

# TRB synopsis report on data analyses TRB wide Deliverable 4.2.5

This deliverable is based on Tisza countries  
data information provided by end of June  
2018

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## Acknowledgements

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## Chapter 1 – background

The largest tributaries of the Danube River by catchment area are the Tisza River (157,186 km<sup>2</sup>) and Sava River (97,713 km<sup>2</sup>). The Tisza River ranks as the longest tributary (966 km) and the second largest tributary of the Danube River by flow volume, with an average discharge of about 830 m<sup>3</sup>/sec, and Tisza River Basin (TRB) is the main water source for Hungary, a significant source for Serbia and an important source for western Romania and southeastern part of the Slovak Republic. Additionally, the population is higher in the Tisza River Basin (14 Million) than in the Sava River Basin (8.5 Million). As a result, demand in water is higher in the Tisza River Basin, which raises concerns about the need to ensure a harmonised and sustainable water resource management in the Tisza River Basin. Furthermore, increase in extreme events (severe floods and draughts) in the recent years has adverse affects on water resources, ecosystems, human health, and economy within the region.

Water quantity is identified as relevant water management issue in Tisza River Basin (TRB) due to the over abstraction of groundwater (GW), increase in irrigation and surface water (SW) abstraction, and key integrated water management issues (excess water, droughts, and climate change). In addition, achievement of good status for both GW and SW is obstructed by different sources of pollution. As a result, interlinkages between water quantity and water quality management issues are identified as relevant for the TRB.

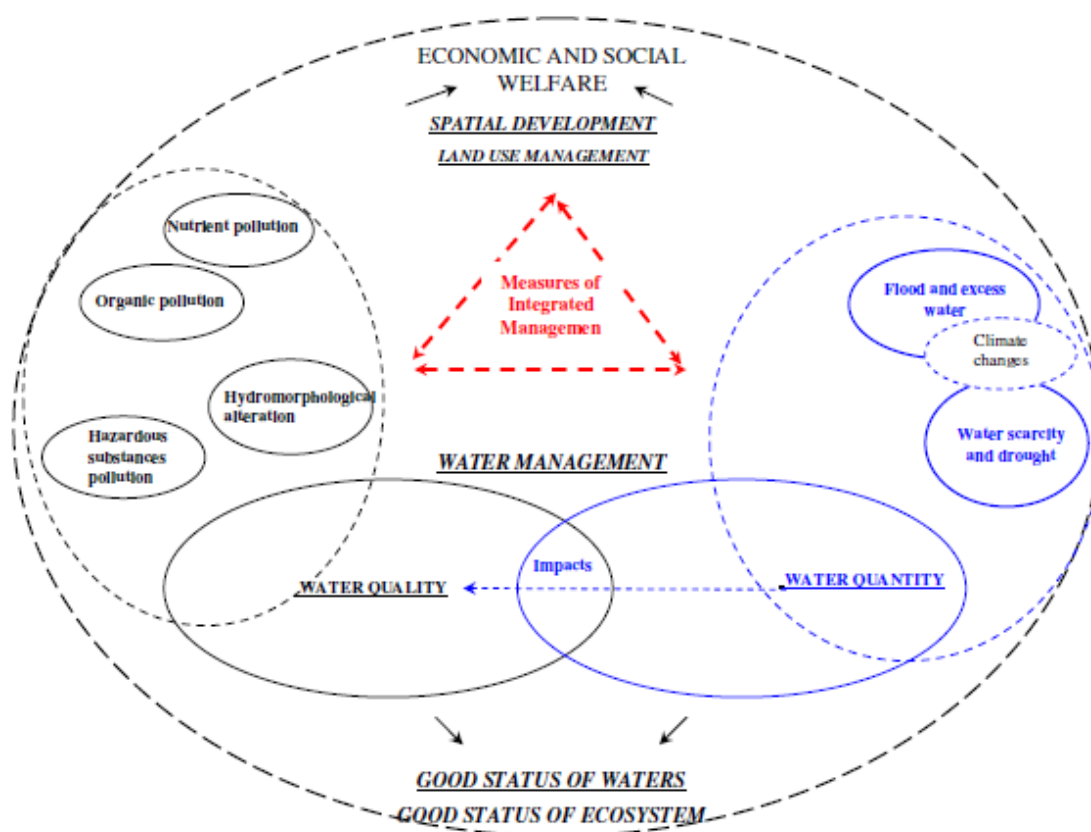


Figure I-1 Interlinkages between water quantity and quality related management issues identified by ICPDR Tisza Group (Source: The First Integrated Tisza River Basin Management Plan)

## Chapter 2 – scope of the work

Given the water use that will very likely extend (Tisza Analyses Report -TAR, 2007) due to increase in water demand and foreseen climate change adverse effects there is need to comprehensively assess water use and demand and groundwater bodies' status within the TRB.

