

**Measures for climate change adaptation related to WFD
lessons learned from Romanian projects**



**TAIEX/ECRAN Regional Workshop on WFD: Program of Measures Basic and
Supplementary measures and their anticipated effects
Podgorica, Montenegro 15 – 17 February 2016**

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**The United States is leading global efforts to address
the threat of climate change. On December 12, 2015,
President Obama and world leaders secured a global
agreement to combat climate change**



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- ❑ WFD vs Climate change
- ❑ Climate change in the frame of River Basin Management Plan
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❑ WFD vs Climate change

Preamble 31: In cases where a body of water is so affected by human activity **or natural condition** is such that it may be unfeasible or unreasonably expensive to achieve good status, **less stringent** environmental objectives may be set on the basis of appropriate, evident and transparent criteria, and all practicable steps should be taken to prevent any further deterioration of the status of waters.....Art 4.5 Exemptions

Member States may in so doing have regard to the social, environmental and economic effects of the recovery as well as the geographic and **climatic conditions** of the region or regions affected. (Art.9)



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❑ WFD vs Climate change

According to its mandate, the Common Implementation Strategy (CIS) activity on "Climate Change and the EU Water Policy" aims to, among other things, "identify what can and should be done in the different upcoming River Basin Management planning cycles" in relation to **climate change impacts and adaptation. CIS Guidance nr 24**

Two elements was proposed:

- A checklist that includes a list of points of decision in the overall planning process where implementers could consider climate change.
- A structure for reporting the issue of climate change in the River Basin Management Plans.



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❑ WFD vs Climate change

The main aim of the checklist is to compile all stages in WFD implementation where climate change impacts may play a role.

For each implementation stage (setting objectives, status assessment, identifying measures), an attempt is made to point the questions that could be asked in order to make sure that relevant interactions between climate change and river basin planning are taken into account.



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□ WFD vs Climate change

Examples:

Q: How to do a climate check of the Programme of Measures?

A: Take account of likely or possible future changes in climate when planning measures today, **especially when these measures have a long lifetime and are cost-intensive**, and assess whether these measures are still effective under the likely or possible future climate changes.



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□ WFD vs Climate change

Examples:

Q: Economic analysis of water use

A: Consider climate change when taking account of long term forecasts of supply and demand and favour options that are robust to the uncertainty in climate projections.



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□ Climate change in the frame of River Basin Management Plan

- Climate change studies focusing on specific basins in Romania have been completed for only **four river basins** - Buzau, Ialomita, Arges, and Mures.
- A study on Crisul Alb and Barlad basins is currently underway at the National Institute of Hydrology and Water Management.
- The results for Buzau and Ialomita basins (from the CECILIA project, funded by the EU) indicate a likely reduction of mean annual flow in these basins, of 15-20 % for the period 2021-2050, and of 30- 40 % for the period 2070-2100 .



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□ Climate change in the frame of River Basin Management Plan

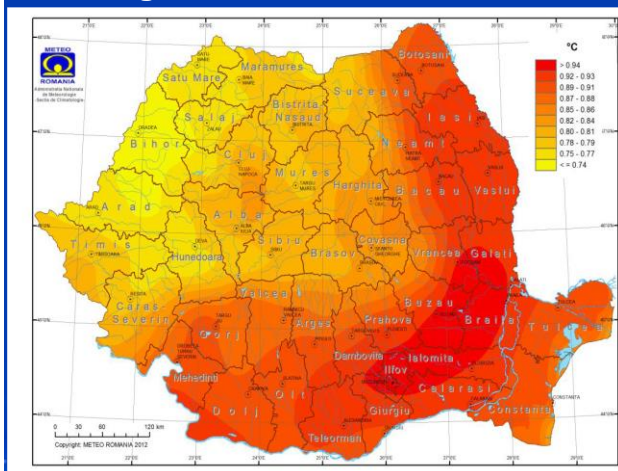
Also

An analysis of changes in demands shows that the demand-supply gap will be manageable for the next 15-20 years, but significant measures will be needed to address vulnerability in the time period after that.



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□ Climate change in the frame of River Basin Management Plan



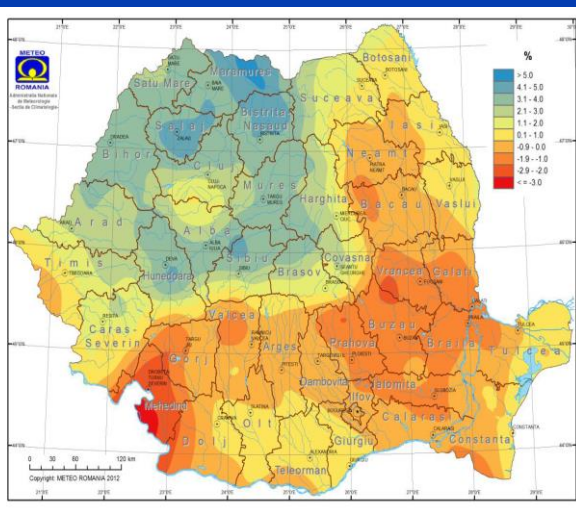
ADER Project Estimation:

- Between 0,5⁰-1,5⁰ C for 2020-2029
- Between 2⁰-5⁰ C for 2029-2099



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□ Climate change in the frame of River Basin Management Plan



