

WATER MANAGEMENT ISSUES IN NON-EU DANUBE COUNTRIES

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800.000 km² | 80 Mio. people | 19 countries | Most international River Basin in the World

I GOALS AND CRITERIA



This ICPRD product is based on national information provided by the Contracting Parties to the ICPRD (AT, BA, BG, CZ, DE, HR, HU, MD, RO, RS, SI, SK, UA) and CH. EuroGlobalMap data from EuroGeographics was used for all national borders except for AL, BA, ME where the data from the ESRI World Countries was used. Shuttle Radar Topography Mission (SRTM) from USGS Seamless Data Distribution System was used as elevation data layer; data from the European Commission (Joint Research Center) was used for the outer border of the DRBD of AL, IT, ME and PL.

Vienna, May 2015

IMPORTANCE OF WATER IN THE WORLD ECONOMIC STRENGTH AND AVAILABILITY OF WATER RESOURCES AS INDICATORS OF THE STATUS OF WATER MANAGEMENT

- I. GDP > 10K US\$
(Q > 1000 m³ per capita per year).
- II. 4 < GDP < 10K US\$ per
(Q > 1000 m³ per capita per year).
- III. GDP < 4K US\$ per
(Q > 1000 m³ per capita per year).
- IV. GDP > 10K US\$ per capita
(Q < 1000 m³ per capita per year).
- V. 4 < GDP < 10K US\$ per capita
(Q < 1000 m³ per capita per year).
- VI. GDP < 4K US\$ per capita
(Q < 1000 m³ per capita per year).

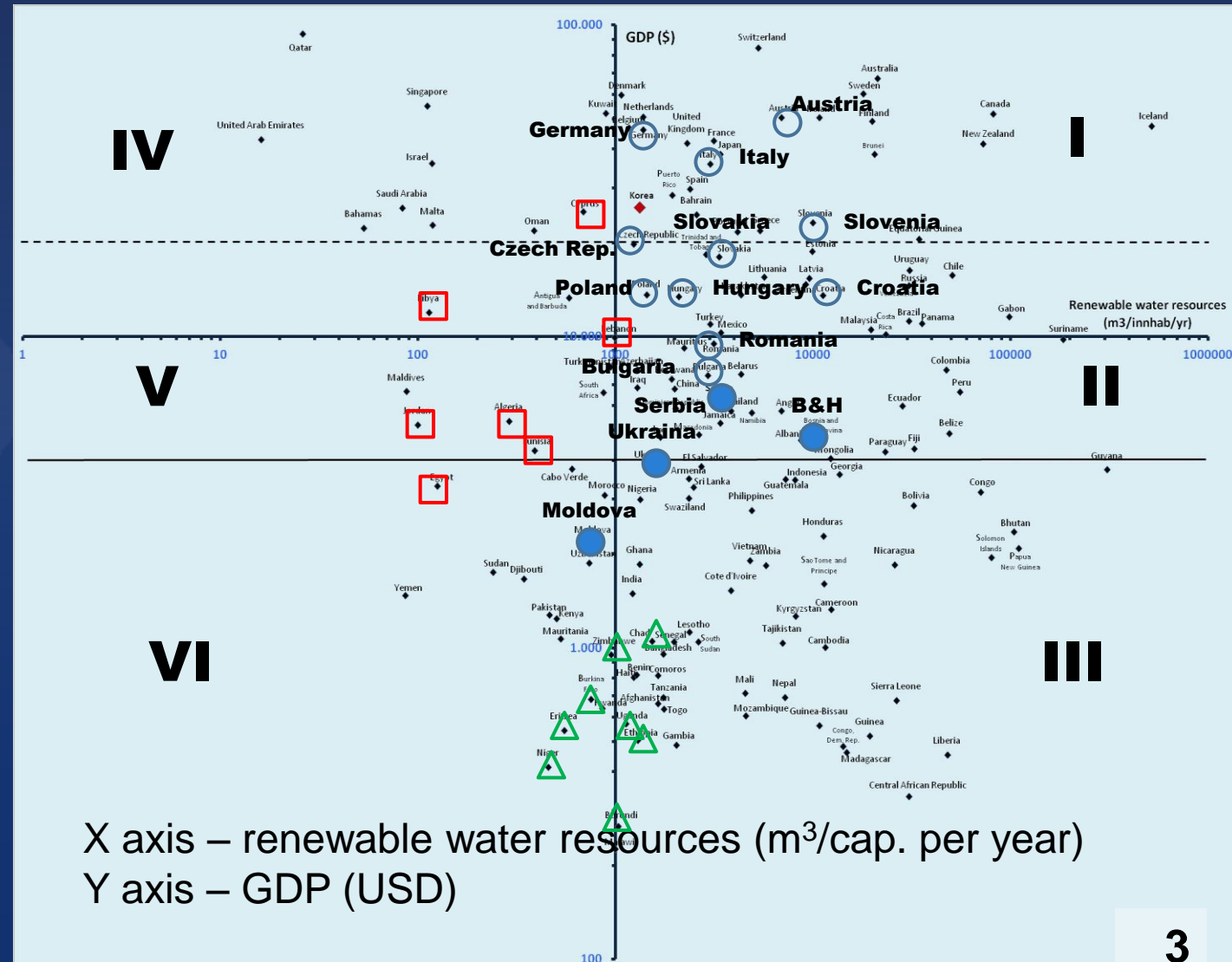
Authors: Milan Dimkic, Miodrag
Milovanovic
Data: GDP (World Bank),
Renewable Water Resources (FAO
database)

