Conference on

‘Adaptation of Water Management to Effects of Climate Change in the Danube River Basin’

Water – the key to adapt to Climate Change

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Introduction - 1

Summary - Climate Change Impacts

- Increasing differentiation within Europe and the exacerbation of existing problems;
- **The impacts on the Danube will be considerable, both with regard to too much and too little water, but let's not forget effects on water quality;**
- Water is a cross-sectoral adaptation issue (agriculture, tourism, energy, biodiversity, navigation)
- There is enough knowledge to act and adaptation has started, but there is much more to do within each of the policy sectors

Introduction - 2

Selection of events on Adaptation at EU level:

- Science - Policy workshop (EC, DG ENV/RTD/JRC), Brussels - 25/26 September 2006
- Berlin Conference 'Time to adapt', 12-14 February 2007
- Publications:
  - Climate Change and the European Water Dimension 2005, JRC
  - Marine and Coastal Dimension of Climate Change in Europe, 2006, JRC
  - EEA report 2007: Climate change and water adaptation issues
- Adoption Green Paper + Conference June 2007
- CIS Strategic Steering Group Climate and Water September 2007 – workshop in Bonn 20,21 November 2007

Introduction - 3

Green Paper ‘Adapting to Climate Change in Europe’

- Adopted 29 June 2007
- Early action could bring clear economic benefits
- The EU plays an important role in adaptation
- Four lines of priority actions to be considered:
  - Early action where current knowledge is sufficient;
  - Integrating adaptation into the EU’s external relations;
  - Filling knowledge gaps with EU-level research;
  - Involving society in preparation of adaptation strategies.
- Follow-up
  - Broad public debate in 2007 - 2008, including 4 regional workshops in autumn 2007 and web-based consultation;
  - White Paper and Impact Assessment by the end of 2008.

EU Water Policy and Adaptation - 1

Overview

- Water Framework Directive (2000/60/EC)
  - Overall framework for integrated management
  - Basic measures (UWWTD, bathing water etc)
  - Groundwater (2006/118/EC)
  - Priority Substances (negotiations ongoing)
- Extending the scope
  - Floods Directive (2007/60/EC)
  - Marine Strategy Directive (negotiations ongoing)
  - Communication Water Scarcity and Droughts (July 2007)

-> Focus today is mainly on WFD, Floods and Water Scarcity and Drought

EU Water Policy and Adaptation -2

Water Framework Directive and Climate Change

- 6 year cycle for river basin management plans, starting in 2009:

Include updated knowledge on climate change impacts (pressures, effects of measures, reference conditions) in next plans

- economic instruments:

Water pricing policies need to be in place in 2010 with incentive to use water efficiently

- integration with other policies:

Use the plans for integration (navigation, agriculture, hydropower) and for stakeholder involvement and public participation

How to adapt the RBMPs (based on CIS workshop Bonn 20/21 November)

- **A chapter on climate change should be included in the first RBMPs (national and international plans) to:**
  - Improve general awareness for climate change
  - Pave the way for more climate change related actions in 2nd/3rd cycle

- **Contents of such a chapter could be:**
  - Summary of existing knowledge on climate change trends and scenarios
  - Identifying the main impacts, also on other water relevant sectors.
  - Outlook on future steps for incorporating climate change impacts into the planning process with a view to ensuring the adaptiveness of the PoM

EU Water Policy and Adaptation -4

How to adapt the RBMPs (based on CIS workshop Bonn 20/21 November)

- The first Programme of Measures needs to undergo a **climate check**.
- **Win-win situations** should be identified and irreversible actions should be avoided.

  -eg for navigation, flood protection and hydropower developments. They should already take into account climate change now and apply Article 4(7) for new modifications.

  - Water efficiency/savings measures should be applied already now
- For water scarce areas, this first climate proofing should focus on the **sustainable use of the existing available water**.

How to adapt the RBMPs (based on CIS workshop Bonn 20/21 November)

For the next cycles:

- It needs to be investigated if monitoring should be adapted, and if type changes might take place.

- The RBMPs plan should **look into broader water management issues** related to climate change (flood management, sediment management, land use, spatial planning, water demand/supply management).

- Further Guidance will be provided by CIS Strategic Steering Group on Climate Change and Water in 2008 – 2009.

