Workshop: DSS in the Euro-limpacs project

Stakeholder and endusers requirements for DSS in water management

Lessons from the Elbe-DSS

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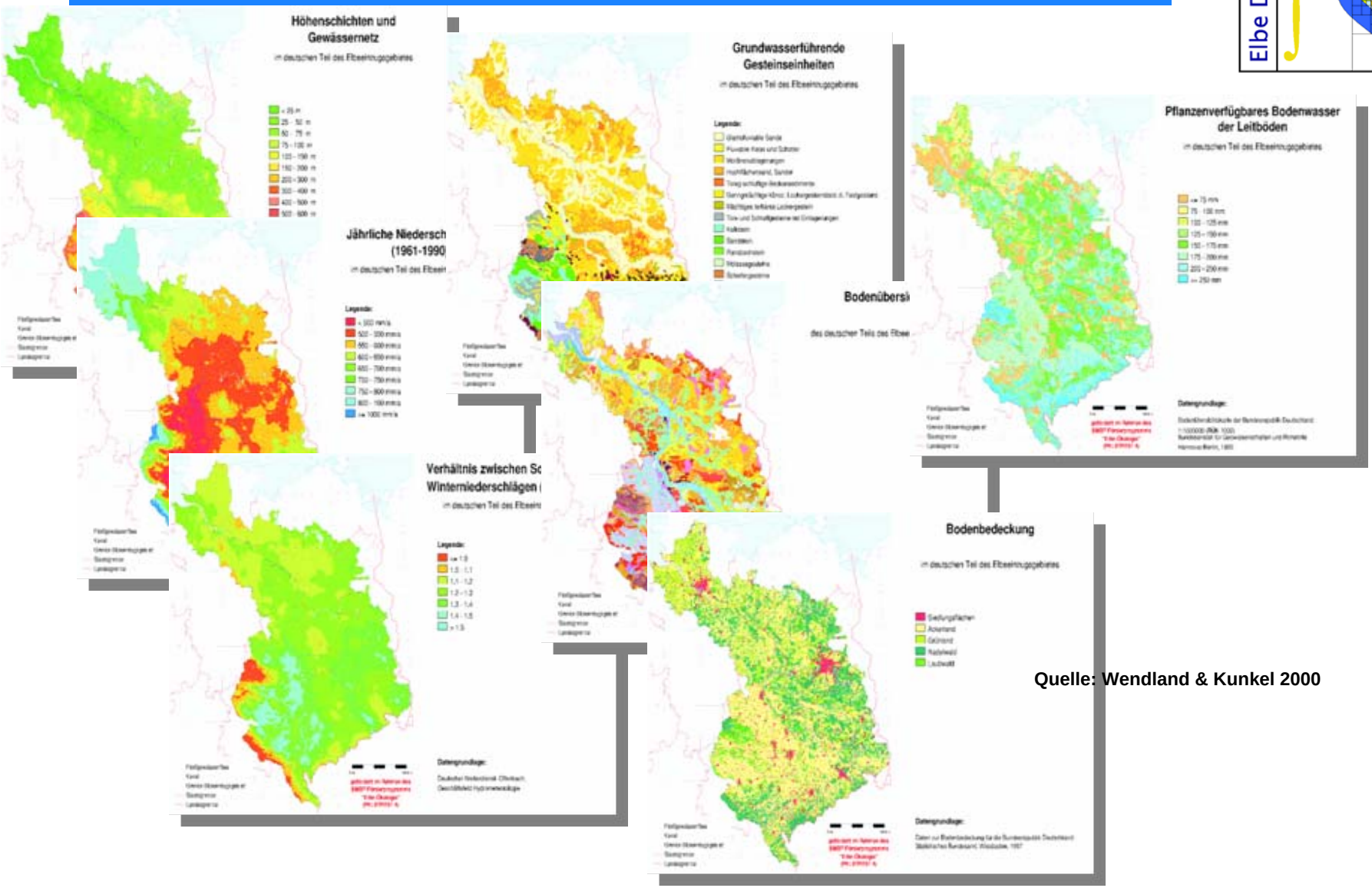
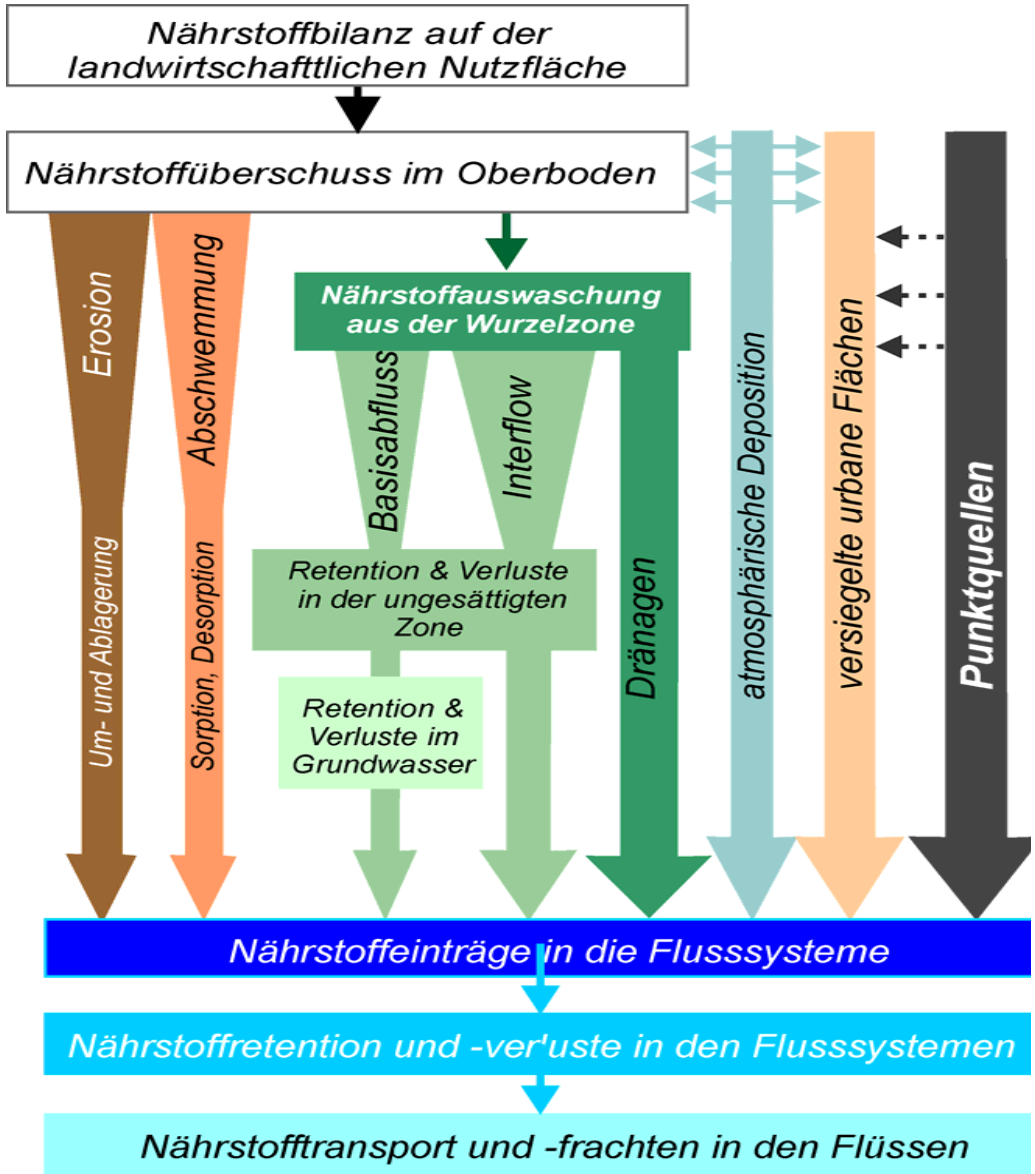
The Elbe River Catchment

