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ROMANIAN TRANSBOUNDARY WATER MANAGEMENT UNDER CONDITIONS OF CLIMATE CHANGE

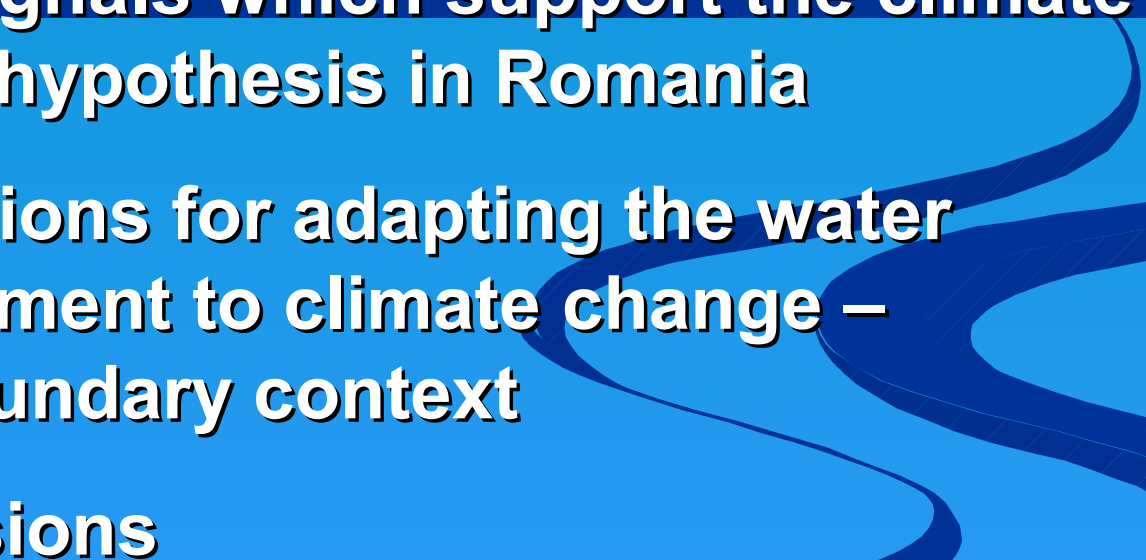
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River Basin Management Plans Office, Bucharest, Romania*

IV International Symposium on Transboundary Waters Management

Thessaloniki, 15th october 2008

Content

- **International context of climate change**
 - **Some signals which support the climate change hypothesis in Romania**
 - **Plan actions for adapting the water management to climate change – transboundary context**
 - **Conclusions**
- 
- The slide features a dark blue background with a lighter blue horizontal band across the middle. In the bottom right corner, there are several thick, dark blue, wavy lines that resemble a stylized river or water flow, extending from the right edge towards the center.

1. INTERNATIONAL CONTEXT OF CLIMATE CHANGE

- World Meteorological Organisation (WMO) and United Nation Environment Programme – established in 1988, Intergovernmental Panel for Climate Change (IPCC).
- 1992 – United Nations Conference on Environment and Development (UNCED), 151 States signed *Framework Convention on Climate Change* (FCCC).
- Report of IPCC 1996 mentioned “global warming in this century has improbably only natural causes”...
- Jan. 2008 - IPCC scoping meeting on Renewable energy sources



The Danube River Basin (DRB):

800.000 km²

81 million people

13 countries (+5)

