

Policy framework and options to assess resource costs: lessons learned from Romanian projects

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WFD provisions (1)

- Water is not a commercial product like any other but, rather, a heritage which must be protected, defended and treated as such.
- Waters in the Community are under increasing pressure from the continuous growth in demand for sufficient quantities of good quality water for all purposes
- The supply of water is a service of general interest as defined in the Commission communication on services of general interest in Europe
- The principle of recovery of the costs of water services, including **environmental and resource costs** associated with damage or negative impact on the aquatic environment should be taken into account

WFD provisions (2)

An economic analysis of water services based on long-term forecasts of supply and demand for water in the river basin district

- make the relevant calculations necessary for taking into account under Article 9 the principle of recovery of the costs of water services, taking account of long term forecasts of supply and demand for water in the river basin district and, where necessary:
 - estimates of the volume, prices and costs associated with water services, and
 - estimates of relevant investment including forecasts of such investments;
- (make judgements about the most cost-effective combination of measures in respect of water uses to be included in the programme of measures under Article 11 based on estimates of the potential costs of such measures.

Cost of water services

According to the Directive, in order to assess the cost of water services, it must take into account 3 types of cost:

- **Financial cost**, which includes the cost of operation, capital, maintenance and management for all procedures and infrastructure of water services.
- **Resource cost**, which consists of the cost of water body restoration in cases where the natural recharge rate is surpassed (i.e. over-abstraction of groundwater)
- **Environmental cost**, which represents environmental damage in economic cost. Environmental damage is the deterioration of a water body's status from a good qualitative and quantitative status.

Resource costs

- Resource costs represent the costs of foregone opportunities that other users suffer due to the depletion of the resource beyond its natural rate of recharge or recovery (e.g. costs related to groundwater over-abstraction). These users can be either those of today, or those of tomorrow, who will also suffer if water resources are depleted in the future.
- Other option is to consider resource costs as a result of a misallocation of water resources, rather than their overexploitation
- They equal the difference between the economic value in terms of net benefits of present or future water use (e.g. allocation of emission or water abstraction permits) and the economic value in terms of net benefits of the best alternative water use (now or in the future)

Calculation of the resource costs (1)

- Resource costs can be calculated if the value of current water uses is compared to the value of alternative, next-best water uses. These water uses can also be “environmental uses”, if a high value is attached to maintaining an aquatic ecosystem in an undisturbed state. In this sense, resource costs can arise if a water body is put to an economic use (through water abstraction, or as a transport route), while the general public would place a much higher value on conserving the water body.
- Resource costs arise where water resources are not put to their optimal use, so that alternative water uses could generate a higher economic value

Calculation of the resource costs (2)

- The calculation of resource costs are based upon the estimation of environmental costs if the latter are relevant and significant, but there may also be resource costs in the absence of environmental damage costs.
- Committing resources to one project may deny the possibility of investing in some other project. This brings up the question of opportunity costs, or what must be foregone in order to undertake some alternative

Methods to assess resource cost

- **The cost-based approach** relies on the calculation of the costs of measures required for protecting the environment, environmental protection costs being used under certain circumstances as a proxy for the environmental damage costs. The cost based approach approximates ERCs with the costs of the measures required to fill the water status gap and to reach GES for all water bodies (the target situation).
- **The benefit-based approach** is based on the estimation of the loss of welfare due to environmental damage or the increase in welfare if environmental damage is avoided through Willingness to Pay (WTP) or Willingness to Accept Compensation (WTAC) methods. The economic value of the environmental damage (avoided with the help of existing pollution abatement and mitigation measures) can be estimated with the help of direct and indirect economic valuation methods