Existing research results in Elbe-Ecology program



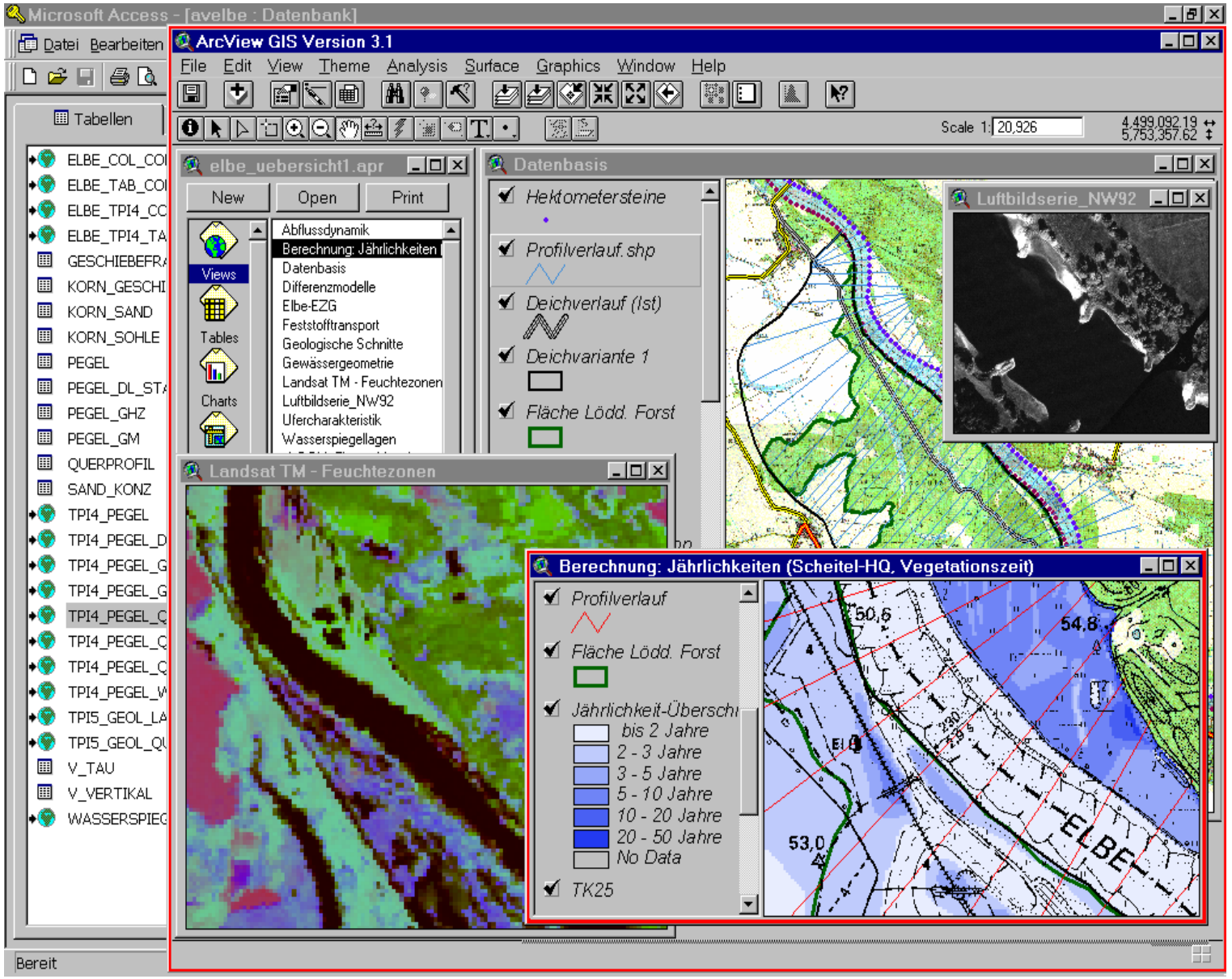
Quelle: Wendland & Kunkel 2000

Lots of results in „singular“ methods



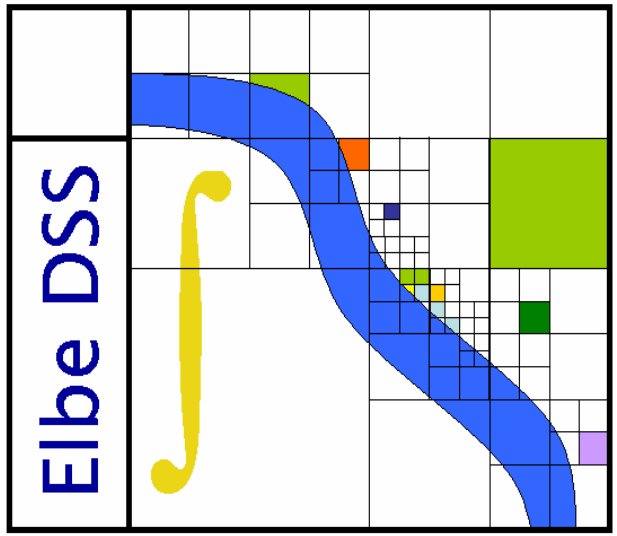
MONERIS
(Behrendt et al. 2004)

Lots of results in „singular“ databases



Aim of the Pilot-DSS for the Elbe

Sectoral research models + methods



Integration - accessible for practical use -

management-context

EU-WFD

⇨ management-plans, pollutant loads, quality criteria of river morphology

New philosophy by EU in funding agriculture

⇨ „cross-compliance“

Flood prevention

⇨ Estimation of effetcs of dike shifting/ polders

⇨ Support on planning when reconstructing dikes

management-context

Concepts for running the waterways

⇨ **Improving navigabilty regarding ecological aspects**

Land use planing in the floodplains

⇨ **Dike relocation**

⇨ **Ecological oriented development of the river and the floodplain (UNESCO Biosphere reservations)**

etc. ...

“ ➔ ∑ Integrated river basin management”

Stakeholder/players

Federal

- Federal Ministries (Transport & Infrastructure, Environment, Agriculture
- Federal Waterways and Shipping Directorates (WSV)
- Federal Institute of Hydrology (BfG)
- Federal Waterways Engineering and Research Institute (BAW)
- Federal Environmental Agency (UBA)

Länder

- Ministries of the *Länder* in the catchment area
- Administration for nature prevention, environm. affairs
- Administration for agriculture
- Administration for economy
- .....
- Laender working group Elbe (ARGE-Elbe)
- river basin cooperation according to EU-WFD
- Biosphere Reservations

