

# **COMMON IMPLEMENTATION STRATEGY FOR THE WATER FRAMEWORK DIRECTIVE**



## **Policy Paper**

### **CLIMATE CHANGE AND WATER**

**June 2008**

**Status Box:**

The Water Directors endorsed the key messages in this paper during their meeting on 16-17 June 2008 in Brdo, Slovenia. Further work on climate change and water will take place in the framework of the Common Implementation Strategy in 2008 and 2009.



**Disclaimer:**

This document has been developed through a collaborative programme involving the European Commission, all the Member States, the Accession Countries, Norway and other stakeholders and Non-Governmental Organisations. The document should be regarded as presenting an informal consensus position agreed by all partners. However, the document does not necessarily represent the official, formal position of any of the partners. Hence, the views expressed in the document do not necessarily represent the views of the European Commission.

## Introduction

The Common Implementation Strategy activity on Climate Change and Water, started in 2007, focuses on making the best use of existing EU water legislation, identifying adaptation measures at different scales and providing input to the science community. To this end, a Strategic Steering Group (SSG) on Climate Change and Water was established within the Common Implementation Strategy of the Water Framework Directive. The SSG is co-led by Germany and the European Commission.

As a first activity of the SSG, a workshop to address the relationship between River Basin Management Planning under the WFD and climate change impacts was held in November 2007 in Bonn. In line with the conclusions of the workshop, the Water Directors emphasised at their meeting end of November 2007 that already the first river basin management plan should have a climate check<sup>1</sup>. They further emphasised that a distinction needs to be made between the WFD first planning cycle and the further cycles with regard to adapting to climate change.

At their meeting in November 2007, the Water Directors also discussed the importance of water-related aspects in adaptation to climate change and reinforced their commitment to provide leadership to this end. They therefore requested a strategic debate to take place at the Water Directors' meeting under Slovenian Presidency in June 2008.

A paper was prepared for this debate, containing key messages from previous activities and documents, such as the Green Paper on Adaptation, the conclusions from the CIS Bonn workshop and from the Berlin Conference. It considered in particular the following topics:

- EU water legislation and its ability to adapt to climate change.
- The importance of integration with other policies.
- WFD and objective-setting under a changing climate.
- How adaptation is addressed in the 1st RBMP.
- The role of adaptation in the 2nd WFD management cycle.

Although it is recognised that mitigating climate change should remain the priority at European level, the main focus of this paper is adaptation to climate change.

At the meeting of the Water Directors in Slovenia, the key messages were discussed and agreed and it was agreed to make the document publicly available. The Strategic Steering Group on Climate Change and Water was requested to use this document as a basis for their future work on providing guidance. In 2008, the CIS activity will further focus on exchanging best practices on how to take climate change into account in the first river basin management plans. In 2009, the focus will be on preparing guidance on climate change and water, focusing on how climate change could be integrated in the 2<sup>nd</sup> and 3<sup>rd</sup> river basin management planning cycles also broadening the scope to floods, droughts and the marine environment.

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<sup>1</sup> At the Bonn CIS workshop, it was suggested that a climate check should refer to a first check to ensure the sustainability of investments over their entire lifetime, taking explicit account of a changing climate. Therefore, the Programme of Measures should be robust enough to cope with changing conditions.

## General remarks

1. The climate is changing and the predicted impacts will potentially aggravate the already existing pressures on European water resources in many parts of Europe in a regionally differentiated way.
2. The most important impacts of climate change on water resources may include amongst others changes in water temperature and quality, river flow, groundwater recharge, water availability, frequency and intensity of floods droughts and storms/surge tides, , effects in aquatic ecosystems and impacts on groundwater quantities. Further, loss of species and protected areas (e.g. wetlands), changes in eco-regions (northward movement), alien and invasive species, sea level rise, salt water intrusion, sediment movement and coastal erosion are other examples of effects from a changing climate.
3. These impacts on water resources will significantly affect key socio-economic activities, but also biodiversity and ecosystems in large parts of Europe.
4. Focusing on the resilience of healthy aquatic ecosystems to changing and degrading conditions provide a cost-effective and relatively easy way to achieve adaptation and should therefore be at the heart of any adaptation strategy.
5. Limitations to adaptation exist in the sense that forecasts of changes will never be exact, and that adapting to climate change will in many cases be equivalent to preparing for a range of potential scenarios. However, decisions should gear towards scenarios with the highest likelihood of occurrence and there are sufficient indications concerning potential impacts on relevant water management issues and trend changes to justify starting work on adaptation. It is key to adapt or develop plans with sufficient flexibility to reflect the increased level of evidence base.
6. Successful adaptation to climate change will depend on the extent to which the issue is integrated into the implementation of national and European water regulation and into other sectoral policies (agriculture, energy, etc.). The risks due to climate change should be factored into decision-making more effectively, and across more sectors.
7. This is mainly the domain of Member States. However, there is also an important role for the EU, particular in the co-ordination of transboundary issues, in supporting exchange of information and best practice, research funding, awareness-raising and education, in ensuring policy coherence and informing and consulting all relevant stakeholders when elaborating guidance.