Country reports are based on templates for data collection and include following information:

- Water resources – surface water: flow data and water storages ;
- Water use: present water use and consumption (period 2013 - 2015) for: Irrigation, other agricultural use (livestock farms, fish production, etc.), Public water supply, water supply of industry - including thermal power plant cooling, hydropower, navigation, hydrological requirements for good ecological status, other uses, and preservation of hydraulic regimes and ecological conditions in canal network;
- Water demand: present water use and consumption (period 2013 - 2015) for: Irrigation, other agricultural use (livestock farms, fish production, etc.), Public water supply, water supply of industry - including thermal power plant cooling, hydropower, navigation, hydrological requirements for good ecological status, other uses, and preservation of hydraulic regimes and ecological conditions in canal network;
- In addition to water use and demand water source (surface and groundwater) are identified;
- Updated information and data with respect to TAR 2007 for GWBs >1,000 km<sup>2</sup> and of basin-wide importance;
- Shape files relevant for GWBs (updated on the DanubeGIS) and shape files for present water use.

## Chapter 3 – data analyses TRB wide overview

Activities relevant for data collection and analyses started at the beginning of project implementation and are still ongoing. The first step was review of the background studies and reports to assess and evaluate all relevant to be considered. The next step was development of templates for data collection. They are distributed to project partners for comments and the final version (agreed among majority of Tisza countries and ICPDR) are handed out to Tisza countries. Table below provides summary on data collection and analyses overview:

*Table III.1: JOINTISZA Data collection overview –Act.4.1*

TRB Country	DATA and INFORMATION reported by the end of December 2017				
	Report : water quantity data collection	Shape files for water use	Report for GWBs data collection	GWBs data sets verified with ICPDR	GWBs Summary report
Ukraine	completed	completed	completed	completed	completed
Romania	completed	Completed clarification needed	completed	completed	completed
Slovakia	completed	completed	completed	completed	completed
Hungary	completed	Completed clarification needed	completed	completed	completed
Serbia	completed	completed	completed	completed	completed

According to data presented in table above approximately 90 % of activities on data collection and analyses are completed within the JOINTISZA project activity 4.2 Water quantity and GW status assessment. It is realistic to expect that data collection activities addressed in this report will have utilization rate of 100% by the beginning of September and that final Reports on all deliverables will be finalized by the mid of September 2018. In summary following deliverables, maps and annexes are developed under the activity 4.2:

