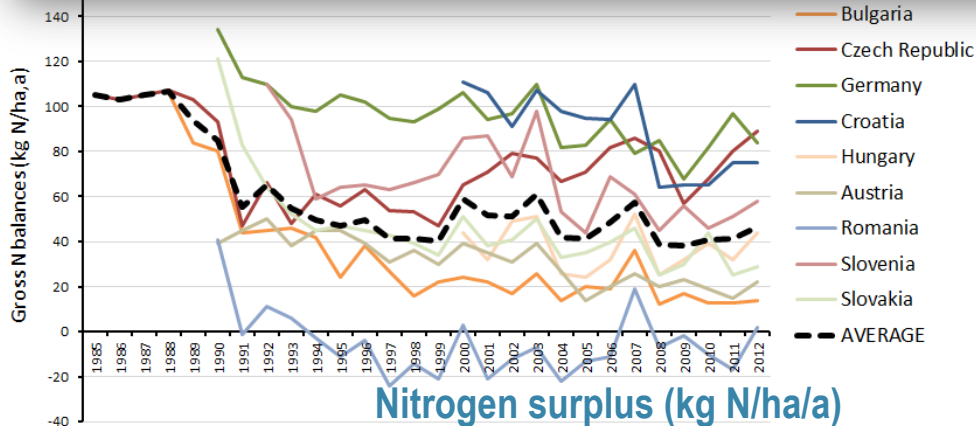
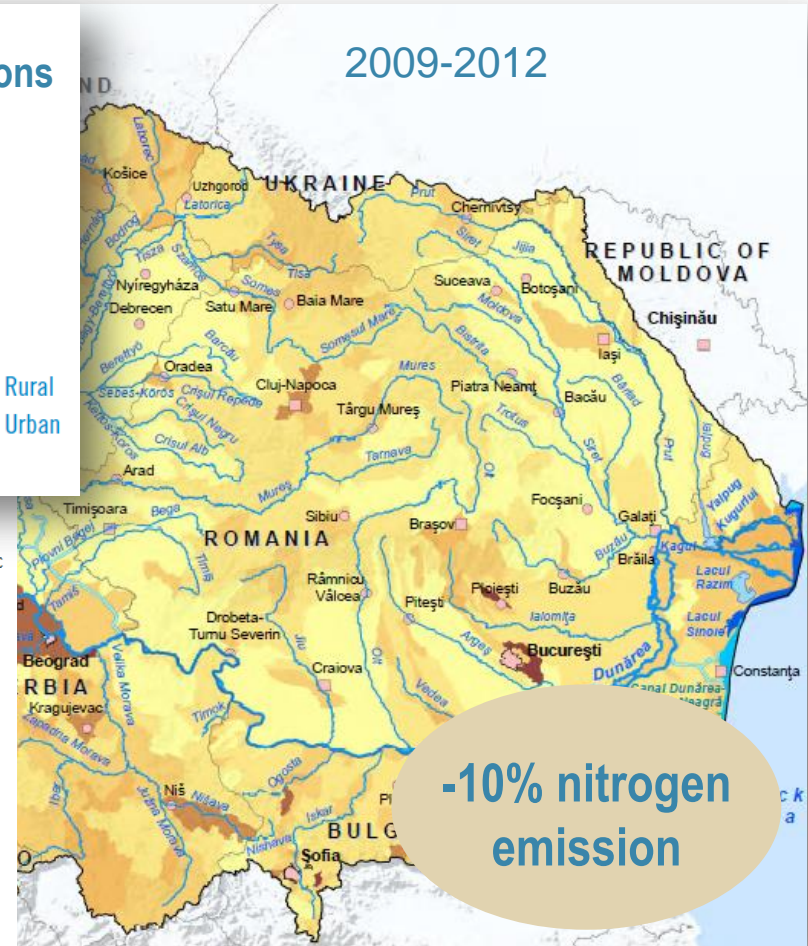
- **Workshop** on wastewater management (28-29 Nov 2017, Bucharest)
  - Financing: investment planning, how to identify funding sources, ensuring operational costs, cost-recovery & affordability
  - Capacity building: strengthening local management, administration and operational capacity
  - Technology: wastewater and sludge reuse, small treatment facilities, fourth treatment stage, biogas utilisation
- **Cooperation** with IAWD, World Bank, EUSDR, EC, EIB and GWP
- Bringing together administration and water utilities for **joint dialogue**
- Setting up a **roadmap** for future activities (specific seminars and trainings)
- **Report and public brochure** to be elaborated on the outcomes

