“Water is not a commercial product like any other but, rather, a heritage which must be protected, defended and treated as such” (Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy)
97.8% of the Romanian surface are included in the Danube River Basin

30% of the Danube River Basin is in Romania
The water resources from Romania are composed of surface waters – inland rivers, natural and reservoirs, Danube river and ground waters.

<table>
<thead>
<tr>
<th>Resource category</th>
<th>Theoretically</th>
<th>Useful resource</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Billion cubic meters</td>
<td>Billion cubic meters</td>
</tr>
<tr>
<td>Inland rivers</td>
<td>42</td>
<td>25**</td>
</tr>
<tr>
<td>Danube river</td>
<td>87*</td>
<td>30</td>
</tr>
<tr>
<td>Ground waters</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>TOTAL</td>
<td>140</td>
<td>61</td>
</tr>
</tbody>
</table>

* represents ½ from the multi-annual medium stock drained on the Danube
**comprises approximately 5 billion cubic meters, resource naturally provided

Romania is relatively poor in water resources, disposing of only 1,870 cubic meters water/inhabitant/year, confronted by the average 4,000 cubic meters water/inhabitant/year in Europe.
Geomorphology

- Carpathians make a barrier and separate a continental oceanic climate in west by continental climate in east
Complex hydrographic network
WATER MANAGEMENT WORKS

- **Reservoirs:** 1,449 from which 400 are very important
- **Accumulated volume:** 13,070 million cubic meters
- **Diversions:** 2,050 km
- **Embankment and river bad regularization works:** 18,240 km
- **Draining works:** 3.2 million hectares
- **Soil erosion control:** 2.27 million hectares

- **3,110 drinking water intakes** with an installed flow of 171.26 cubic meters/second, from which 67.26 cubic meters/second ground sources intakes;
- **3,838 industrial water intakes** with an installed flow of 1082.3 cubic meters/second, from which 49.5 cubic meters/second intakes from ground sources;
- **363 hydro-electric power stations** in function, with 692 power groups.

The most equipped hydrographic basins in this area are: Olt, Siret, Crisuri, Arges, Danube.
SOCIAL AND ECONOMIC EFFECTS

- **Water supply** totalizing 120 cubic meters/second for drinking water supply for population, industry and agriculture is provided.
- **Protection against floods** is provided for:
  - areas: 2,13 million hectares;
  - localities: 1,927;
  - social-economic units: 3,100;
  - roads and railroads: 6,100 km.

- **A production of hydro-electric power** in the medium year of 20,749 GWh is provided.
- **Water sources for the irrigation** of 3 million hectares are provided.
THE MAIN HYDRO-ELECTRIC POWER STATIONS IN FUNCTION

The distribution of the hydro-electric power stations in hydrographical basins:

- Siret basin – 97
- Olt basin – 59
- Arges basin – 30
- Crisuri basin – 30
- Somes basin – 21

Number of power stations – 125
Set up power – 6,075 MW
Produced energy – 20,750 MWh/medium/year
WATER MANAGEMENT IN ROMANIA

- **PRINCIPLES:**
  - water is a finite and vulnerable resource
  - water management organized on the river basin level
  - integrate management for quality and quantity
  - river basin solidarity
  - polluter pays
  - user pays
THE CONCEPT
OF INTEGRATED WATER RESOURCES MANAGEMENT

Implies:

• the integration of the all water categories: surface waters, groundwaters, transitional waters and coastal waters as well as quantitative, qualitative and biological issues of water;

• the integration of water uses at river basin level – the solving of equation resource - water demand and the water resources protection require the analysis of uses at river basin level;

• the integration of flood defense issues with issues regarding the conservation and development of aquatic biodiversity;

• the integration of water resources in planning policies – water is one of the basic elements of life and at the same time a factor which determines the social-economical development, being often a limiting factor.
Organizational structure

- Ministry of Environment and Water Management-Water Management Department
- National Administration “Romanian Waters”
- National Administration of Meteorology
- National Institute for Marine Research and Development
Ministry of Environment and Sustainable Development

National Marine Research and Development Institute
"Grigore Antipa", Constanta

National Administration
“Apele Romane”

