NATIONAL ADMNISTRATION
"ROMANIAN WATERS"

Romania key input to the Second Assessment of Transboundary Rivers, Lakes and Groundwaters under the UNECE Water Convention
Prut River Basin

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Second Assessment of Transboundary Rivers, Lakes and

Romanian transboundary river basins

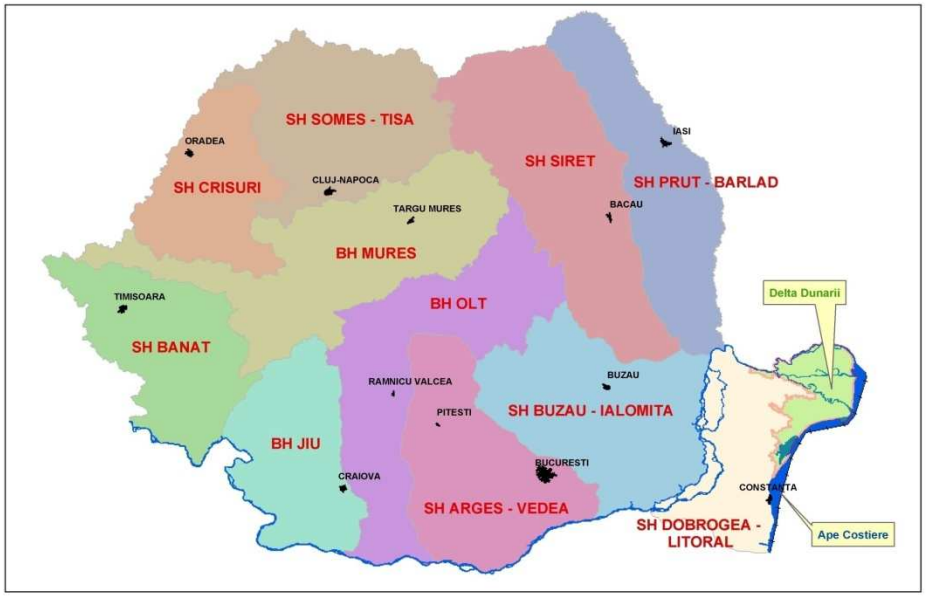
Information about transboundary river basins:

- Somes/Szamos,
- Mures/Maros,
- Crisuri,
- Banat,

Tisza River basin

- Siret,
- **Prut,**
- Dobrogea-Litoral ,
- Arges-Vedea
- Banat
- Buzau-Ialomita
- Jiu