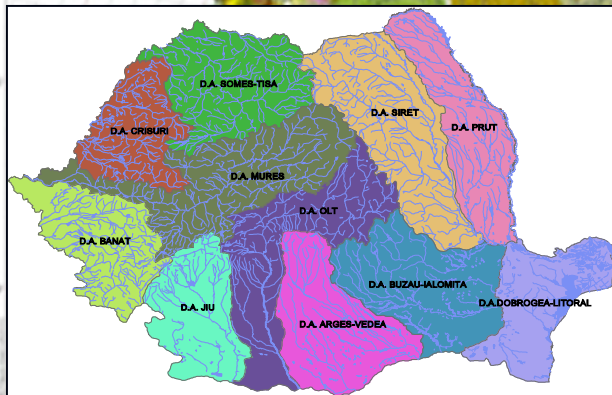
About Romania

97.8 % of the RO surface is included in the DRB

30 % of the DRB surface is in Romania

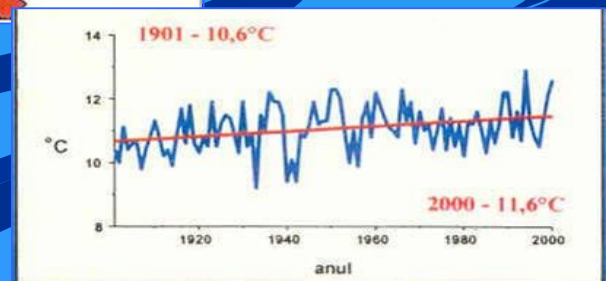
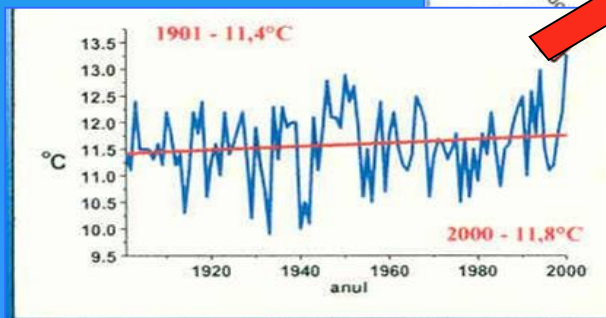
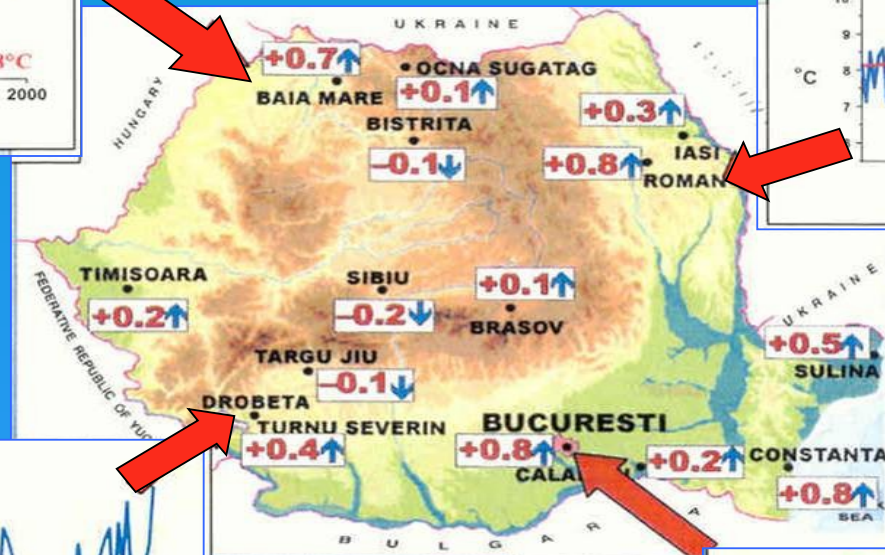
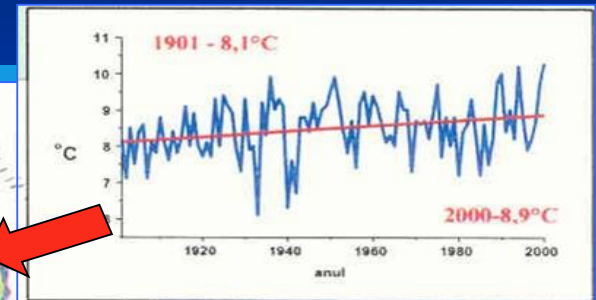
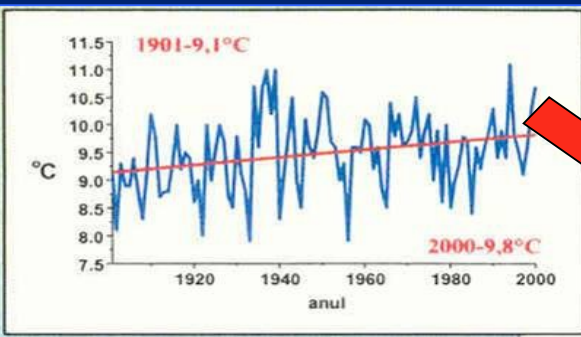
27 % of the DRB population is leaving in Romania

11 administrative units on water field - approach based on the river basin borders



2. SIGNALS OF CLIMATE CHANGE IN ROMANIA (1)

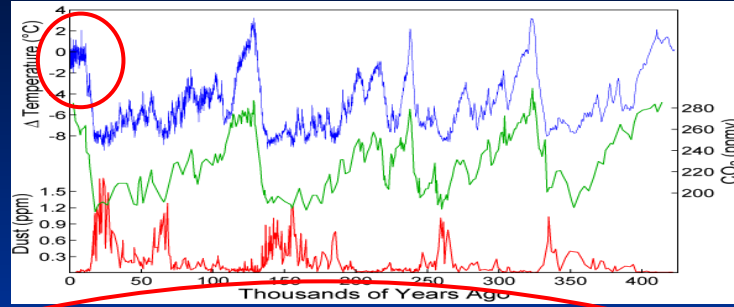
Trend of climate warming in Romania showing temperature increases of 0.5-0.8°C/100 years



SIGNALS OF CLIMATE CHANGE IN ROMANIA (2)