**D 4.2.1** TRB report on water quantity (the Final Draft) **JCI**

**D 4.2.2** TRB Report on GW status assessment(Final) **JCI**

**D 4.2.3** TRB Report on monitoring results evaluation(Final) **JCI**

**D 4.2.4** TRB Report on environmental objectives and exemptions(Final) **JCI**

**D 4.2.5** TRB Synopsis Report on data analyses (TRB wide) **JCI**

**Annex 5** Groundwater body-related pressures and measures **JCI**

**Annex 9** GWB monitoring (**ICPDR**)

**Annex 10** GWBs status assessment methodology **JCI**

**Annex 11** Status of GWBs (**ICPDR**)

**Map 4** Tisza River Sub - Basin: Groundwater Bodies of Basin-Wide Relevance (**ICPDR**)

**Map 14** GWBs Chemical status – groundwater (**ICPDR**)

**Map 15** GWBs Quantitative status – groundwater (**ICPDR**)

**Map 17** Exemptions according to EU WFD Articles 4(4) and 4(5) – Groundwater.

## Chapter 4 – Selection of maps (exported from DANUBE GIS)

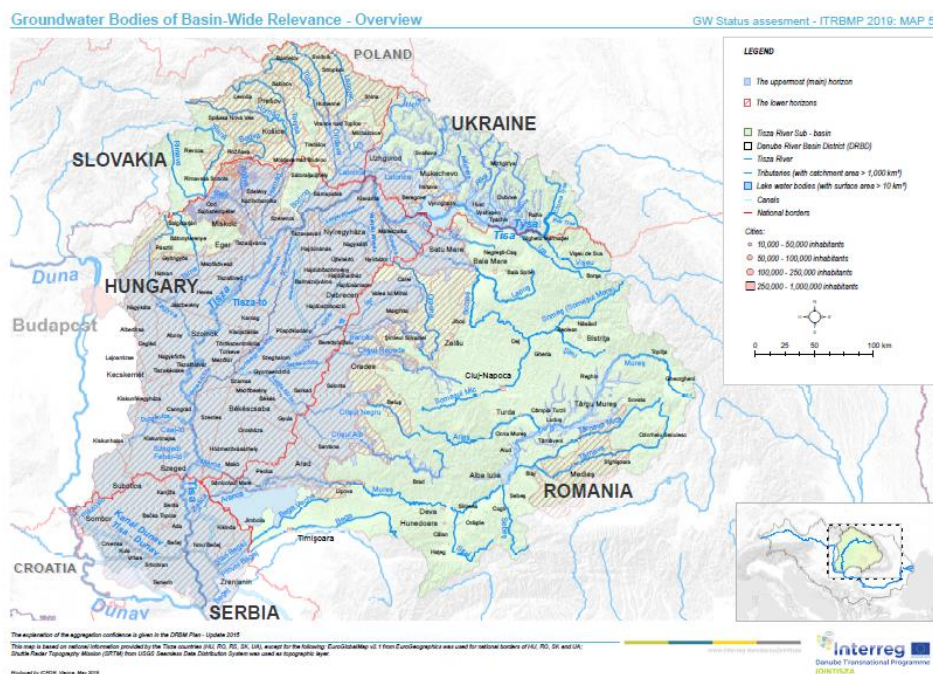