Danube River Basin District



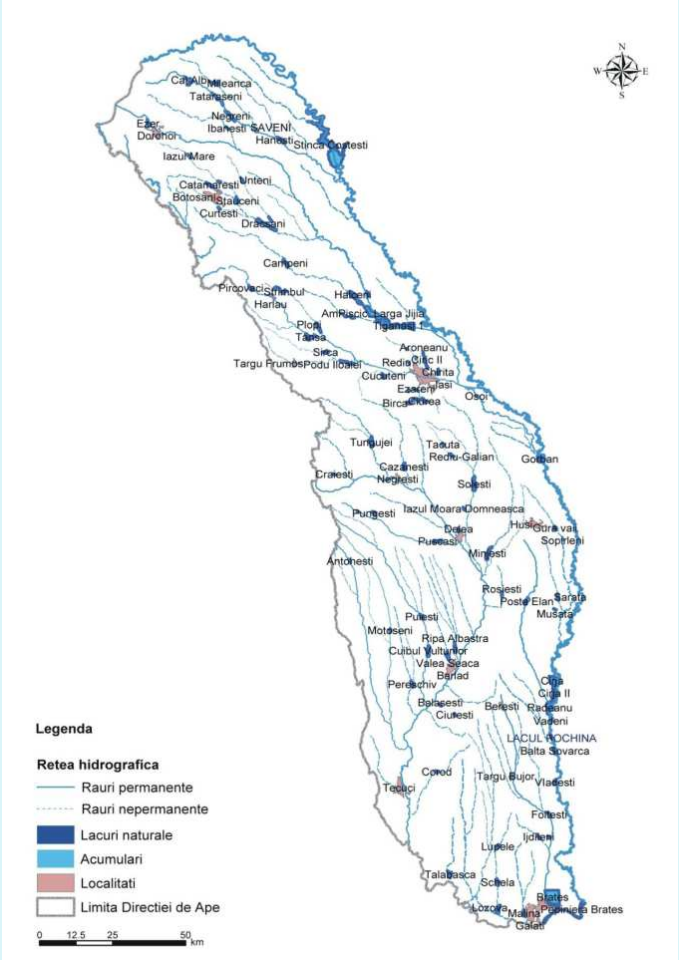
Romanian river basins

Prut river basins in the Danube river basin district

1. General description of the Prut river basin

Shared countries	The total area of the river basin in the country	Area in the country in km² (%)	Major transboundary river	Character with an average elevation	Population density in the area in the country (persons/km^2)
Romania, Ukraine and Moldova	27820	10,990 (39.5%)	Prut	upland character (Ukrainian Carpathians) and lowland (lower reaches)	55

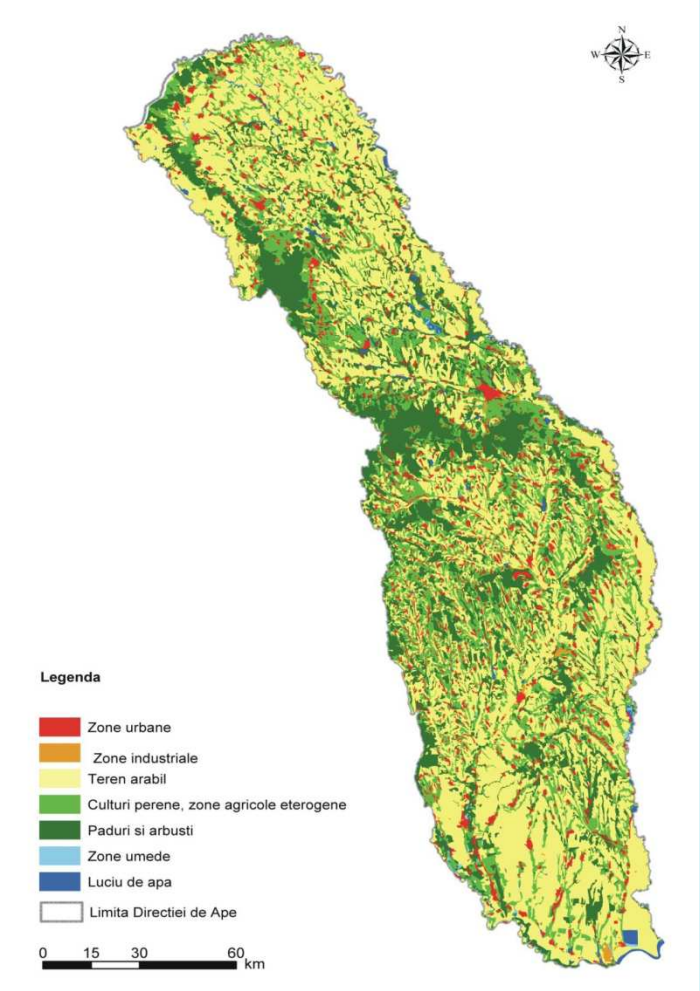
- The Prut river basin is shared by *Ukraine, Romania and Moldova* Its source is in the Ukrainian Carpathians. Later, the Prut forms the border between Romania and Moldova.
- The rivers Lapatnic, Drageste and Racovet are **transboundary tributaries** in the Prut sub-basin; they cross the Ukrainian-Moldavian border.
- The Prut River's **major national tributaries** are the rivers Cheremosh and Derelui, (Ukraine), Baseu, Jijia, Elanu and Chineja (Romania) and Ciugur, Camenca, Lapusna, Sarata and Larga (Moldova). Most are regulated by reservoirs.