## EU water legislation

8. Climate change is not explicitly included in the text of the Water Framework Directive (2000/60/EC). However, the step-wise and cyclical approach of the WFD makes it well-suited to handle climate change. Climate change can be included in several steps of the WFD implementation, such as the characterisation, the analysis of pressures and impacts, the economic analysis, monitoring, the design of the programmes of measures and the objective setting process. The process to include climate change in WFD implementation should be transparent and involve active engagement with all relevant stakeholders
9. In addition, the WFD contains several elements that will support the resilience of aquatic ecosystems and the rational use of water resources. Achieving its objectives will therefore support adapting to climate change.
10. In many cases, climate change impacts may put additional pressure on European water resources. From the Article 5 reports assessed for the Commission's WFD implementation

report in 2007<sup>2</sup>, there were no indications that climate change pressures are significantly putting the achievement of good status at risk in the first planning cycle.

11. However, it is important that river basin management plans take account of the medium and long-term implications of climate change, as there is a large potential for synergies between WFD objectives and adaptation aims. On the other hand, it needs to be ensured that measures do not run counter to adaptation objectives, and that they are flexible and robust enough to be viable under changing climate conditions.
12. Preventing pollution and saving water will lower the carbon impact of extracting, transporting and treating water. If relevant, carbon impacts of WFD measures (e.g. increasing carbon footprints and power usage through enhanced treatment) should be factored in the decision-making along with other relevant impacts and costs – including other environment and resource costs – but they cannot be used as an excuse for not achieving the WFD objectives.
13. Beside the WFD other existing water legislation such as the Floods Directive and the Marine Strategy Directive also provide a framework for adaptation. Particularly for the implementation of the Floods Directive, co-ordination with the implementation of the WFD is required by article 9 of the Floods Directive from the 2nd RBMP and onwards, which will generate the greatest possible benefits for adaptation. Consideration of flood management measures (for the various types of floods eg coastal floods, flash floods, inundation) is also important in the first RBMP.
14. As regards water scarcity and droughts, the Communication adopted by the Commission on 18 July 2007 aims to further develop adaptation measures to address expected increasing impacts of water scarcity and droughts in next decades.

## **Integration with other policies**

15. While climate change mitigation remains a priority, there is also an urgent need to develop integrated strategies for adaptation aiming for synergies. The link between both objectives should be made where relevant and possible. For instance, the impacts of mitigation measures - including those taken in other policy areas - on water resources need to be considered, as well as the contribution of water management measures to mitigation efforts.
16. Although EU policy on renewable energy allows sufficient room for respecting existing environmental directives, specific developments related to reducing the impacts of climate change (e.g. hydropower development, biomass production) may impact on aquatic ecosystems, particularly when such activities either do not recognise or take insufficient account of environmental protection as part of the multi-purpose uses of water bodies. On the other hand, requirements to protect the water environment might impact the potential of certain climate change mitigation measures. A well-balanced approach is needed to meet both climate and water protection objectives.
17. All relevant water-related sectors, such as agriculture, electricity production, inland navigation, tourism, etc. must contribute to adapting to climate change. This relates to participation on all levels, whether administrative, institutional, private or from the civil society. Only a common and integrated approach will provide successful win-win solutions and avoid negative cross-sectoral feedbacks of measures or non-action in one sector. Such an approach should be adapted to regional differences.

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<sup>2</sup> COM(2007) 128 final, 'Towards sustainable water management in the European Union' and its Annex SEC(2007) 362

18. All sectors should ensure they are well-informed about the possible impacts of climate change on their sector.
19. Improving the efficiency of water use is key for adaptation. Water demand management should be introduced in all sectors. The need for new water supply measures can be considered once the projected impacts of water saving measures prove insufficient. This applies to all sectors and users, especially in water scarce regions of Europe and in regions where climate change is expected to reduce water availability.
20. Agriculture in particular can make a contribution to adaptation. Policy coherence with the Common Agricultural Policy's provisions should be ensured with regard to adaptation objectives in water management.
21. Land-use planning is an important factor in a successful adaptation strategy.
22. River basin management plans can be used to include sector-specific actions and water-related needs of different users.
23. Many Member States are currently working on national climate change adaptation strategies including aspects related to water. These adaptation strategies are often based on detailed assessments on climate change impacts on water and include in many cases first evaluations of potential water adaptation measures. These adaptation strategies and the assessments of impacts can supplement the climate impact evaluation under RBMPs.
24. The European Commission is working on a strategy to further develop the European policy on adapting to the impacts of climate change. In a green paper on adaptation possible directions avenues for action at EU level are described and currently under consideration for a follow up with concrete policy proposals (see Green Paper (COM(2007) 354 final) "adaptation to climate change in Europe - options for EU action").