communal

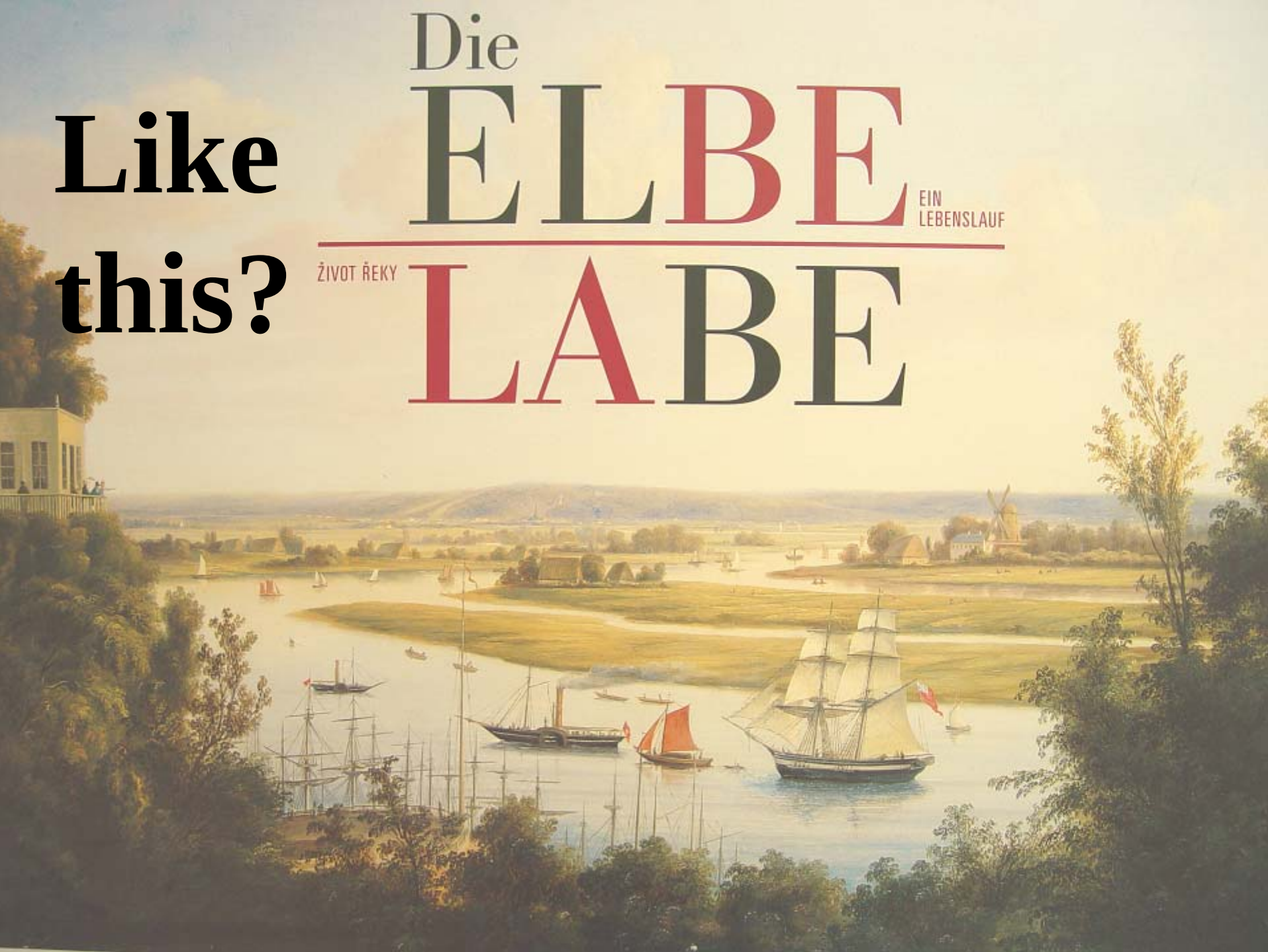
- Dresden
- Magdeburg
- Stendal
- Tangermünde
- Jerichower Land
- Prignitz
- .....
- Water management associations and authorities