# Nutrient pollution – current status (nitrogen)

Surface water emissions  
kg N/ha/year



2009-2012



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# Sustainable agriculture – planned activities

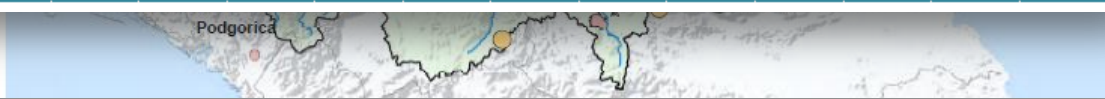
- Development of a **guidance document** on sustainable agriculture to **reduce nutrient pollution** from diffuse sources in the DRB
  - To decouple pollution from agricultural development
  - To recommend sound policy instruments, programs and targeted, cost-efficient agricultural measures
  - To ensure fresh & marine water protection and competitiveness of agriculture & vitality of rural areas
- Compilation of agricultural **knowledge base** (policy implementation and economic study) – to be finalised in autumn 2017, basis for the guidance
- Spring 2018 and 2019: **two workshops** to be organised for stakeholder discussions towards the guidance, to be co-organised by EUSDR
- Voluntary commitment to the **UN Ocean Conference** (SDG 14)

# Hazardous substances pollution – current status (industry)

Substance	Pollutant group	DE	AT	CZ	SK	HU	SI	HR	BA	RS	RO	BG	MD	UA	Bas in
1,2-dichloroethane (DCE)	Chlorinated organic substances	-	-	-	243	-	-	-	-	-	220	-	-	-	463
Chloro-alkanes, C10-C13	Chlorinated organic substances	-	5	-	-	-	-	-	-	-	-	-	-	-	5
Dichloromethane (DCM)	Chlorinated organic substances	44	-	-	-	-	25	-	-	-	-	-	-	-	69
Halogenated organic compounds (as AOK)	Chlorinated organic substances	9,530	49,190	6,400	35,070	5,120	1,540	-	-	67,900	-	-	-	-	174,750
PCDD + PCDF (as total quantity) (as Tqg)	Chlorinated organic substances	-	0.012	-	-	-	-	-	-	-	-	-	-	-	0.012
Pentachlorophenol (PCP)	Chlorinated organic substances	-	5	-	-	-	-	-	-	-	-	-	-	-	5
Polychlorinated biphenyls (PCBs)	Chlorinated organic substances	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Tetrachloroethylene (PER)	Chlorinated organic substances	-	-	12	34	-	-	-	-	-	-	-	-	-	46
Trichlorobenzenes (TCBs) (all isomers)	Chlorinated organic substances	-	-	-	64	-	-	-	-	-	-	-	-	-	64
Trichloroethylene	Chlorinated organic substances	-	14	-	166	-	-	-	-	-	-	-	-	-	181
Trichloromethane	Chlorinated organic substances	125	27	-	216	-	-	-	-	-	-	-	-	-	368
Arsenic and compounds (as As)	Heavy metals	38	22	45	148	67	-	-	-	35,106	-	1,511	-	-	36,936
Cadmium and compounds (as Cd)	Heavy metals	15	50	13	133	235	-	-	-	689	1,605	756	-	-	3,496
Chromium and compounds (as Cr)	Heavy metals	373	1,507	402	329	5,924	129	-	-	64,923	7,007	2,025	-	-	82,618
Copper and compounds (as Cu)	Heavy metals	4,779	5,534	1,602	77	6,278	229	-	-	78,555	20,960	24,783	-	-	142,796
Lead and compounds (as Pb)	Heavy metals	458	1,474	1,040	-	4,711	67	-	-	4,433	7,477	3,306	-	-	22,966