Land use/land cover

Land cover/use (% of the part of the basin extending in Romania)						
Lakes / reservoirs	Forests	Cropland	Grassland	Urban / industrial areas	Protected areas	Other forms of land use
0.54	20.84	64.86	2.63	6.31	4.62	0.2

The biggest reservoir on the Prut is the **hydropower station of Stanca-Costesti** (total length – 70 km, maximal depth – 34 m, surface – 59 km^2, usable volume – 450 million m^3, total volume 1,400 million m^3), which is jointly operated by Romania and Moldova.



2. Hydrology and hydrogeology(1)

Water resources

•Surface water resources: 395,000 m^3/year (average for the years 1995 to 2007)
•Groundwater resources: 40,000 m^3/year (average for the years 1995 to 2007)
•Total water resources per capita in the basin: 0.198 m^3/year/capita

Discharge characteristics (m3/s)			Gauging station	Period of time or date
Q_{av}	Q_{max}	Q_{min}		
81-105	658-755	1.8-22.2	Radauti, Stanca, Ungheni, Prisacani, Dranceni, Falciu, Oancea	1950-2009

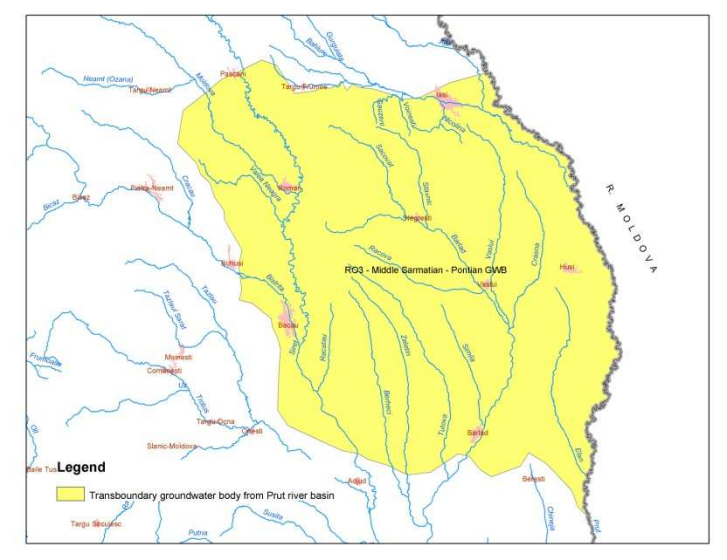
Domestic supply followed by industrial supply, are the main water uses.

Total annual water withdrawal and Mean annual water withdrawal by sector (the sum of surface water and groundwater resources)						
Year	Total withdrawal	Agriculture %	Domestic %	Industry %	Energy %	Other %
2006	1.305 x 10^3 m^3/year	29	40	30.6	-	0.4
2007	2.433.5 x 10^3 m^3/year	8.2	46.7	28.7	-	16.4

Hydrology and hydrogeology (2)

Discharge characteristics for heavily regulated rivers and rivers in arid and semi-arid regions

Discharge characteristics of the at the gauging station STANCA aval (downstream Stanca Reservoir)		
Q_{av}	84.0 m^3/s	Monthly average for: 1979 - 2009
Mean monthly values:		
October: 55.3 m^3/s	November: 51.2 m^3/s	December: 44.4 m^3/s
January: 38.4 m^3/s	February: 47.7 m^3/s	March: 88.2 m^3/s
April: 148 m^3/s	May: 133 m^3/s	June: 126 m^3/s
July: 116 m^3/s	August: 89.9 m^3/s	September: 70.3 m^3/s