Figure IV.1 TRB MAP 4 Groundwater Bodies of Basin-Wide Relevance

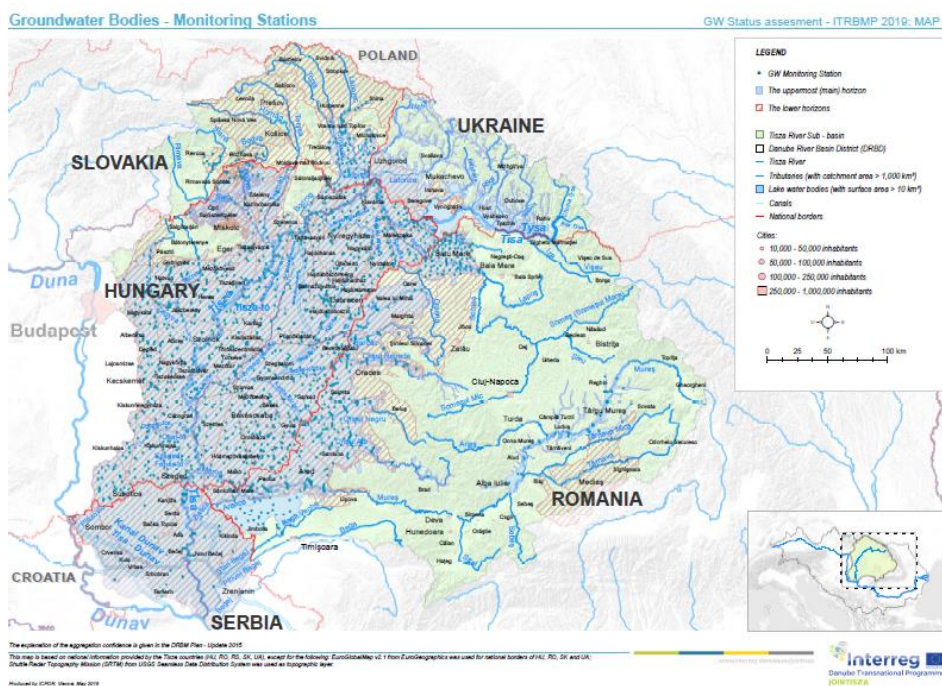


Figure IV.2 TRB Monitoring stations, based on Annex 9

#### Chemical Status of Groundwater Bodies of Basin-wide Importance

GW Status assessment - ITRBMP 2019: MAP 6

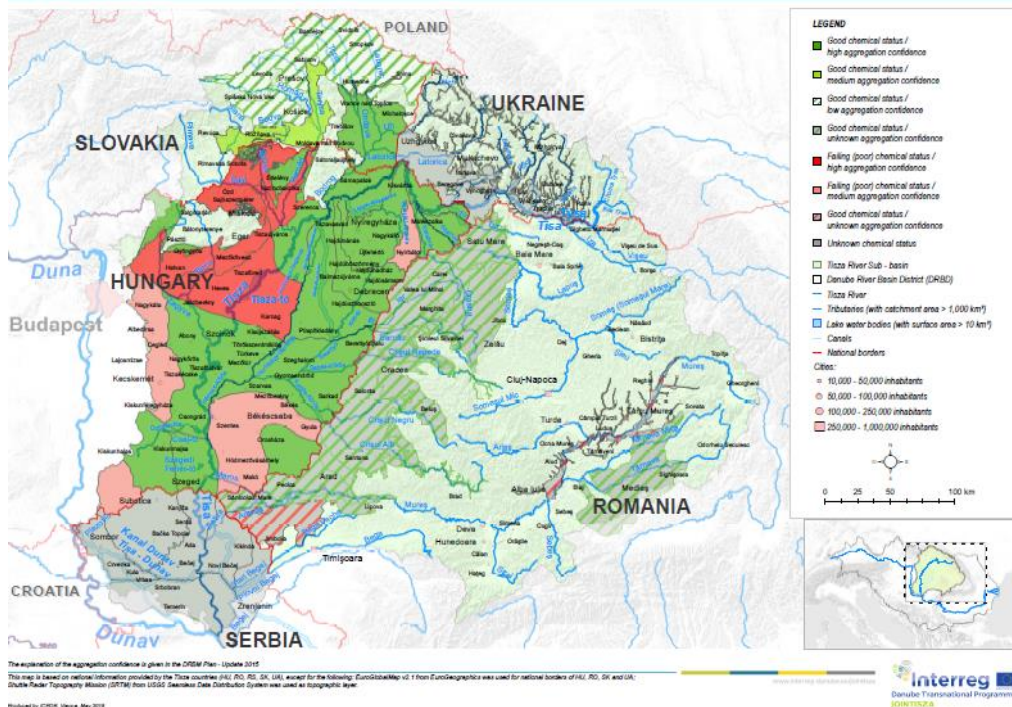


Figure IV.3 TRB Map 14 GWBs Chemical status – groundwater

