

# Economic Valuation of Environmental and Resource Costs: The Case of Germany

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45th Congress of the European Regional Science Association  
23-27 August 2005, Vrije Universiteit Amsterdam  
Land Use and Water Management in a Sustainable Network Society



# This presentation

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- **Builds on the project „Basic principles for selecting the most cost-effective combinations of measures according to Article 11 WFD“, carried out by Ecologic for the German Federal Environment Agency**
- **Presented with support from the Dutch Rijksinstituut voor Integraal Zoetwaterbeheer en Afvalwaterbehandeling (RIZA)**
- **About Ecologic**



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# The EU Water Framework Directive and its economic elements

# The EU Water Framework Directive

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- **The Water Framework Directive (WFD)**
  - entered into force in 2000
  - establishes an integrated approach to water resource management:
    - covers groundwater, surface and coastal water
    - integrates other Directives (UWWTD, BW, Nitrate)
    - demands basin-wide strategies
    - incorporates ecological, social, **economic** aspects
  - starts a long-term process towards the good ecological status in all water bodies (2015)

# Economic Aspects of the WFD

- **Novelty: first major environmental Directive to integrate economic aspects & approaches**
  - **Baseline Scenario**
  - **Cost-effectiveness analysis for programmes of measures**
  - **Exemptions based on disproportionate cost**
  - **Cost recovery for water services**



# Cost Recovery in the WFD

- **According to Article 9 WFD, cost recovery for water services to be achieved by 2009**

*„Member States shall take account of the principle of **recovery of the costs of water services, including **environmental and resource costs****, having regard to the economic analysis conducted according to Annex III, and in accordance in particular with the **polluter pays principle**.“*

- **provide adequate incentives for efficient water use**
- **ensure an adequate contribution of water uses to cost recovery of water services**



# The concept of environmental & resource costs

- **Defined in WFD guidance and previous Commission documents**

**Environmental costs** are the costs of damage that water uses impose on the environment and ecosystems and those who use the environment

**Resource costs** are the costs of foregone opportunities which other uses suffer due to the depletion of the resource beyond its natural rate of recharge or recovery (e.g. linked to the over-abstraction of groundwater).

- **Introduced in Article 9 (cost recovery), but also relevant for exemptions, cost-effective programmes of measures, financing?**



# Environmental & resource costs

- **Environmental cost = classical externality:** economic activity by one agent creates an uncompensated welfare loss to another
  - e.g. upstream factory, downstream fishers
  - How to assess welfare loss in monetary form
    - Market approaches: income losses
    - Non-market approaches: willingness to pay, esp. in the case of immaterial damage
- **Resource cost = cost of unsustainable use**
- **Both are cases of a market failure**



# How to assess Environmental and Resource Costs in Practice





# The CIS process & DG Eco 2

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- The **CIS process** for implementation of the Water Framework Directive
  - more than 15 Working Groups so far
  - combining scientists, policy makers
- Drafting group **DG Eco 2** set up to clarify the concept of ERC and advice on their assessment in practice
- Results published in June 2004 in the form of a non-binding information sheet

## Results & recommendations of Eco 2

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- **Some clarification on environmental costs and their assessment**
- **New definition of resource costs: resulting from a misallocation of scarce resources, rather than overexploitation.**
- **Clarifies distinction between EC and RC, and between external and internal ERC**
- **Choice of economic assessment methods: damage cost and/or damage avoidance cost**

# Implementation: the Case of Germany

- **Implementation of the WFD driven by the *Länder*, with different levels of ambition**
- **Approaches are not clearly defined yet, thinking has only started**
- **Not a long tradition for economics in environmental policy (unlike UK, NL)**
- **First reports at the end of 2004, with tentative results on ERC - but no systematic assessment**

# Implementation: the political side

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- **General: some reluctance towards the concept of ERC at political level**
  - **Assessment seen as too costly**
  - **Validity of methods questioned**
  - **Relevance of results questioned - will ERC be a decisive factor in the implementation?**
- **So far: only looked at already-internalised costs, e.g. wastewater tax revenue**
- **Resource costs not addressed specifically**
- **Great expectations of benefit transfer**

# Implementation: Academia

## Little experience with water-related valuation:

Study	Object	Methodology	Result (examples)
Holm-Müller (1991)	Environmental quality (e.g. drinking water, surface water)	Contingent valuation	Improvement of 1 quality class (€/household*a): 48 (surface water) 24 (drinking water)
Hampicke, Schäfer (1994)	Isar estuary floodplains	Market prices (timber), contingent valuation	500 to 650 €/ha*a
Jung (1996)	Environmental quality (e.g. drinking water)	Contingent valuation	
Schönbäck (1997)	Danube floodplains, national park	Travel costs, Contingent valuation	Value of national park (11.500 ha): 8,3 billion €
Waibel, Fleischer (1999)	Costs and benefits of agricultural pesticides	Market prices (drinking water), Contingent valuation (biodiversity)	Drinking water supply: 65,9 Mio € p.a. for Germany (51% of total external cost)
Muthke (2001)	Quality of water bodies for recreation	Contingent valuation	Improvement of 1 class: 30 – 43 €, 2 classes: 34 – 53 € / household*a
Wronka (to be published)	Biodiversity, drinking water	Contingent valuation	Improvement of drinking water quality: 22 - 75 €/household*a
Dehnhardt, Meyerhoff (2002) (see below)	Elbe floodplains (biodiversity, nutrient retention)	Contingent valuation, market prices (nutrients)	Area of 10.000 to 15.000 ha: net present value 850 - 1.080 Mio €



# Critique and Perspectives

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## Critique of the German approach:

- **Internalised cost-only: misses the point**
- **Relevance of ERC underestimated:**
  - **decisions on “disproportionate cost” or “adequate contribution” are crucial**
  - **pressure groups will know how to exploit these concepts - policy should be prepared**
- **Do not overestimate the role of benefit transfer if the data basis is not there**





# Critique and Perspectives

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## Perspectives:

- **Use of economic valuation methods not only for cost recovery, but also**
  - **to motivate exemptions (cost-benefit ratios)**
  - **to decide on cost-effectiveness**
- **Use of revenues from recovery of ERC to finance the programme of measures**
- **Assessment will be supported through ongoing research, e.g. Aquamoney (FP6)**

# Thank you for your attention.

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