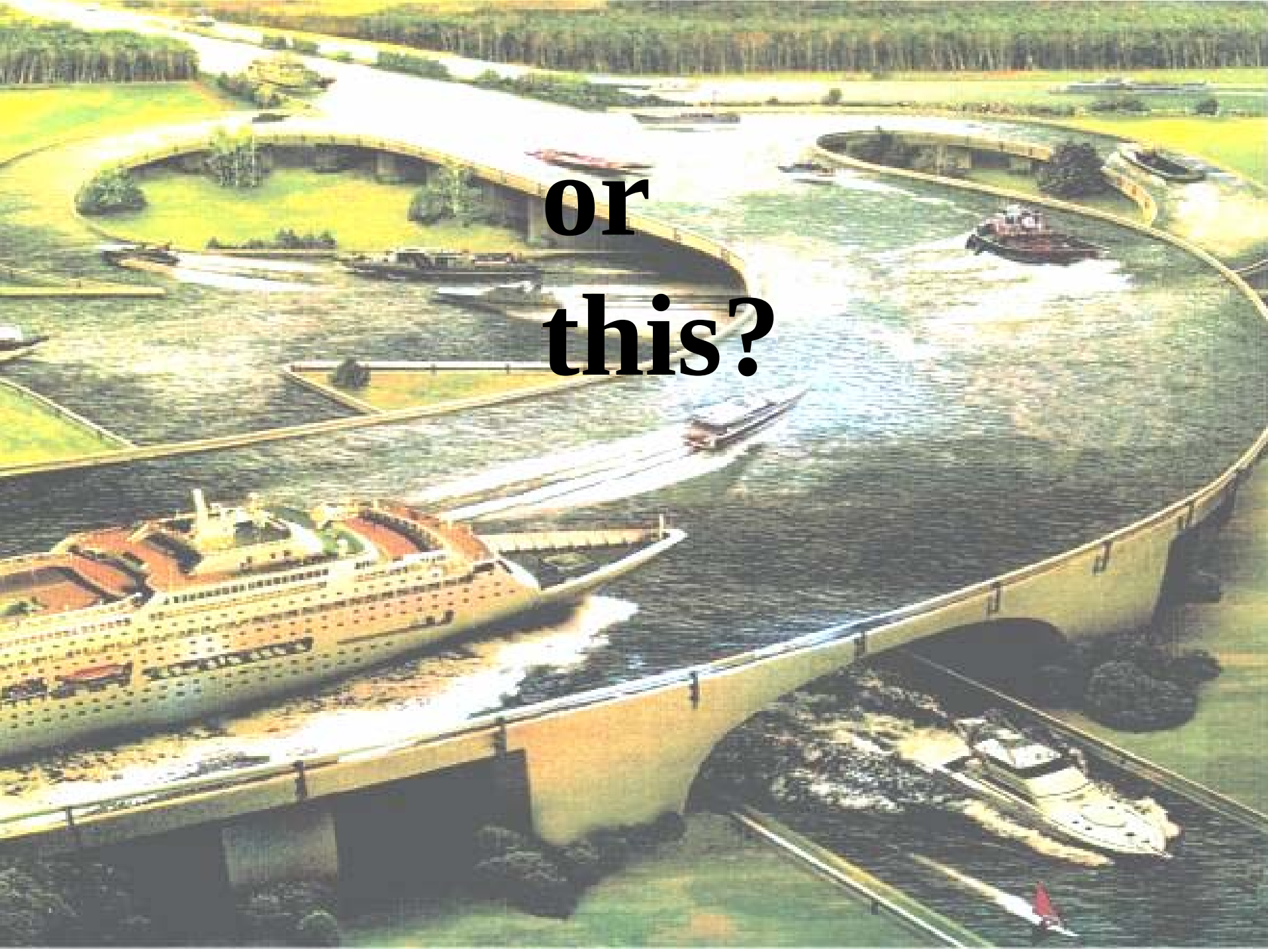
NGOs for the environment

- BUND
- NABU
- WWF
- .....