#### Quantitative Status of Groundwater Bodies of Basin-wide Importance

GW Status assessment - ITRBMP 2019: MAP 5

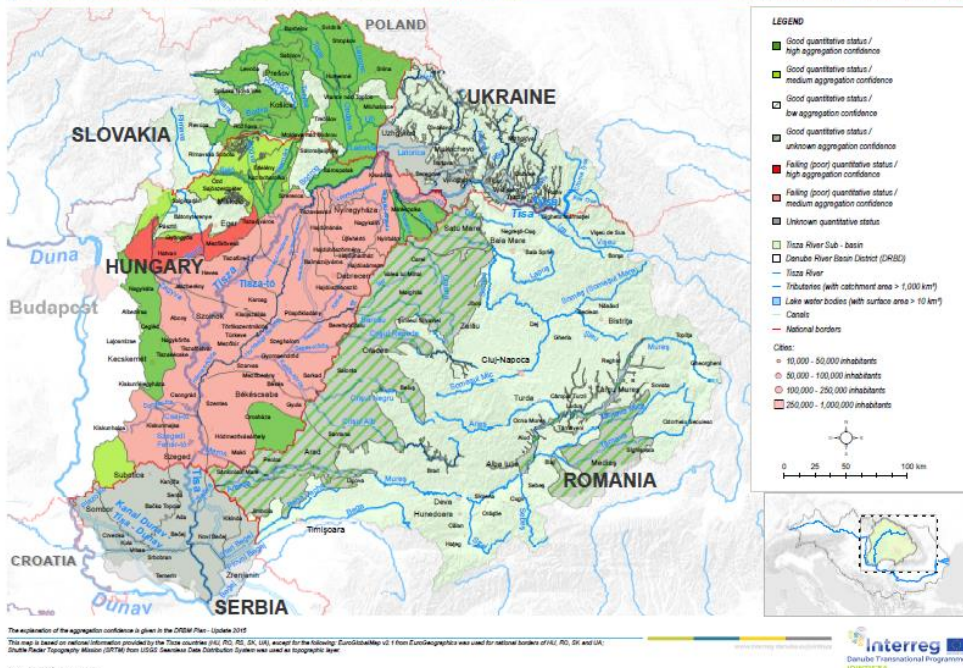


Figure IV.4 TRB Quantitative status of GWBs of Basin -wide importance Map 15

# Exemptions According to EU WFD Articles 4(4) and 4(5) Groundwater Bodies

GW Status assesment - ITRBMP 2019: MAP 7

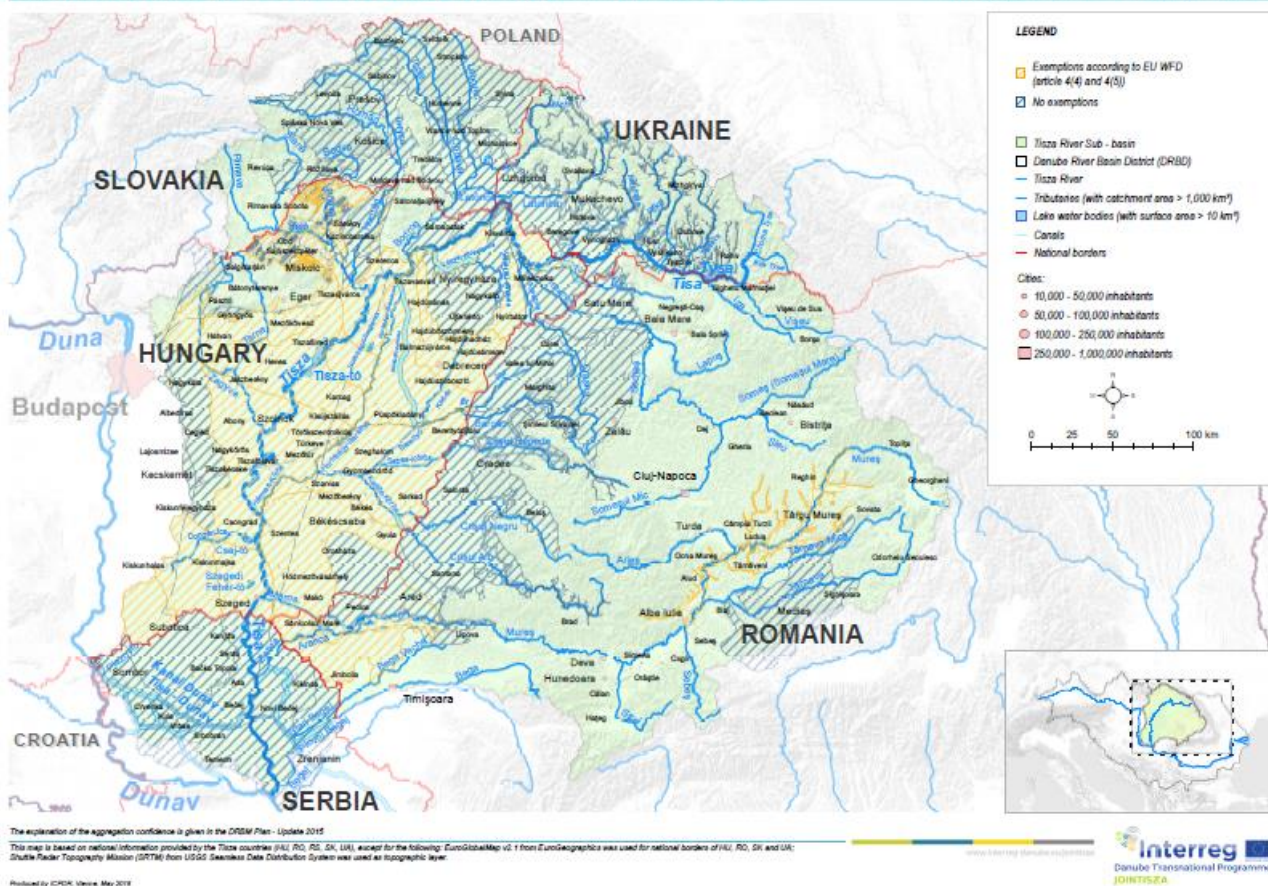
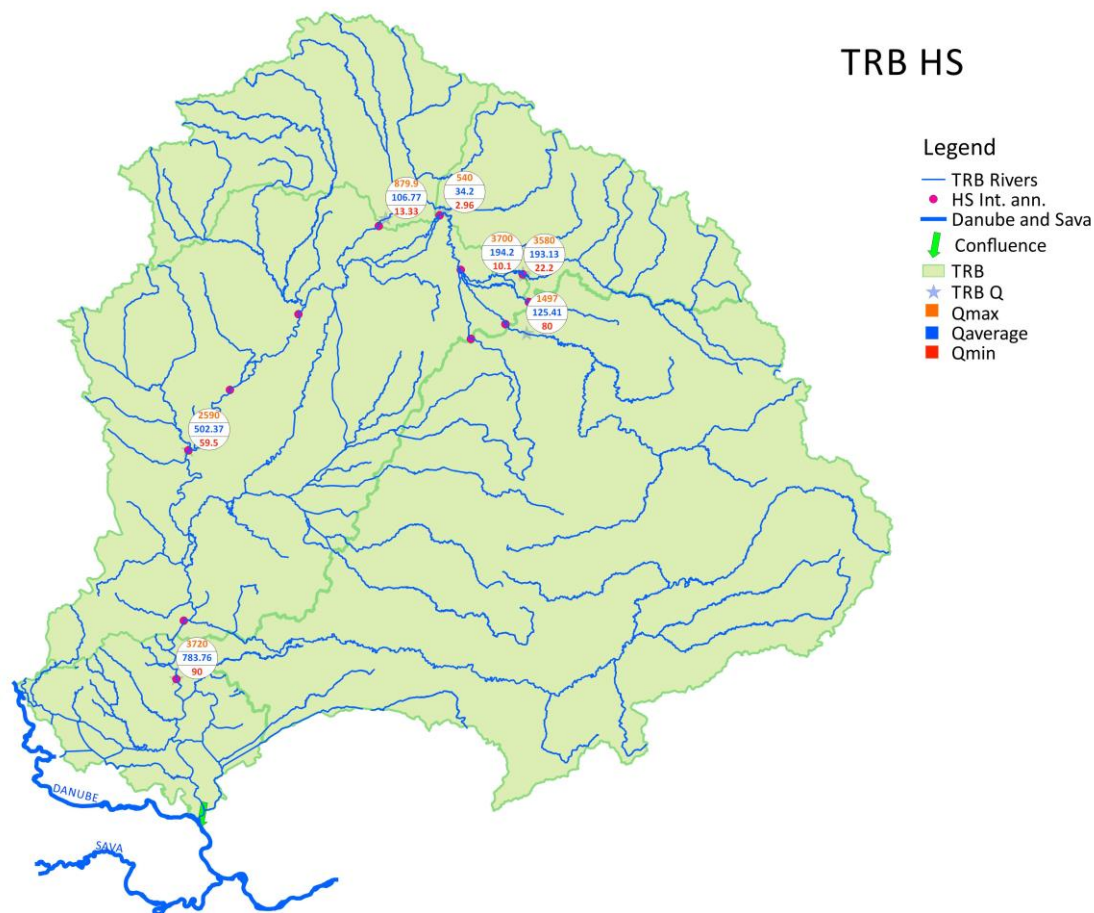
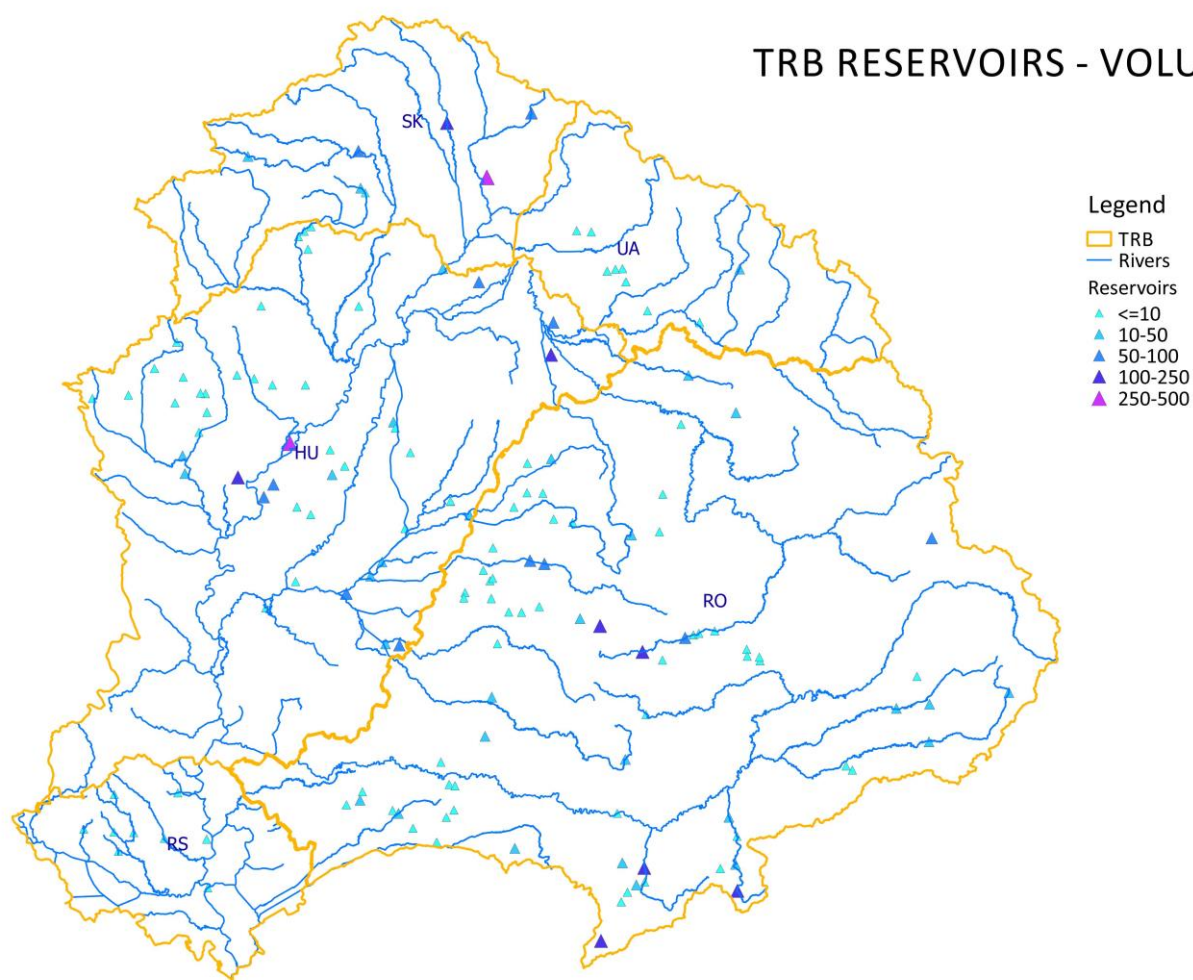