National Administration of Meteorology

National Institute for Hydrology & WM

Water Management Systems
(41 counties and Bucharest)
Ministry of Environment and Sustainable Development Responsibilities

- Development of the water management policy and strategy
- Coordination of the EU integration in the water field
- Development of the water specific regulation
- Ensuring international cooperation in the water field
National Administration “Romanian Waters”-Responsibilities

- Implementation of the water management policy and strategy
- Water quality and quantity monitoring
- Water use regulation
- Implementation of the water related legislation (approximated with the EU Directives)
ROMANIAN WATERS NATIONAL ADMINISTRATION

ACTIVITIES
- River Basin Management
- Water resources management
- Administration of National System Hydraulic Structures
- Water Protection against pollution and over-use
- Flood control management
- Coordination of national investments in water resources field
- Turning to account the water resources
- Application of international water agreements

Basic management unit: river basin
- 11 river basins
- 11 WATER DIRECTORATES
Fig. 1 Evoluția cerințelor de apă în România
Evolution of Water Demands in Romania

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
<th>Agriculture</th>
<th>Industry</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>1,47</td>
<td>3,4</td>
<td>4,72</td>
<td>9,59</td>
</tr>
<tr>
<td>1975</td>
<td>2</td>
<td>5,75</td>
<td>6,65</td>
<td>14,4</td>
</tr>
<tr>
<td>1980</td>
<td>2,2</td>
<td>6,79</td>
<td>9,81</td>
<td>18,8</td>
</tr>
<tr>
<td>1985</td>
<td>2,67</td>
<td>8,49</td>
<td>9,34</td>
<td>20,5</td>
</tr>
<tr>
<td>1990</td>
<td>2,25</td>
<td>9,1</td>
<td>9,06</td>
<td>20,4</td>
</tr>
<tr>
<td>1995</td>
<td>2,25</td>
<td>8,95</td>
<td>8,74</td>
<td>19,9</td>
</tr>
<tr>
<td>1997</td>
<td>2</td>
<td>5,98</td>
<td>8,02</td>
<td>16</td>
</tr>
<tr>
<td>1998</td>
<td>2,05</td>
<td>2,98</td>
<td>7,43</td>
<td>12,46</td>
</tr>
<tr>
<td>1999</td>
<td>2,08</td>
<td>3,33</td>
<td>7,35</td>
<td>12,67</td>
</tr>
<tr>
<td>2000</td>
<td>2,11</td>
<td>3,36</td>
<td>7,18</td>
<td>12,65</td>
</tr>
<tr>
<td>2001</td>
<td>2,07</td>
<td>3,03</td>
<td>6,64</td>
<td>11,74</td>
</tr>
<tr>
<td>2002</td>
<td>2</td>
<td>1,74</td>
<td>6,04</td>
<td>9,78</td>
</tr>
<tr>
<td>2003</td>
<td>1,86</td>
<td>1,75</td>
<td>6,17</td>
<td>9,78</td>
</tr>
<tr>
<td>2004</td>
<td>1,69</td>
<td>1,86</td>
<td>5,64</td>
<td>9,78</td>
</tr>
<tr>
<td>2005</td>
<td>1,42</td>
<td>1,98</td>
<td>4,62</td>
<td>8,02</td>
</tr>
<tr>
<td></td>
<td>1,35</td>
<td>2,05</td>
<td>4,4</td>
<td>7,8</td>
</tr>
</tbody>
</table>
WATER CONSUMPTION TREND

Total consumption - billion cm


cm / capita / month

PERCENTS (%) from the rivers length

The evolution of the river water quality between 1989 and 2003 is shown in the graph. The water quality categories are:

- CAT. D - Degraded
- CAT. III - Satisfactory
- CAT. II - Good
- CAT. I - Very good

The percentages (%) from the rivers length for each year from 1989 to 2003 are displayed in the graph.
Water management – issues to be solved (1)

- Increased water sources in critical in punctual critical areas: (e.g. Busteni, Sinaia, Comarnic, Breaza, Baicoi, Ploiesti, Platforma Cotmeana)

- Improvement of the water supply, sewerage and water treatments systems infrastructure

- Extension of the district water supply and sewerage systems in rural localities

- Improvement of the water quality by reduction of the pollution caused by hazardous substances discharged into the aquatic environment
Water management – issues to be solved (2)

- Flood effects mitigation
- Drought effects mitigation
- Control of torrents, soil erosion and land degradation
- Use of water power potential level
- Protection of the Black Sea coast against erosion and beach rehabilitation
Romania transposed the environmental acquis.

