

# 2021 DANUBE WATER CONFERENCE

## IGNITE TALK: WATER SECURITY IN THE DANUBE REGION

19 OCTOBER, 16:00 – 17:00

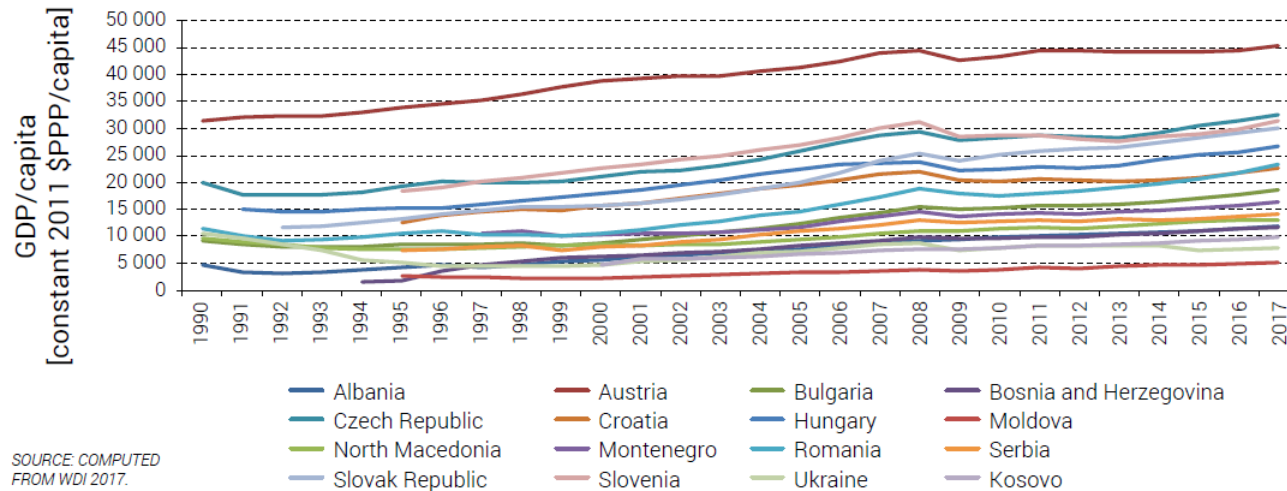
# A SNAPSHOT OF THE DANUBE REGION



## Danube Region:

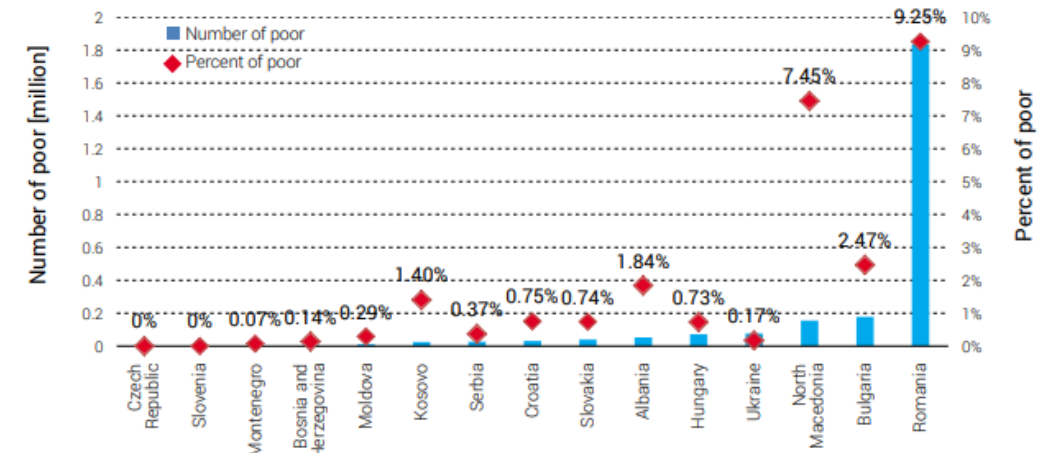
- ▶ Located in central and south-east Europe
- ▶ Home to more than 133 million people
- ▶ Diverse landscape
- ▶ Hosting the Danube basin:
  - ▶ Second-largest river basin in Europe
  - ▶ Covering approx. 800,000 square kilometers
  - ▶ 19 countries – most international river basin
- ▶ Significant differences in water resources, climate, political and socio-economic development

