

# Integrated scenarios - the key for successful water and basin management?

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Thirteen research groups from six  
different countries

Different disciplinary  
backgrounds.....



How to  
develop methods to integrate results  
from three different scientific  
standpoints?

A natural science perspective, involving studies of nutrient loads and its impact on ecology

An information perspective, involving studies of ways to improve the communication of environmental information

A policy science perspective, involving studies of policy instruments, economic factors, and public participation

## 5 Main characteristics of IWM

- \* Multifunctionality (e.g., fishing, farming, water supply)
- \* User interests and conflicts
- \* Multiple managers at different levels (e.g., local, regional, national)
- \* Asymmetric power-relations (e.g., up- and downstream users and managers)
- \* Technical complexity

# The MANTRA-East Approach

Alternative water management scenarios that  
combined input from the various scientific  
disciplines





# Why scenarios?

- **Scenarios can shed light on and offer insights about possible future developments**
- **The future will always be shrouded by uncertainty and therefore accurate prediction is not a feasible goal**
- **Scenarios can be useful to generate potential policy options**
- **Scenarios are in the interest of decision-makers, stakeholders and end users;**
- **The scenarios should take into account social dimensions and impacts, besides environmental issues**

1: The creation of mutual disciplinary respect and a basic understanding of all scientific approaches



2: The definition of 3-4 qualitative story-line scenarios on regional development

3: The translation of the qualitative  
story-line scenarios into quantitative  
GIS-layers

## 4. The modelling of the nutrient fluxes and loads in the drainage basin

## 5. The modelling of the transformation of nutrient in the lake and the ecological consequences

6. Analyses of the policy and socio-economic implications of the modelling results, including an analysis of the value of scenarios from an information perspective

# Scenarios



- \* Four basic scenarios
- \* 10-15 year perspective
- \* Identify key variables
- \* Ask key questions for the future
- \* Determine the most probable scenarios

Key factors - economic development,  
and transboundary cooperation

High international cooperation

*Business as usual  
scenario*

*Fast development  
scenario*

Low economic  
development

High economic  
development

*Crisis scenario*

*Isolation scenario*

Low international cooperation

# The proposed scenarios (Gooch, 2003)

## I. 'Business as usual scenario (BAU)'.

Continuation of present trends: The economical situation will remain the same and pollution loads and emission in end of 1990s remain at present level.

## II. 'Target/fast development scenario'.

Estonia: fast adaptation to the EU. Russia: domestic fast economic and social development

## III. 'Crisis scenario'.

Conditions radically deteriorate into 'crisis' in both countries

## IV. 'Isolation scenario'

Estonia: slow, unwilling adaptation to the EU.

Russia: isolation from Europe and a growth of nationalist sentiment.

## V. Combination of II. and III.

Estonia: fast development. Russia: Crisis

# FACTORS

- \*Population
- \*Agriculture
- \*Fishing
- \*Economy
- \*Politics
- \*Administration
- \*Environment

Qualitative narratives



Quantitative modelling



Reformulation of Qualitative  
narratives



# Conclusions

Scenarios appear to be an attractive methodology to increase disciplinary integration, and stake-holder and end-user participation, as they may facilitate an integrated discussion about river basin and water management

**THANK YOU!**

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