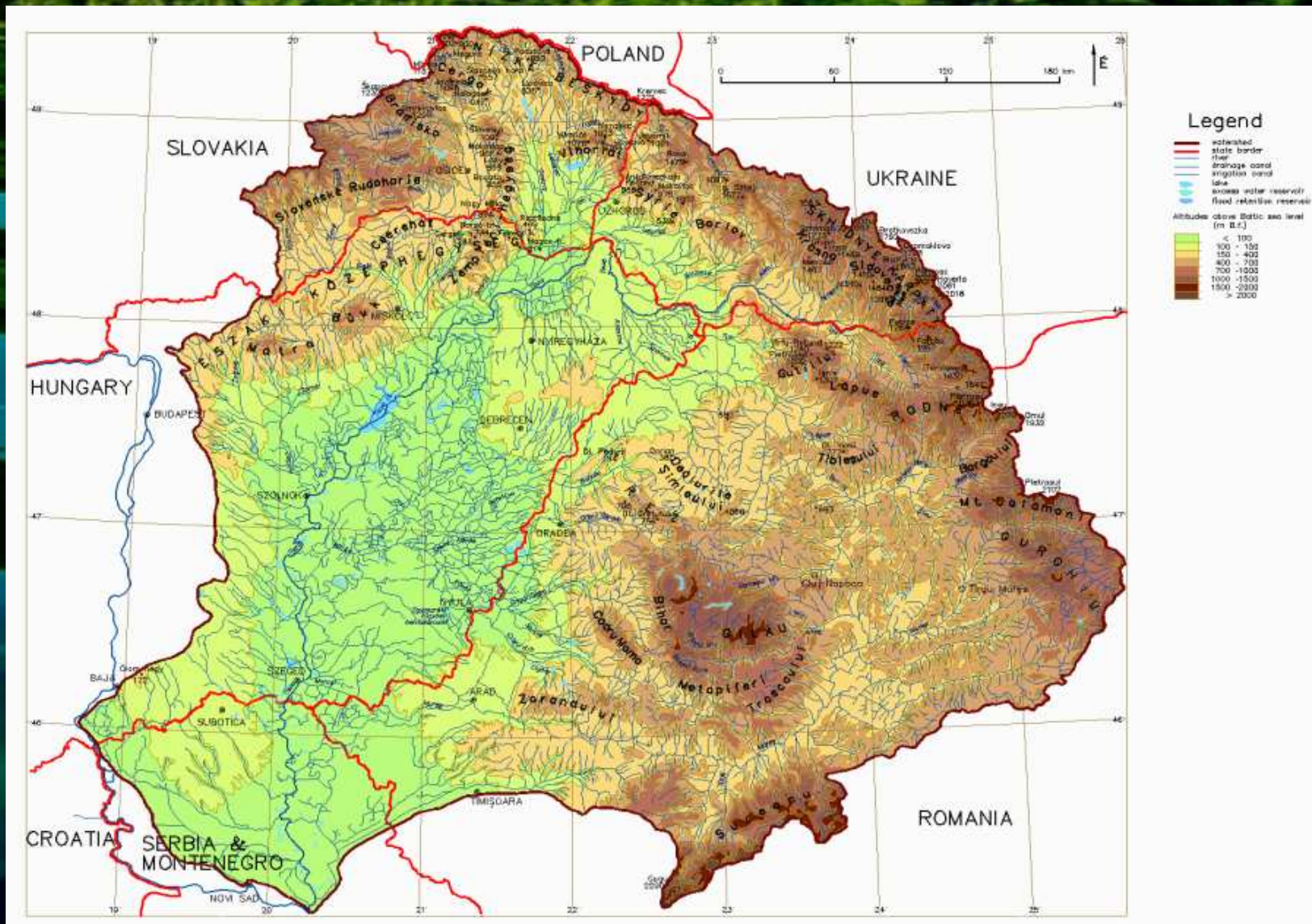


An aerial photograph of a river with vibrant green banks and blue water. The text is overlaid on the image.

# RBMP in the Hungarian part of the Tisza Basin

**Middle-Tisza District Environmental and Water Directorate  
(Szolnok, Hungary)**

**Workshop on Transboundary Water Resources Management  
in Easter and Northern Europe  
Kijev, 28. 04.2010.**



Tisza River Basin – biggest sub-catchment of the Danube 19,5% (157,186 km<sup>2</sup>)

An aerial photograph of a wide river flowing through a dense, green forested area. The water is a deep blue-green color, and the surrounding land is covered in thick vegetation. The river's path is slightly curved, and there are some smaller channels or tributaries visible in the lower part of the image.

**The Tisza River-Basin can be divided into two parts**

- **The hilly part, the Upper-Tisza and its tributaries in Ukraine, in Romania and in the Slovak Republic, and**
- **The lowland part (that can be found on the Alföld /great flat plain/ in Hungary and Serbia, on the Eastern-Slovakian Flat Plain in Slovakia and in the Subcarpathian Flat Plain in Ukraine).**

**The Tisza River can be divided into 3 parts:**

- **The Upper-Tisza, that can be found upstream from the Szamos mouth,**
- **The Middle-Tisza in Hungary, that accepts four main tributaries from the right, and three tributaries from the left hand side.**
- **The Lower-Tisza downstream from the Maros mouth.**

# Land use overview

## LEGEND

- Tisza River Sub-basin
- Danube River Basin District (DRBD)
- Tisza and Danube
- Tributaries (river basins larger than 1,000 km<sup>2</sup>)
- Lake water bodies (surface area > 10 km<sup>2</sup>)
- National borders