□ Mediterranean Countries

△ Sub-Saharan Semi
Arid Countries

○ Danube Countries – EU

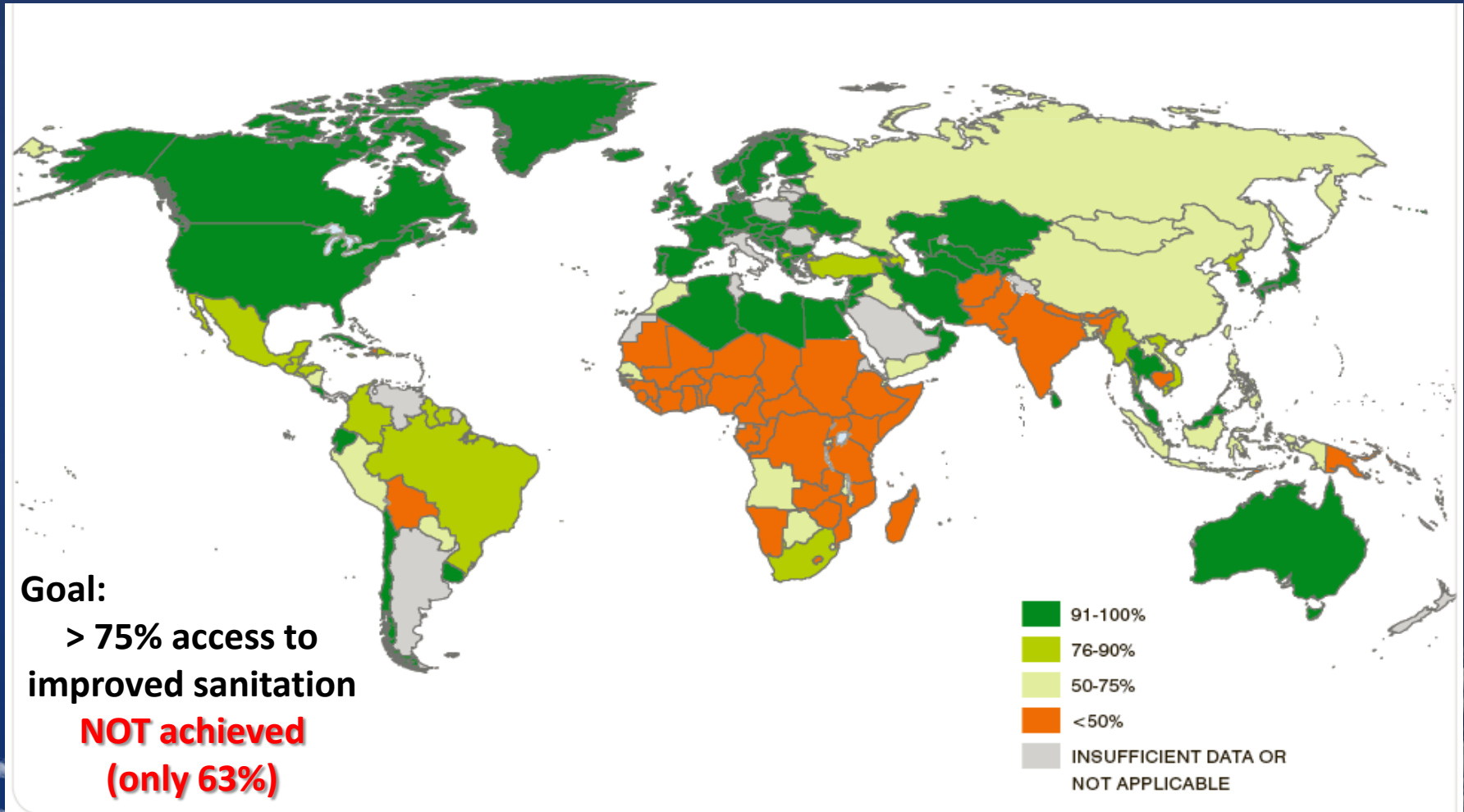
● Danube Countries - NonEU



MILLENNIUM DEVELOPMENT GOALS 2015

PROPORTION OF THE POPULATION USING IMPROVED SANITATION IN 2010

[UNICEF AND WORLD HEALTH ORGANIZATION (2012)]



POSITIONS, CRITERIA AND DIRECTIVES OF INTERNATIONAL ORGANIZATIONS

2015 UN Millennium Development Goals (MDGs)

In 2010:

➤ 88% access to improved water sources

Achieved (89%)

> 75% access to improved sanitation
Not achieved (only 63%)

Sustainable Development Goals 2030

Adopted at the UN Sustainable Development Summit September 25–27, 2015 in New York.

Goal 6: Ensure availability and sustainable management of water and sanitation for all
(8 targets)

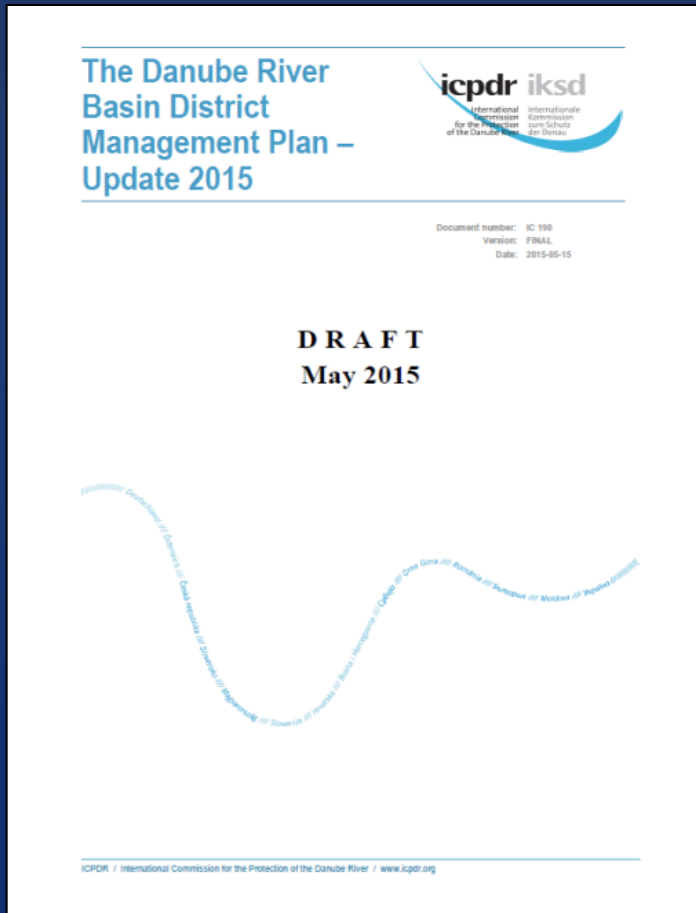
EU Directives
Legally binding

Water Framework Directive (2000) – roof directive

Urban Wastewater Directive (1991)
Nitrate Directive (1991)

Groundwater Directive (2006)
Floods Directive (2007)
Etc.

Danube River Basin Management Plan (DRBM Plan) (1st DRBM Plan: 2009; 2nd DRBM Plan: 2015)



Reflects

- Significant Water Management Issues
- Water status in the basin

Includes

- Program of Measures for improvement of water status

Enables

- Conclusions on investment & funding
- Ex-post evaluation of measures taken

Danube River Basin

Significant Water Management Issues



Organic
Pollution



Nutrient
Pollution



Hazardous Substances
Pollution



Hydromorphological
Alterations

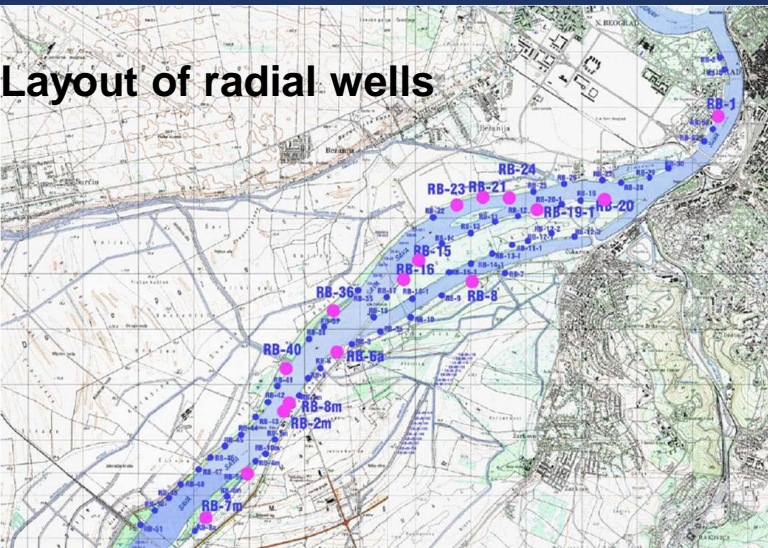
+ Groundwater

- **Priorities for actions** – defined via results of Analysis Report (pressures assessment) and public involvement
- **Reviewed every 6 years** (2 years before deadline for next River Basin Management Plan)