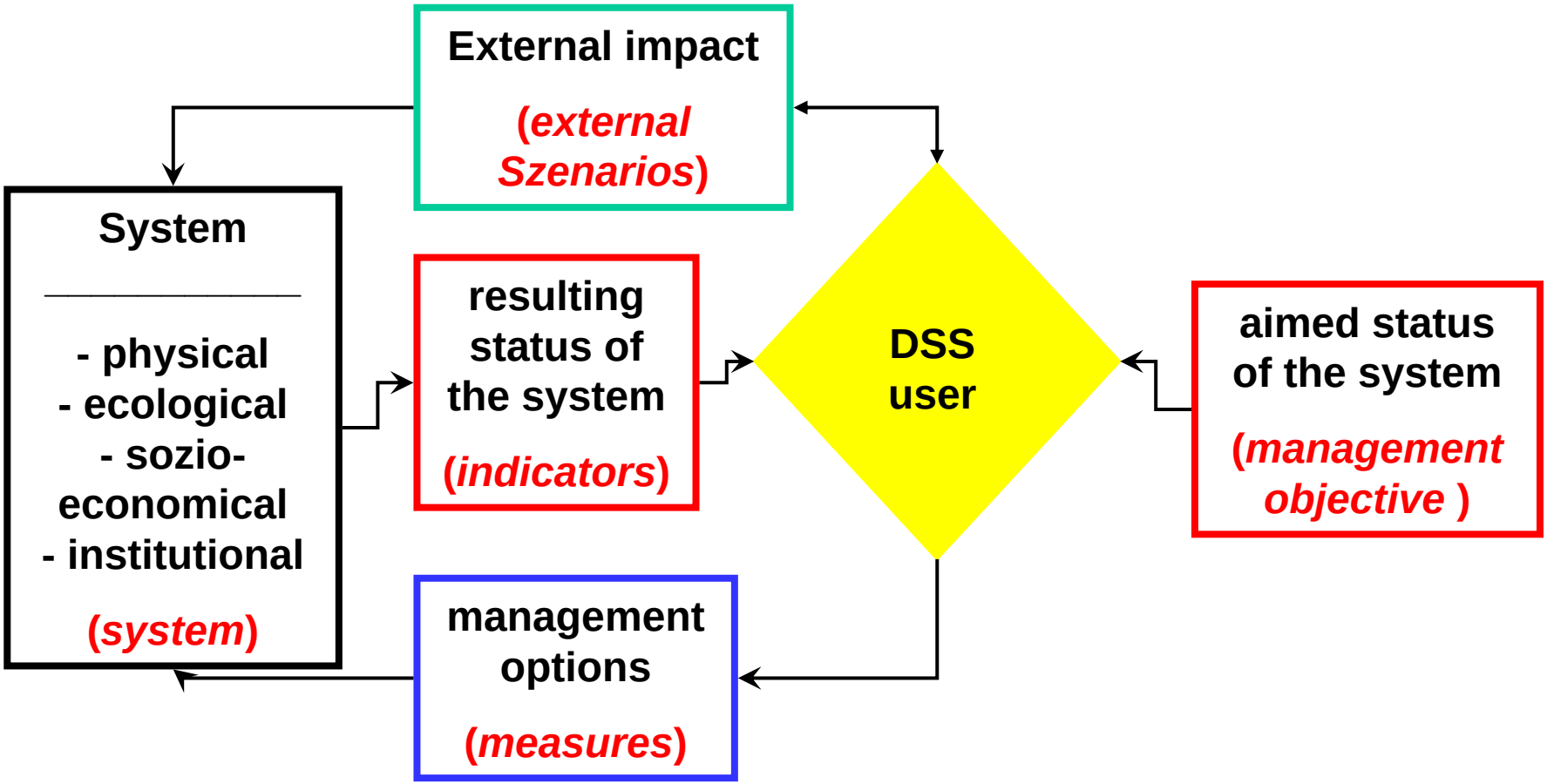
International Commission for the protection of the Elbe River (IKSE)

Like this?




or
this?