### Aggregated landuse classes:

- Coniferous forest
  - Deciduous forest
  - Grassland
  - Wetlands
  - Arable land
  - Urbanized area
  - Sparsely vegetated area
- Cities 10,000-50,000 inhabitants
  - Cities 50,000-100,000 inhabitants
  - Cities 100,000-250,000 inhabitants
  - Cities 250,000-1,000,000 inhabitants

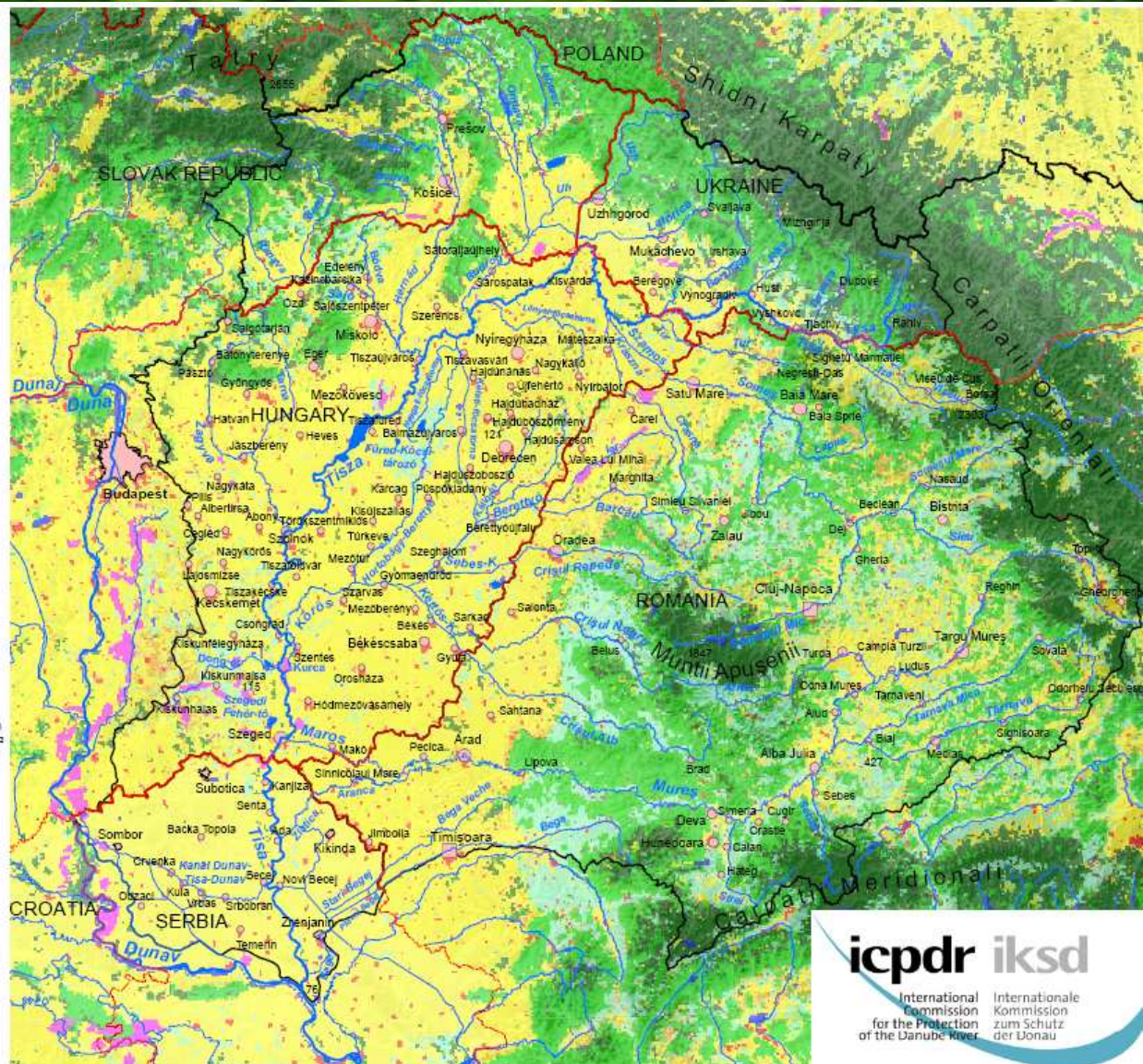
The land use layer is based on CORINE data from 1999 available in a 250 x 250 m ground resolution. For HR, RS, MD and UA the 1 km<sup>2</sup> ground resolution PELCOM data from 1997 is used. The data were aggregated to 8 main land use classes.

This product includes Intellectual Property from European National Mapping and Cadastral Agencies and licensed on behalf of these by EuroGeographics