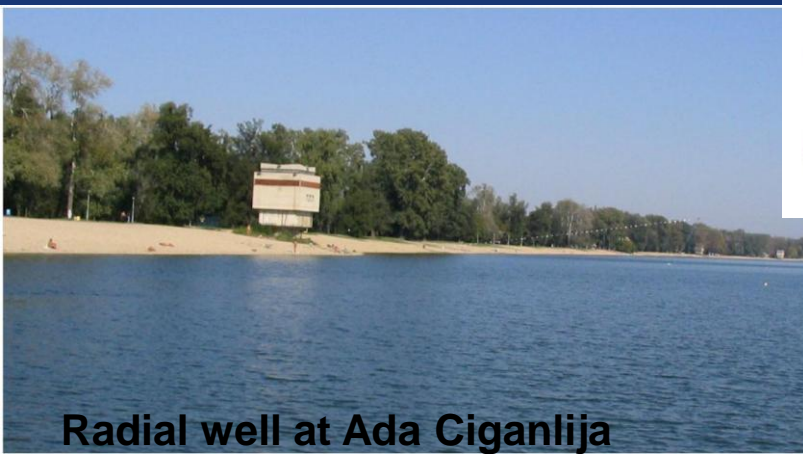
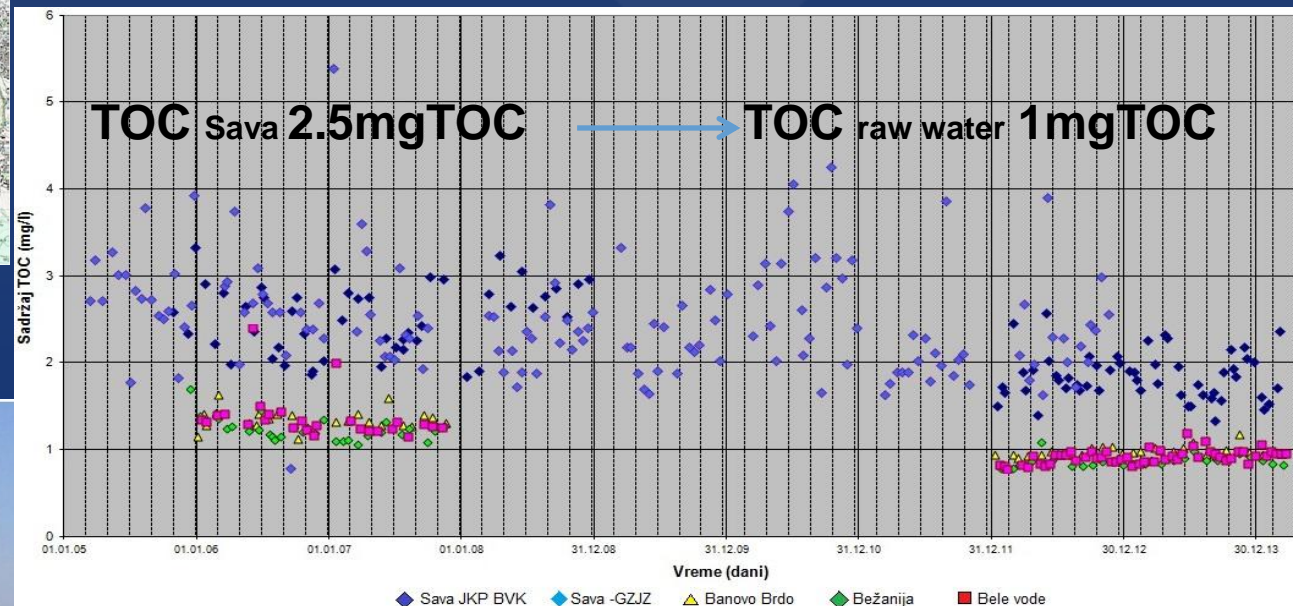


Groundwater

BELGRADE GROUNDWATER SOURCE



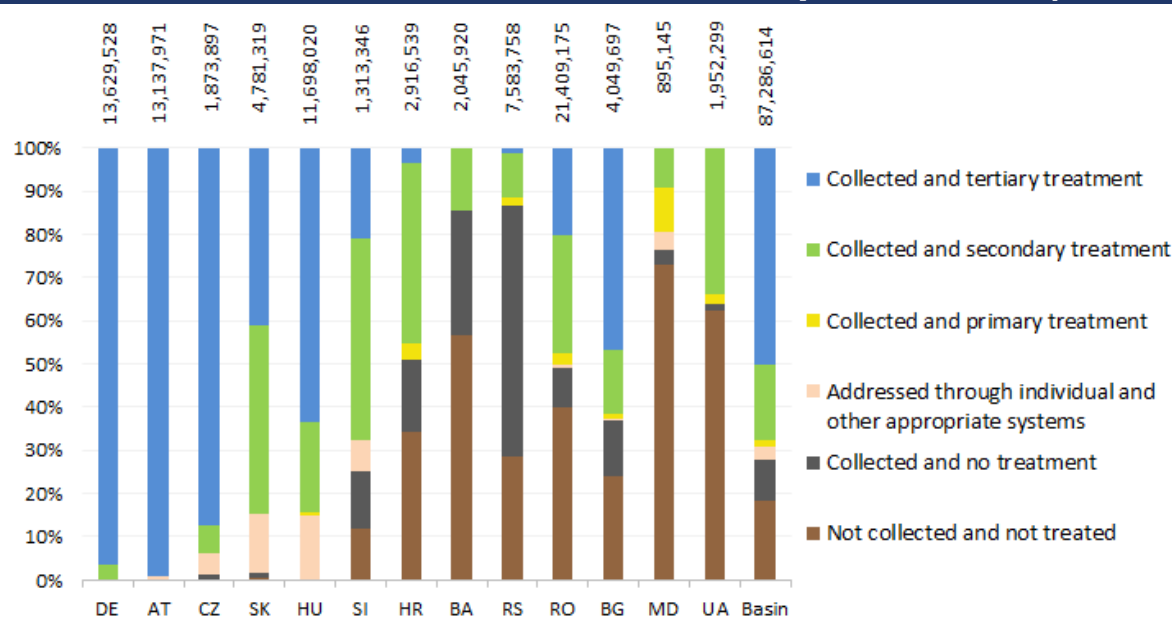
**Change in TOC concentrations:
Sava River and groundwater plants of the Water
and Wastewater Utility of Belgrade**



