



# 3rd ASEM Seminar on Urban Water Management

## Budapest, Sept 13, 2018

**Wastewater Management in the Danube Region:  
Opportunities and Challenges of UWWTD implementation**  
**Mr. Stjepan Gabric (World Bank)**



# Implementation of UWWTD - Case of new EU countries from Danube River Basin

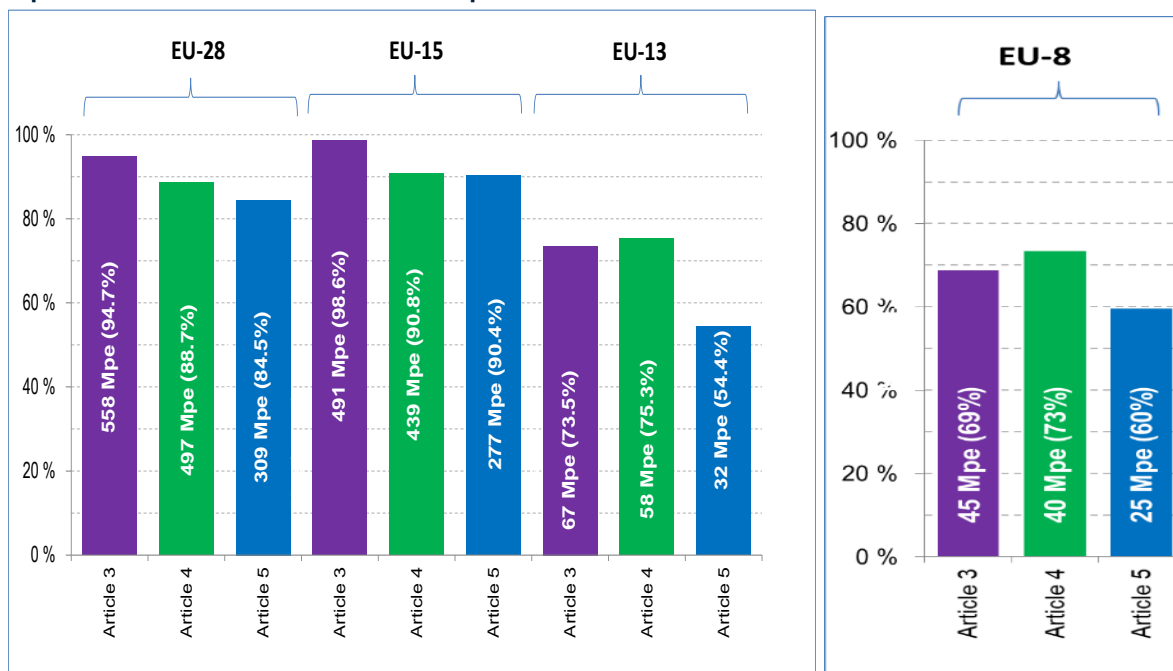
- World Bank has a long experience of involvement in wastewater management in Danube region (from 90ties until today), and continue to support wastewater management in EU MS and candidate countries.
- UWWTD is a key driver of urban wastewater sector transformation in Danube region, with large amounts of funds being committed in an unprecedented wastewater infrastructure investment cycle
- The overall objective of this limited (modest) analysis was to: (i) assess results of the UWWTD implementation in the Danube region, taking into account environmental, economic, sustainability and affordability aspects, and (ii) provide contribution to process of UWWTD review, by identifying challenges and actions that countries can take to improve wastewater management.
- The specific geographic focus of this work was on new EU MS from the Danube River Basin (*Bulgaria, Croatia, Czech Republic, Hungary, Romania, Slovakia, and Slovenia + Austria*), that have joined EU between 2004 and 2013.

# Implementation of UWWTD - Case of new EU countries from DRB

## Where are we?

Since 2003, wastewater treatment has shown significant improvement, benefiting from largest ever level of investments in the wastewater infrastructure in the region. Still, if compared to older EU members, significant gaps in compliance with UWWTD requirements continue to exist.