Product of ICPDR, Vienna

Prepared by FLUVIUS, Vienna, February 2008



**icpdr iksd**

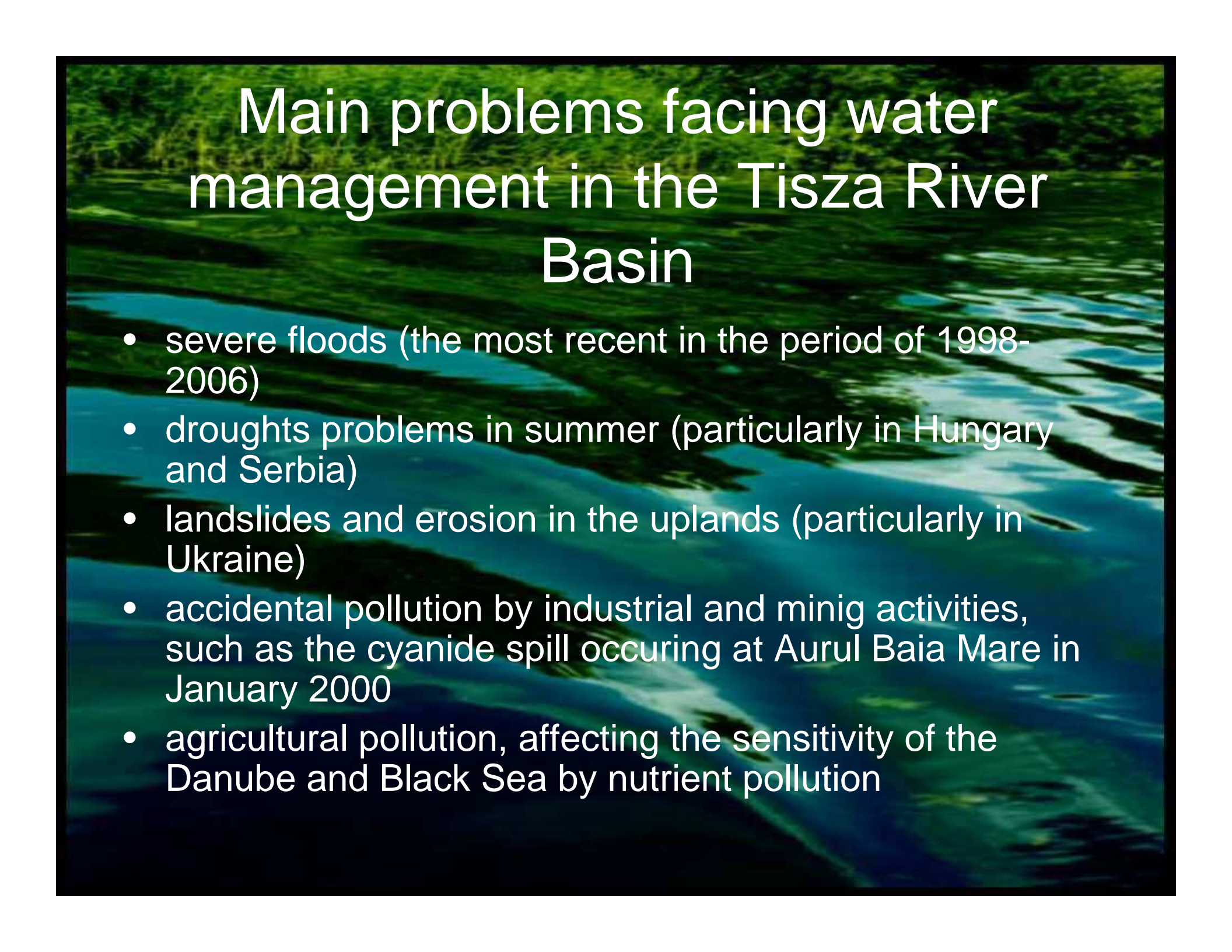
International  
Commission  
for the Protection  
of the Danube River

Internationale  
Kommission  
zum Schutz  
der Donau



# States in the Tisza River Basin

<b>Country</b>	<b>Tisza River Basin area in the country (km<sup>2</sup>)</b>	<b>Percentage of Tisza River Basin (%)</b>	<b>Percentage of Tisza River Basin area of the whole country (%)</b>	<b>Number of inhabitants in the Tisza River Basin*</b>
Ukraine	12,732	8,1	2,1	1 240 000
Romania	72,620	46,2	30,5	6 095 000
Slovak Republic	15,247	9,7	31,1	1 670 000
Hungary	46,213	29,4	49,7	4 126 000
Serbia	10,374	6.6	11.7	810 000

An aerial photograph of a river winding through a lush green landscape. The river is a vibrant blue-green color, contrasting with the surrounding dense green vegetation. The river flows from the upper left towards the lower right, with several meanders. The overall scene is bright and clear, suggesting a healthy natural environment.