The dynamic + interactive context



models and data (overview)

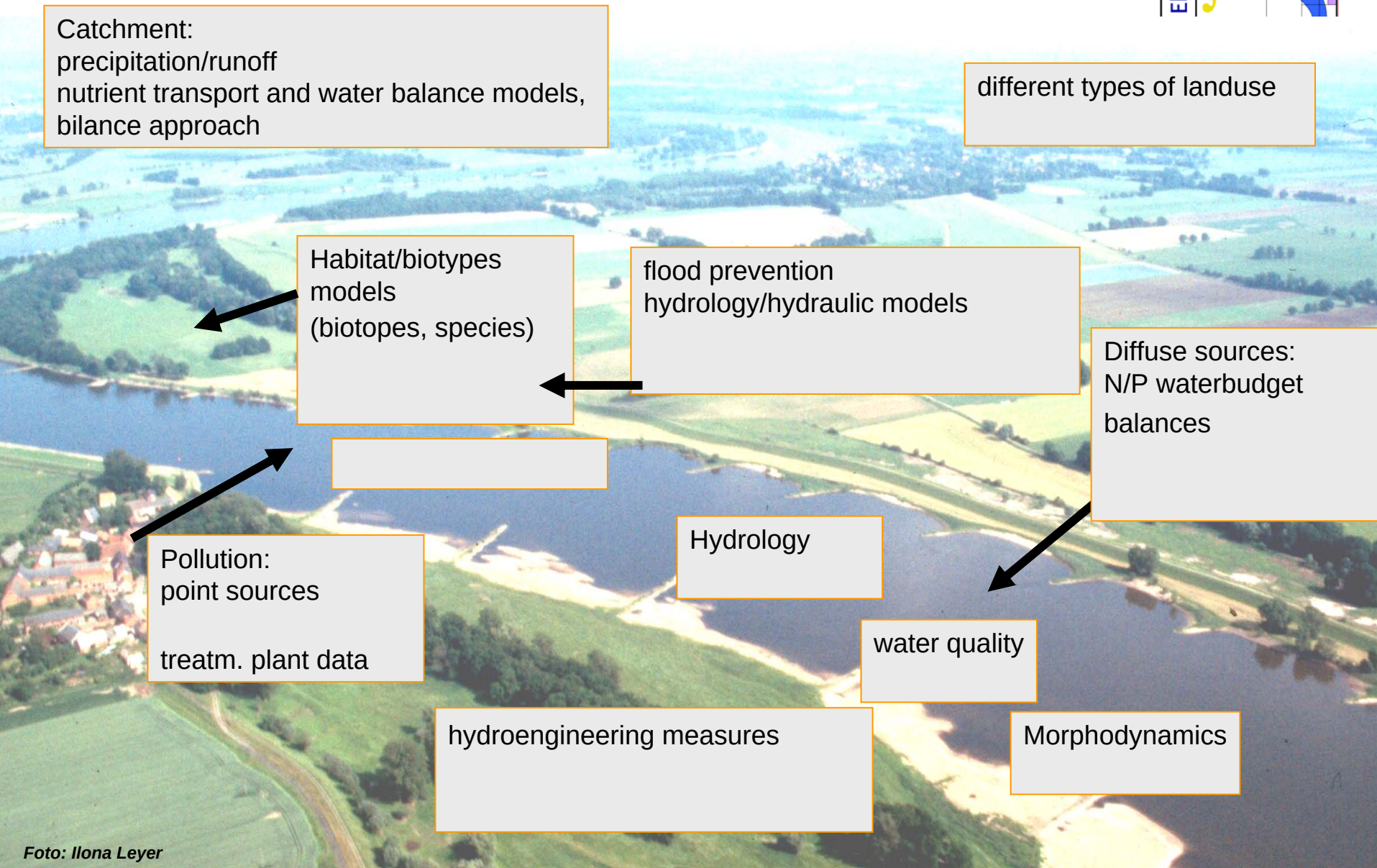


Foto: Ilona Leyer

models and data (overview)