Average compliance rates with Article 3, Article 4 and Article 5 in relation to the total subjected wastewater load for a) the EU28 & b) EU8 MS of DRB for the reference year 2014.

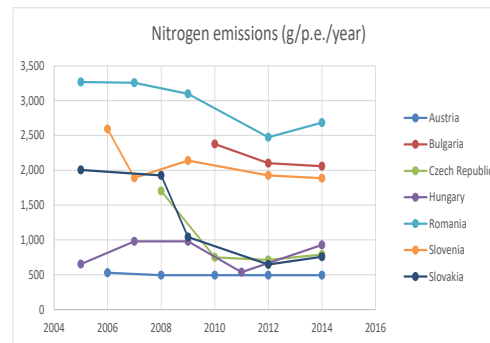
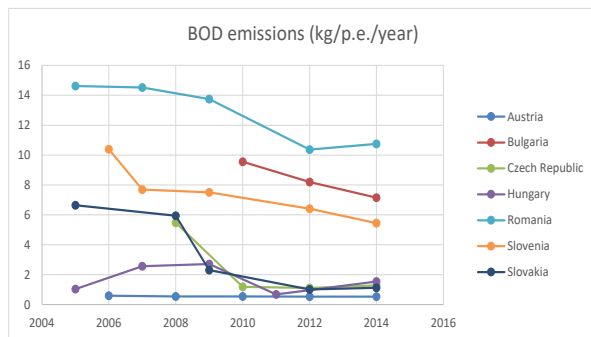


Implementation delays toward full UWWTD compliance have occurred in all five observed countries (Czech Republic, Slovakia, Hungary, Slovenia and Bulgaria) of the Danube region, where UWWTD deadlines have already expired, indicating universally unrealistic UWWTD implementation planning.

# Implementation of UWWTD - Case of new EU countries from DRB

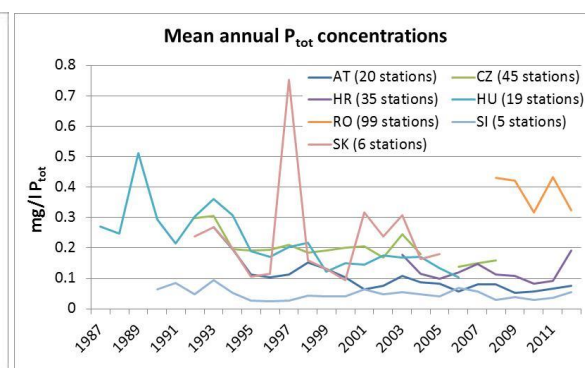
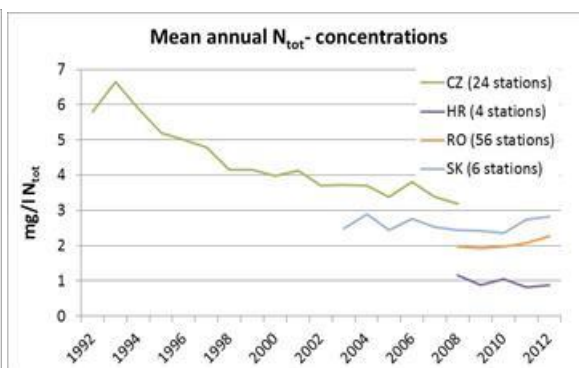
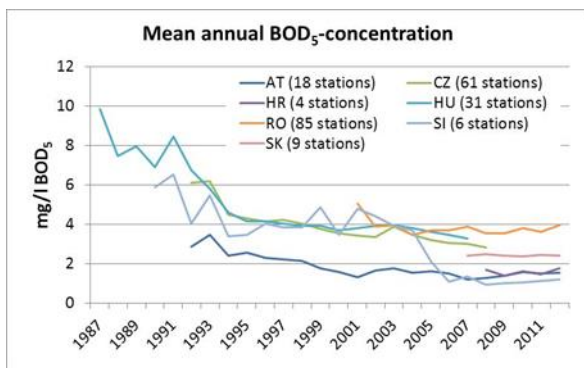
## What are water quality implication?