# A SNAPSHOT OF THE DANUBE REGION

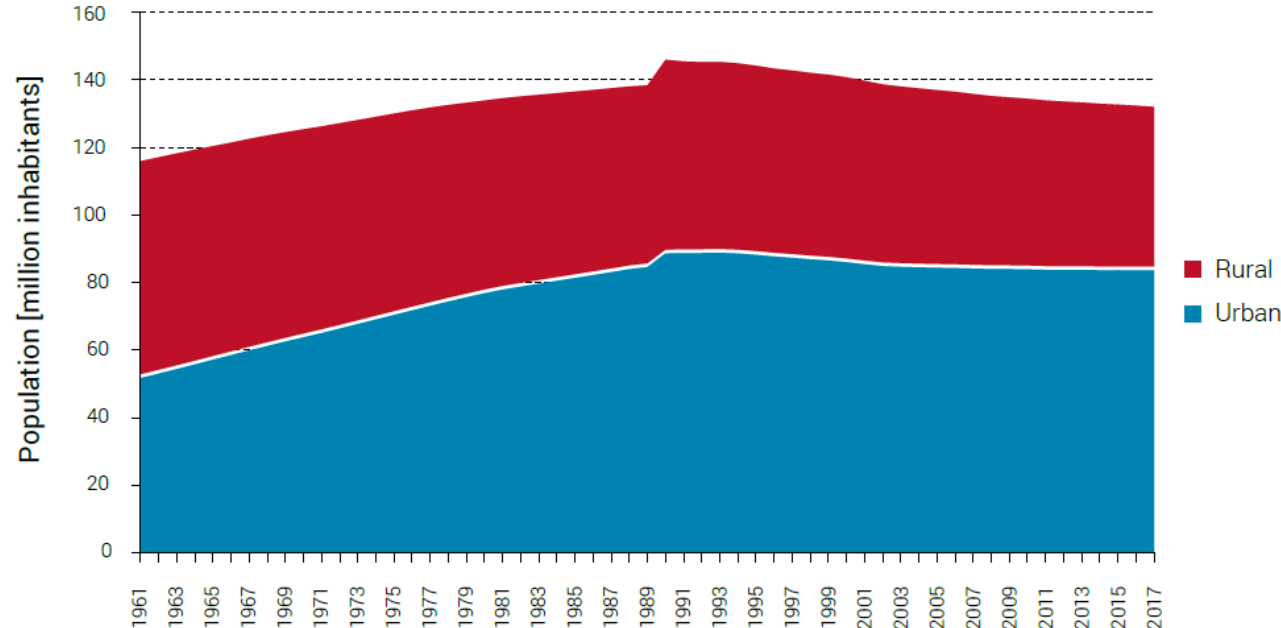


- ▶ Significant **differences in GDP** per capita
- ▶ Average (2017 data) in the region is USD 20,055, ranging from USD 5,190 (Moldova) to USD 45,437 (Austria)

- ▶ About **2.5 million people** within the Danube region live on less than USD 2.50 per day
- ▶ On average, this means that about **1.7 percent** of the total population in the area is **considered poor**



# A SNAPSHOT OF THE DANUBE REGION

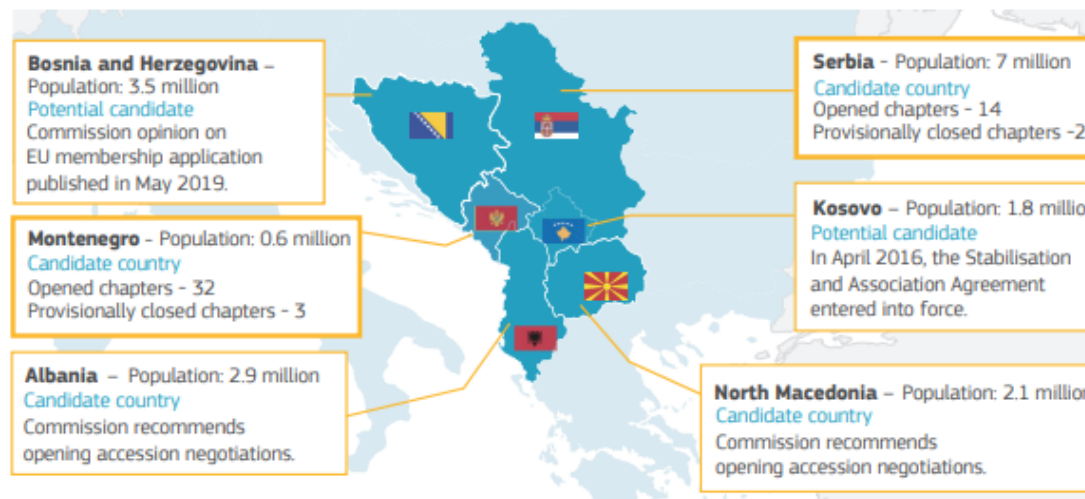


- ▶ Continued **declining trend of population** which slowed down in recent years
  - ▶ Combination of low natural population growth and outward migration
  - ▶ Approx. 37 percent of rural and 63 percent of urban inhabitants (2017)
  - ▶ Mostly **rural areas are depopulating**, but some (more isolated) urban areas have also declined
- 
- ▶ Several cities facing **oversized infrastructure**, lacking economies of scale, costly to maintain
  - ▶ Remaining **access gap to water services** specifically pronounced in rural areas
  - ▶ Rural population often depending on **agriculture**, undergoing process of structural **transformation**