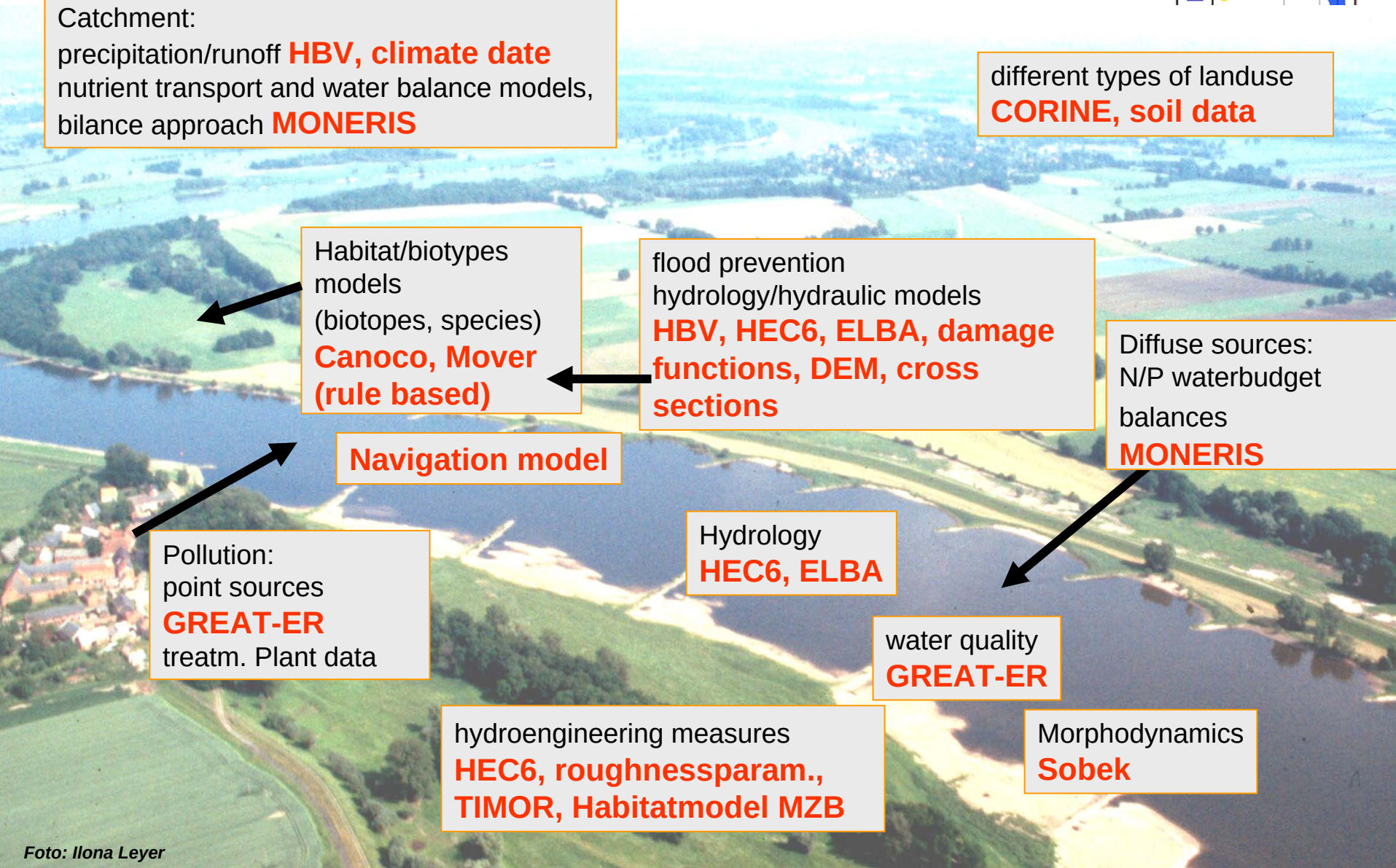
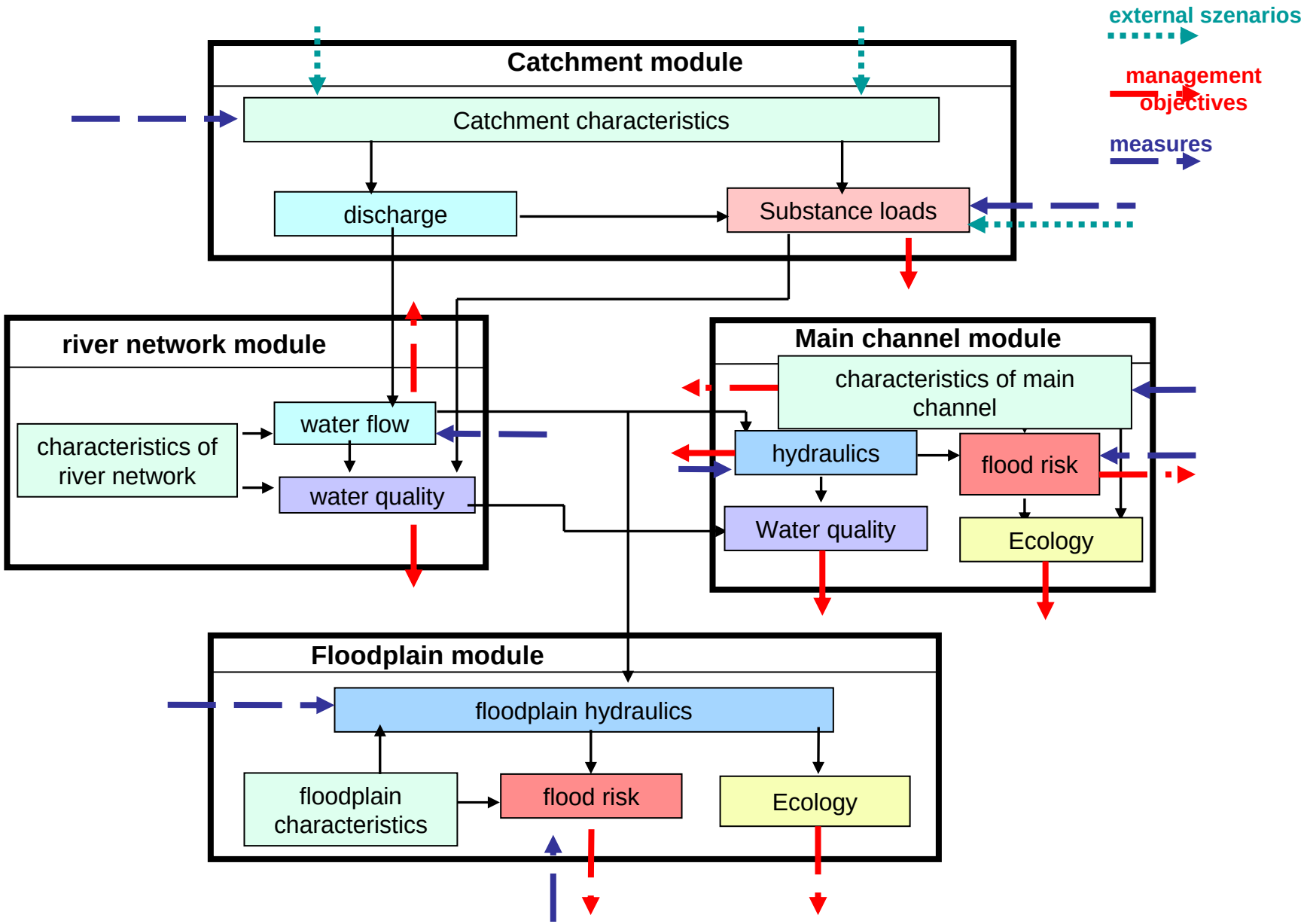


