

## Conflict area water availability under global change - Introduction -

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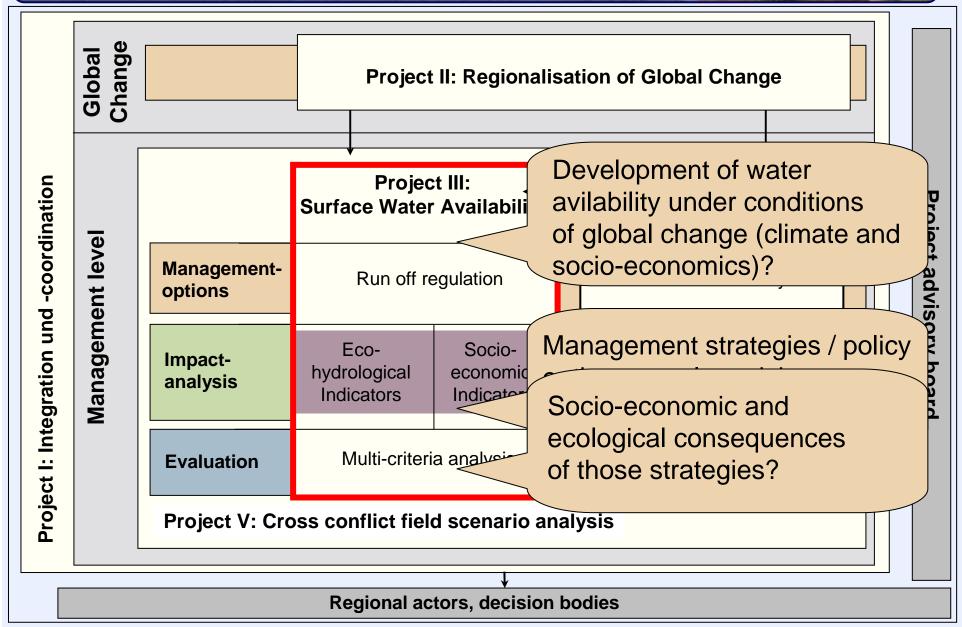






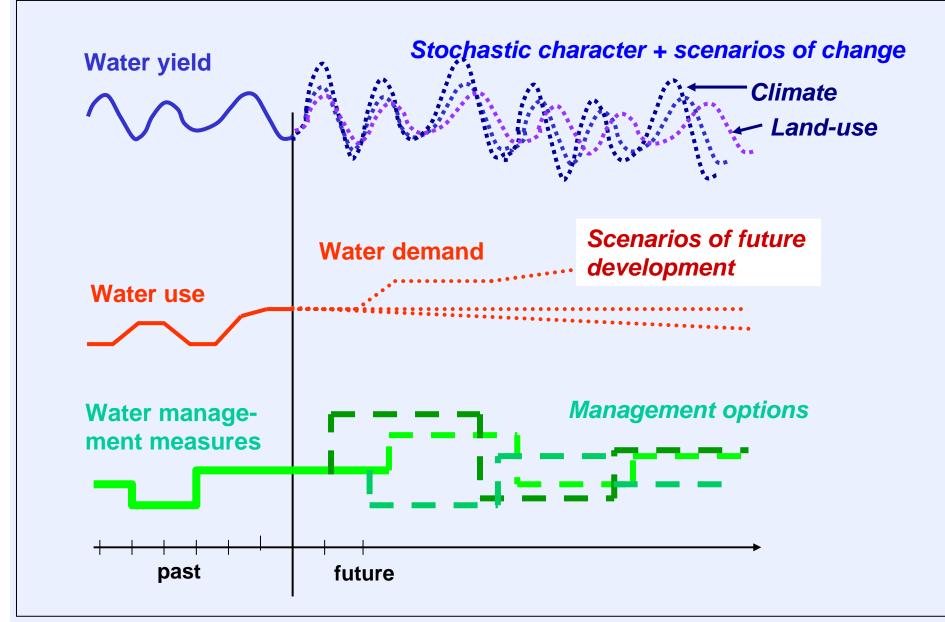
## Sub-project III - main goals





## Conditions for water management





### Water resources management – objectives and constraints



Water management – a task with stochastic input (natural water yield, runoff) and determined but uncertain requirements and constraints

## **Objectives**

- Satisfaction of water demand (municipalities, agriculture, industry, navigation, etc.) - quantity and quality
- Minimum discharge
- Good ecological state
- Flood protection

• ....

#### **Constraints**

Capacity of reservoirs

hology of rivers and usability of resources atic ecology

**Global Change!** 

Interest of

Interest groups

Stakeholder

Decision makers /
Institutions

Stochastic long-term simulation of water management in river basins

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## Management alternatives

- Reservoirs,
- Ranking
- ....



The basic tool: simulation system WBalMo, developed and applied for the entire Elbe river basin. Land use and regional water balance **Nutrient load** Water (MONERIS) management Hydrological cycle and crop yields (WBALMO) Z5 -(SWIM) Point source: Industry Inflow Land use Point source: Regionalization of (LAND USE SCANNER) Sewage plant global change Evaporation Diffuse source: Sealed surfaces **Future climate** Wetlands Diffuse source: (STAR) **Erosion** Diffuse source: Water suppliers Atmospheric Development of Deposition agricultural sector Diffuse source: Industry (RAUMIS) Drainage Water use Diffuse source: Surface denudation Mining **Economics and** Wetlands Diffuse source: demography (MODAM) Groundwater (REGE) Power plants Diffuse source / Households /business Sink: Wetlands (HAUSHALT WASSER) Irrigation Development of Industry energy sector Nutrient concentr. (INDUSTRIE WASSER) (KASIM) Minimal flow for Phytoplankton Energy / Mining conservation Oxygen (KASIM) Water quality Transport on inland waterways (QSim) Agriculture / Irrigation **Development of water** technologies Transport on inland waterways



## M. Kaltofen:

The water management model WBalMo Elbe - methods, application fields and first results

## H. Koch:

WBalMo Elbe / module Czechia - application fields and first results

## F. Messner:

Vulnerability of surface water users and its reflection in WBALMO Elbe



# Thank You for your attention!