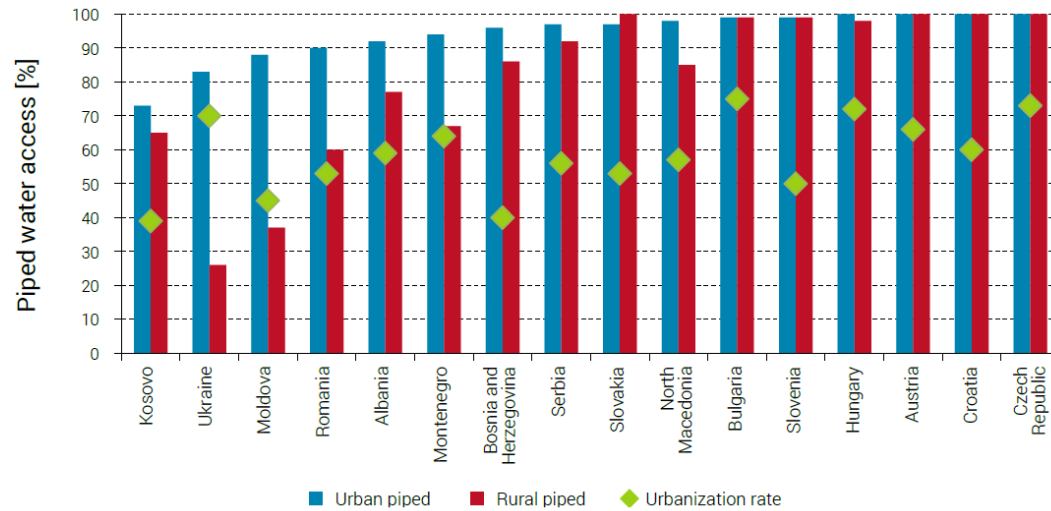
# A SNAPSHOT OF THE DANUBE REGION

| Country                | Year | EU status                      |
|------------------------|------|--------------------------------|
| Albania                | 2014 | Candidate                      |
| Bosnia and Herzegovina | 2015 | Potential candidate            |
| Kosovo                 | 2016 | Potential candidate            |
| Moldova                | 2016 | Association Agreement ratified |
| Montenegro             | 2010 | Candidate                      |
| North Macedonia        | 2005 | Candidate                      |
| Serbia                 | 2012 | Candidate                      |
| Ukraine                | 2017 | Association Agreement ratified |



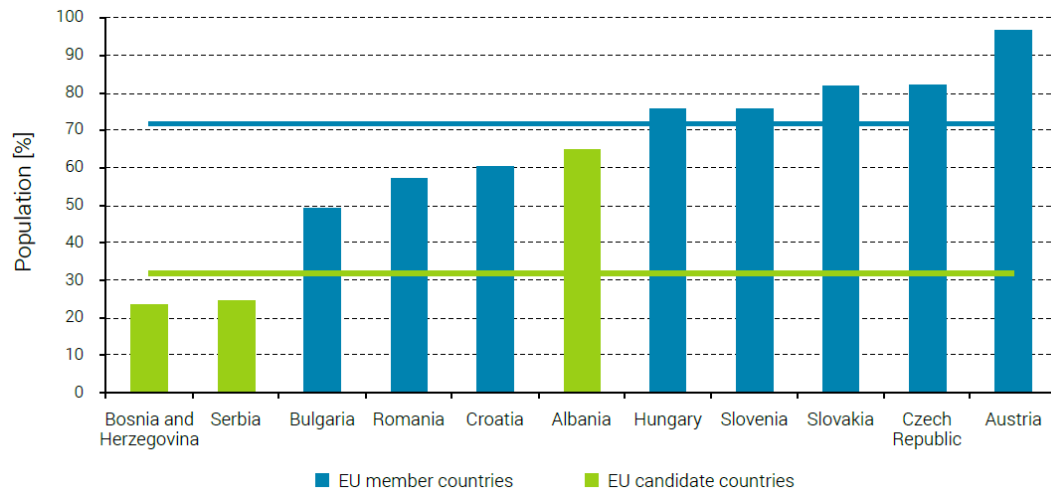
- ▶ **EU** accession and integration process has been **key driver for water sector** development and policies in the region
- ▶ EU legislation (WFD, FD, DWD, UWWTD) governs water sector
- ▶ **EU Member States** focusing on reaching full **compliance**
- ▶ **Candidates and potential candidates** committed to **harmonizing** national legislation and prioritizing sector investments and policies
- ▶ Significant **policy reform, capacity building and investment needs**