Floods Directive and Climate Change

-Three stage process :

- Preliminary flood risk assessment (2011): include climate change considerations (2011)
- Flood hazard and flood risk maps (2013), based on medium and low probability floods: scenarios could include climate change
- Flood risk management plans (2015), eg addressing sustainable land use management

-Coordination and synchronisation with WFD

Water Scarcity & Drought and CC - 1

Difference between water scarcity and droughts

Droughts	Water scarcity
Temporary decrease in water availability due – for instance – to rainfall deficiency	Water demand for human activities exceeds water resources available and the natural recharge
→ Natural phenomenon	→ Human-driven phenomenon
Impacts of droughts ↗↗ in case of water scarcity	Impacts of water scarcity ↗↗ in case of drought

Water Scarcity & Drought and CC - 2

Combined effects of demand development and climate change: Water stress today and in 2070

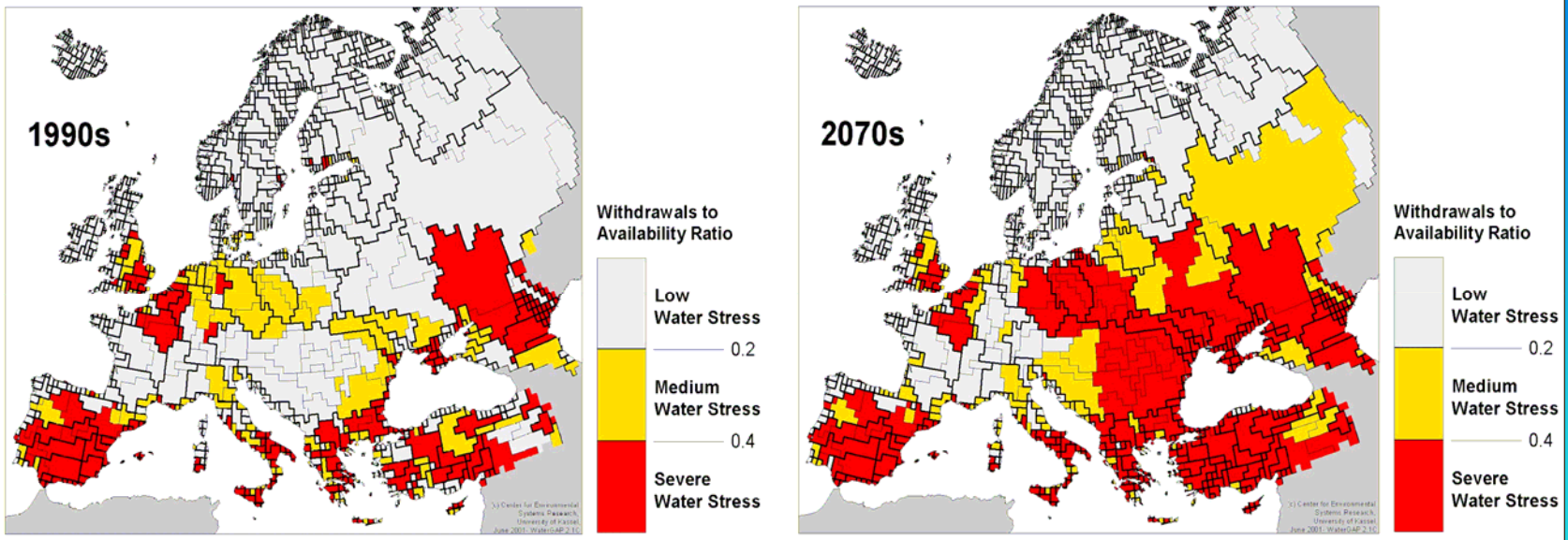


Figure 5.2: Water stress in Europe for today's situation. Water stress is defined by the withdrawals-to-availability ratio.

Figure 5.6: Water stress in Europe in the 2070s under the Baseline-A scenario (with climate data of HadCM3). Water stress is defined by the withdrawals-to-availability ratio.

Source: Eurowasser study, University of Kassel

Water Scarcity & Drought and CC - 3

Combined effects of demand development and climate change: change in magnitude of 100-year drought