# Main problems facing water management in the Tisza River Basin

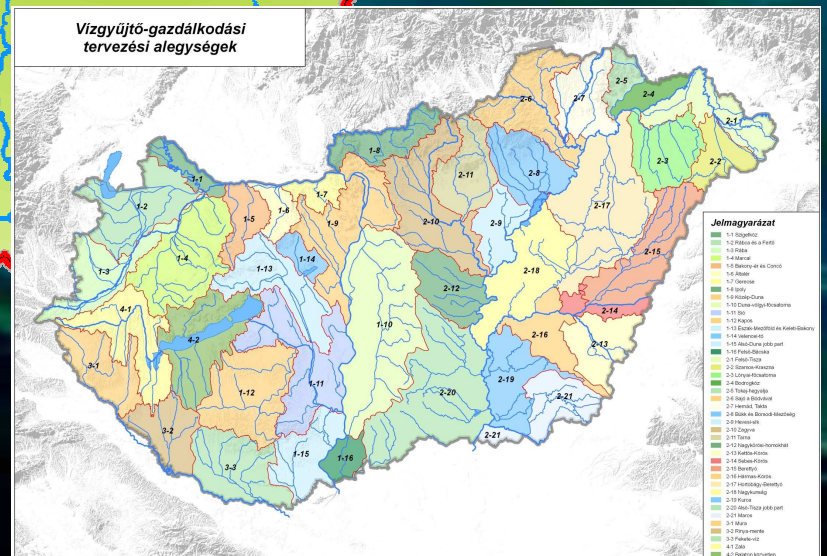
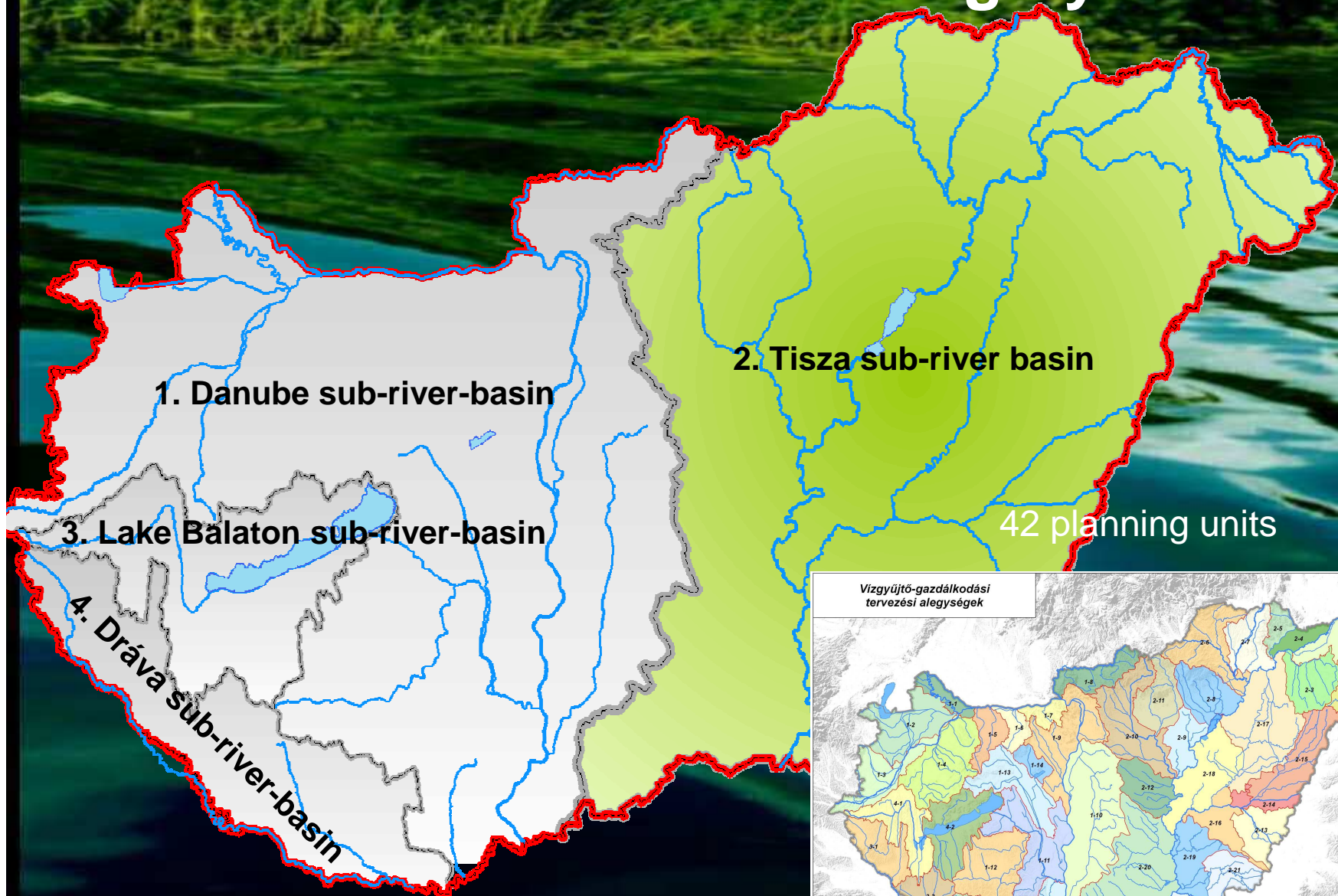
- severe floods (the most recent in the period of 1998-2006)
- droughts problems in summer (particularly in Hungary and Serbia)
- landslides and erosion in the uplands (particularly in Ukraine)
- accidental pollution by industrial and mining activities, such as the cyanide spill occurring at Aurul Baia Mare in January 2000
- agricultural pollution, affecting the sensitivity of the Danube and Black Sea by nutrient pollution

An aerial photograph of a river winding through a lush green landscape. The river is a vibrant blue-green color, contrasting with the surrounding dense green vegetation. The river flows from the upper left towards the lower right, with several meanders. The water reflects the surrounding greenery, creating a shimmering effect. The overall scene is a natural, scenic view of a river in a forested area.

The key component of the WFD is the development of

River Basin Management  
Plans –  
Hungarian national part of the  
Tisza River Basin

# Sub-Basins in Hungary





# The Hungarian national part of the Tisza Basin

- 2-1 Felső-Tisza
- 2-2 Szamos-Kraszna
- 2-3 Lónyay-főcsatorna
- 2-4 Bodrogek
- 2-5 Tokaj-hegyalja
- 2-6 Sajó a Bódvával
- 2-7 Hernád, Takta
- 2-8 Bükk és Borsodi-Mezőség
- 2-9 Hevesi-sík
- 2-10 Zagyva
- 2-11 Tarna
- 2-12 Nagykőrösi-homokhát
- 2-13 Kettős-Körös
- 2-14 Sebes-Körös
- 2-15 Berettyó
- 2-16 Hármaskörös
- 2-17 Hortobágy-Berettyó
- 2-18 Nagykunság
- 2-19 Kurca
- 2-20 Alsó-Tisza jobb part
- 2-21 Maros



# Designated river water-bodies on the Tisza sub-basin

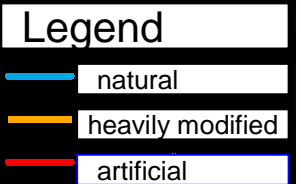
9800 rivers can be found on the Tisza sub-basin.