Mercury and compounds (as Hg)	Heavy metals	24	12	3	282	100	-	-	-	1,284	116	15	-	-	1,837
Nickel and compounds (as Ni)	Heavy metals	2,034	4,131	1,293	44	8,757	251	-	-	1,317	7,605	3,010	-	-	28,440
Zinc and compounds (as Zn)	Heavy metals	39,084	68,172	6,157	1,394	22,317	1,717	-	-	26,499	46,908	21,396	-	-	233,644
Chlorides (as total Cl)	Inorganic substances	90,430,000	-	4,950,000	19,560,000	10,200,000	3,010,000	-	-	75,000,000	167,160,000	10,700,000	-	-	381,010,000
Cyanides (as total CN)	Inorganic substances	-	6,139	667	905	106	260	-	-	1,030	1,780	-	-	-	10,887
Fluorides (as total F)	Inorganic substances	31,340	127,200	18,610	243,960	-	2,070	2,280	-	1,212,170	-	-	-	-	1,637,630
Anthracene	Other organic substances	-	1	-	7	-	-	-	-	-	-	-	-	-	8
Benzofluoranthene	Other organic substances	-	-	-	7	-	-	-	-	-	-	-	-	-	7
Di-(2-ethyl hexyl) phthalate (DEHP)	Other organic substances	19	67	161	99	-	9	-	-	-	-	-	-	-	356
Fluorene	Other organic substances	-	2	-	8	-	-	-	-	-	-	-	-	-	9
Nonylphenol and Nonylphenol ethoxylates (NPNPEs)	Other organic substances	54	148	6	6	-	10	-	-	-	-	-	-	-	224
Octylphenols and Octylphenol ethoxylates	Other organic substances	5	-	3	-	-	1	-	-	-	-	-	-	-	9
Phenols (as total C)	Other organic substances	-	419	807	1,134	3,080	-	1,090	-	11,661	7,765	671	-	-	26,627
Polycyclic aromatic hydrocarbons (PAHs)	Other organic substances	-	-	-	44	-	-	-	-	-	104	-	-	-	148
Diuron	Pesticides	-	52	-	-	-	-	-	-	-	-	-	-	-	52
Isoproturon	Pesticides	11	-	-	-	-	-	-	-	-	-	-	-	-	11
Tributyltin and compounds	Pesticides	-	2	-	-	-	-	-	-	-	-	-	-	-	2

Surface water emissions  
kg subst./year

- Danube River
- Tributaries (with catchment area > 4,000 km<sup>2</sup>)
- Lake water bodies (with surface area > 100 km<sup>2</sup>)
- 100,000 - 250,000 inhabitants
- 250,000 - 1,000,000 inhabitants
- > 1,000,000 inhabitants



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# Modelling and monitoring of HS pollution – planned activities

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- Closing **knowledge gaps** as priority (stepwise approach)
- Development of a **pre-study** for hazardous substances pollution in the Danube River Basin
  - Pre-selecting substances of interest, defining case study areas, choosing appropriate model, investigating data availability, develop project proposal
  - Application for Danube Strategic Project Funds for further support
- Implementation of a **large project** (2018-, HORIZON 2020, DTP 3<sup>rd</sup> call?)
  - Smart monitoring & basin-wide modelling, control measures
- Cooperation with **SOLUTIONS Project** on wastewater treatment plant monitoring (specific sampling and analysis, autumn 2017)