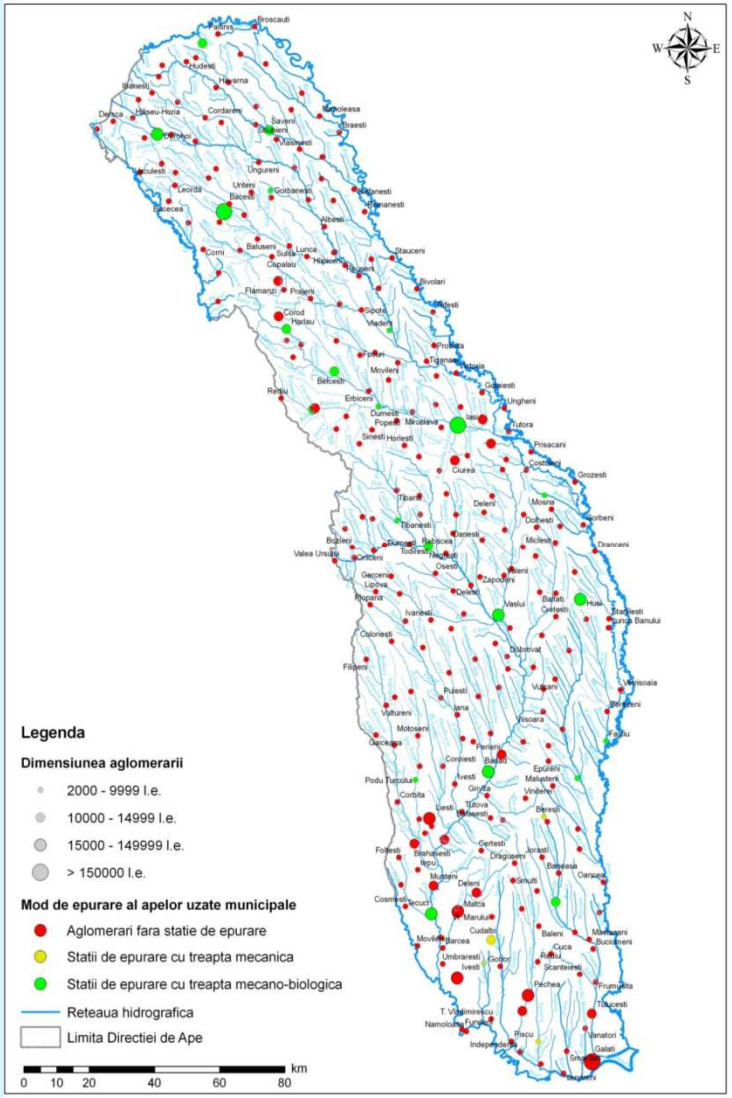


General characteristics of the aquifers								
River basin	Aquifer	Predominant lithology or lithologies	Stratigraphy and age	Thickness (m)		Areal extent (km2)	Dominant groundwater flow direction	Link with surface water systems
				mean	max			
Prut	Middle Sarmantian Pontian	Pontian sediments from the Central Moldovian Plateau,predominantly sands, sandstones and limestones	porous-permeable	20	50	22194	from Moldova (N – NW) to Romania (S - SE)	weak

3. Main problems in the basin and their relative importance (1)

- **Sewerage/untreated/insufficiently treated urban wastewater (3)**- related to untreated or insufficiently treated urban wastewater, currently, not all agglomerations have sewerage and treatment plants, which will be done according to Programs of Measures), uncontrolled waste dump-sites, especially located in rural areas

- **Natural water flow in the basin (3)** (extreme events, seasonality) The floods in the basin are periodical events. In July 2008 it was registered a historical discharge Qmax =4875 mc/s at Radauti Prut**.**



Main problems in the basin and their relative importance (2)