The total number of the designated rivers on the Tisza sub-basin: 334 pcs



# Classification of the river water-bodies

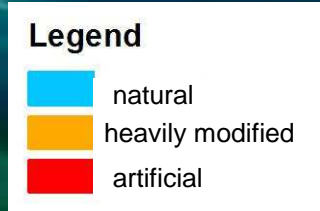
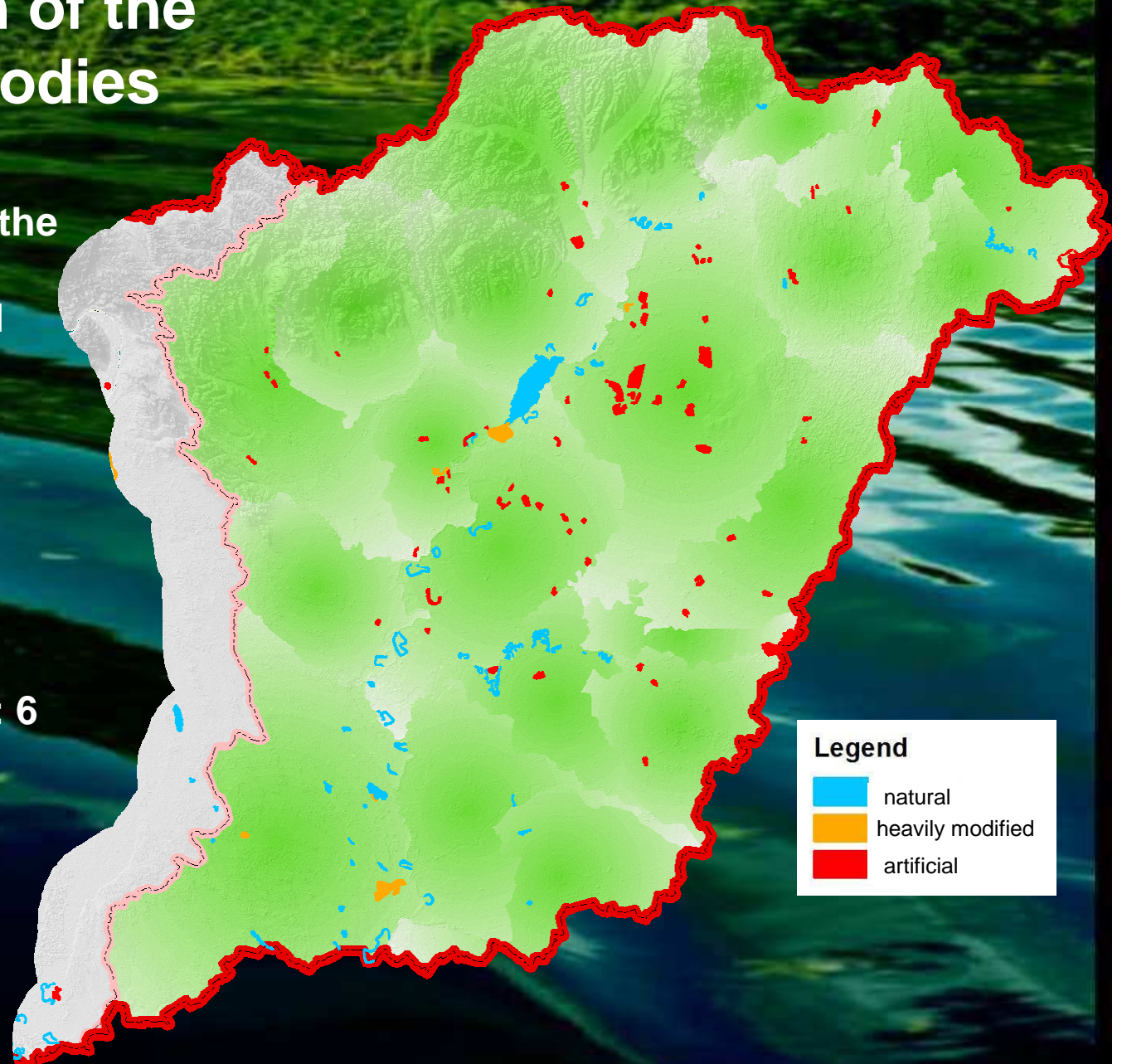
- Natural: 119 pcs
- Heavily modified: 149 pcs
- Artificial: 66 pcs



# Classification of the lake water bodies

The total number of the designated lake water bodies: 131 pcs

- Natural: 50
- Heavily modified: 6
- Artificial: 75



# Groundwater water bodies

69 groundwater water-bodies can be found on the Tisza sub-basin.