Cost-based approach

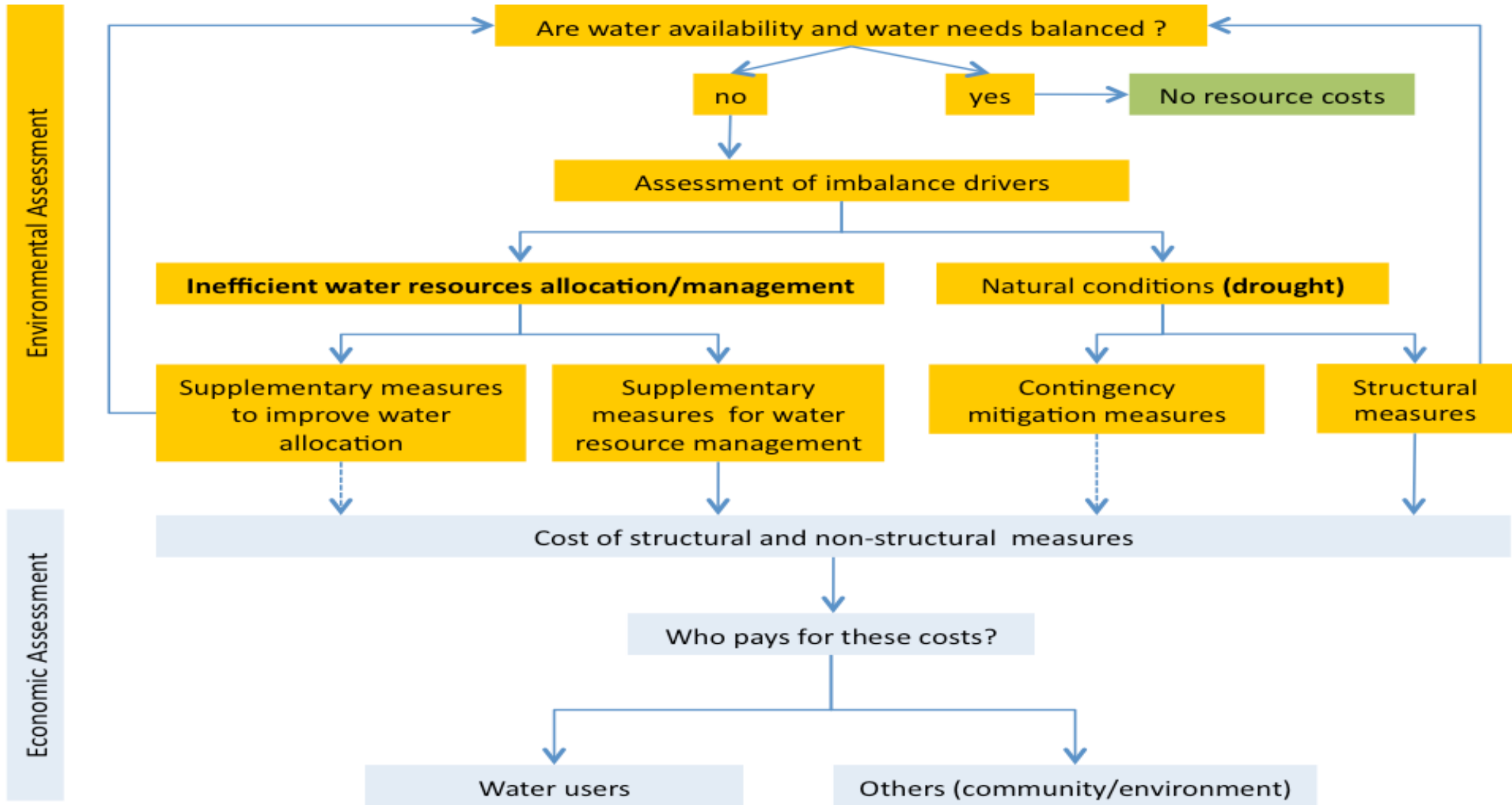
- Cost-based approaches are generally less intensive in terms of data and resource requirements
- Cost data are usually more readily available than benefit data
- A readily transparent and defensible method when based on market data.
- There are uncertainties on how close the results of the cost-based approach is from real Environmental and Resource Cost (ERC) values.
- If the measures selected are not the most cost-effective measures for achieving GES, then the cost-based approach can lead to overestimation of ERC.
- The cost-based approach does not provide information on users' preferences

Benefit-based approach

- Benefit-based approaches attempt to derive an estimate of the actual benefits created by the achievement of GES.
- The benefit-based methods are the only valuation method able to account for non-use values. From a theoretical perspective, it is assumed that they are closer to providing the values of ERC.
- The benefit-based approaches provide information on how the general public perceives the current status of water resources, how well it is informed about water issues, and how relevant water quality improvements are perceived.
- The Benefit-based approach is relatively resource and time intensive if based on primary data collection (surveys).
- Benefit-based approaches are very sensitive to population density and income, and may lead to misleading results in low populated and low income areas/country.
- Many people, including policy-makers, economists, and stakeholder representatives, do question the methods and the validity of the results obtained.