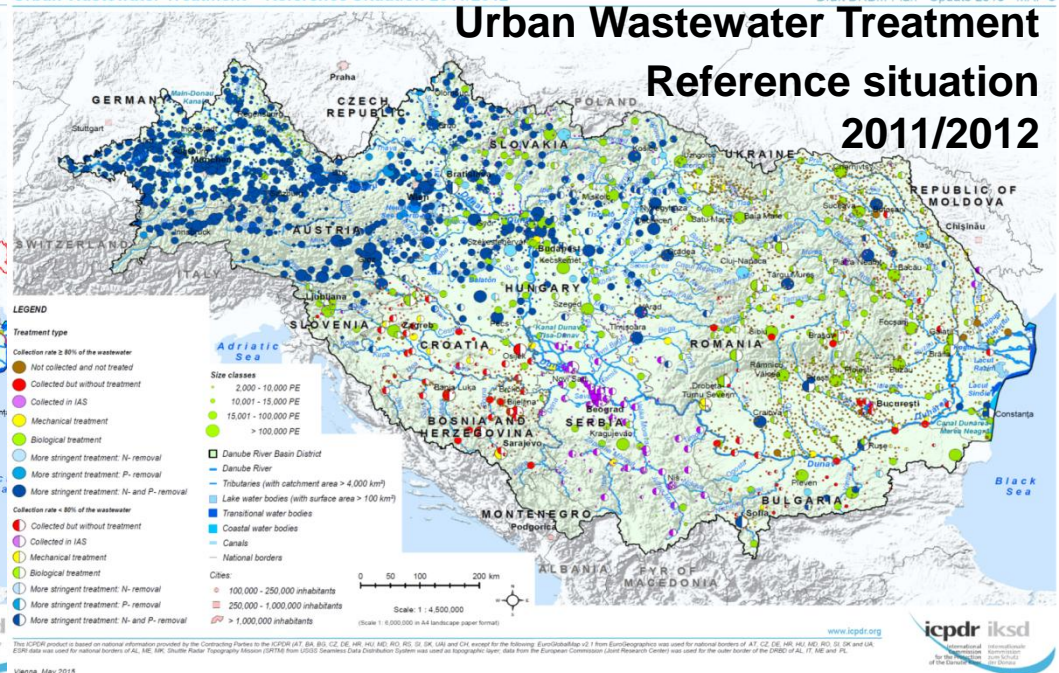
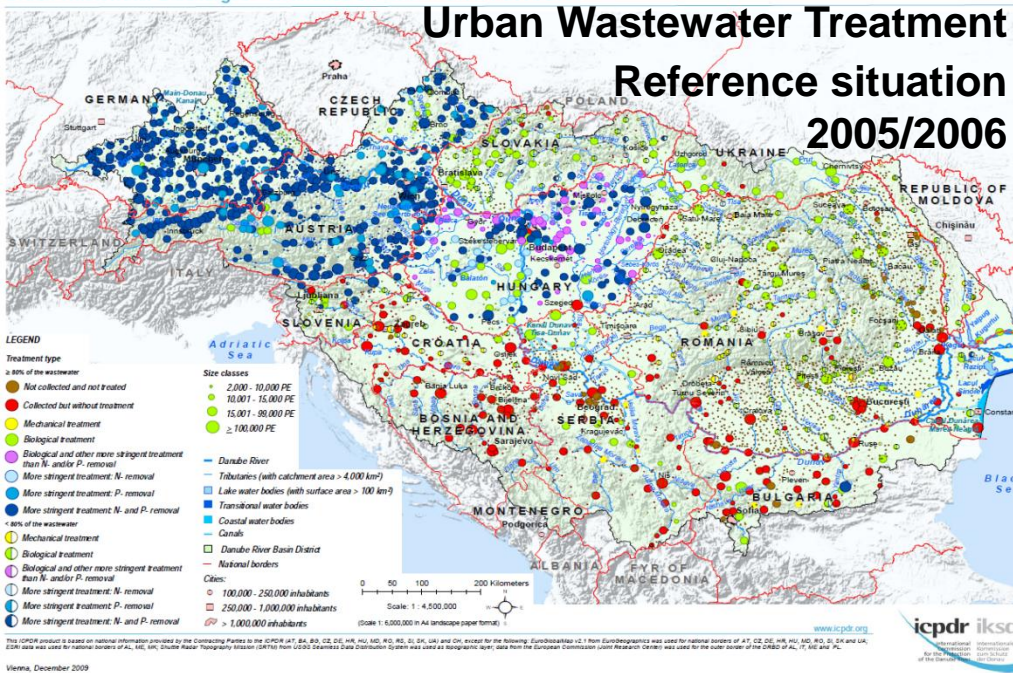
Radial well at Ada Ciganlija

Pressures and Progress: Example of wastewater treatment

Share of the collection and treatment stages in the total population equivalents in the Danube countries (reference year: 2011/2012, absolute numbers on the top refer to PE)

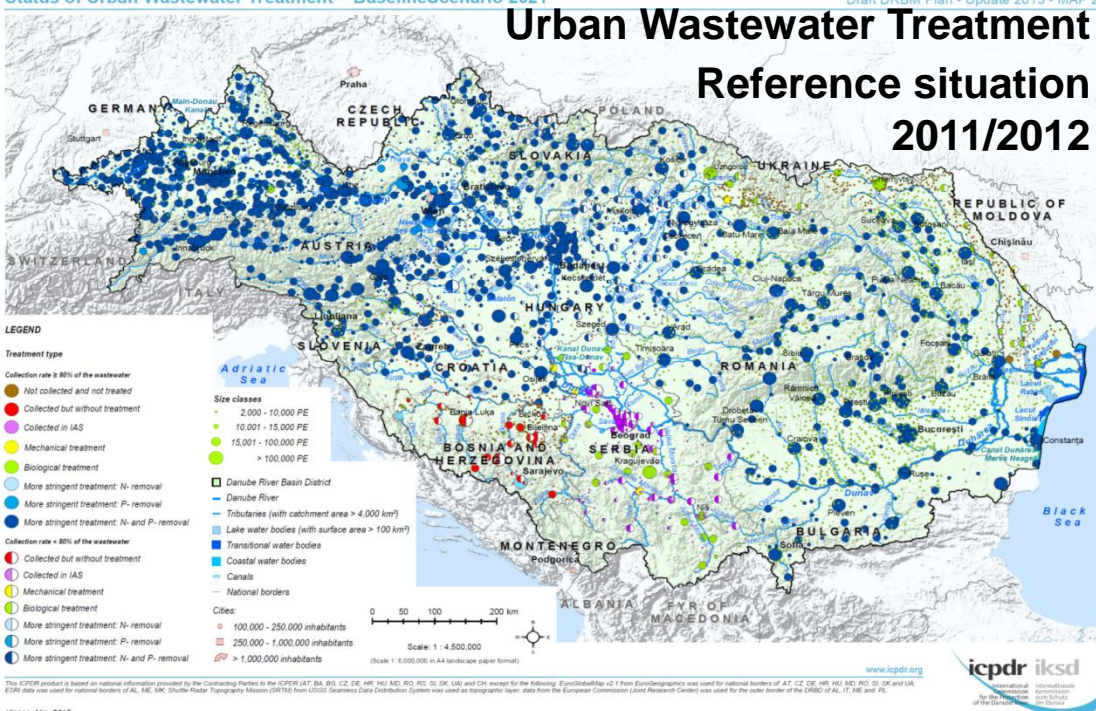


- Significant progress made in emission reduction:
 - **Nearly 900 UWWTPs completed by 2015**
 - **Additional 1,000 plants to come - half under construction**