# A SNAPSHOT OF THE DANUBE REGION



## Access to piped water supply:

- ▶ **Gap** in access to piped water supply **slowly closing**
- ▶ Access has increased to 83 percent (2017 estimates)
- ▶ Further increasing access remains challenge, especially in less densely populated areas



## Access to safely managed sanitation services:

- ▶ Five countries provide more than 75 percent of their population with safely managed sanitation services
- ▶ Some countries less than 25 percent
- ▶ **60 percent** of the Danube population are **connected to sewer networks**

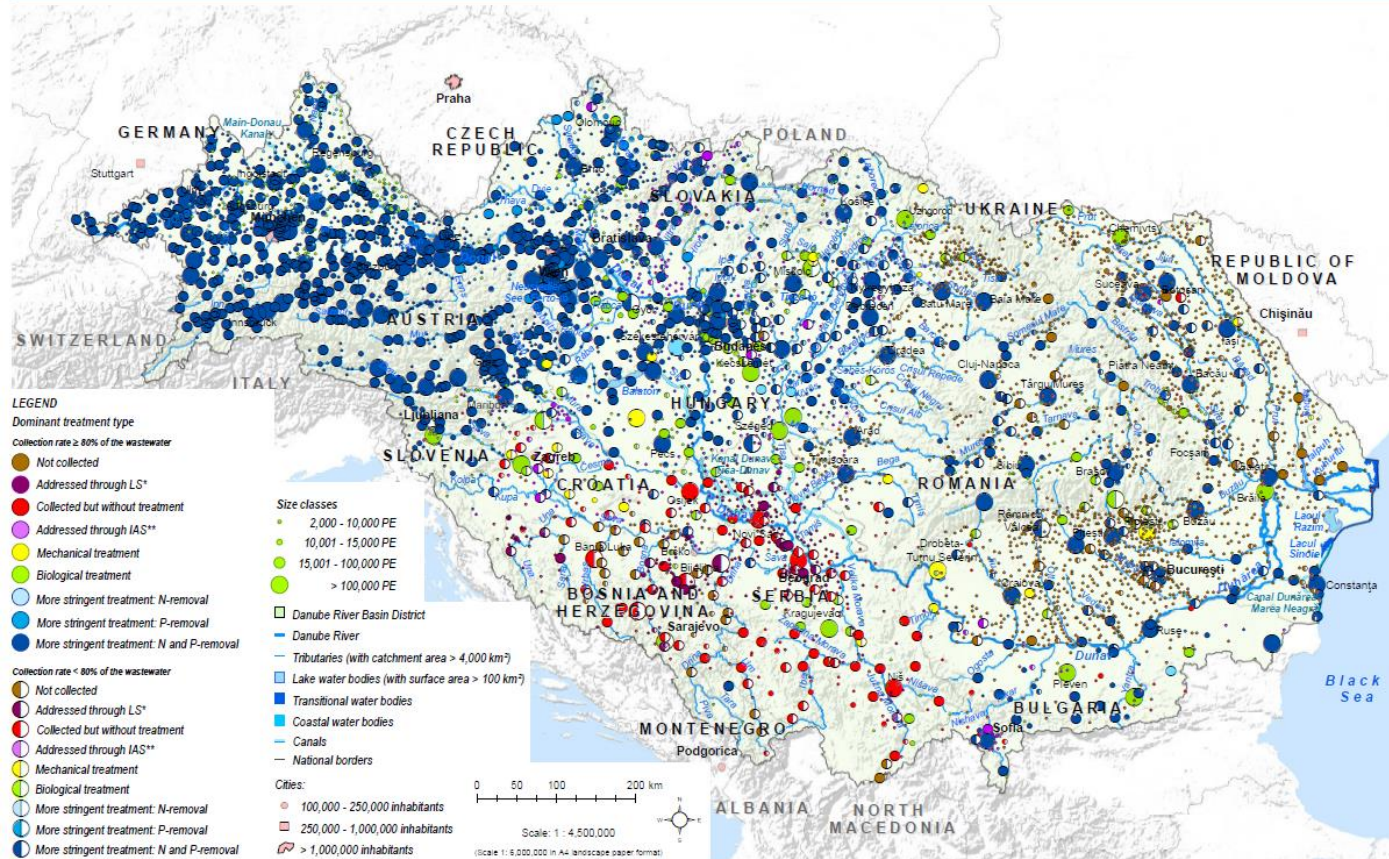


# A SNAPSHOT OF THE DANUBE REGION

## DRAFT MAP

Urban Wastewater Collection and Treatment – Dominant type: Reference Situation 2018