All new investment should comply with the environmental *acquis*.
Distribution of implementation costs

The most expensive Directives to implement in the Water Sector:
- Drinking Water Directive 98/83/EC
LONG TERM OBJECTIVES

Population access to the water supply

Sewerage and WW treatment
The Urban Wastewater Treatment Directive implementation requires investments of 9.5 billions Euro (5.7 billions Euro for the water treatment plants and 3.8 billions Euro for water sewerage systems) necessary for:

- Construction of new urban waste water treatment plants;
- Up-grading of the existing urban waste water treatment plants;
- Up-grading of the existing waste water treatment plants in the agro-food industry;
- Rehabilitation of the existing urban sewerage collecting systems;
- Construction and/or extension of urban sewerage collecting systems.
DRINKING WATER - 2005

- Only 65% of the population benefit of drinking water supply from public network
- Total length of the drinking water supply network – **47,778 km** (ensuring the endowment of 71% of the total length of streets in the urban area)
- Continuous extension of the network – 2005 level is **24% above** the 2000 level
- Volume of drinking water supplied – **1,089** million cu.m. (46% lower than 1995), out of which **628** million cu.m. for domestic usage

- Romania aims to increase the water treatment and connectivity of citizens to centralized water systems by **70%** until **2015**
  - **Important investments needed**
Investments in the water sector needed to comply with the relevant aquis communautaire are higher than those that can be implemented within the Sectoral Operational Program Environment framework in the period 2007 – 2013.

Source of funding (million euro) according to SOP Env:

<table>
<thead>
<tr>
<th></th>
<th>EC financing</th>
<th>National financing</th>
<th>Total</th>
<th>Co-financing rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improvement of the water supply and sewerage systems</td>
<td>2,776.5</td>
<td>489.9</td>
<td>3,266.5</td>
<td>85%</td>
</tr>
</tbody>
</table>
Water Framework Directive

- Is the most important piece of legislation in water management at the European level
- Main requirements:
  - manage water at the river basin level
  - involvement of all stakeholders
  - develop a River Basin Management Plan
  - reach good water status for all waters till 22 December 2015
THE IMPLEMENTATION OF THE WATER FRAMEWORK DIRECTIVE IN ROMANIA

- The implementation of WFD in Romania:
  - a continuous and greatly important activity;
  - a step-by-step achievement;
  - involving significant human and financial resources;
  - requiring co-ordination of the all involved parts at international, national and river basin level

- Romania has committed to elaborate in line with the provisions of the WFD, the *River Basin Management Plan* according to the EC and ICPDR requirements and deadlines.
RIVER BASIN MANAGEMENT PLAN

Content:
- Characteristics of River Basin District
- Analysis of pressures and impacts
- Economic analysis of water uses
- Monitoring networks and programmes
- Established environmental objectives
- Programme of measures
- Results of public participation
THE STRATEGY OF THE IMPLEMENTATION OF THE WFD IN THE DANUBE RIVER DISTRICT

<table>
<thead>
<tr>
<th>Part A</th>
<th>The level 1: The international “roof” of the Danube River Basin Management Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Part B:</td>
<td>Level 2 - National plan</td>
</tr>
<tr>
<td>GERMANY</td>
<td>AUSTRIA</td>
</tr>
</tbody>
</table>

- **EU Member States**
- **States in the joining process to EU**
- **Non-accession countries**
Organizational structure for the implementation of the Water Framework Directive in Romania
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 PEOPLE
BASIN COMMITTEE

- Has a consultative role
- Meet regularly 3-4 times per year
- Discuss the most important issues related to the water management in the River Basin
- Agrees on the priority investments
BASIN COMMITTEE

- Is used as the main platform for stakeholder consultation for WFD
- Is very important administrative framework for awareness increase at different levels
- Ensure local involvement at the basin level
- Will be improved in the future by increasing its power and importance
Thank you for your kind attention!