Groundwater water bodies

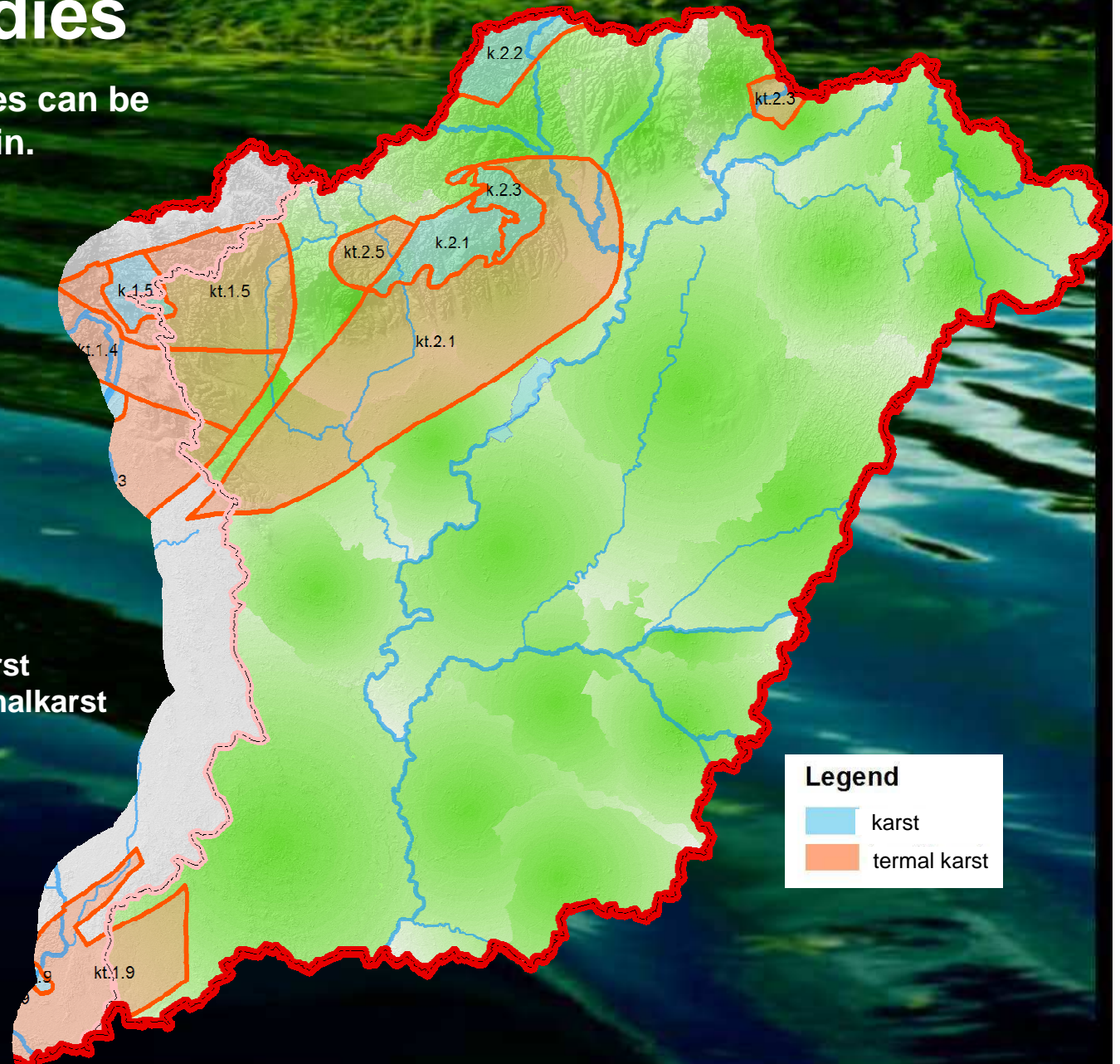
**karst type:**

- k.2.1 Bükk western karst
- k.2.3 Bükk eastern karst
- k.2.2 Aggtelek-mountain

Groundwater water bodies

**thermal karst type:**

- kt.2.1 Bükk thermalkarst
- kt.2.3 Sárospatak thermalkarst
- kt.2.5 Recsk-Bükkszék thermalkarst



## Legend

- karst
- termal karst

# Groundwater water bodies

## Groundwater water bodies mountain type: (8)

- h.2.1 Cserhát, Karancs,  
Medves-Zagyva-river-basin
- h.2.2 Mátra
- h.2.3 Heves-Hill-Tarna-river-basin
- h.2.4 Bükk-Tisza-river-basin
- h.2.5 Bükk, Borsod-Hill-Sajó-,  
Hernád-river-basin
- h.2.6 Zemplén-hegység-Hernád-river-basin
- h.2.7 Zemplén,hegység-Bodrog-river-basin
- h.2.8 Cserehát-Hernád-river-basin