All countries investigated have managed to decrease load emissions, corresponding to improved compliance with secondary and tertiary treatment requirements under UWWTD.



Emissions' evolution from 2005 to 2014 for seven MSs in to the DRB

This has resulted in significant improvement of surface water quality, but more for BOD/COD than N,P.

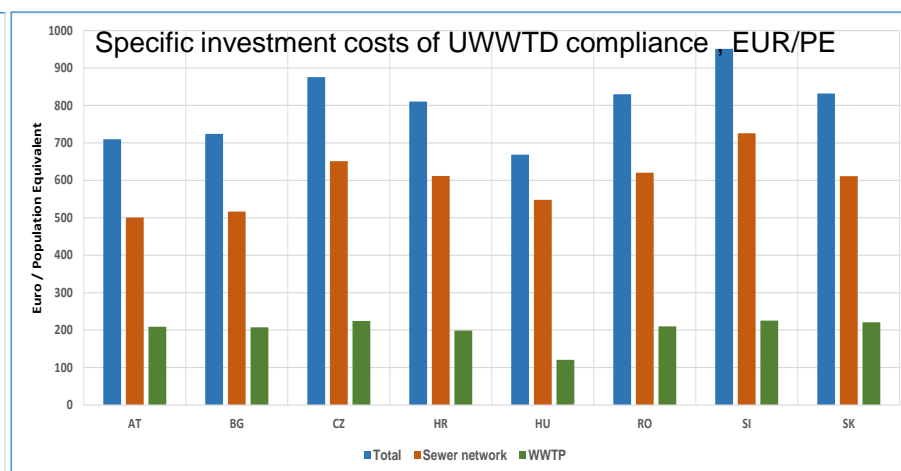
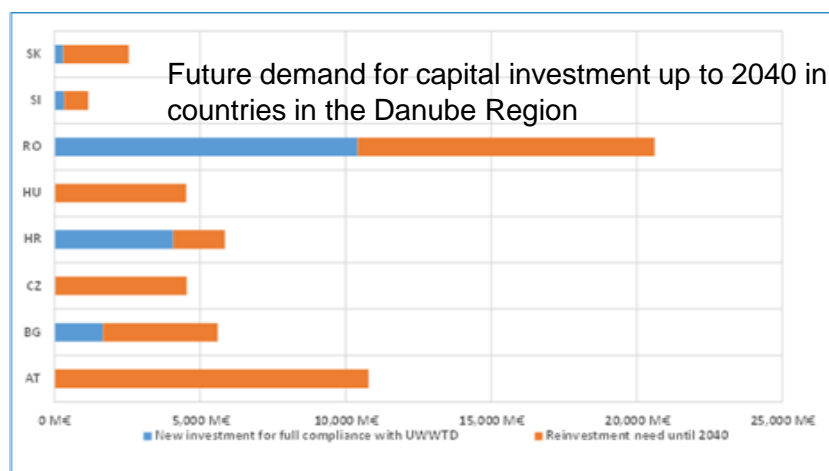


Mean annual BOD<sub>5</sub>, P and N concentrations for AT, CZ, HR, HU, RO, SI and SK