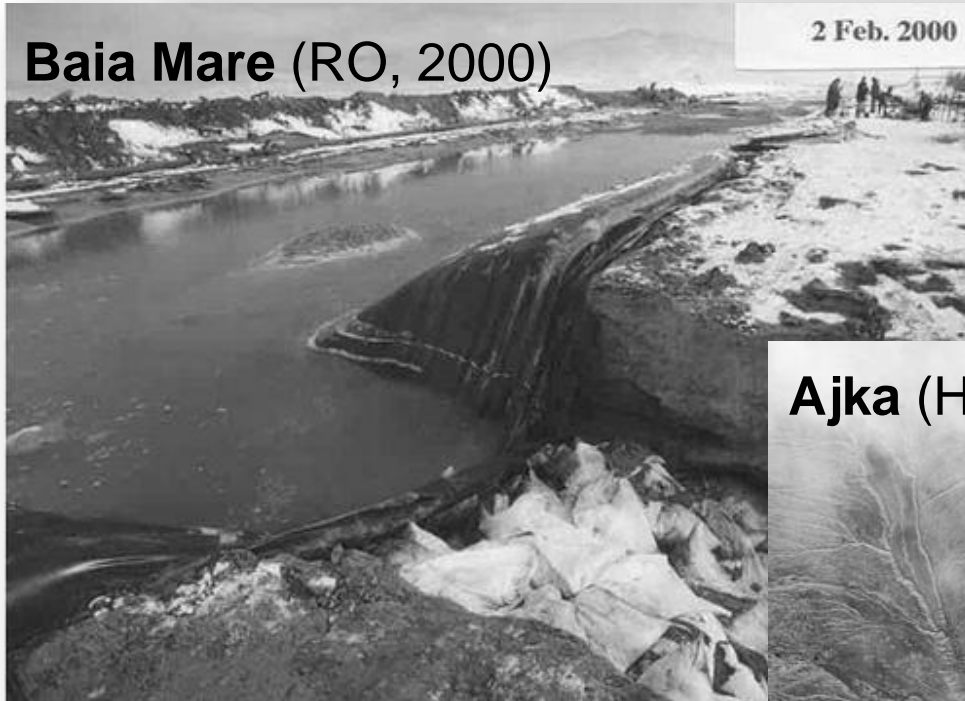
# Accidental pollution – current status (hot-spots)

**ICPDR** IKSD

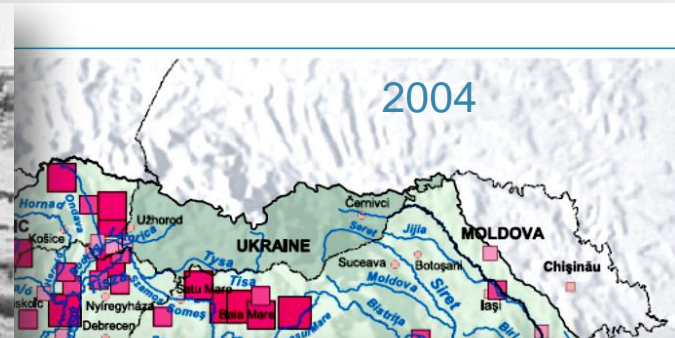
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Baia Mare (RO, 2000)

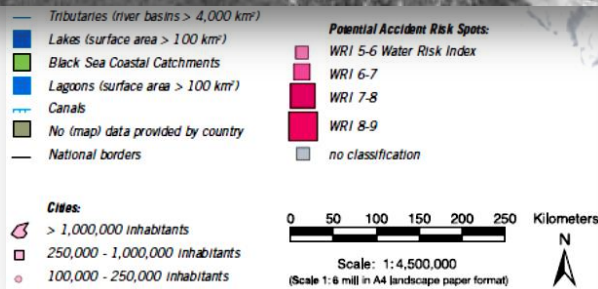


2 Feb. 2000



2004

Ajka (HU, 2010)



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# Accident prevention – planned activities

- Finalisation of the **inventories** of accident risk hot-spots (Accident Risk Sites and Contaminated Sites)
- **Technical report** to be finished in autumn 2017
- **Public report** on accident prevention and control in the DRB in 2018
- Planned project on **tailings management facilities** related to mining and industrial tailing activities (2018-2019) in cooperation with UNECE
  - Basin-wide risk assessment on tailing ponds and prioritisation
  - Promoting checklists and catalogue of measures
  - Regional training courses for operators and inspectors (RO and RS)

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# Thank you for your attention!

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For more information please visit the ICPDR website:

<http://www.icpdr.org>