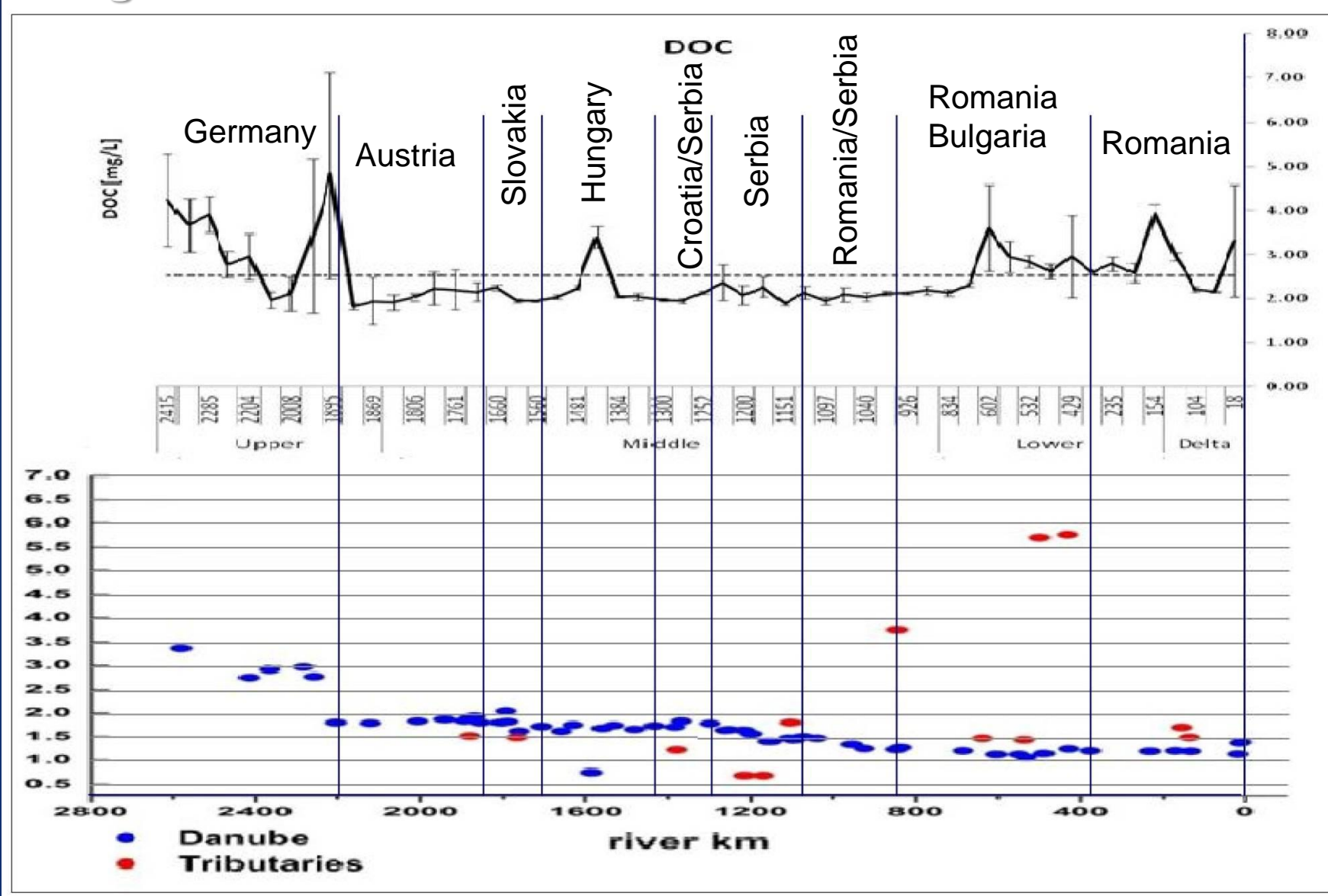
Status of Urban Wastewater Treatment – BaselineScenario 2021

Draft DRBM Plan - Update 2015 - MAP 28



PROGRESS AND FORESEEN STATUS OF WASTE WATER TREATMENT IN THE DANUBE RIVER BASIN

DOC and total nitrogen concentrations in water samples during JDS3: the Danube River and selected tributaries



DETAILED SCHEMATIC REPRESENTATION OF WATER MANAGEMENT

CORE WATER GOVERNANCE



MAIN WATER SECTOR DEVELOPMENT DRIVERS

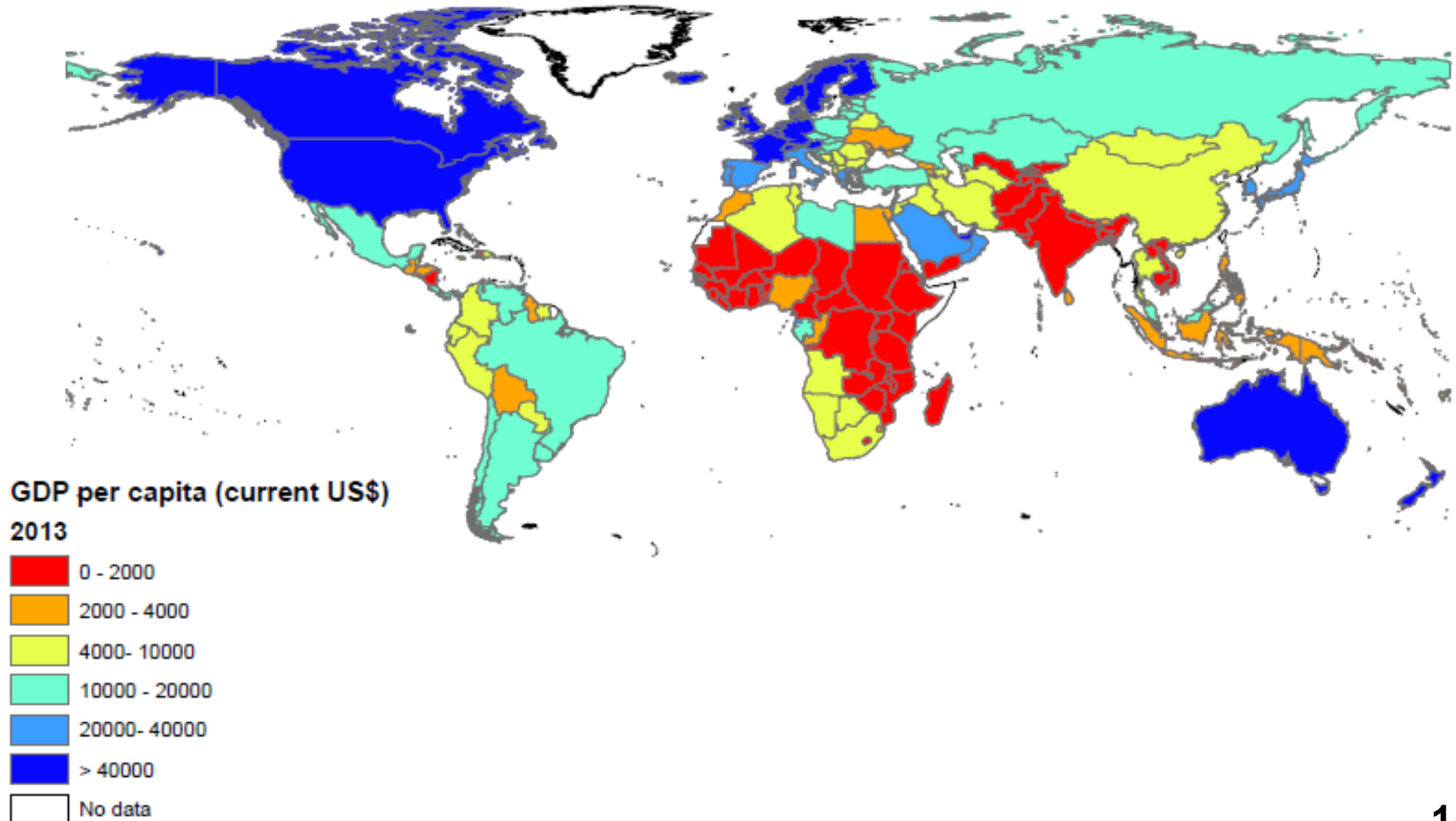
Main drivers:

- Strength of national economy
- Availability of renewable water resources
- Future (present) climate change
- Assimilation and spreading of technological skills
- Effective governance
(internal framework and capacities)

External
drivers

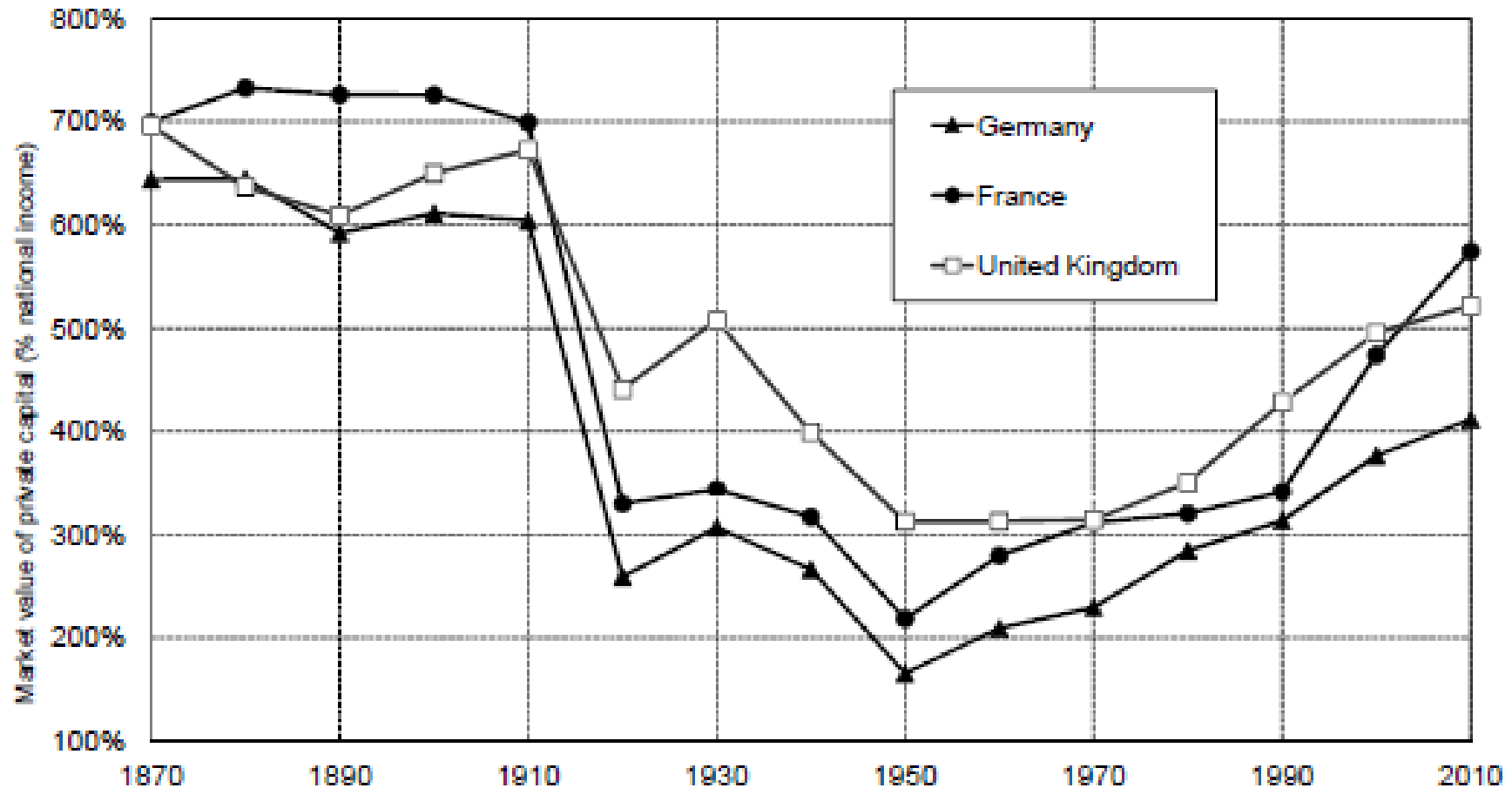
Internal
drivers

MAIN WATER SECTOR DEVELOPMENT DRIVERS STRENGTH OF NATIONAL ECONOMY



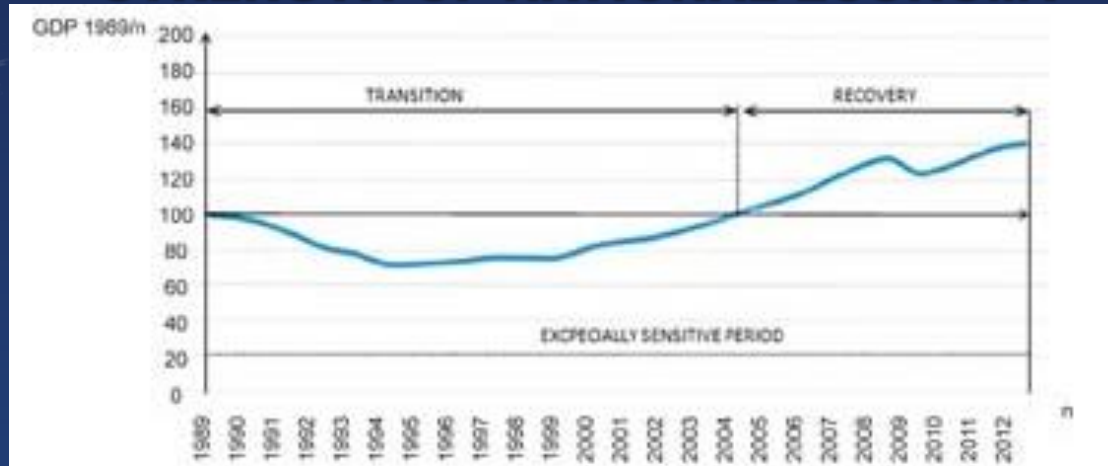
MAIN WATER SECTOR DEVELOPMENT DRIVERS STRENGTH OF NATIONAL ECONOMY

Figure I.2. The capital/income ratio in Europe, 1870-2010



Aggregate private wealth was worth about 6-7 years of national income in Europe in 1910, between 2 and 3 years in 1950, and between 4 and 6 years in 2010. Sources and series: see piketty.pse.ens.fr/capital21c.

