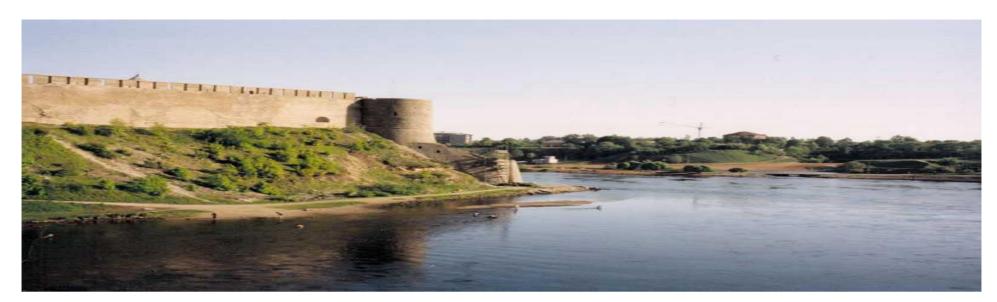




Thirteen research groups from six different countries

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



- •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 storyline 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 socioeconomic 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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