Steps for resource cost calculation

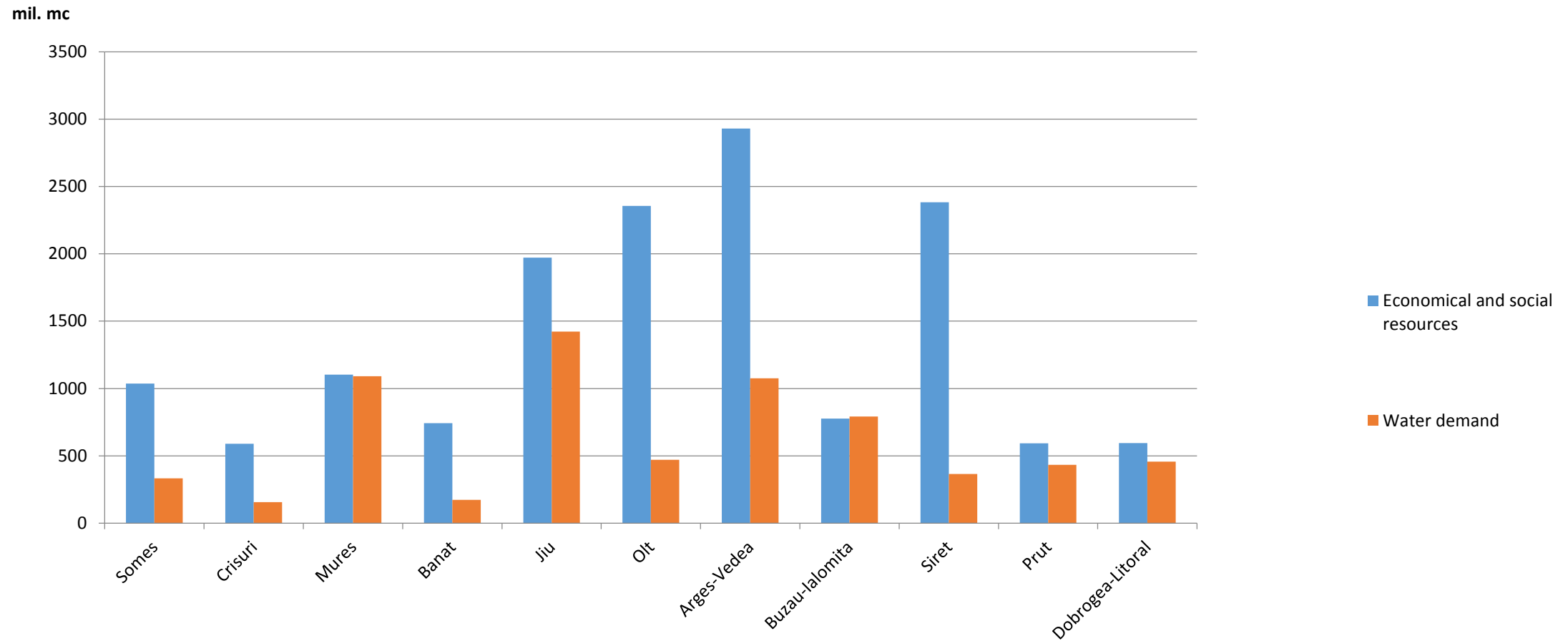
- Assess the existing administrative water concession procedures including information on water licences and actual consumption rates;
- Verify the cost-benefit ratio for each water use and between different allocation schemes using a benchmark analysis (e.g. optimal per capita households water budget, crop surface to water volume ratio, etc.);
- Identify the causes of water imbalances;
- Identify limits to the abstraction (water licences) to support a hydrologic regime coherent with GES achievement (ecological flow, quantitative status of groundwater)
- Assess the costs of reducing water abstraction from its current level to a sustainable level in line with the achievement of GES.
- A water volume and/or a multiplier factor could be identified to calculate resource cost values in relation to different situation of inefficiency