Figure IV.5 Map 17 Exemptions according to EU WFD Articles 4(4) and 4(5) – Groundwater

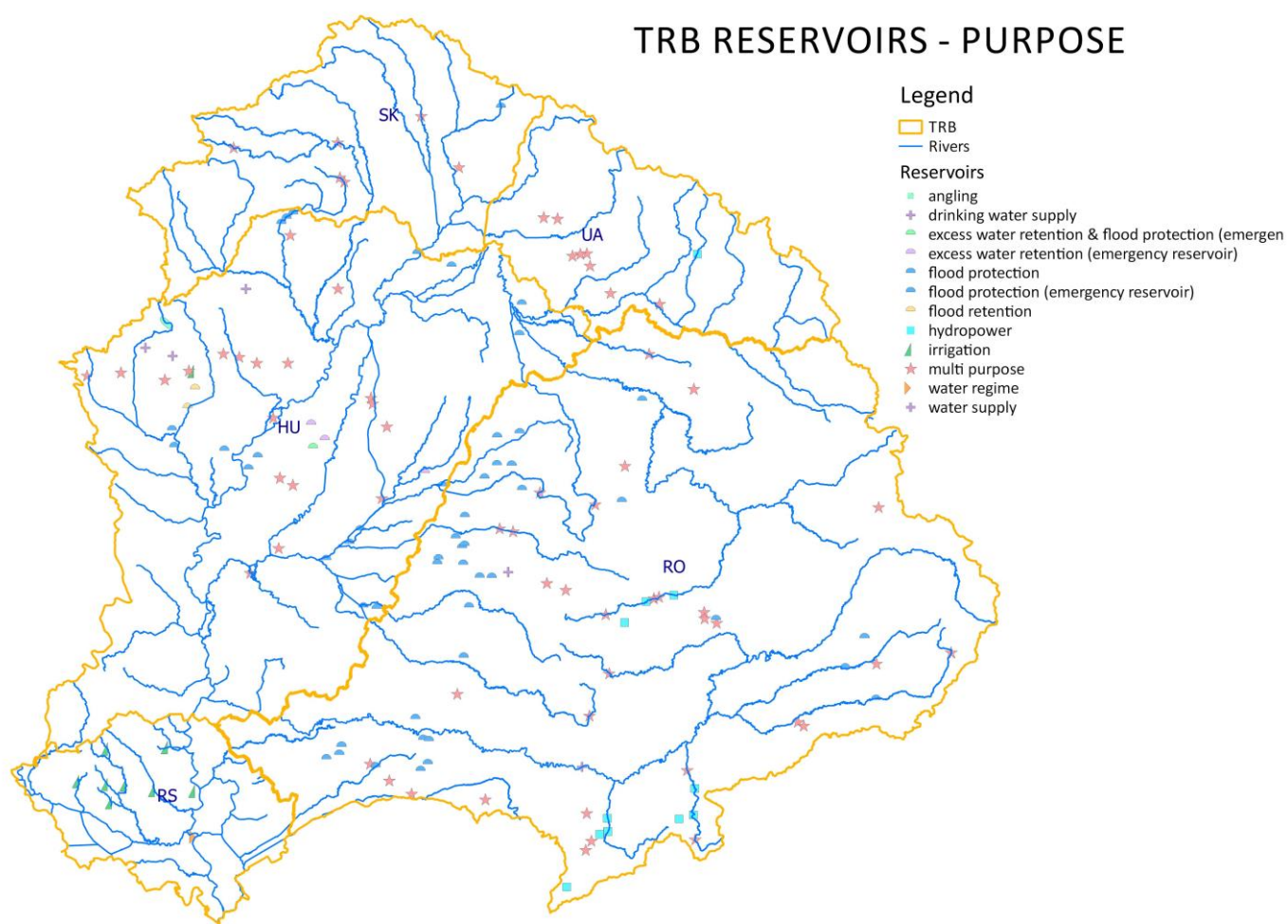
## Chapter 5 – Selection of maps developed as a part of 4.2.1 TRB report on water quantity