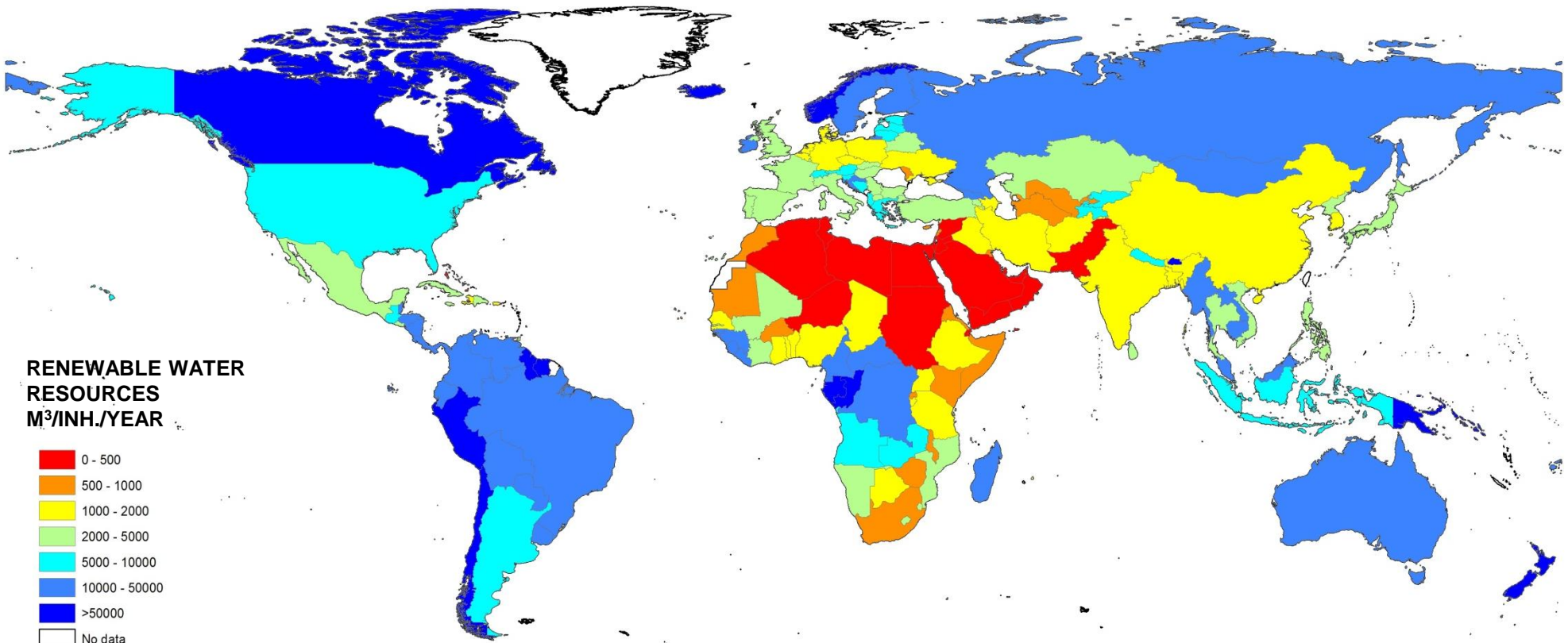
MAIN WATER SECTOR DEVELOPMENT DRIVERS STRENGTH OF NATIONAL ECONOMY



Country	External Debt Billion USD	External Debt/ GDP %	Country	External Debt Billion USD	External Debt/ GDP %
Greece	583.3	241	Bulgaria	69.3	131
Turkey	386.8	47	Lithuania	35.4	125
Poland	326	63	Serbia	34	80
Hungary	202	161	Estonia	22.2	91
Romania	132.1	70	Bosnia & Herz.	9.1	53
Ukraine	135	76	FYR Macedonia	7.5	78
Cyprus	106.5	468	Albania	6.9	53
Czech Rep.	90.2	45	Moldova	6.2	85
Slovakia	68.4	75	Montenegro	2.8	66
Croatia	64.3	112	Belarus	1.1	2
Slovenia	61.2	135			