DRBMP Update 2021 - MAP 5

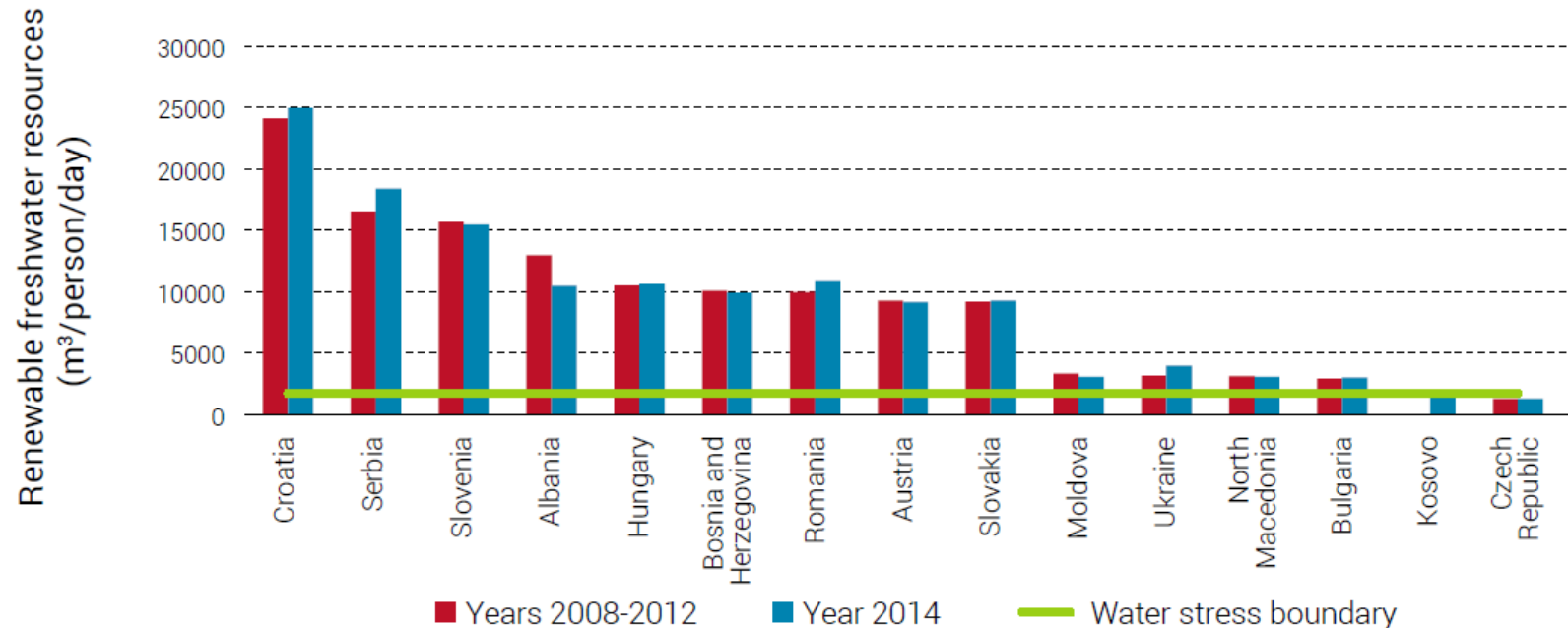


## Wastewater treatment:

- ▶ Share of population connected to **wastewater treatment has increased**, i.e. in EU Member States
- ▶ Still significant **underinvestment on wastewater management** specifically in non-EU and candidate countries
- ▶ **Challenge of compliance** with EU Wastewater Treatment Directive

\* LS: Local Systems used for wastewater collection and local treatment (cesspools, septic tanks, small domestic wastewater treatment plants, watertight tanks).  
 \*\* IAS: Individual and other Appropriate Systems as defined by the UWWTD (septic tanks with drain fields, small domestic wastewater treatment plants, watertight tanks).  
 This ICPRD product is based on national information provided by the Contracting Parties to the ICPRD (AT, BA, BG, CZ, DE, HR, HU, ME, 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 DRBP of AL, IT, ME and PL.