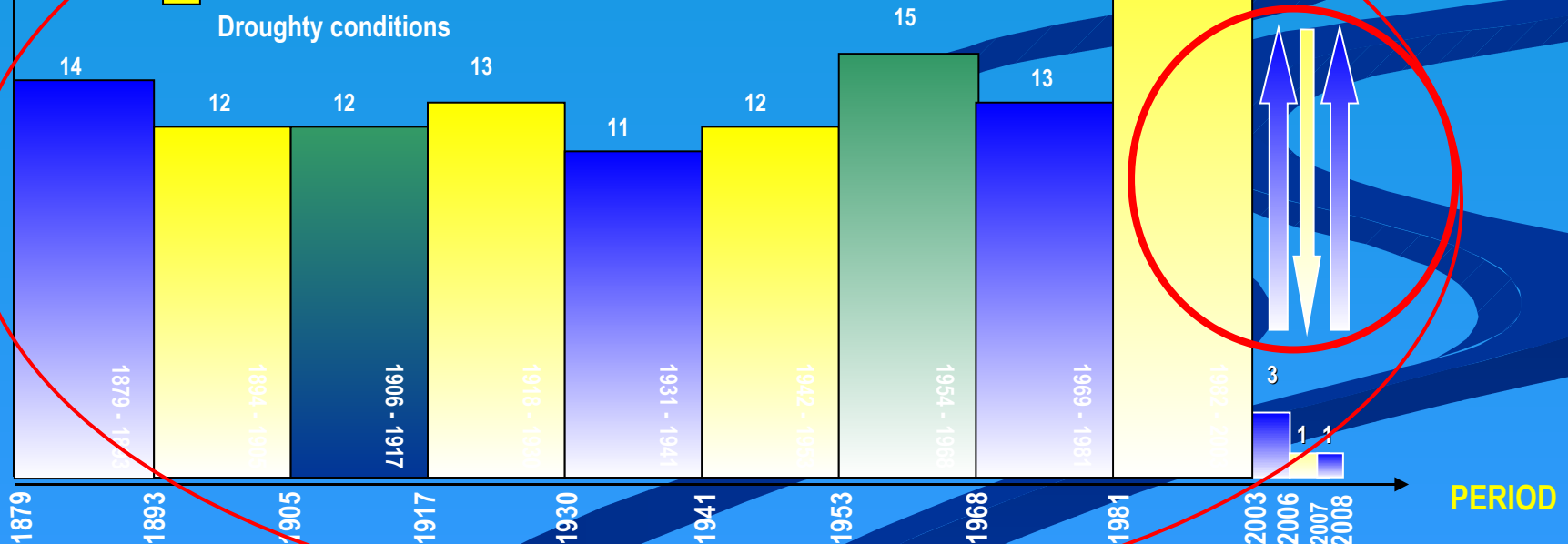
Temperature history



No. of years

LEGEND

- Rainy conditions
- Normal Conditions
- Droughty conditions



PERIOD

SIGNALS OF CLIMATE CHANGE IN ROMANIA (3)

- **The increase of frequency occurrence of precipitation values**

Very intense rainfalls fell down on the small surfaces which produce catastrophic effects

- **The occurrence of some meteorological phenomena unlikely to be recorded in Romania - tornado**



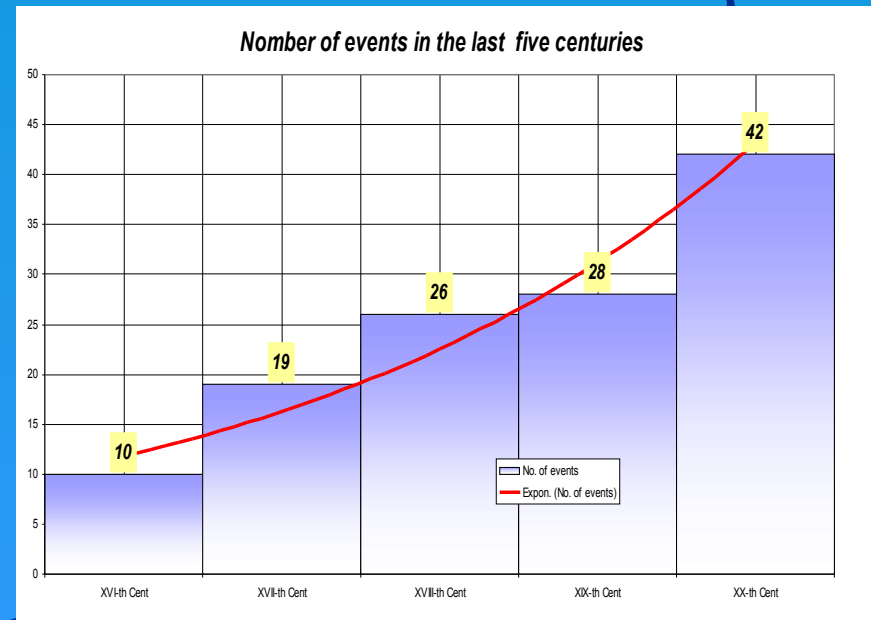
SIGNALS OF CLIMATE CHANGE IN ROMANIA (4)

Increasing of frequency for catastrophic flood occurrence all over Romania

Past chronicles registered regularly catastrophic floods

Increasing of frequency occurrence of flooding may be caused due to :

- Climate change;
- Economical development in floodplain.



SIGNALS OF CLIMATE CHANGE IN ROMANIA (5)

EXTREME FLOODS IN RECENT PAST:

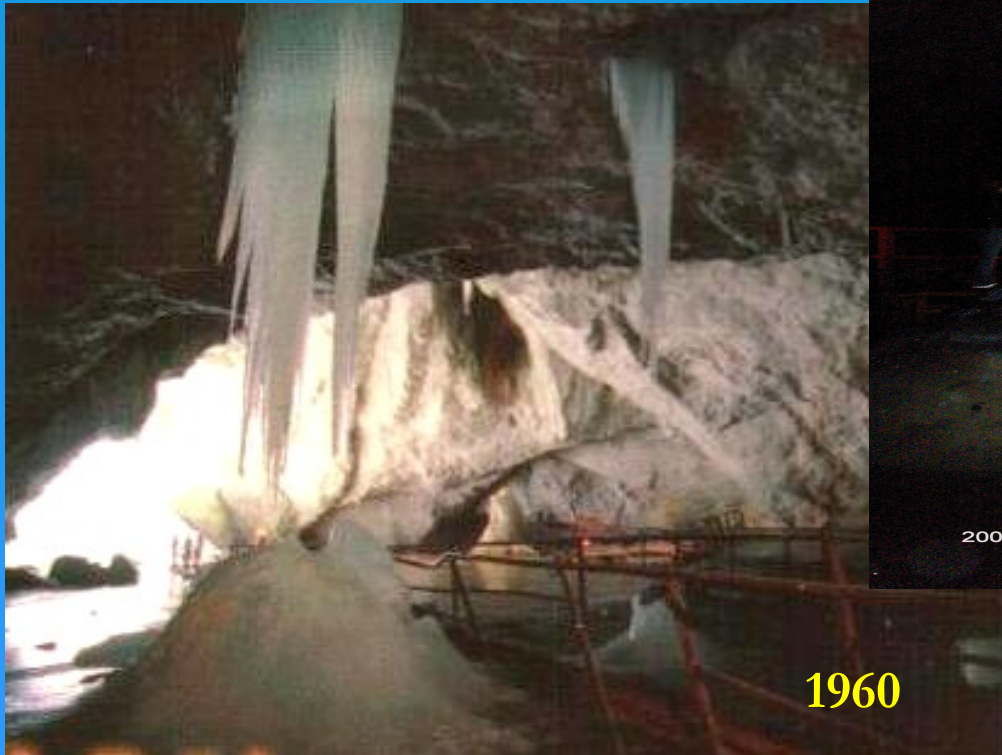
- six were recorded in 2005;
- two major floods in 2006 (Danube river)
- three major floods in 2008