## **WFD and objective-setting under a changing climate**

25. Although potentially all quality elements included in the definition of WFD ecological status<sup>3</sup> are sensitive to climate change, as well as some typology parameters related to meteorological variables, climate change does not affect the principle of water status assessment.
26. If there is strong evidence showing that the situation at unimpacted sites changes significantly because of changed climatic conditions (and not because of other human induced pressures), reference conditions can be revised as a part of the river basin characterisation review. A comprehensive and robust but reasonable monitoring programme including reference sites, or modelling or other methods described in Annex II.1.3 of the Directive, is necessary to underpin such decisions.
27. The conditions and criteria under which exemptions can be applied remain the same under a changing climate and the general requirement to achieve good groundwater and surface water status is not affected by climate change. Although the use of exemptions is an integral part of river basin management planning, applying exemptions without justification in line with the Directive cannot be seen as a general strategy to cope with the consequences of climate change.
28. As extreme events, such as droughts, floods and surge tides may occur more frequently under a changing climate, robust scientific evidence should determine on a case-by-case basis whether they can be considered as exceptional or that they cannot reasonably be foreseen, as referred to in Article 4(6) of the WFD. Some Water Directors consider that

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<sup>3</sup> When good ecological status is referred to in this chapter, one could also read good ecological potential for artificial and heavily modified water bodies.

this needs to be further discussed in the framework of the CIS activity on Climate Change and Water.

29. The implementation of specific adaptation measures, for instance infrastructure projects, might invoke Article 4(7) of the WFD more often.

## **Adaptation in the 1st RBMP**

30. Climate change should at least be considered in the first RBMPs, both in national and international plans. This will serve the following purposes:
- Facilitating stakeholder engagement and public consultation,
  - Improving general awareness of all actors for climate change trends and impacts,
  - Paving the way for more climate change related actions in 2nd/3rd cycle,
  - Allowing for incorporating international, national and regional information on predictions.
31. Particular emphasis should be placed on ensuring that the Programmes of Measures are sufficiently adaptive to future climate conditions. Therefore an attempt should be made to carry out a *climate check* of the Programme of Measures, based on readily available knowledge and data and common sense. Such a check should focus on which measures are enhancing or weakening the adaptive capacities, which measures can be considered as no regret or win-win solutions, or which measures will be less robust in their effectiveness to achieve the WFD objectives because of climate change.
32. Surveillance monitoring under the first RBMP could become more targeted to detecting climate change trends in order to improve the data basis for the update of the River Basin Management Plan in the second and third cycle.

## **The role of adaptation in the 2<sup>nd</sup> and 3<sup>rd</sup> WFD cycle**

33. In the subsequent cycles, the Programme of Measures needs to be made climate resilient as a default and firmly based on scientific evidence, notwithstanding the fact that knowledge and new data are constantly evolving.
34. Ensuring compatibility between Programmes of Measures and adaptation concerns is particularly important in the case of measures that involve long-term investments, such as large infrastructure projects.
35. For these RBMPs, incorporating climate change could include:
- Improving the information basis,
  - Iterative climate-checking of the measures,
  - Considering broader water management issues related to climate change (e.g. related to land use, or water demand/supply management),
  - Improving of monitoring to detect climate change impacts
  - Exploring potential needs for adjustment of reference conditions/type changes of water bodies.

## **Work on the Science/Policy link**

36. More research is needed, both on physical processes, the impacts on the ecological functioning and on the way how to manage uncertainties. More work is needed on downscaling climate change impacts to river basin levels. However, in many cases there is sufficient information on the trend of changes to justify taking action.

37. This includes in particular no-regret measures and win-win measures where evidence demonstrates effects are less uncertain. These measures and research to identify them should be prioritised.
38. Communication about research results and uncertainties should be improved: scientific information needs to be translated to water managers and operational practitioners, and uncertainties need to be communicated in a transparent way. This is particularly valid for many national and European research activities on climate change impacts on Europe's waters which may be used in river basin management planning.
39. To ensure consistency between climate change evaluation in RBMPs, agreement at the appropriate level (European and/or river basin) is needed on scenarios and the ensemble of models. Increased coordination is therefore needed at the appropriate level.

## More information

- a. Conclusions CIS Bonn workshop November 2007  
[http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework\\_directive/implementation\\_conventio/workshop\\_november&vm=detailed&sb=Title](http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/implementation_conventio/workshop_november&vm=detailed&sb=Title)
- b. European Commission's Green Paper on Adaptation  
[http://ec.europa.eu/environment/climat/adaptation/index\\_en.htm](http://ec.europa.eu/environment/climat/adaptation/index_en.htm)
- c. Conclusions Berlin Conference 2007  
<http://www.climate-water-adaptation-berlin2007.org/>
- d. EEA 2007: Climate change and water adaptation issues Technical report No 2/2007  
[http://reports.eea.europa.eu/technical\\_report\\_2007\\_2/en](http://reports.eea.europa.eu/technical_report_2007_2/en)
- e. IPCC 2008: Technical paper on climate change and water.  
<http://www.ipcc.ch/meetings/session28/doc13.pdf>