# Groundwater water bodies

**Porous thermal groundwater water bodies : (5)**

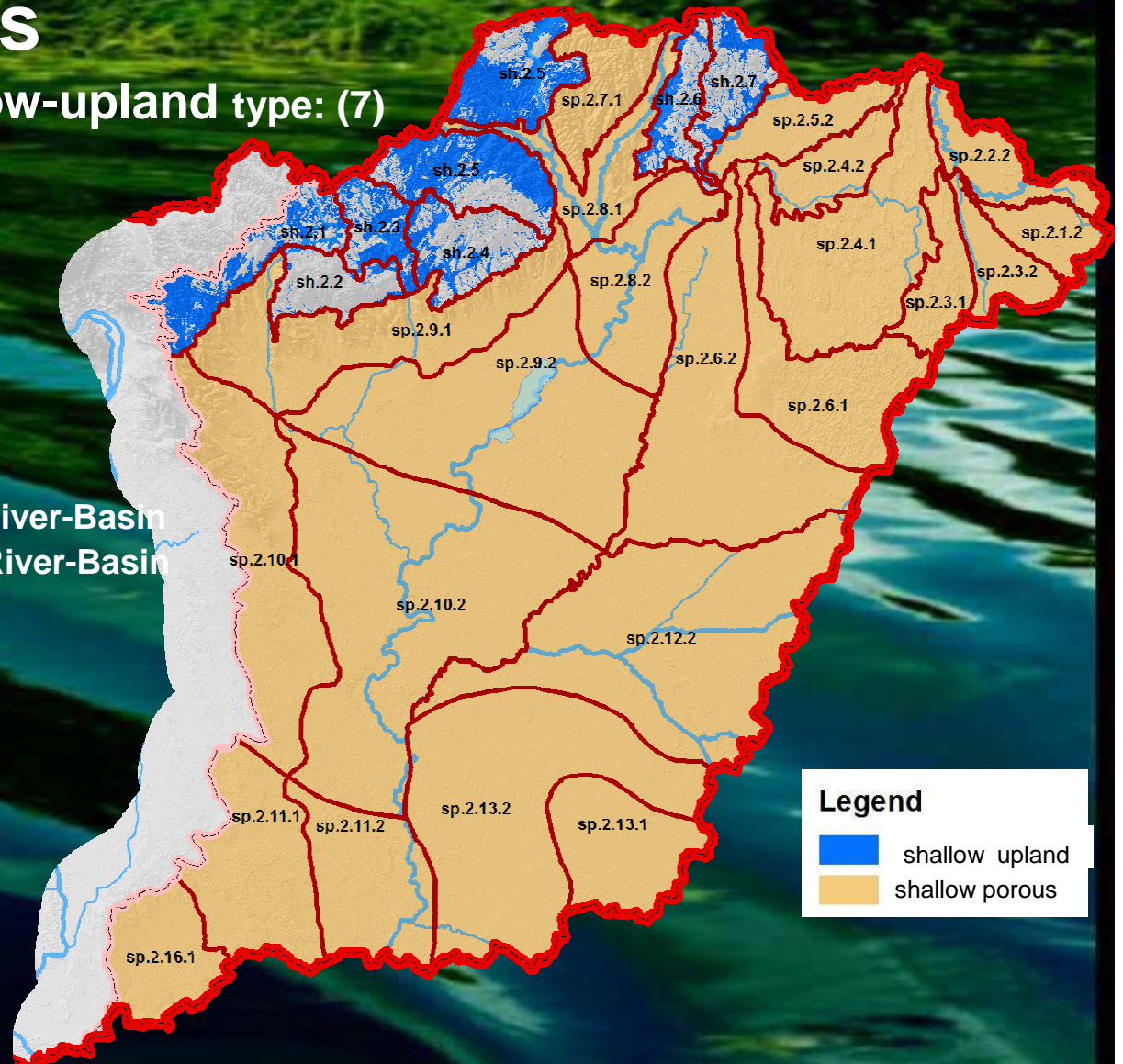
- pt.2.5 North-Middle-Hill Basins**
- pt.2.4 North-East-Alföld**
- pt.2.2 North-Alföld**
- pt.2.1 South-Alföld**
- pt.2.3 South-East-Alföld**



# Groundwater water bodies

## Groundwater water bodies shallow-upland type: (7)

- sh.2.1 Cserhát, Karancs, Medves – Zagyva-River-Basin
- sh.2.2 Mátra
- sh.2.3 Heves-hill - Tarna-River-Basin
- sh.2.4 Bükk - Tisza-River-Basin
- sh.2.5 Bükk, Borsod-hill – Sajó-River-Basin
- sh.2.6 Zemplén-mountain - Hernád-River-Basin
- sh.2.7 Zemplén-mountain - Bodrog-River-Basin