MAIN EXTERNAL DRIVERS

AVAILABILITY OF RENEWABLE WATER RESOURCES

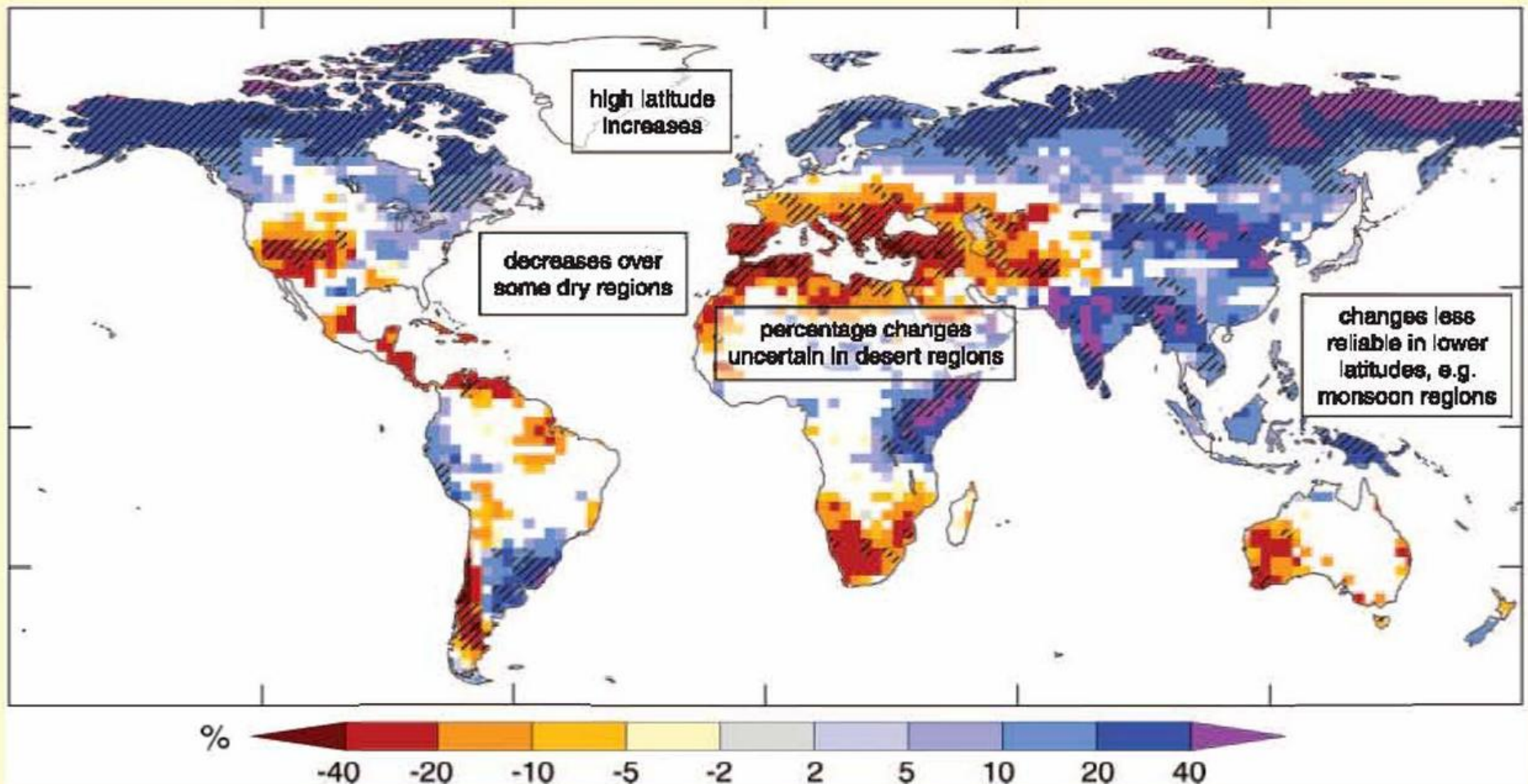


SOURCE: FAO Database

MAIN EXTERNAL DRIVERS

EXPECTED CLIMATE CHANGE: RUNOFF

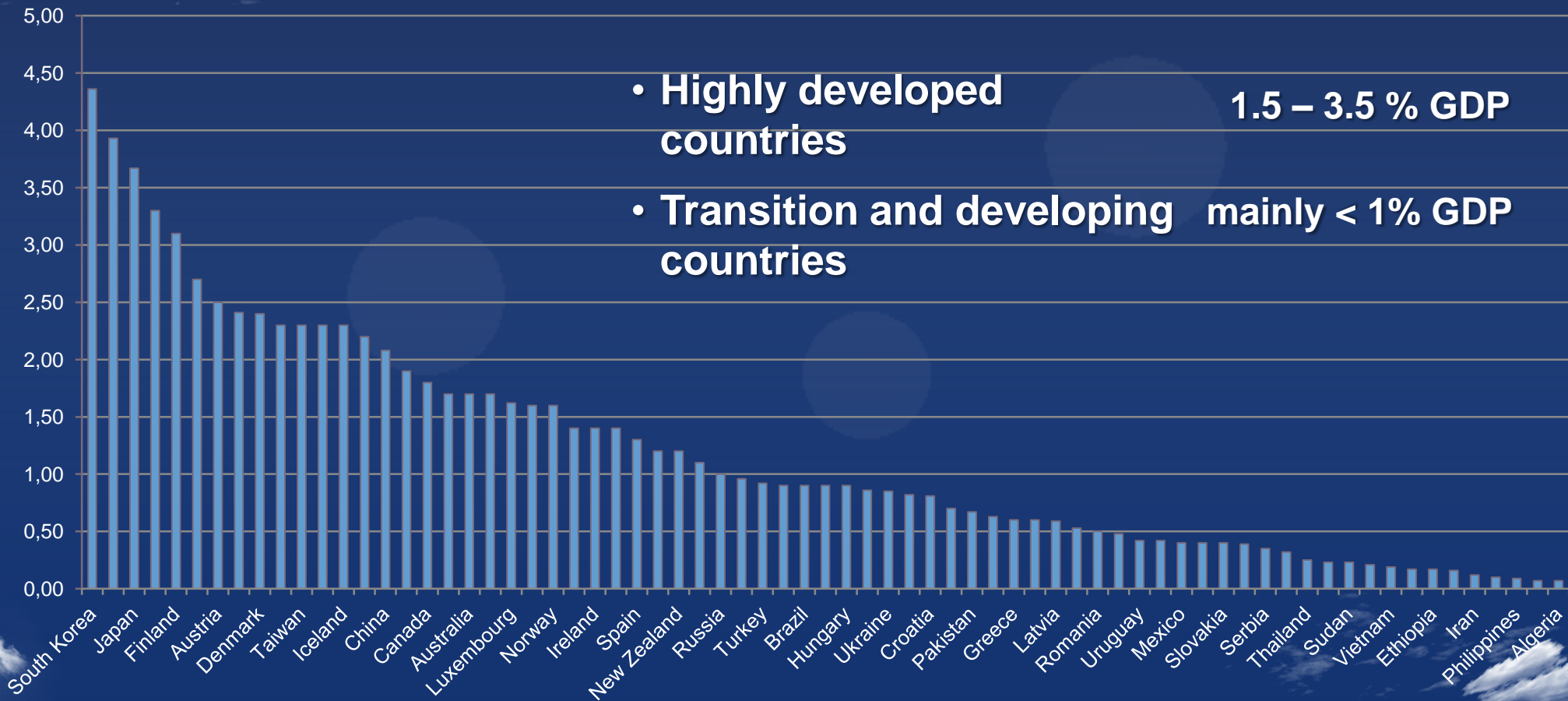
Projections and model consistency of relative changes in runoff by the end of the 21st century



Large-scale **relative** changes in annual runoff (water availability, %) at the end of the 21st century relative to 1980-1999. Values represent the median of 12 climate models using the SRES Scenario A1B [IPCC, 2007].

MAIN EXTERNAL AND INTERNAL DRIVERS SCIENCE, EDUCATION & SKILL-RAISING

Research and development expenditure (% of GDP)



MAIN INTERNAL DRIVING FORCE WATER GOVERNANCE

WM goals in Serbia:

- To solve numerous current problems
- To achieve sustainable and adaptive WM
- To meet the requirements of EU water directives

Required spending – new investments:	10	billion Euros
Required spending (new+O&M) in 20 years:	21	billion Euros
Current GDP:	30 - 35	billion Euros
Current operating budget:	350	M. Euros
Needed budget:	1000	M. Euros

CAPITAL ADJUSTMENT OF WATER GOVERNANCE NEEDED

WATER GOVERNANCE

APPROXIMATE WATER PRICES IN SEVERAL COUNTRIES

Country/City	Price of drinking water (€/m ³)	Wastewater disposal charge (€/m ³)	Total price of water (€/m ³)
Germany/Munich	1.73	2.33	3.96
Austria (average)	1.50	2.00	3.50
Hungary/Budapest	1.70	0.76	2.46
Slovenia/Ljubljana	0.75	0.47	1.22
Romania/Bucharest	0.98	0.22	1.20
Croatia/Zagreb	1.12	0.76	1.88
Bulgaria/Sofia	0.61	0.15	0.76
Serbia/Belgrade	0.40	0.16	0.56
Bosnia and Herzegovina/Banja Luka	0.42	0.50	0.92
Montenegro/Herceg Novi	0.91	0.16	1.07



**BELGRADE CONFERENCE
WATER MANAGEMENT IN
TRANSITION COUNTRIES
BELGRADE STATEMENT**



**WORLD WATER FORUM 7
CONCLUDING SESSION 3.4
SMART IMPLEMENTATION OF IWRM**



CONCLUDING REMARKS

Developing and transition countries (**non-EU Danube countries**) often have poor water resources management (economy, expertise, capacity, etc.).

The needs of these countries and the goals placed before them (Millennium Development Goals and even more stringent regional goals), compounded by climate change impact, impose additional challenges to already fragile water governance.

To achieve water management objectives, water governance in these countries needs to be substantially strengthened.

CONCLUDING REMARKS

Water governance strengthening comprises upgrading of a state's ability to further develop financial, technical, and administrative capacities.

This involves:

- **Institutional strengthening and greater effectiveness of water governance**
- **Effective and straightforward legislation**
- **Dedicated Water Fund and adequate and independent financial accumulation**
- **Dynamic and productive cooperation with all scientific and technical institutions**
- **Suitable private public partnerships (PPP)**
- **Suitable balance of centralized and decentralized water governance approaches**
- **Strengthening of scientific and professional skills and ability of developing and transition countries to improve such skills on their own**

WRAP-UP DISCUSSION RELATED TO TRANSITION COUNTRIES AND WATER MANAGEMENT

1. In order to implement IWRM, transition countries (**NON-EU DANUBE COUNTRIES**) need to be able to adapt to conditions and changes:
2. It is necessary to:
 - ALLOCATE FUNDS TO IMPROVE KNOWLEDGE
 - DEVELOP THE ECONOMIC SYSTEM AND ACCUMULATION IN THE WATER SECTOR
 - BUILD APPROPRIATE CAPACITY:
 - GOVERNMENT
 - TECHNICAL ORGANIZATIONS
 - OPERATORS AND SERVICE PROVIDERS
3. The nature of governance may differ in various countries, depending on key parameters
4. Economic policy needs to be adequately addressed when determining the nature of governance.

CLIMATE
ECONOMIC
SOCIAL
POLITICAL