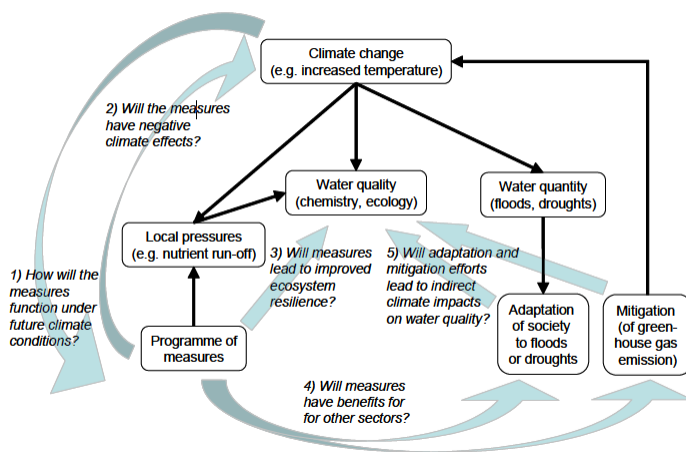
Difference between medium multi annual precipitation (în %) în 2020-2030 and the normal standard (1961-1990)



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□ Climate change in the frame of River Basin Management Plan

Relationship between river basin management , climate change and adaptation



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□ Climate change in the frame of River Basin Management Plan

Climate Change and Low Carbon Green Growth Program - Integrated Water Resources Rapid Assessment –World Bank Project defines:

- Relevant policies and programs
- Climate change adaptation actions in Water related sector
- Recommended priority actions



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□ Relevant policies and programs

- **National Climate Change Strategy** for Romania The recently approved National Climate Change Strategy for Romania (2013-2020) provides guidelines and framework for developing sector-level action plans for mitigation and adaption to climate change in Romania.
- **National Sustainable Development Strategy** The National Sustainable Development Strategy for Romania identifies the specific needs and outlines the proposed plans in all key water-related sectors.



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□ Relevant policies and programs

National Sustainable Development Strategy.
include:

- a. Conducting more detailed analyses on the effect of climate change on water resources, given its multi-sectoral nature and high degree of vulnerability to climate change.
- b. Construction of planned hydropower stations to increase the fraction of carbon free energy generation, and also to replace the thermal capacity about to be decommissioned.
- c. Gradual development of inland waterways on the Romanian sector of the Danube, through upgrading and expansion of port infrastructure.



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□ Relevant policies and programs

Operational Programs under ESIF Programming (2014-2020) It is planned to invest approx. €43 billion, allocated from European Structural and Investment Funds (ESIF) plus national co-financing, under eleven thematic objectives in Romania



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□ Climate change adaptation actions in Water related sector

Strengthening the Knowledge Base:

There is an urgent need to **improving the existing climate scenarios and conduct a quantitative assessment of impacts on water-related sectors.**

Only four basins of Romania - Buzau, Ialomita, Arges, and Mures - have the quantitative analyses available for estimating future water availability and demands under climate change scenarios.

This exercise needs to be conducted for the remaining seven basins of Romania, with priority on the drought-prone basins of Jiu, Siret, Prut-Barlad, and Dobrogea-Littoral



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□ Climate change adaptation actions in Water related sector

Strengthening the Knowledge Base:

- The results of the climate change studies need to be incorporated in the sector planning activities of all water-related sectors separately, and also in an integrated manner in the development of River Basin Master Plans, which are currently being prepared for 2015.
- These should therefore constitute a necessary input for national flood hazard/risk mapping, design of flood control infrastructure, operations rules for storage reservoirs, and for the planning processes in irrigation, domestic water supply/sanitation, hydropower, industrial development, disaster management and environmental sectors.
- Through the process of preparation of the River Basin management Plans, the water resources and demands should be re-evaluating at the level of hydrographical basins and sub-basins under climate changes conditions.

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□ Climate change adaptation actions in Water related sector

Irrigation:

- a. In view of the plans to expand irrigation in Romania, it is important to assess the specific levels and types of irrigated agriculture that can be sustained in each of the river basins. *This exercise would entail quantitative assessments of water availability and crop water needs* under different climate scenarios,
- b. It is recommended that Romania start piloting on a systematic basis the different models of efficient irrigation systems coupled with climate-smart agriculture practices.
- c. *In the areas where groundwater over-abstraction is leading to serious depletion of aquifers, the use of groundwater should be reserved for domestic water supplies.*

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□ Climate change adaptation actions in Water related sector

Water Supply and Sanitation:

Quantitative assessments of water demands and supply reliability should be conducted for all the main utilities of Romania, taking into account the expected impacts of various climate change scenarios.

This should cover all demand sectors, including industries and **environment**. This analysis should form the basis for providing inputs to the River Basin Management Plans, and review/update of operations rules.



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□ Climate change adaptation actions in Water related sector

Environment and Natural Resources Management:

a. Quantitative assessments for water needs of various ecosystems should be conducted and the results should be used as input for the preparation of the River Basin Management Plans in each basin, in order to ensure water allocation for environmental uses.

b. Afforestation and other catchment improvement activities should be encouraged in flood- and erosion-prone uplands



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❑ Recommended priority actions

There is a need for developing quantitative estimates of climate change impacts on water-related sectors, especially since water is the one of the primary modalities through which the climate change effects are manifested.

This analysis needs to be conducted on priority for the water-scarce basins.

Update flood hazard and risk analysis by using a higher resolution GIS-based approach; upgraded nationally to 1% (1 in 100 years flood) level for inhabited area; and take into account expected climate change impacts.



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