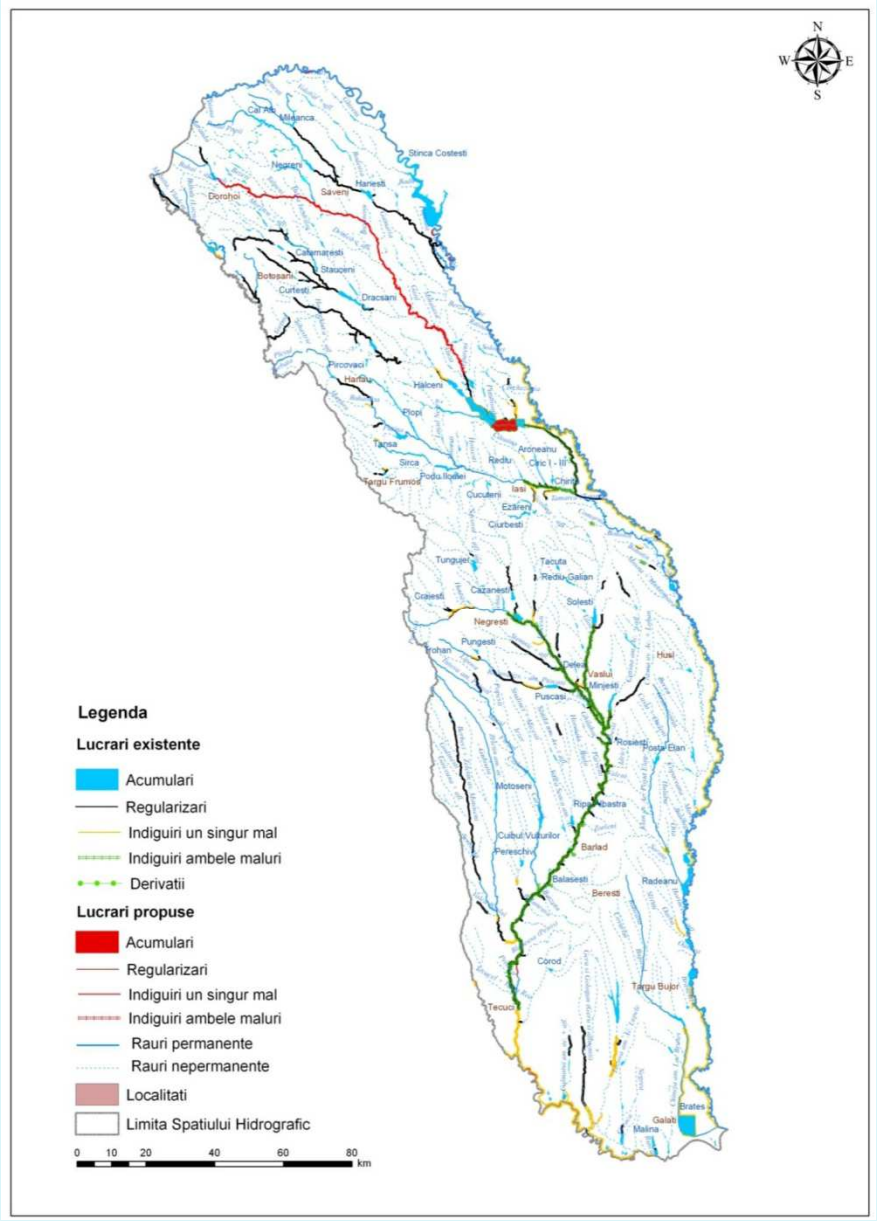
- **Hydromorphological changes (3)** - Stanca Reservoir – longitudinal discontinuity. Dikes along Prut river on a length of 353.53km – lateral discontinuity

- **Agriculture and animal production (1)** are polluting the surface water by nutrients - In the Romanian part of the Prut basin the significant sources of pollution from agriculture, are diffuse sources, which represents 64.8% of the total diffuse emission.

- **Groundwater abstraction (1)**: *157* groundwater abstractions for drinking water

- **Electricity generation (1)** - Small Hydropower – at Stanca reservoir - 15 MW

- **Eutrophication (2)** - 10 reservoirs in the Prut river basin presented a degree of eutrophication (2009 data), due to the waste water, point sources and diffuse sources in agriculture



