

## **Session 3: Addressing climate change-risks through no-regrets actions**

### **1. Goal**

Present the fundamentals of climate change adaptation and delineate the main approaches and options for developing no-regrets adaptation strategies in water management

### **2. Learning objectives**

- Be familiar with the basic concepts and principles of climate change adaptation
- Be aware of the uncertainty challenge facing adaptation in water management
- Understand the need and benefits associated with no-regrets and robust options to deal with risks and uncertainties

### **3. Key messages**

- Adaptation is essentially a risk management issue
- Water management actions are not “climate-risk” neutral, as they have potential to either increase or lower vulnerability to climate change impacts
- Skeptical and “wait-and-see” attitude amongst decision-makers are no longer a reliable option
- Cost of inaction or delayed adaptation is likely to be expensive
- Spontaneous and reactive adaptation may prove insufficient and costly
- Even in the face of imperfect climate information there are useful things that we can do today to build tomorrow’s resilience
- Uncertainty goes hand-in-hand with climate change...
- But it should not be an excuse for inaction (don’t wait for “perfect” climate prediction !)
- Nor should it be ignored by seeking “optimal” adaptation (i-e. adaptation calibrated for one climate scenario or average state) as this could lead to severe maladaptation and prove extremely dangerous and costly in the future
- Uncertainty must be managed by decision makers
- Dealing with uncertainty necessitates a paradigm shift and new methods in the way decisions are made
- Bottom-up, no/low regrets, robust and adaptive management strategies (pathways) should be developed in the water sector to account for many scenarios and possible climate surprises

### **4. Resources**

- Dessai, S. and J. P. van der Sluijs. 2007. *Uncertainty and Climate Change Adaptation* - a Scoping Study. Utrecht, Copernicus Institute for Sustainable

Development and Innovation.

[http://www.nusap.net/downloads/reports/ucca\\_scoping\\_study.pdf](http://www.nusap.net/downloads/reports/ucca_scoping_study.pdf)

- Economic Commission for Europe, Convention on the Protection and Use of Transboundary Watercourses and International Lakes. 2009. *Guidance on water and adaptation to climate change*. 127 pages.
- [www.unece.org/env/documents/2009/.../ECE\\_MP.WAT\\_30\\_E.pdf](http://www.unece.org/env/documents/2009/.../ECE_MP.WAT_30_E.pdf)
- European Environment Agency. 2007, *Climate change and water adaptation issues*. Technical Report N°2. 110 pages.
- [www.eea.europa.eu/.../technical\\_report\\_2007\\_2](http://www.eea.europa.eu/.../technical_report_2007_2)
- IPCC. 2008. *Technical Paper on Water and Climate Change*.  
<http://www.ipcc.ch/pdf/technical-papers/climate-change-water-en.pdf>
- OECD. 2005. *Adaptation to Climate Change - Key terms*.  
<http://www.google.fr/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&ved=0CCoQFjAA&url=http%3A%2F%2Fwww.oecd.org%2Fdataoecd%2F36%2F53%2F36736773.pdf&ei=QURHUKTXObSN0wXMvoCgDQ&usq=AFQjCN GWmMkRMvWH6K-s9gilTD3C2DaxrA>
- Pahl-Wostl C., et al.. 2005. *Transition to adaptive water management: the Newater project*. Newater Working Paper 1.  
[http://nora.nerc.ac.uk/1018/1/PahlWostlnewater\\_wp01.pdf](http://nora.nerc.ac.uk/1018/1/PahlWostlnewater_wp01.pdf)
- Simonet S., 2010. *Adaptation to climate change in the water sector in the Mediterranean: situation and prospects*. Blue Plan Paper N°10  
[http://www.planbleu.org/publications/Cahier10\\_eau\\_CC\\_EN.pdf](http://www.planbleu.org/publications/Cahier10_eau_CC_EN.pdf)
- UNDP, 2011. *Applying climate information for adaptation decision-making*.  
<http://www.undp.org/content/dam/aplaws/publication/en/publications/environment-ent-energy/www-ee-library/environmental-finance/low-emission-climate-resilient-development/applying-climate-information-for-adaptation-decision-making/Applying%20Climate%20Information%20for%20Adaptation%20Decision%20Making.pdf>
- UNFCCC, 2011. *Water and climate change impacts and adaptation strategies*. Technical paper. 33 pages. [www.unfccc.int/resource/docs/2011/tp/05.pdf](http://www.unfccc.int/resource/docs/2011/tp/05.pdf)
- Wilby, R., and Dessai, S.. 2010. *Robust adaptation to climate change*. *Weather* Wol.65, No 7.  
<http://onlinelibrary.wiley.com/doi/10.1002/wea.543/abstract>
- World Bank, 2010. *Mainstreaming adaptation to climate change in agriculture and natural resources management projects*.  
<http://climatechange.worldbank.org/content/mainstreaming-adaptation-climate-change-agriculture-and-natural-resources-management-project>
- World Bank, 2011. *Adaptation to a changing climate in the Arab countries*. Flagship report  
[http://siteresources.worldbank.org/INTMENA/Resources/Adaptation\\_to\\_a\\_Changing\\_Climate\\_in\\_the\\_Arab\\_Countries\\_Draft\\_for\\_comments.pdf](http://siteresources.worldbank.org/INTMENA/Resources/Adaptation_to_a_Changing_Climate_in_the_Arab_Countries_Draft_for_comments.pdf)