Resource costs calculation in Romania

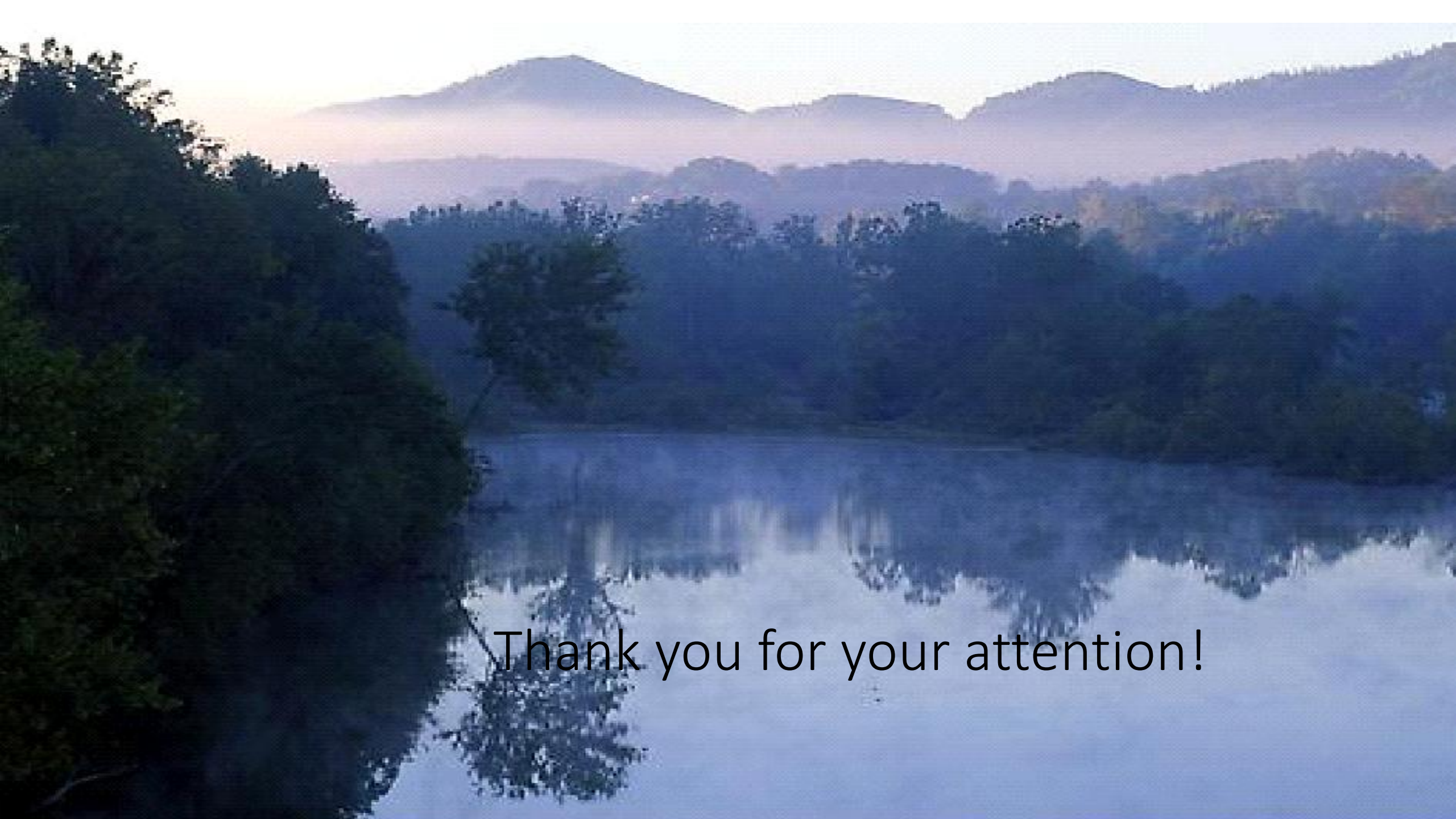
- Identify whether exist a significant water scarcity issue in your river basin district/water body
- Identify the causes of water imbalances;
- Quantify of such shortages in m^3
- Perform monetary valuation of such shortages

Comparative situation - economical and social resource - water demand - 2020



Conclusion on resource cost in Romania

- Based on the analysis of the National Institute of Hydrology and Water Management no deficit in water supply will occur till 2020
- Based on this conclusion it was stated that the resource costs in Romania is zero
- Future studies should be performed in the future in order to better evaluate the resource costs particularly to check by benefit-based approach



Thank you for your attention!