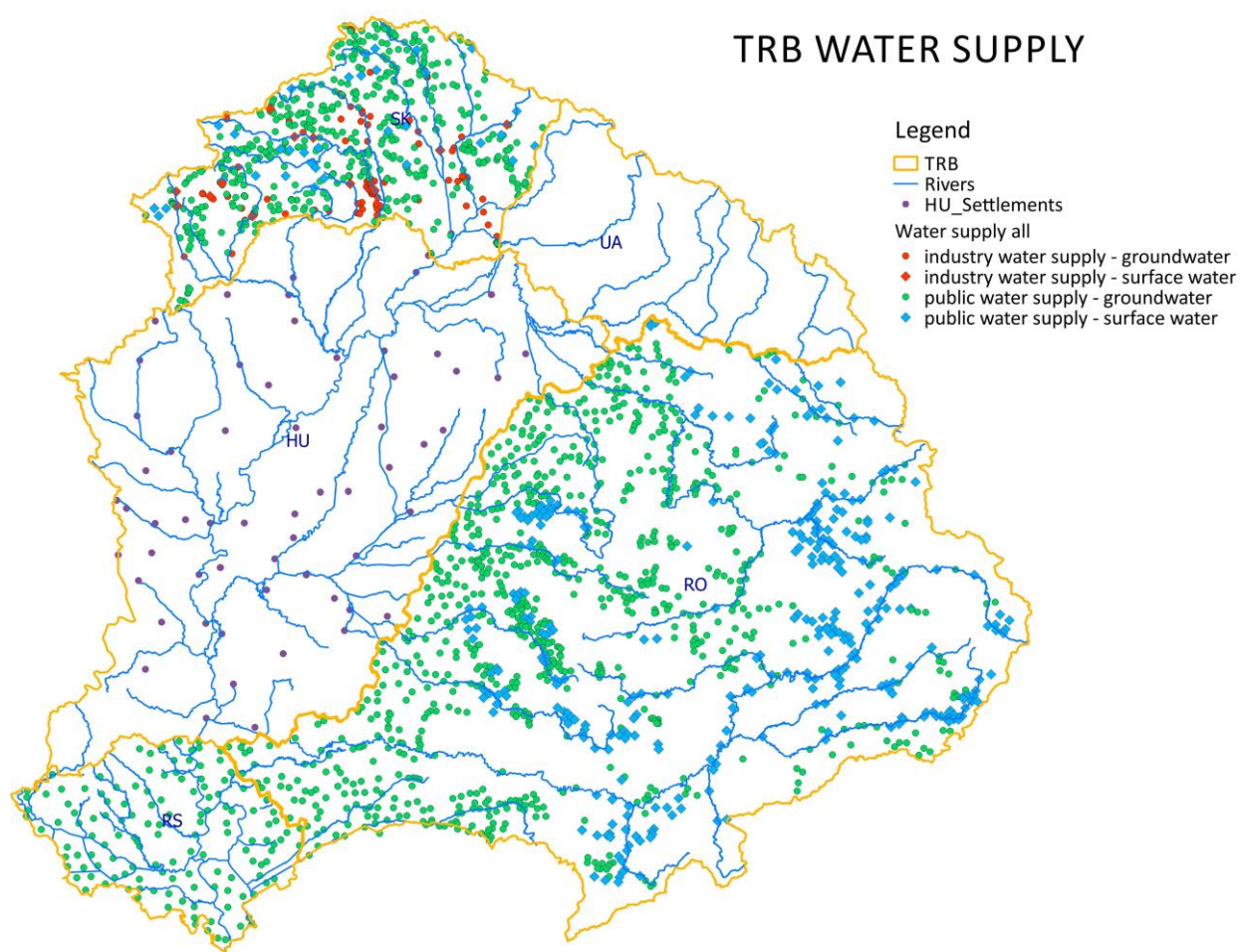
*Figure V.1 TRB hydrological stations location with annual average, min & max discharge*



*Figure V.2 TRB Reservoirs Volume ( $10^6 m^3$ )*



*Figure V.3 TRB Reservoirs Purpose*



*Figure V.4 TRB Water Supply Map – Draft 3*

## References

Analysis of the Tisza River Basin, 2007

Integrated Tisza River Basin Management Plan, 2011

<https://www.danubegis.org/>

Country Reports Ukraine (included in deliverables listed in Chapter 3 and Table III-1)

Country Report Romania (included in deliverables listed in Chapter 3 and Table III-1)

Country Report Slovakia (included in deliverables listed in Chapter 3 and Table III-1)

Country Report Hungary (included in deliverables listed in Chapter 3 and Table III-1)

Country Report Serbia (included in deliverables listed in Chapter 3 and Table III-1)

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Partners: General Directorate of Water Management, Hungary | Global Water Partnership Central and Eastern Europe, Slovakia | International Commission for the Protection of the Danube River | Ministry of Water and Forests, Romania | Ministry of Foreign Affairs and Trade, Hungary | National Administration "Romanian Waters", Romania | National Institute of Hydrology and Water Management, Romania | Public Water Management Company "Vode Vojvodine", Serbia | Regional Environmental Center for Central and Eastern Europe, Hungary | The Jaroslav Černi Institute for the Development of Water Resources, Serbia | Water Research Institute, Slovakia | World Wide Fund for Nature Hungary

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