# Implementation of UWWTD - Case of new EU countries from DRB

## Is it financially sustainable?

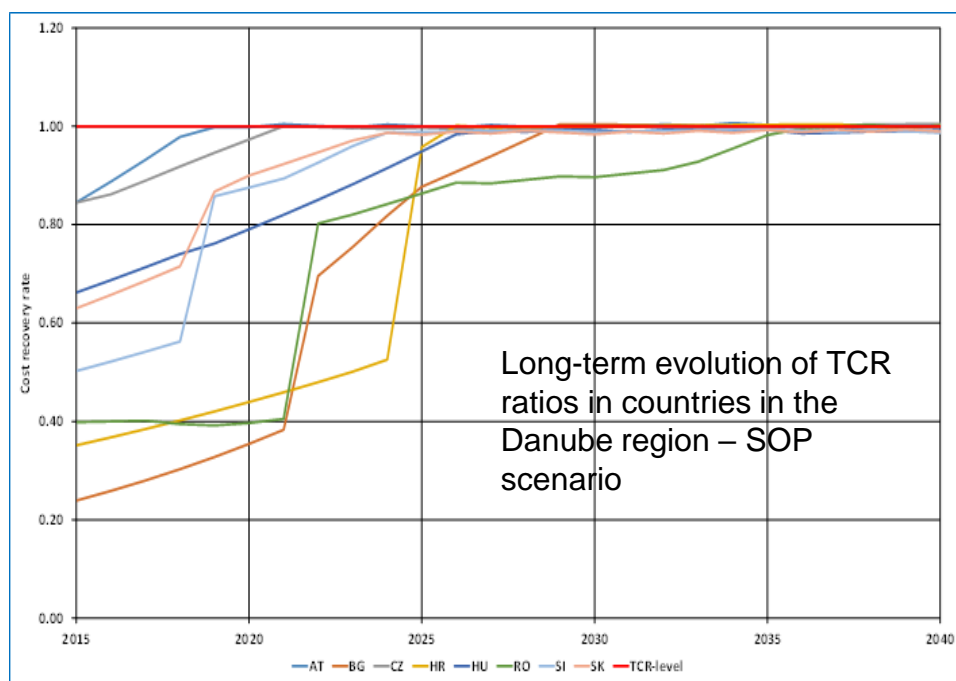
- Estimate of funds needed for full compliance with UWWTD for all current regional MS is around Euro 60 billion, with Euro 44 billion already invested.
- Future capital expenditure demand is estimated to be about Euro 56 billion needed for continuous UWWTD compliance up to year 2040: (i) Euro 16 bill for still non-equipped agglomerations above 2,000 PE, and (ii) Euro 40 billion for reinvestment for older infrastructure needing renewal until 2040
- Per capita costs of UWWTD compliance are not dependant on per capita income.
- Wastewater pricing policies currently only partially support full cost recovery of water services in the eight countries, with depreciation usually only partially included in the current tariffs



# Implementation of UWWTD - Case of new EU countries from DRB

## Is it financially affordable?

- There is wide difference in level of tariffs in the region (average wastewater services in AT (2.0 EUR/m<sup>3</sup>) are more than three times more expensive than in BG (0.6 EUR/m<sup>3</sup>).
- Robust annual tariff increases (within the boundary of EU-recommended affordability thresholds) will be required to achieve TCR ratio targeted value of 1 within a variable timeframe depending on the country.
- Affordability of water services for the households is not expected to be an issue until 2040, if taking into account the highest 5% (3% for WW services) affordability threshold



