

# Workshop

## “The economics of climate change adaptation measures under WFD, MSFD and ICZM ”

11-13 April 2016

ECRAN 61931

Financial aspects for the  
implementation of the adaptation  
measures included in the RBMP



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## Structure of the presentation

- Economics of the adaptation measures
- What we need
- Economic cost of climate change
- Categories of adaptation measures
- Major financial challenges and implications



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## Economics of the adaptation measures

**Adaptation - an economic investment** made to avoid or limit damages due to climate change (Wright). Similarities with environmental cost!!

Focus is on negative impacts although climate change may also create opportunities. Similarities with the damage cost

Economic methods and tools discussed are principally able to assess both positive and negative impacts of climate change and climate change adaptation.



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## What we need (1)

Estimating the costs of adaptation involves a large number of methodological challenges:

- **Determining and using information on climate change impacts** = a fundamental need for the entire climate change adaptation process
- Dealing with **uncertainty is the major need**, when considering:
  - climate projections
  - socio-economic scenarios
  - analysis of impacts (and benefits) and adaptation responses.
- Assessments need to be linked with **science-based knowledge**
- The need to have a **comprehensive and systematic overview** on the usefulness of economic assessments for climate change adaptation.

**There is a need to plan robust strategies to prepare for an uncertain future and not to use uncertainty as a reason for inaction.**



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## What we need (2)

- The definition of the baseline , particularly in terms of future development
- How to consider the level of geographical and spatial disaggregation
- The consideration of adaptation responses, which can be either technical engineering solutions, or also include non-structural/technical adaptation options
- To know whether analysis has considered any additional impacts or benefits from action
- To know the costs or benefits to adaptation.



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## Economic cost of climate changes (1)

The information on the economic costs of climate change impacts (if no further action is taken) provides a means to monitor and predict the changing state of the environment likely to be affected due to climate changes.

The goal of the adaptation policy is to ensure **cost-effective and proportionate adaptation**, and to consider the wider economic costs and benefits of adaptation.



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## Economic cost of climate changes (2)

There are 2 specific areas of the full costs of climate change — the '**costs of inaction**' and the '**costs of adaptation**'.

The **EC communication** (2005) termed the economic effects of climate change as the 'costs of inaction'.

The 'costs of inaction' represents the future baseline without mitigation (and planned adaptation), and so more closely relates to an IPCC A1 or A2 scenario.

From this baseline, it is possible to assess the benefits of climate change policy.

The difference between economic costs of climate change under the baseline (if no further action is taken), and 'with' the policy scenario in place provides the benefits of policy intervention.

The costs of inaction are often expressed as the social cost of climate change.



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## Economic cost of climate changes (3)

The full costs of climate change = Costs of mitigation + Costs of adaptation + Residual costs

Residual costs = Costs of inaction - Benefits from mitigation - Benefits from adaptation



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## Categories of the adaptation measures (1)

- **Preparation measures** to support planning processes: monitoring, identification of risk areas, elaboration of warning systems and emergency plans .
- **Ecosystem-based measures** to reduce the negative effects of a changing climate and to conserve or restore ecosystems.
- **Managerial measures** to support sustainable management, such as the elaboration of risk management plans for water scarcity.
- **Infrastructure measures**, such as dams, reservoirs, fish ladders or water networks.
- **Policy approaches** aim to support the national, international and basin-wide coordination of activities.



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## Categories of adaptation measures (2)

- Win-win
- No-regrets
- Regrets
- Adaptation actions



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## Win - win solutions

Measure	Contribution of the measures to adaptation to climate change
Abstraction control	Protection of biodiversity
Buffers zones around water bodies	Improved soil water retention Reduced flood risk
Connection of untreated wastewater discharges to municipal system in selected areas where assimilative capacity is available during low flow	Reduced spatial risk during severe droughts
Water conservation measures	Adaptation to droughts



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## No-Regret Solutions

Measure	Contribution of the measures to adaptation to climate change
Upgrade wastewater treatment	Significant
Buffer zones of agricultural land	Significant



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## Regret Solutions

Measure	Possible effects of the measures to adaptation to climate change
Restricted agricultural activities (crops) in exposed areas	Drainage issues, soil erosion, invasive species
Located infrastructure in floodplains areas	Financial losses



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## Adaptation Solutions

Measure	Contribution of the measures to adaptation to climate change
Sustainable Urban Drainage Systems	Integration of Flood risk Management into River Basin Management Plans
Water storage	Ensure environmental flows



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## Examples of mitigation measures

- Buffers around streams in urban areas to reduce the potential flooding risk
- Restriction of agricultural and industrial activities
- Increased capacity, e.g. in wastewater treatment
- Creation of in-stream reservoirs, promote wastewater reuse
- Water conservation, network losses reduction, water pricing.



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## Major financial challenges caused by water scarcity

The evidence shows that the costs of enhancing climate resilience in future investment ('climate proofing') are the largest.

### Challenges

- Fully implementation of the WFD to ensure proper water management
- Investment in mitigation and adaptation in all priority sectors (e.g. energy, transport, agriculture etc.)
- Eliminate inefficient national water-pricing policies
- Ensure efficient water pricing
- Land-use planning
- Promoting water-saving measures
- Water allocation
- Drought prevention and drought responses
- Water supply alternatives



Further capacity-building on climate *acquis* topics

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## EC recommendations

- EU countries must set the right price for water, using an efficient water-pricing policy
- Water allocation and water-related funding must be more efficient to limit adverse effects in river basins
- Special measures should be taken in particular to implement the SEAD
- Improving drought risk management through drought risk management plans, exchange good practices and methodologies at EU level
- The EU Solidarity Fund and the EU Civil Protection Mechanism can help to ensure that EU countries receive appropriate aid without delay
- Reduce leakages and wastage
- Consumers and economic operators should also be involved so as to foster the emergence of a water-saving culture
- Improved knowledge and data collection are integral to decision-making
- Information system on water scarcity and drought integrated in the water information system for Europe (WISE)
- EC prepares annual follow-up reports assessing the implementation.



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## Promoting water efficient technologies and practices at national level

- Ensure efficient use of EU and national funds to improve water demand management, in particular through measures of adaptation, sustainable practices, more water savings, monitoring systems and adapted risk management tools.
- Develop fiscal incentives for the promotion of water-efficient devices and practices, in particular in water scarce areas, taking into account the social context and the potential regional differences.
- Effective water pricing policy and cost-effective alternatives
- Putting the right price tag on water!
- The WFD (Article 11) requires the implementation of systematic control over water abstraction - Water abstraction must be metered or registered by the authorities.



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Thank you!



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