4. Status and transboundary impacts related to water quality and water quantity

Most significant factors affecting surface water and groundwater resources (Water quantity and quality)	
Factors	**Implemented measures**
Municipal wastewater (e.g. BOD, COD, nitrogen, phosphorus)	Rehabilitation/building/extension of the sewerage system and wastewater treatment plants
Agriculture (e.g. nitrogen, phosphorus, pesticides)	Action Programs for vulnerable zones to nitrates (Best Practices in Agriculture Code)
Industrial wastewaters (BOD, COD, heavy metals, hydrocarbons)	Reduction of heavy metals from mining by: rehabilitation of the wastewater treatment plants; mine closing
Groundwater	Implementation of some measures under EU legislation; Research studies concerning pollution with nutrients (ammonium and nitrates)
Flooding	Implementation of flood directive requirements; water regulation of the reservoirs
Eutrophication	Pollution reduction - implementing measures according to RBMP / Program of Measures

5. Implemented and planned response measures and gaps (1)

- **Legal and policy framework at the national and transboundary level**
- Bilateral transboundary agreements with neighbouring countries:
- ✓ Convention between Romania and former USSR concerning the collaboration the field of transboundary water management – Moscow 1986
- National laws/regulations: WFD – transposed in Water law nr 107/1996, modified and completed with 310/2004 , 112/2006 and 3/2010; all European water directives were transposed in Romanian legislation
- National strategies – Prut-Barlad River Basin Management Plans, Prut-Barlad River Basin Planning (quantities) , Strategy for flooding and drought
- Gaps in the legal and policy frameworks**: No agreement between Romanian and Moldavian governments.** 2006 – Romania sent a new proposal taking into account provisions of the Water Framework Directive

- **Institutional framework**
- Institutional organization of the national level (competent authorities – Ministry of Environment and Forests and National Administration "Romanian Waters") and river basin level (Prut River Basin administration units, 7 counties Water Management Systems)
- Implemented measures**:**
- ✓ A joint working group of the Republic of Moldova and Romania concerning fisheries at the Prut River and Stanca-Costesti artificial lake acts on the basis of the Agreement between the Government of Romania and the Government of the Republic of Moldova with Regard to the Cooperation in the Area of Protection of Fish Resources and the Regulating of Fishing in the Prut River and Stanca-Costesti Artificial Lake (2003).
- ✓ A Joint Commission of the Hydrotechnic Knot "Stanca-Costesti" on the Prut River and a Joint Subcomission for Operation of the Hydrotechnic Knot "Stanca-Costesti" both act on the basis of the Regulation on Operation and Maintenance of the Hydrotechnic Knot "Stanca-Costesti" on the Prut River of 1985.
- ✓ Agreement of water quantity and water quality survey on Prut River between Romanian Waters – Prut basinal administration and Hydro - meteorological service from Moldavia
- ✓ Harmonisation process through elaboration of the Danube River Basin Management Plan

5. Implemented and planned response measures and gaps (2)

- **Non structural management instruments**
- Water safety plans - Elaboration of flood master plan for Prut River
- On going vulnerability mapping for land use planning
- Good Practices for Agriculture Code is applied by the localities from vulnerable zones according to Prut Basin Management Plan
- Establishment of protection zones for drinking water supply:
  - There are 10 surface water withdrawals for drinking water in Prut basin– the protected areas are established for all the sources.
  - There are 157 groundwater abstractions for drinking water in Prut basin - the measures for protected areas are established for 93% from the sources.

- **Monitoring of transboundary waters**: RO- for exchange data: water quantity and water quality survey on Prut River between water authorities from Moldavia and Romania

- **Involvement of stakeholders:**
- River Basin Committee – parliament of water with main “actors” in the water management field
- Awareness-raising and education - population is awareness in case of flooding
- Public participation and private sector involvement during 2008-2009 concening the River Basin management Plan

6. Expected future trends

Following the implementation of measures there will be:

- **A increasing of the water demand** for all users till 2020, except the irrigation purpose which will slightly decrease;
- **a decreasing pollution level** for almost all pollutants till 2015, except for nitrogen compounds
- Despite the improvement of water quality in the last decade, mostly due to decreasing of pollution source contributions (polluter of pays principle**,** implementation of European Legislation) **significant water-quality problems remain**, improvement expected till 2021, according to the WFD requirements

Thank you for kind attention!

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