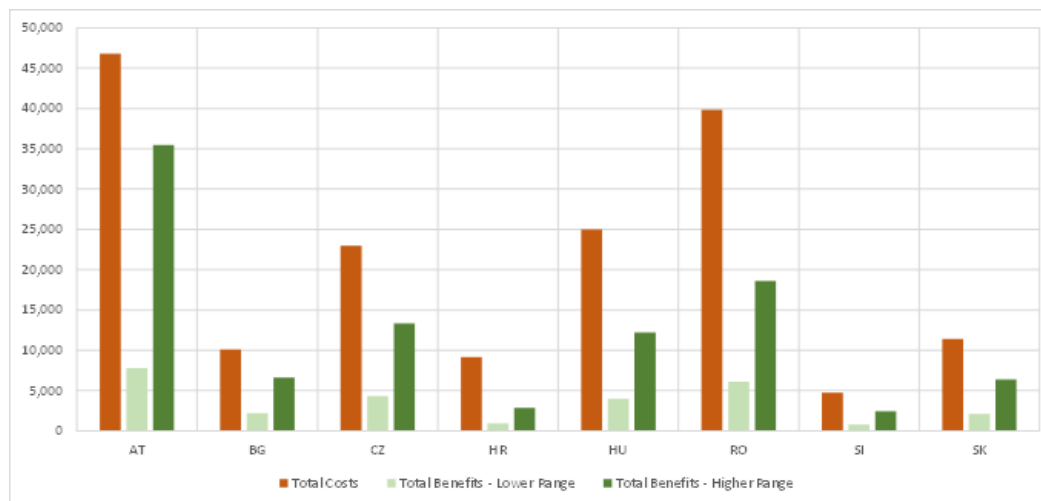
Target Countries	Wastewater tariff affordability ratio [%] in 2015	Wastewater tariff affordability ratio [%] in 2025	Wastewater tariff affordability ratio [%] in 2040
Austria	0.6	0.66	0.57
Bulgaria	1.6	2.56	2.69
Czech Republic	1.2	1.56	1.39
Croatia	1.4	1.91	1.31
Hungary	1.7	2.69	2.07
Romania	3.2	2.99	3.01
Slovenia	0.5	0.69	0.57
Slovakia	1.4	2.40	1.91

# Implementation of UWWTD - Case of new EU countries from DRB

## Is it economically viable?

For all countries, the overall cost of implementing UWWTD for period 2000-2040 is significantly above the higher range of the estimated benefits (which are calculated in two scenarios, lower or higher estimates)

UWWTD related costs and benefits discounted (2015) per country in the period 2000-2040, Mio EUR



Indicators	Economic indicators at country level (2000-2040)							
	AT	BG	CZ	HR	HU	RO	SI	SK
<b>ENPV (Lower Range)</b>	-39,033	-7,915	-18,653	-8,232	-21,024	-33,793	-3,961	-9,339
<b>ENPV (Higher Range)</b>	-11,357	-3,476	-9,672	-6,306	-12,801	-21,274	-2,307	-5,023
<b>EIRR (Higher Range)</b>	3%	10%	6%	*	2%	3%	3%	5%
<b>B/C (Higher Range)</b>	0.76	0.66	0.58	0.31	0.49	0.47	0.52	0.56

Therefore, it can be assumed that the prevailing driver for UWWTD compliance is the need for uniformity of regulatory compliance under the EU directives, and environmental protection that goes beyond economic justification.

# Recommendations – take away

- Data/information collection and availability need to be improved, which would lead to better decisions founded on actual data analysis (establishment of data models)
- Ways to reduce costs of wastewater collection and treatment (capex and opex) should be identified and enforced (regional approach, innovative technologies, more flexibility for discharge standards when this is not justified by WFD requirements)
- Tariff increases are necessary to ensure financial sustainability, but should be accompanied with necessary WSS sector reforms to improve efficiency of service provision (governance, efficiency etc.), as a way to minimize increase
- While affordability was overall found not to be a major issues, there is a need to address existing/future affordability constraint, with targeted subsidies for poorer part of population
- MS from the region should explore possibilities to increase benefits from UWWTD implementation (including promotion of activities that benefit from good water status, like water sports, fishing, irrigation, etc)
- Candidate countries should, well in advance of accession negotiations, invest in science-based studies to define areas to are indeed nutrient sensitive, to avoid unnecessary costs, reduce pressure on future operational sustainability, and define actions that will achieve given objectives at lowest costs.



# Implementation of UWWTD

## Case of new EU countries from Danube River Basin

### Deliverables:

- Wastewater Management in the Danube Region: Opportunities of EU Accession” **Study Report**
- Wastewater Management in the Danube Region: Opportunities of EU Accession” **ANNEX to Study Report**
- Wastewater Management in the Danube Region: Is the UWWTD implementation delivering results for the people, the economy and the environment? **FOCUS NOTE**

Publication: **Danube Water Program** web page (<http://www.danube-water-program.org/>)

Thank you for your attention!