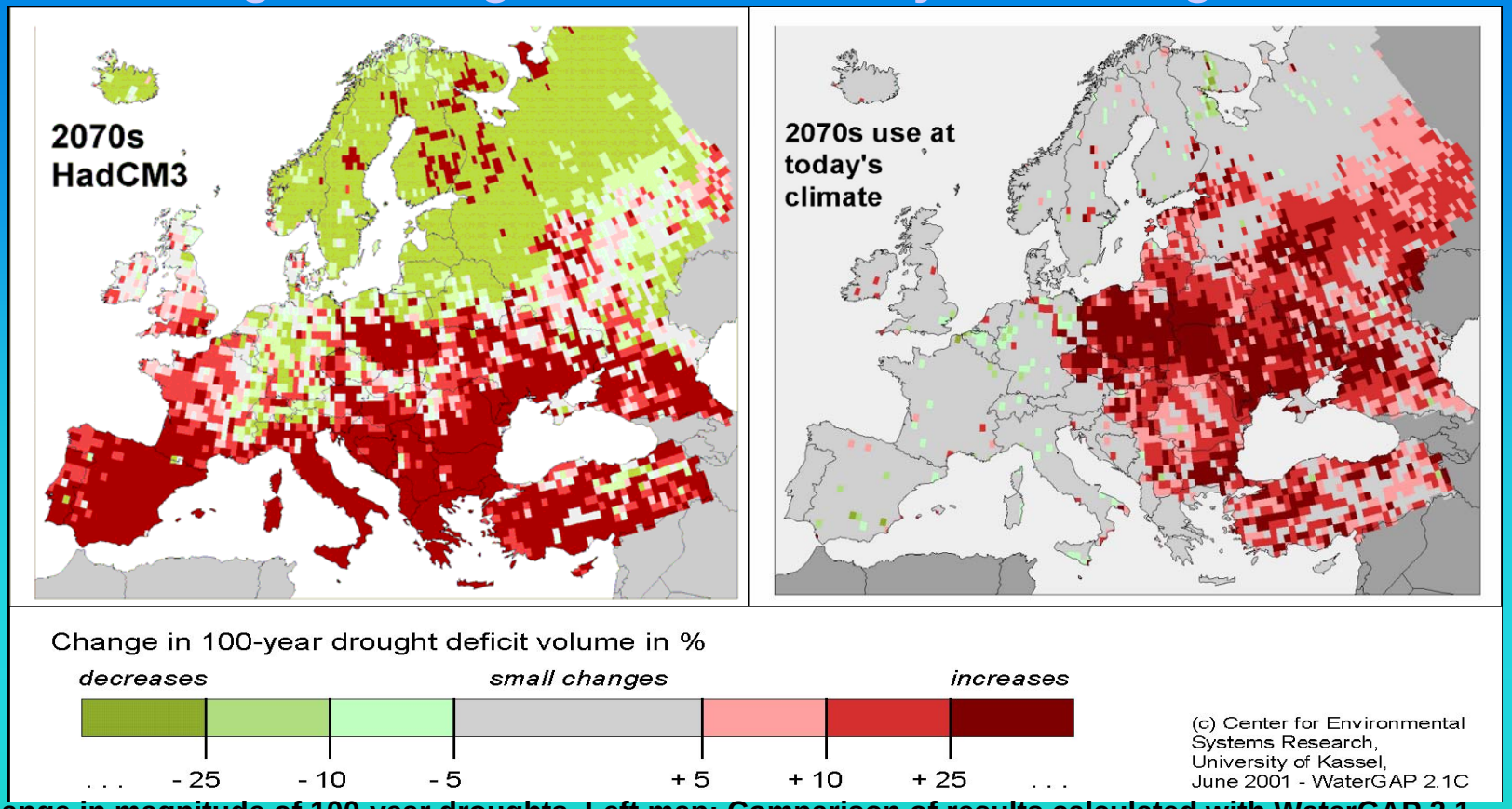


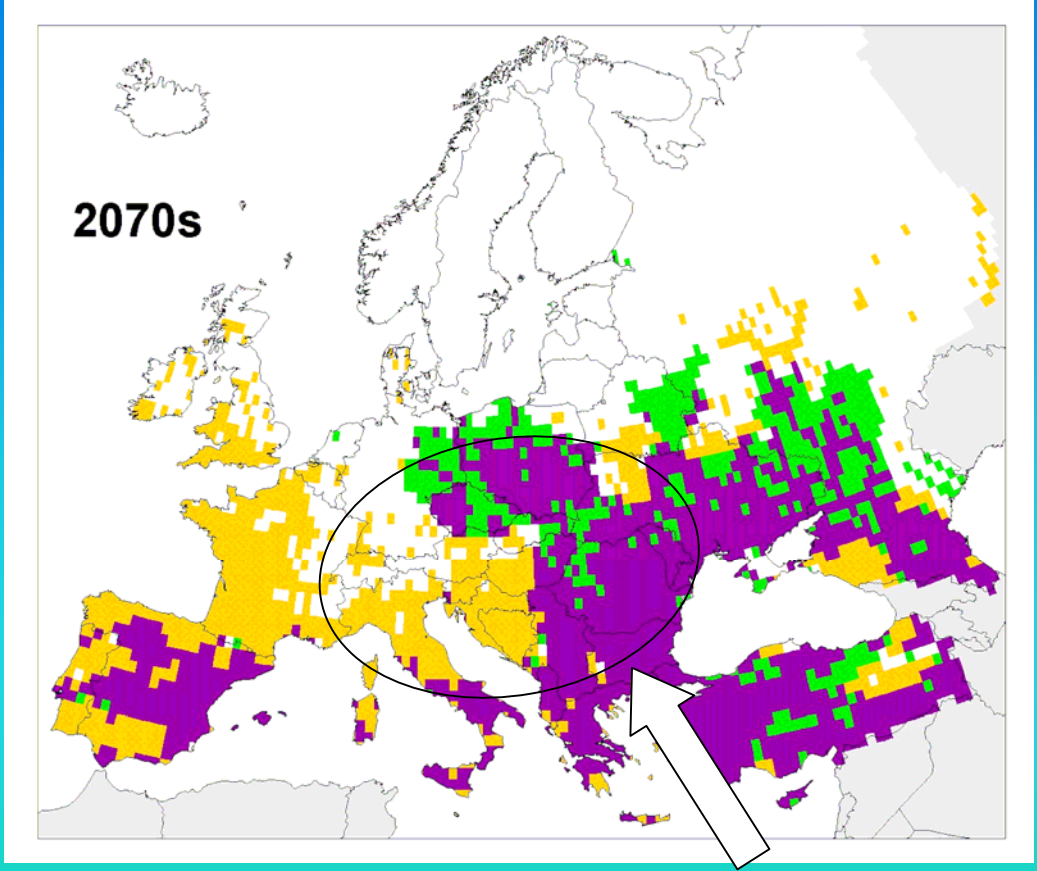
Figure 7.9: Change in magnitude of 100-year droughts. Left map: Comparison of results calculated with WaterGAP 2.1 for today's climate and water use (1961-90) and for the 2070s (HadCM3 climate model and Baseline-A water use scenario). Right map: Comparison of results calculated with WaterGAP 2.1 for today's climate and water use (1961-90) and for the 2070s (Baseline-A water use scenario at today's climate). *Source : Eurowasser study, University of Kassel*

Expected impacts of climate change and economic development

Proportion of severe water stress EU river basins likely to increase from 19% today to 35% by 2070.

Areas affected by droughts will increase.

If t° rises by 2 to 3°C, water scarcity would affect 1.1 to 3.2 billion people



Eastern Central Europe

Water Scarcity & Drought and CC - 5

What challenges need to be addressed?

- **Water Framework Directive** needs to be fully implemented
- Address ineffective **water pricing policies**
- Improve **Land-use planning** and **water allocation** between economic sectors
- Address **Waste of water** and policy-making priorities
- **Integration** of water-related issues into sectoral policies
- **Knowledge** gaps need to be filled

Water Scarcity & Drought and CC - 6

What policy options have been identified?

- Putting the right price tag on water
- Allocating water and water-related funding more efficiently
- Improving drought risk management
- Considering additional water supply infrastructures