Frequency of occurrence between 1% - 0.5% (less than one to one hundred years)



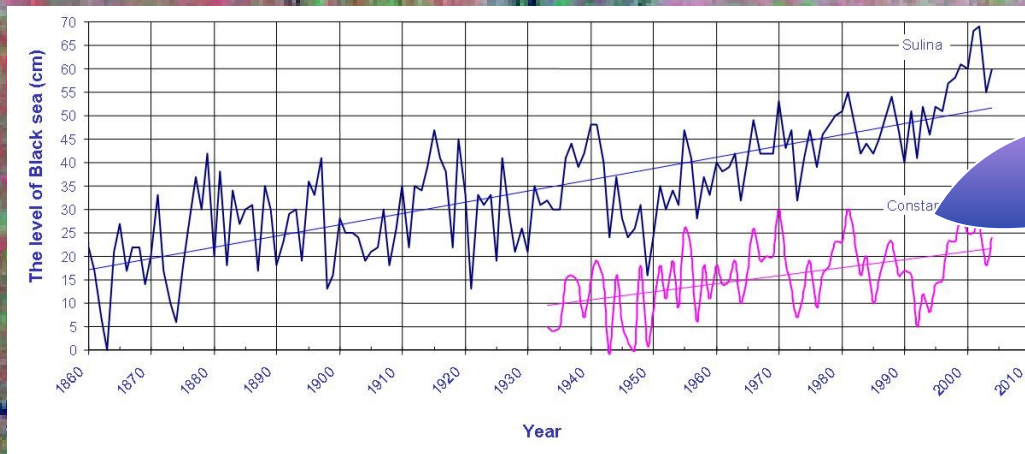
SIGNALS OF CLIMATE CHANGE IN ROMANIA (7)

The effect of climate change on SCARISOARA cave ice



SIGNALS OF CLIMATE CHANGE IN ROMANIA (8)

Raising of Black Sea level



4. PLAN ACTIONS FOR ADAPTING THE WATER MANAGEMENT TO CLIMATE CHANGE

Adapting legislation and strategies

- Governmental Decision no. 1309/2005 concerning the National Plan for prevention and reduction of flood risk
- National strategy for drought and flood defense 2006-2007;
- River basin planning (under quantitative aspects) 2008;

Scientific research and projects for assessment of the climate change scenario and impact on water resources

National projects

- Study concerning river basin planning under climate changes (2007-2010)
- SIMIN PROJECT_(Meteorological Integrated National System), finalized in 2004
- DESWAT PROJECT (Hydrological System for warning and forecasting), feasibility Study 2004-2007
- WATMAN PROJECT (Water Management Integrated System), implementation stage 2005 - 2008

International projects:

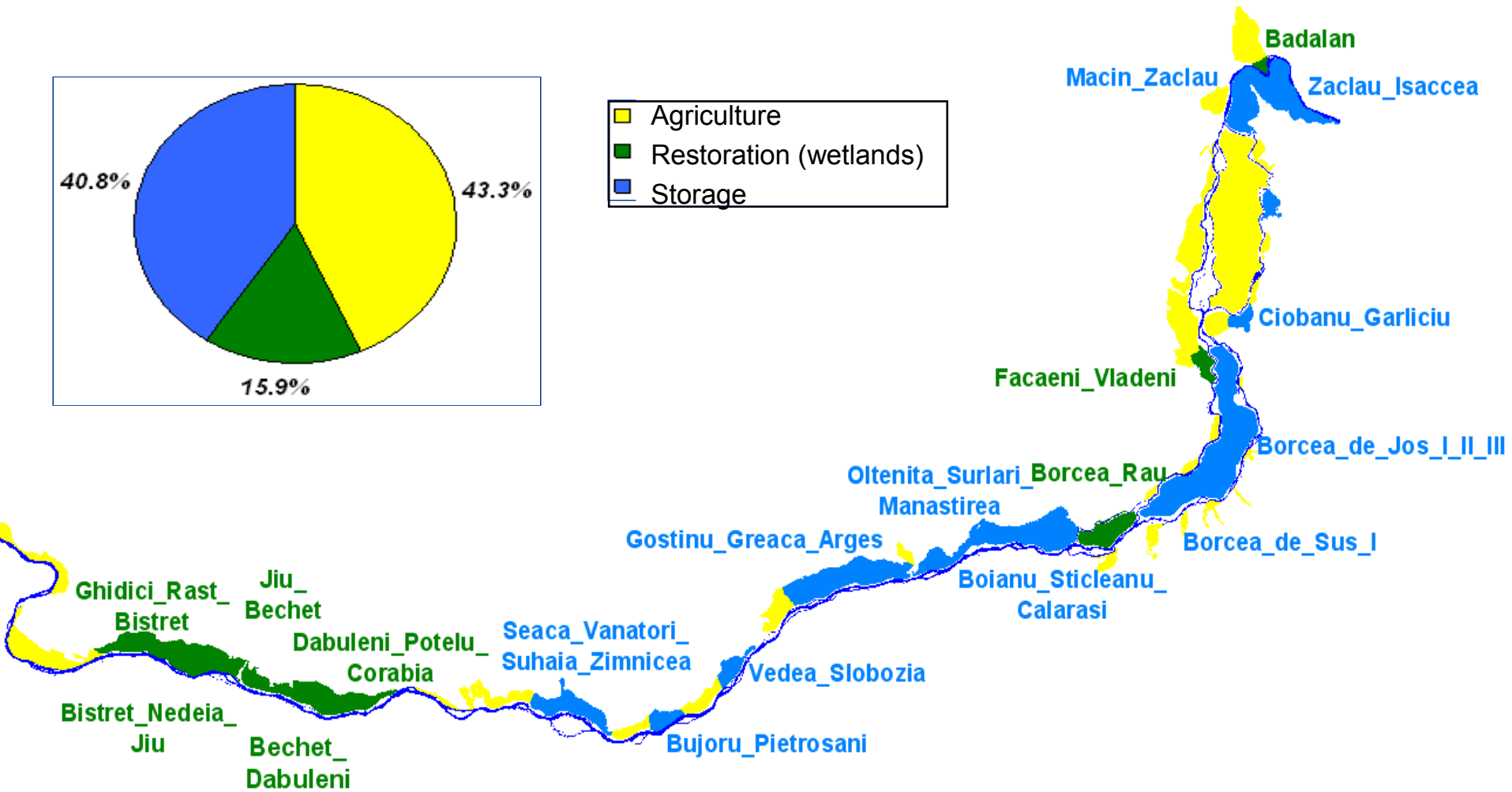
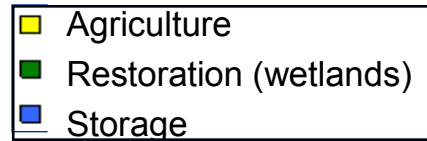
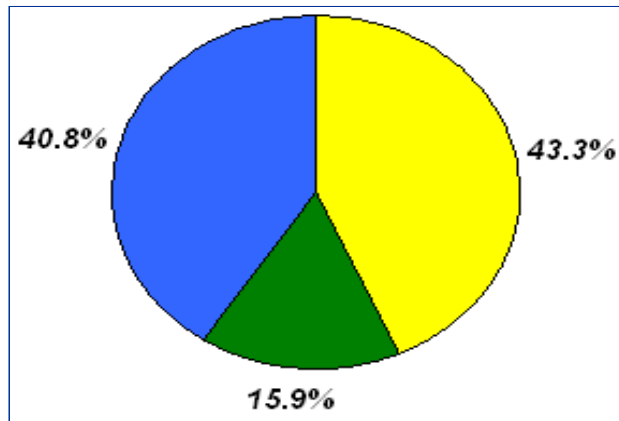
- CFCAS project “Assessment of Water Resources Risk and Vulnerability to Changing Climatic Conditions” using the lumped model WATBAL (IISA);
- CECILIA Project “Central and Eastern Europe Climate Change Impact and Vulnerability Assessment”;
- CLAVIER Project “Climate change impacts in central-eastern Europe”.
- IWRM-Net “Towards an European network for integration of research efforts for integrated management water resources”,

ROMANIAN STRATEGY FOR DESASTERS MANAGEMENT



The national project „Ecologic and economic redimensioning of Romanian Danube plain ” (2008-2010)