# A SNAPSHOT OF THE DANUBE REGION



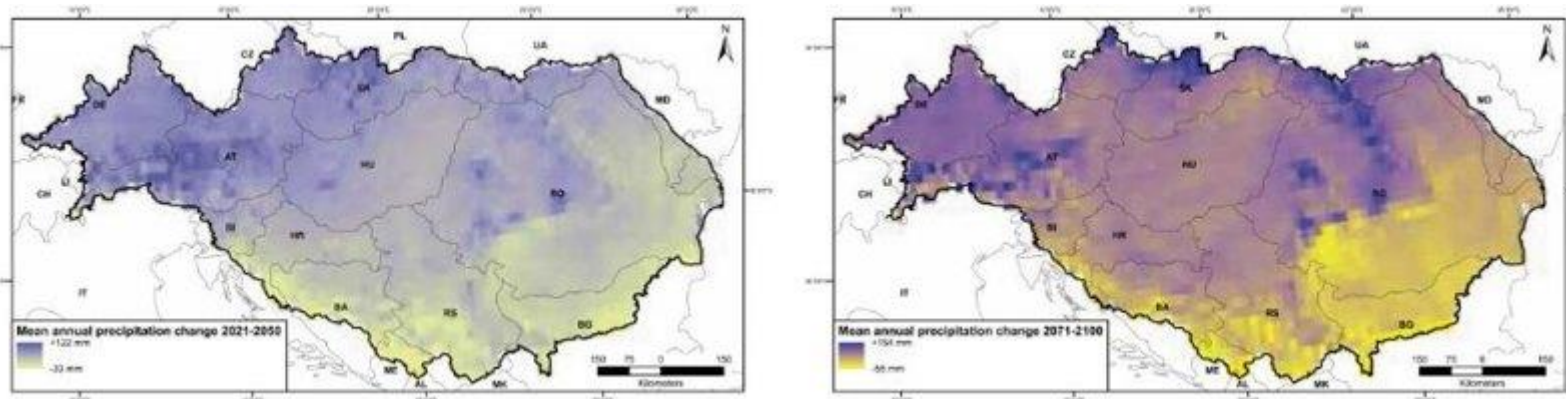
## Water resources:

- ▶ Overall, Danube region considered **relatively rich in water resources**
- ▶ But **not evenly spread** with significant differences among different parts of the basin
- ▶ No country considered water scarce, but some countries considered water stressed (or close to)



# A SNAPSHOT OF THE DANUBE REGION

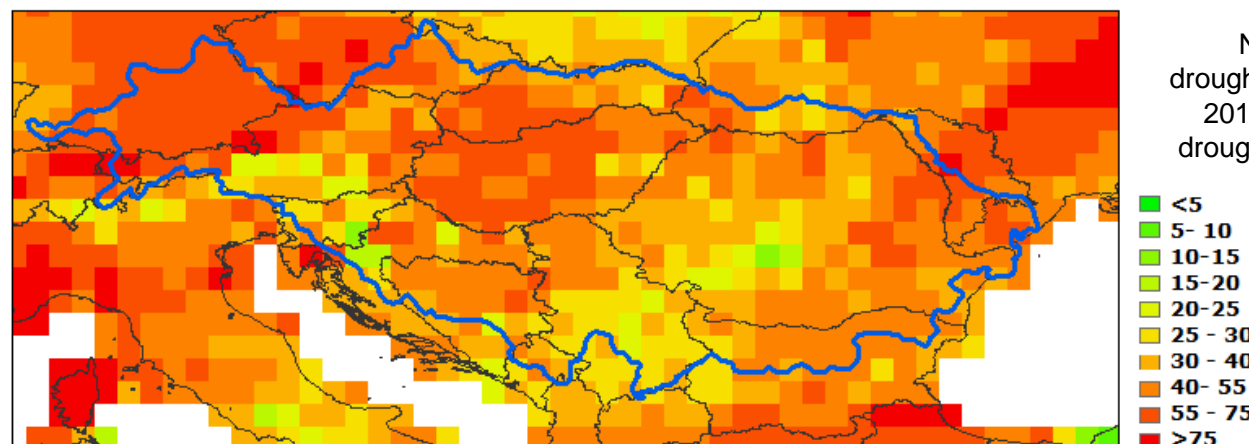
Precipitation totals are expected to decrease in part of the basin due to Climate Change



Estimated annual mean precipitation trends in the Danube region 2021–2050 and 2071–2100

Source: ICPDR (2018)

In recent years such as 2003, 2007, 2012, 2015 and 2017, significant parts of the Danube River Basin were affected by drought