### Legend

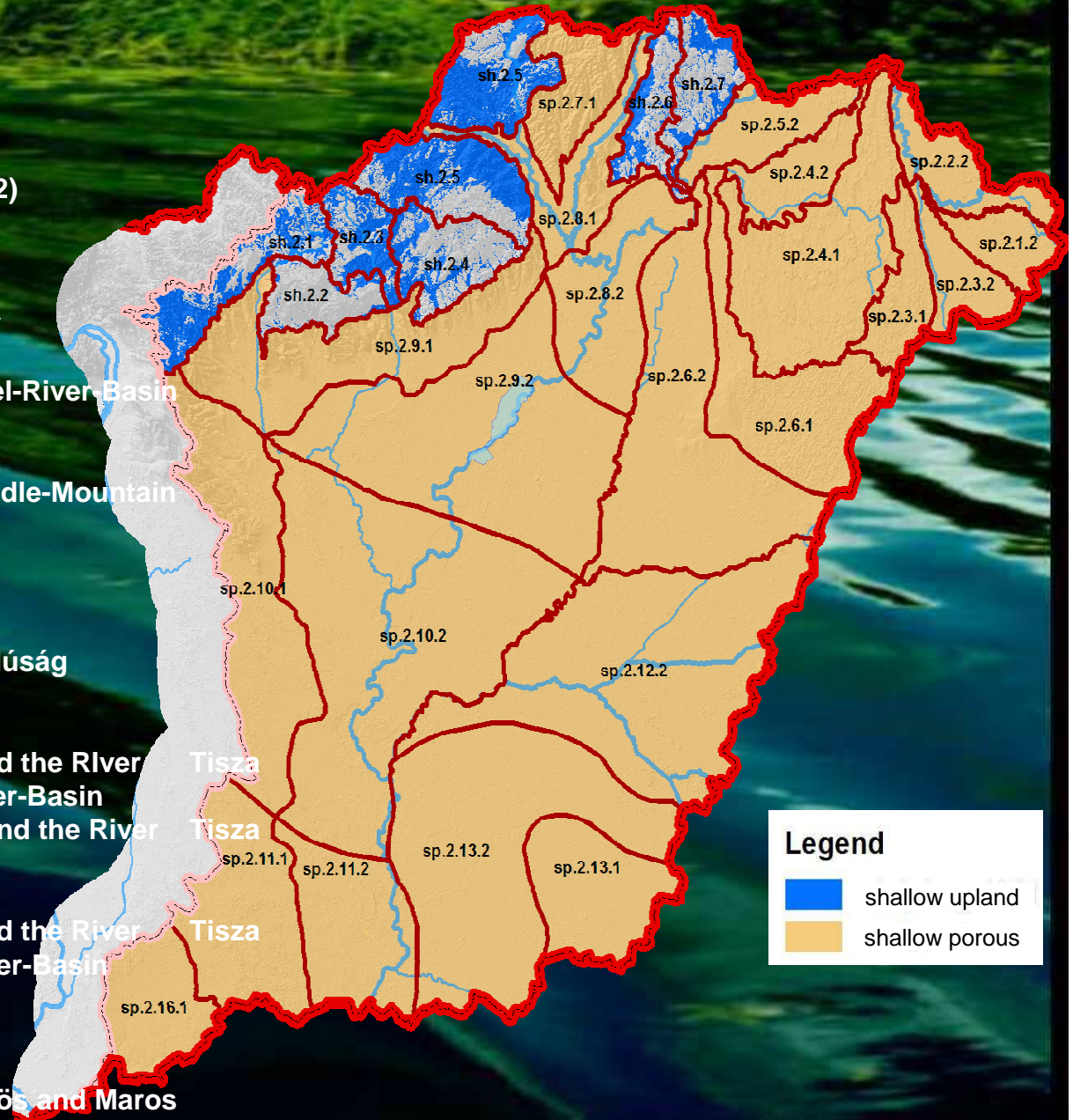
- shallow upland
- shallow porous



# Groundwater water bodies

## Groundwater bodies shallow porous type: (22)

- sp.2.16.1 Kígyós-River-Basin
- sp.2.3.1 Eastern edge of Nyírség
- sp.2.3.2 Kraszna-valley, Szamos-valley
- sp.2.1.2 Szatmár-plain
- sp.2.4.1 Nyírség - Lónyay-main-channel-River-Basin
- sp.2.4.2 Rétköz
- sp.2.2.2 Bereg-plain
- sp.2.9.1 Edge-land of the Northern-Middle-Mountain
- sp.2.7.1 Cserehát
- sp.2.8.1 Sajó-Hernád-valley
- sp.2.5.2 Bodrogek
- sp.2.8.2 Sajó-Takta-valley, Hortobágy
- sp.2.6.1 Southern part of Nyírség, Hajdúság
- sp.2.6.2 Hortobágy, Nagykunság, Northern part of Bihar
- sp.2.10.1 Ridge between the Danube and the River Tisza Northern part of the Tisza-River-Basin
- sp.2.10.2 Region between the Danube and the River Tisza Middle-Tisza-valley
- sp.2.9.2 Jászság, Nagykunság
- sp.2.11.1 Ridge between the Danube and the River Tisza Southern part of the Tisza-River-Basin
- sp.2.11.2 Lower-Tisza-valley
- sp.2.13.1 Maros-alluvium
- sp.2.12.2 Körös-vidék, Sárrét
- sp.2.13.2 Region between the River Körös and Maros



**Legend**

- shallow upland
- shallow porous

# Water-bodies – Aims - Derogation

Type of the water-bodies	Total number of the water-bodies (pcs)	Keeping the current good status or potential	Reaching the good status/potential			Milder aims - suggestion
			for 2015	for 2021	for 2027	
<b><i>Rivers total</i></b>	<b>334</b>	<b>23</b>	<b>38</b>	<b>185</b>	<b>84</b>	<b>4</b>
Natural	119	8	11	62	34	4
Heavily modified	149	9	20	88	32	0
Artificial	66	6	7	35	18	0
<b><i>Lakes total</i></b>	<b>131</b>	<b>13</b>	<b>19</b>	<b>83</b>	<b>15</b>	<b>1</b>
Natural	50	9	4	33	3	1
Heavily modified	7	0	0	7	0	0
Artificial	74	4	15	43	12	0
<b><i>Groundwater</i></b>	<b>73</b>	<b>38</b>	<b>1</b>	<b>14</b>	<b>18</b>	<b>2</b>
<b><i>Total</i></b>	<b>538</b>	<b>74</b>	<b>58</b>	<b>282</b>	<b>117</b>	<b>7</b>

**At 90 % of the surface water-bodies measures are necessary!**

# Planned common measures

Type of Measures	Pcs	Measures % of the occurrence
Measures to reduce the nutriment and the organic load	1347	52%
Measures for reducing other pollutions	15	1%
Measures for improving the hydromorphological condition of rivers and lakes	968	37%
Implementation of the sustainable water use, improving of the water quantity condition	191	7%
Unique measures regarding to the wetlands and protected areas	91	3%
<b>Total measures :</b>	<b>2614</b>	<b>100%</b>

# Main pressures on transboundary water bodies

- **Tisza:** high measure on regulation, cadmium and copper loads from mining activities
- **Szamos:** significant amount of communal pollution at floods
- **Körös water system:** scarcity of water resource, cadmium and copper loads from mining activities
- **Maros:** scarcity of water resource, no agreement on sufficient water level
  
- **Nyírség groundwater bodies:** decreasing water level pressure, the abstraction is more than the lateral recharge, risk at chemical status, pollution from agriculture
- **Maros alluvial fan:** risk at groundwater chemical status and quantitative status

# Tisza river is „blooming” !



Bruxelles, 14.10.2009