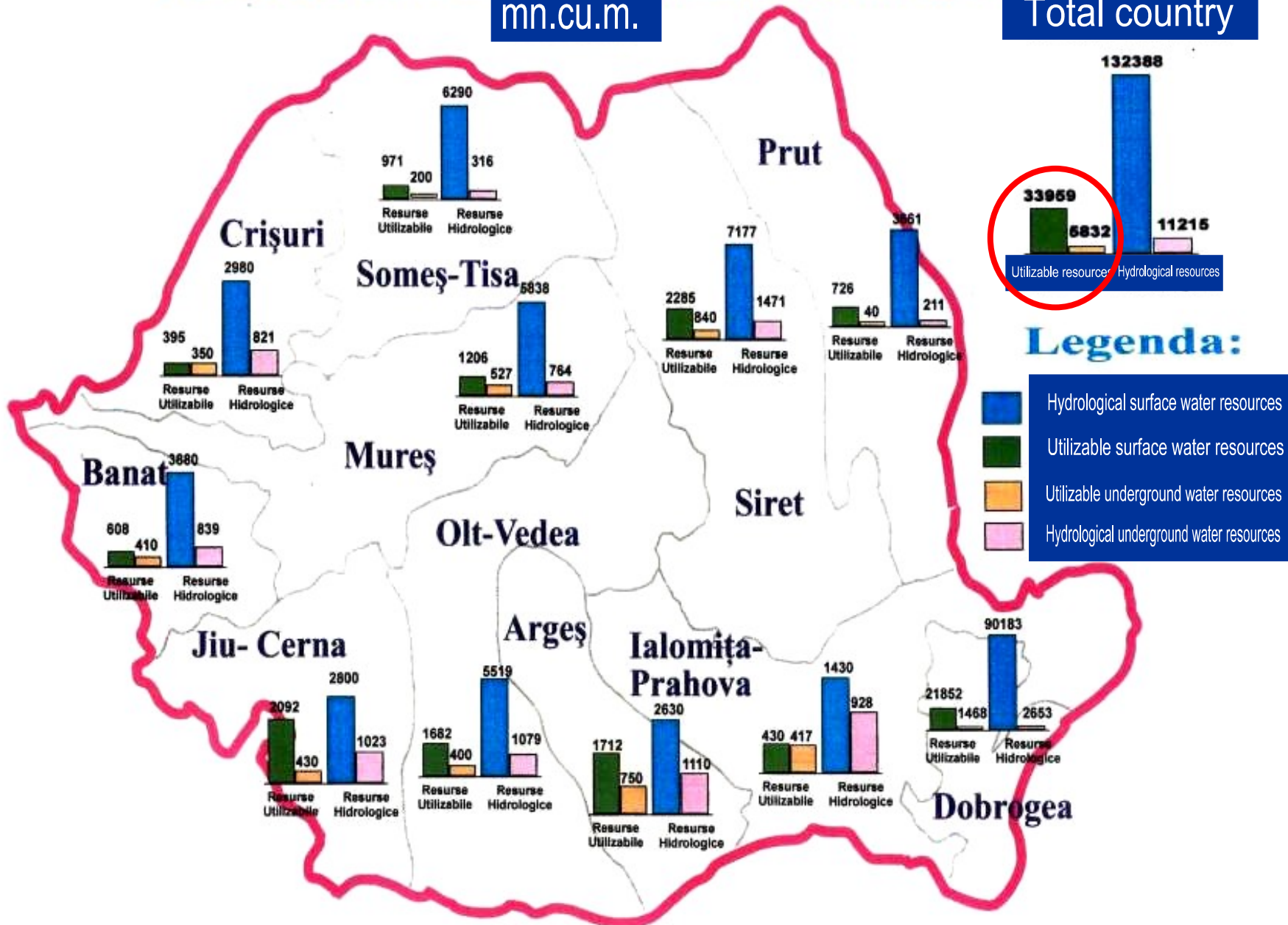
Implementation of the *new concept* “*More space for rivers*”



Romania's water resources

mn.cu.m.

Total country



Adapting of agreements with the neighbor countries (1)

Transboundary water management in Romania is based on International Conventions and Agreements in the field of sustainable protection and use of waters and has the following objectives:

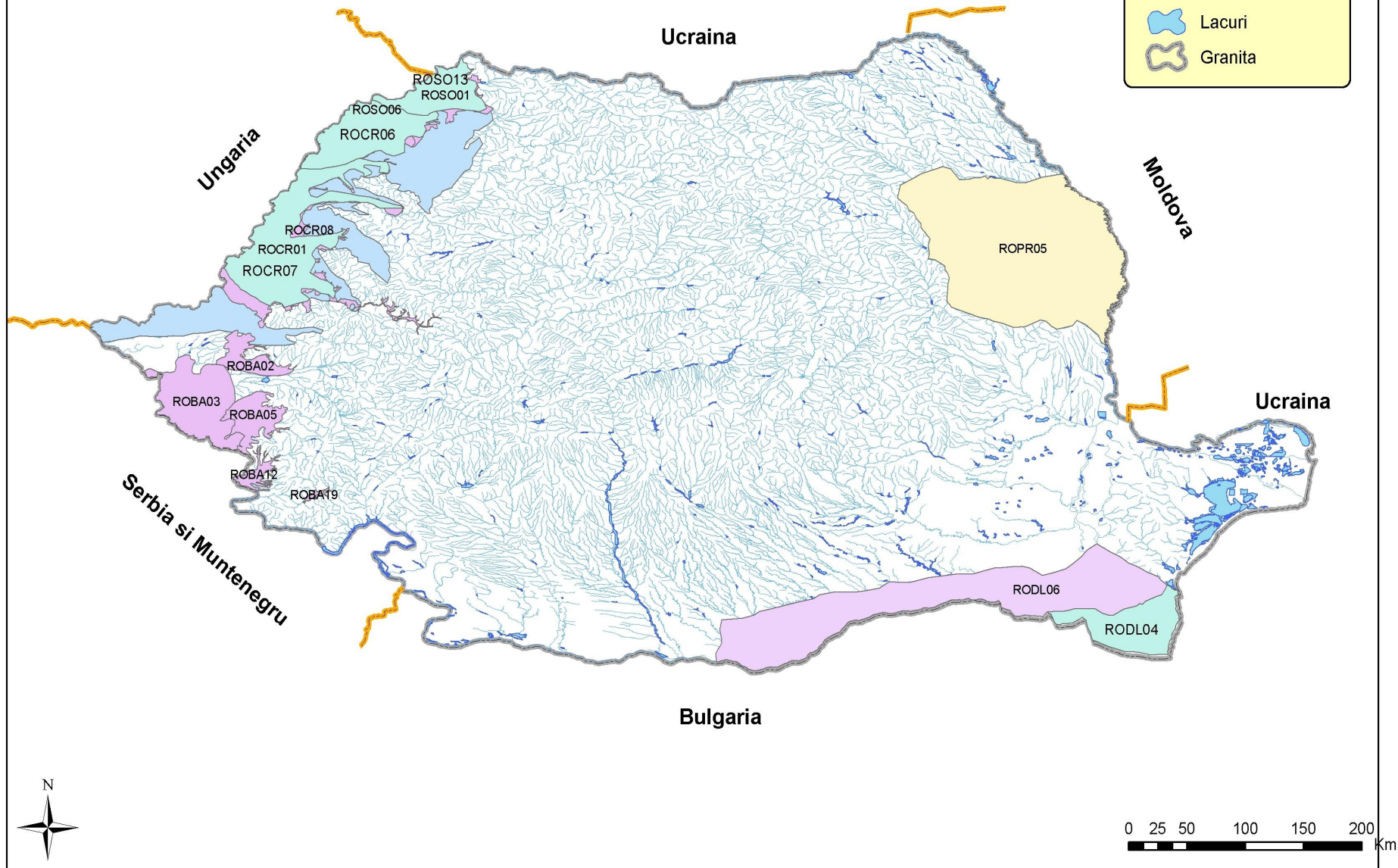
- To carry out the requirements of the **bilateral hydro-technical agreements** / conventions between Romania and its neighboring countries (Hungary, Serbia and Montenegro, Bulgaria, Moldova and Ukraine);
- The Convention on cooperation for the **protection and sustainable use of the Danube River** (Convention for the Protection of the Danube River);
- The Convention on the **protection of the Black Sea** against pollution;
- **Tisa Forum** – Flood Management in the Tisa River Basin.