# A SNAPSHOT OF THE DANUBE REGION

Flood Hazard and Flooding Scenarios

DFRM Plan Update 2021 - MAP 1

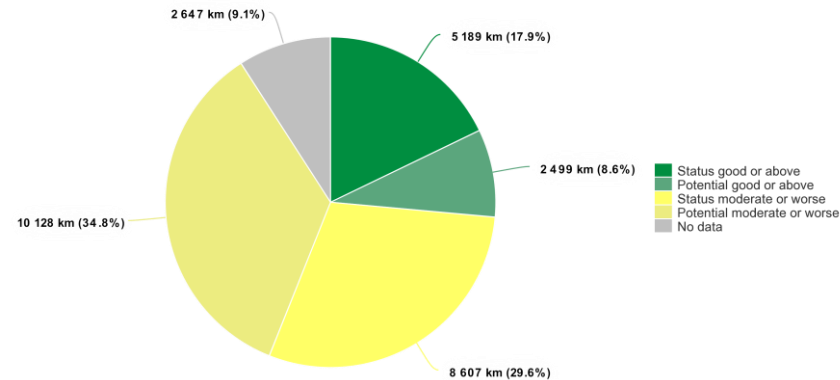


## Flood Risk Management:

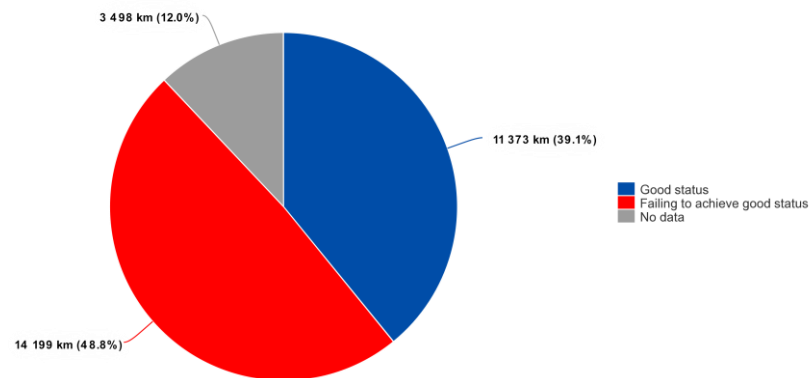
- ▶ Important issue for the region
- ▶ Driven by implementation efforts for the **EU Floods Directive**
- ▶ Implementation of flood risk management measures contributed to significant reduction of flood risks
- ▶ Joint implementation by EU Member States together with non-EU Member States strengthened **common view on a holistic flood risk management approach** in the region



# A SNAPSHOT OF THE DANUBE REGION



Ecological status and ecological potential for river water bodies in 2021  
Source: DRAFT DRBMP 2021



DRAFT Chemical status of river water bodies in 2021 displaying overall chemical status in water and biota; Source: DRAFT DRBMP 2021

## Water body status / quality and biodiversity aspects:

- ▶ Challenge of balancing anthropogenic **water uses** causing pressures while ensuring **healthy aquatic ecosystems**
- ▶ Driven by EU Water Framework Directive (WFD) – objective of “**good status**” and Nature Directives
- ▶ Investment needs to reduce pressures, e.g.
  - ▶ Point (WWT) and diffuse (agriculture) sources of pollution
  - ▶ Hydromorphological alterations (stemming from modifications due to flood risk management and river regulation, hydropower, navigation, etc.)
- ▶ Challenge of 2027 deadline (WFD)
- ▶ Remaining gaps in monitoring



# ISSUES ADDRESSED AT BASIN-WIDE LEVEL (ICPDR)

## Significant Water Management Issues



Organic  
Pollution



Nutrient  
Pollution



Hazardous  
Substances  
Pollution



Hydromorphological  
Alterations



Effects of Climate  
Change (drought,  
water scarcity,  
extreme hydrological  
phenomena and other  
impacts)



Manage floods  
& ice hazards

+ additional **integration activities** – Navigation (Joint Statement), Hydropower, Agriculture, Climate Change

- ▶ Issues addressed / **coordinated at basin-wide level**
- ▶ Implementation of actions and **measures** (largely) subject to **national level**