- Fostering water efficient technologies and practices
- Fostering the emergence of a water-saving culture in Europe
- Improve knowledge and data collection

What are the next steps?

18 July 2007	adoption of the Communication
1st September 2007	discussion at the informal meeting of the ENV Council
30 October 2007	formal meeting and conclusions of the ENV Council
October 2007	discussion at EU Parliament and conclusions
End 2007 – first half 2008	further socio-economic assessment of policy options (water savings, water pricing, land planning)
September 2008	presentation of Action Plan and report reviewing progress towards the set of policy options to Stakeholder Forum
Beyond	implementation of Action Plan

Conclusions

- Sustainable Water Management = Adaptation.
- Ample tools to start adaptation already exist.
- 1st river basin management plan should already take account of Climate Change – also in roof report/Part A.
- Further integration of climate change in all other sectors (navigation, hydropower) will help making Danube climate proof.
- Danube Region will face water stress. Water demand management will therefore be of key importance.
- Integration of water quantity and water quality issues as in Tisza analysis is good example.

More information

EC Water Website:

http://ec.europa.eu/environment/water/index_en.htm

Water Scarcity and Drought:

http://ec.europa.eu/environment/water/quantity/scarcity_en.htm

Water Information System for Europe (WISE):

http://water.europa.eu

Thank you for your attention!