Adapting of agreements with the neighbor countries (2)

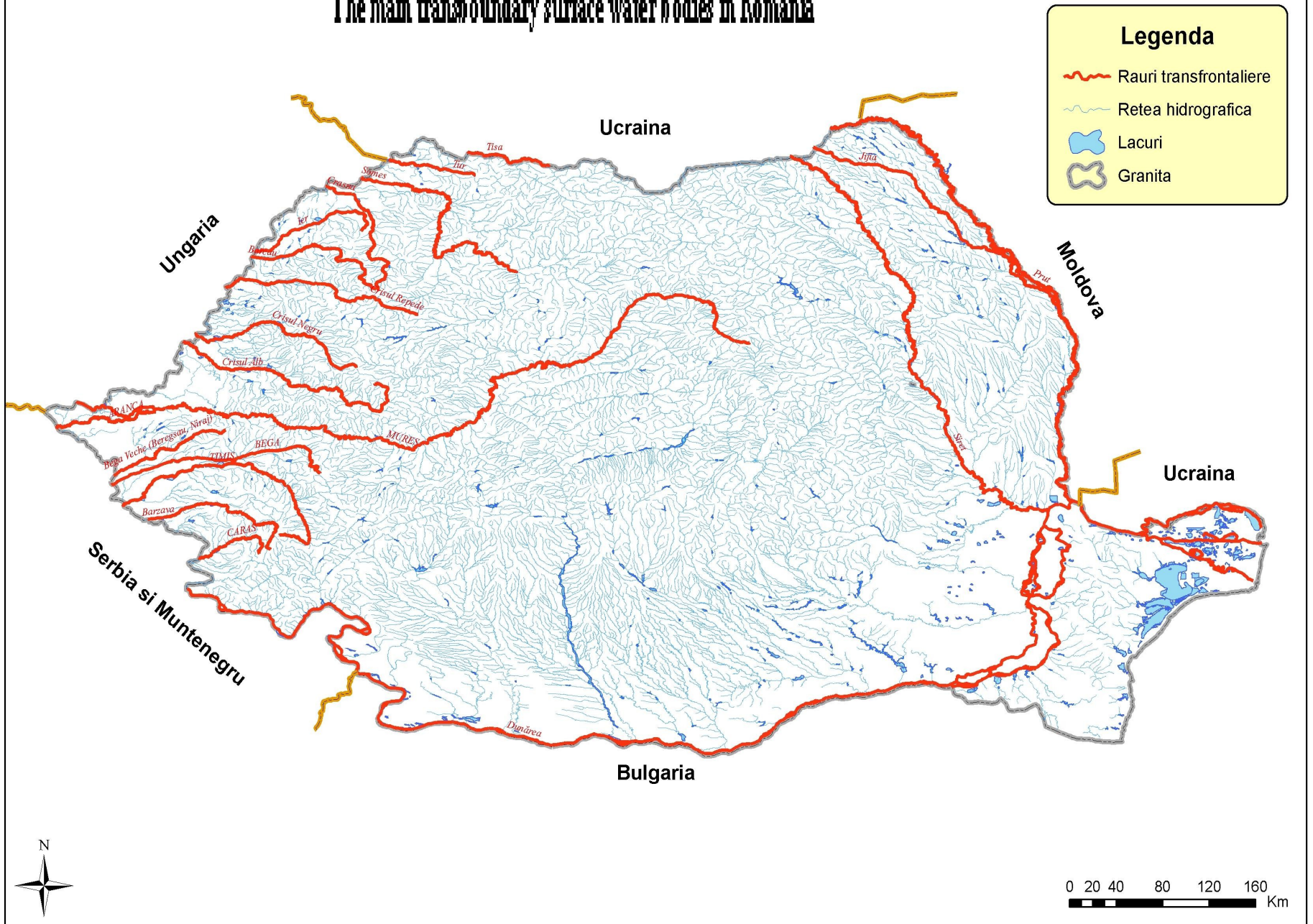
The objectives of bilateral agreements and conventions between Romania and neighboring countries concerning adapting to the climate changes are focused on:

- Elaboration of hydrological **warnings and forecasting**;
- **Monitoring** of quantitative and qualitative water parameters of the rivers which form or cross the state border of Romania;
- Elaboration of the **hydrological year book** for the gauging stations located on the rivers which form or cross the state border of Romania;
- Elaboration of the **water quality synthesis** for the monitoring stations located on the rivers which form or cross the state border of Romania;
- Determination of **water stock for the border sections** situated on the rivers which form or cross the state border of Romania;
- Analysis and characterization of **transboundary aquifers**;
- Harmonization of the activities from the **transboundary integrated River Basin Management Plan** with neighboring countries;

The main transboundary groundwater bodies in Romania



The main transboundary surface water bodies in Romania



COOPERATION IN THE TISA RIVER BASIN

Tisa Forum Flood Management Common River Basin Management Plan



“Project for the protection and rehabilitation of the southern Romanian Black Sea shore” (2006-2012)

Romanian Master plan on measures against coastal erosion – cooperation with Bulgaria



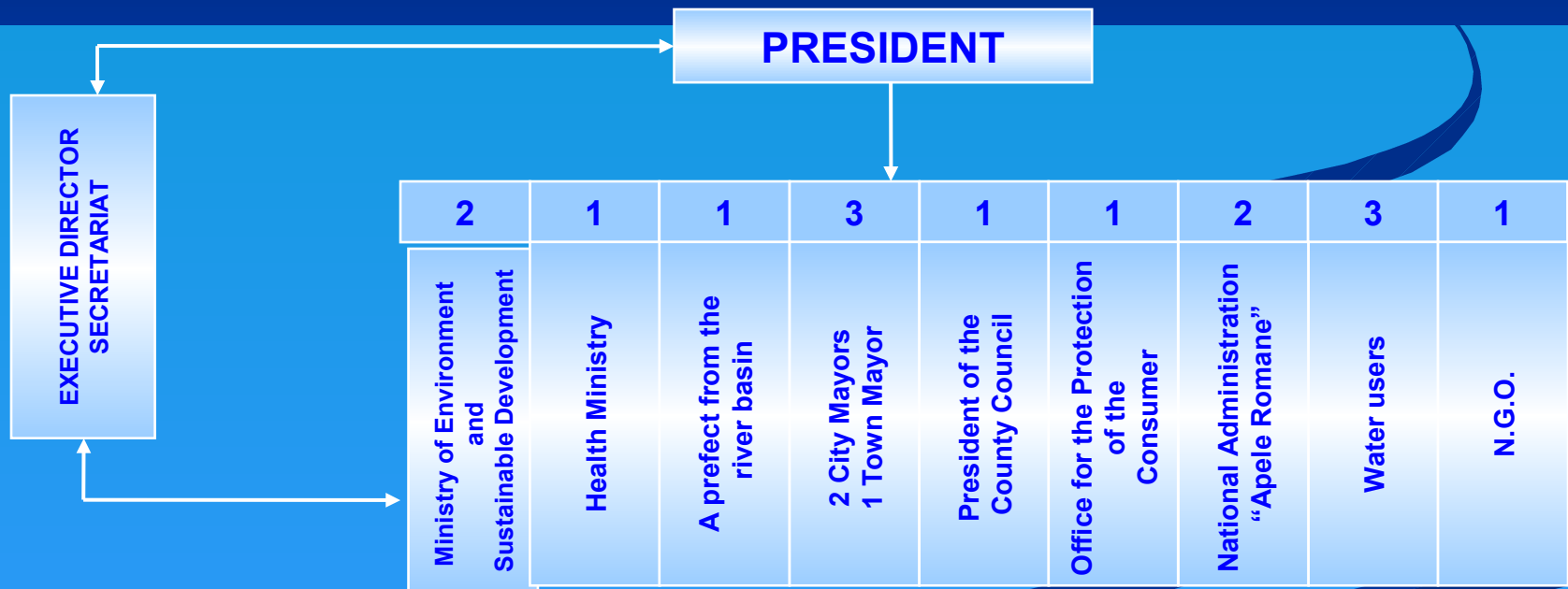
Present



After Project Implementation

BASIN COMMITTEE

In each river basin there is a basin committee which is made up of the main “actors” from the water management field : state, local communities, water management units, representatives of industry and agriculture, NGO`s.



**BASIN COMMITTEE REPRESENTS THE INTERESTES OF
ALL THE PEOPLE**

4. Conclusion

- **Develop long-term scenarios for action in all planning activities** (data sharing and harmonized tools at the international level)
- **Develop national and sub-national adaptation strategies;**
- **Design common infrastructure projects** in anticipation of climate change
- **Changing of the rivers development strategy -** Promotion of the new concept “More space for rivers” (More spaces for floods control and nature, sustainable management of water resources)
- **Increase the flexibility of water management practices**
- **Improvement of monitoring system for meteorological and hydrological data and the sharing data between neighbour countries**
- **Need twin-track mitigation-adaptation strategy approach** at national, European & international level, including an action plan take lead on cross-sectoral and trans-boundary effects policies and **measures designed to address long-term climate change impacts**



THANK YOU FOR YOUR KIND ATTENTION !

...HOPE NEVER DIES...



TIME TO THINKS AND ACTION !!!