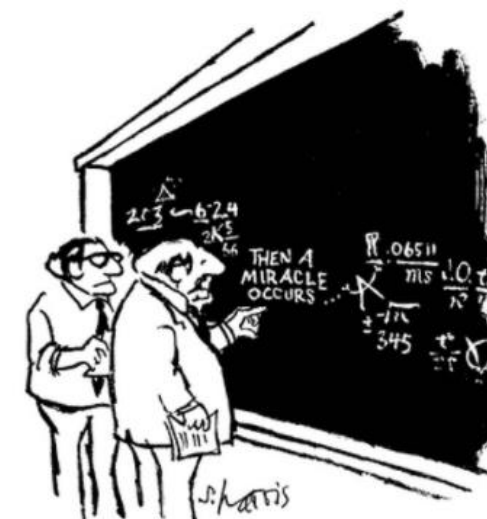
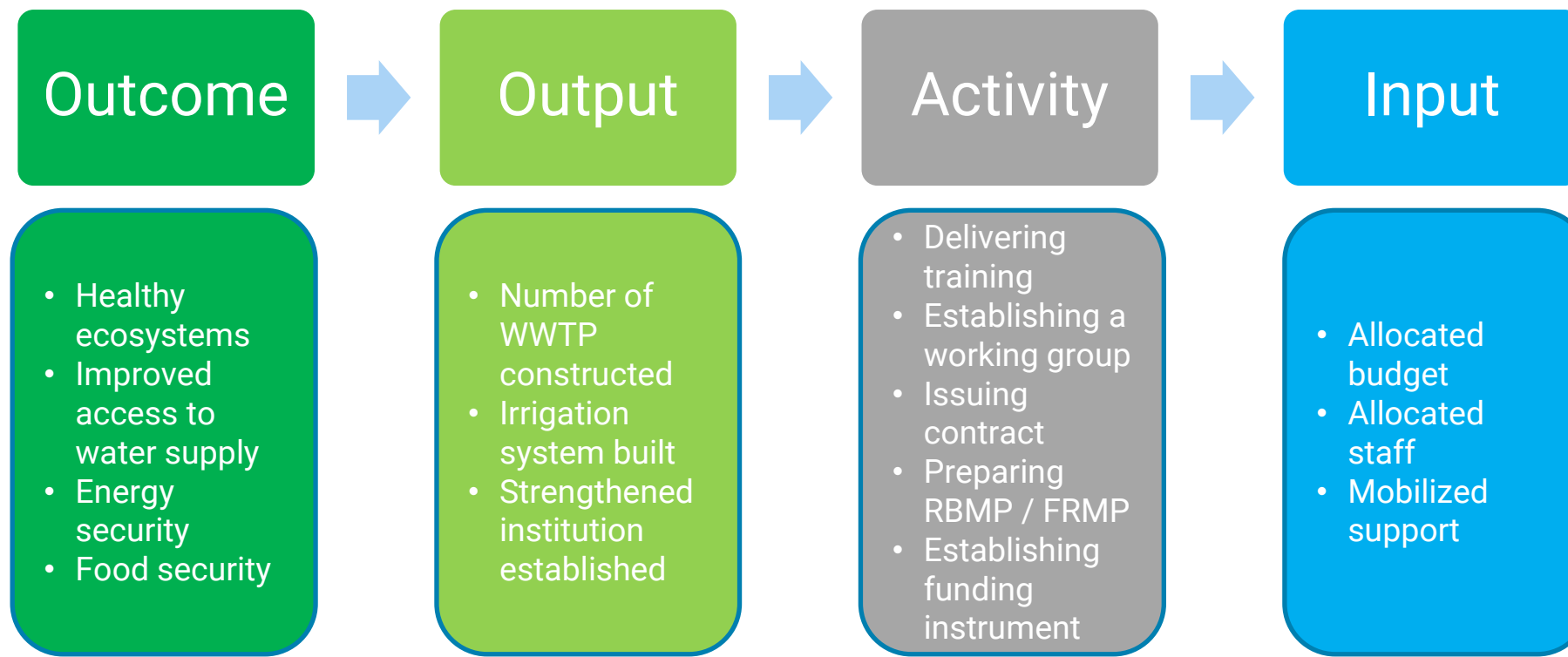
# A (VERY SIMPLIFIED) THEORY OF CHANGE

Define **WHAT** an intervention is trying to achieve and **HOW** to achieve it



# A (VERY SIMPLIFIED) THEORY OF CHANGE

Define **WHAT** an intervention is trying to achieve and **HOW** to achieve it



"I think you should be more explicit here in step two."

Image credit: Sidney Harris



# Water Security Diagnostics



## 1. Current Water Security Outcomes

Economic outcomes – water in the economy  
Social outcomes – who is most vulnerable?  
Environmental outcomes – including ecosystem services



## 2. The Water Endowment

Water quantities and quality  
Surface and groundwaters and their links  
Within and between year variability  
Dependence on upstream riparians



## 3. Water Sector Architecture

Infrastructure – public & private  
Institutions – legal frameworks, policies, governance including civil society, sector finance, political economy factors



## 4. Water Sector Performance

### Management of Water Resources

Water resource planning and allocation  
Reservoir and irrigation operations  
Flood and drought management  
Data, information, modelling & forecasting  
Environmental management

### Delivery of water-related services

WASH service performance – urban & rural  
Irrigation & drainage service performance

### Mitigation of water-related risks



## 5. Future water security




Scenarios, trajectories  
With and without intervention



## 6. Recommendations

Resource management  
Service delivery  
Risk mitigation and building resilience

## Danube Water Security Diagnostics

- Work launched in 2021
- Delivered in the frame of the Danube Water Program
- Supported by IIASA and consortium  International Institute for Applied Systems Analysis  
www.iiasa.ac.at  HYDROPHIL  InterSus  
SUSTAINABILITY SERVICES
- **Broad sector analysis**, building on existing work
- Identification of current and potential future water security “hot spots”
- **Recommendations** for reform efforts and action
- Lighter and more in-depth **country analyses / profiles**
- **Danube Regional report – Country benchmarking and regional narrative**

Thank you for your attention!