Foto: Ilona Leyer

Scales and system diagram



functions of the recent DSS functionalities

- ⇨ **showing cause-effect relations**

- ⇨ **„sensitivity analysis“ of management options**

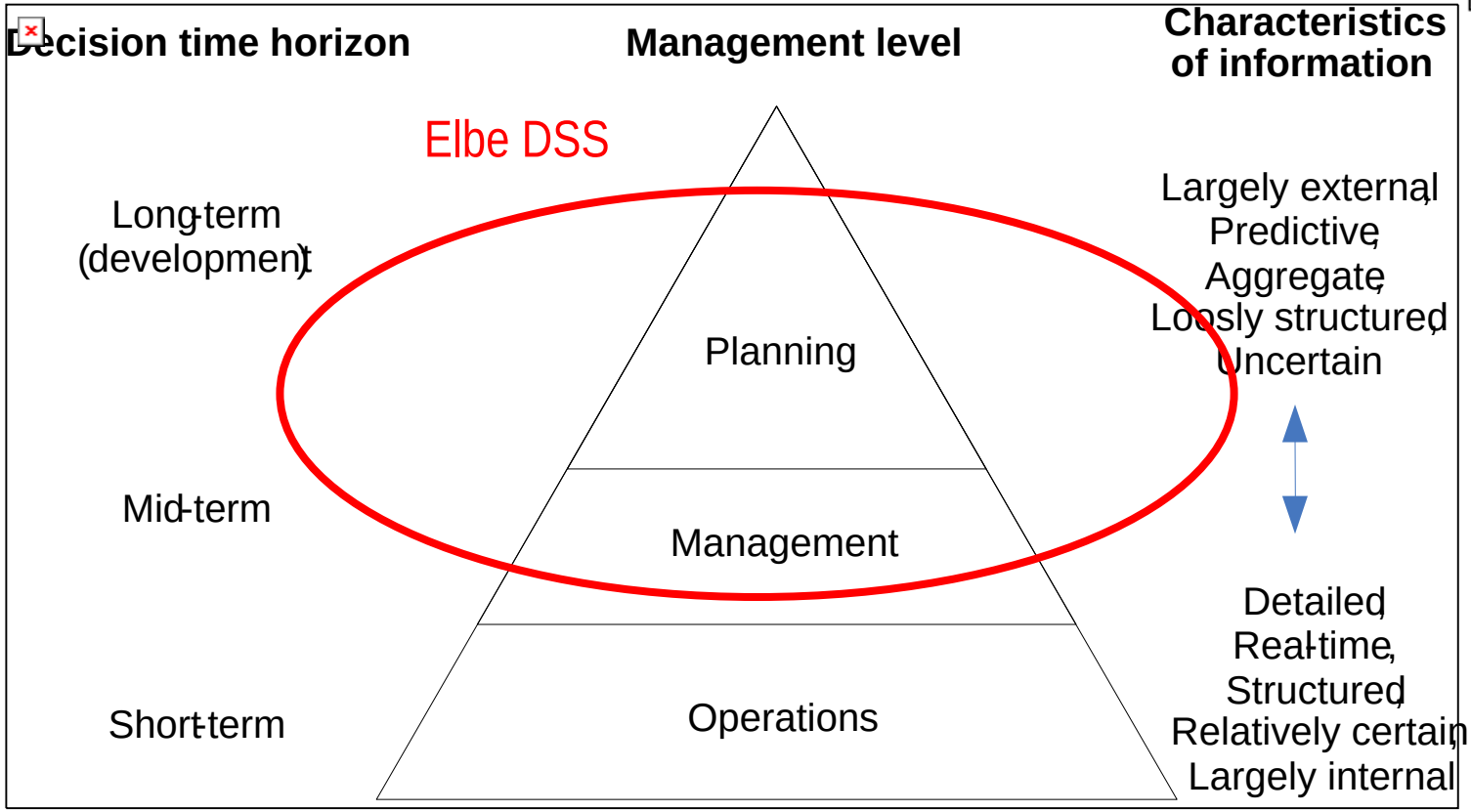
- ⇨ **tool to prepare decisions on <u>strategic</u> level <u>and</u> scale:**

  „<u>which</u> Option is better/worse?“

  „<u>how</u> much is option a or b better / worse?“ = restricted

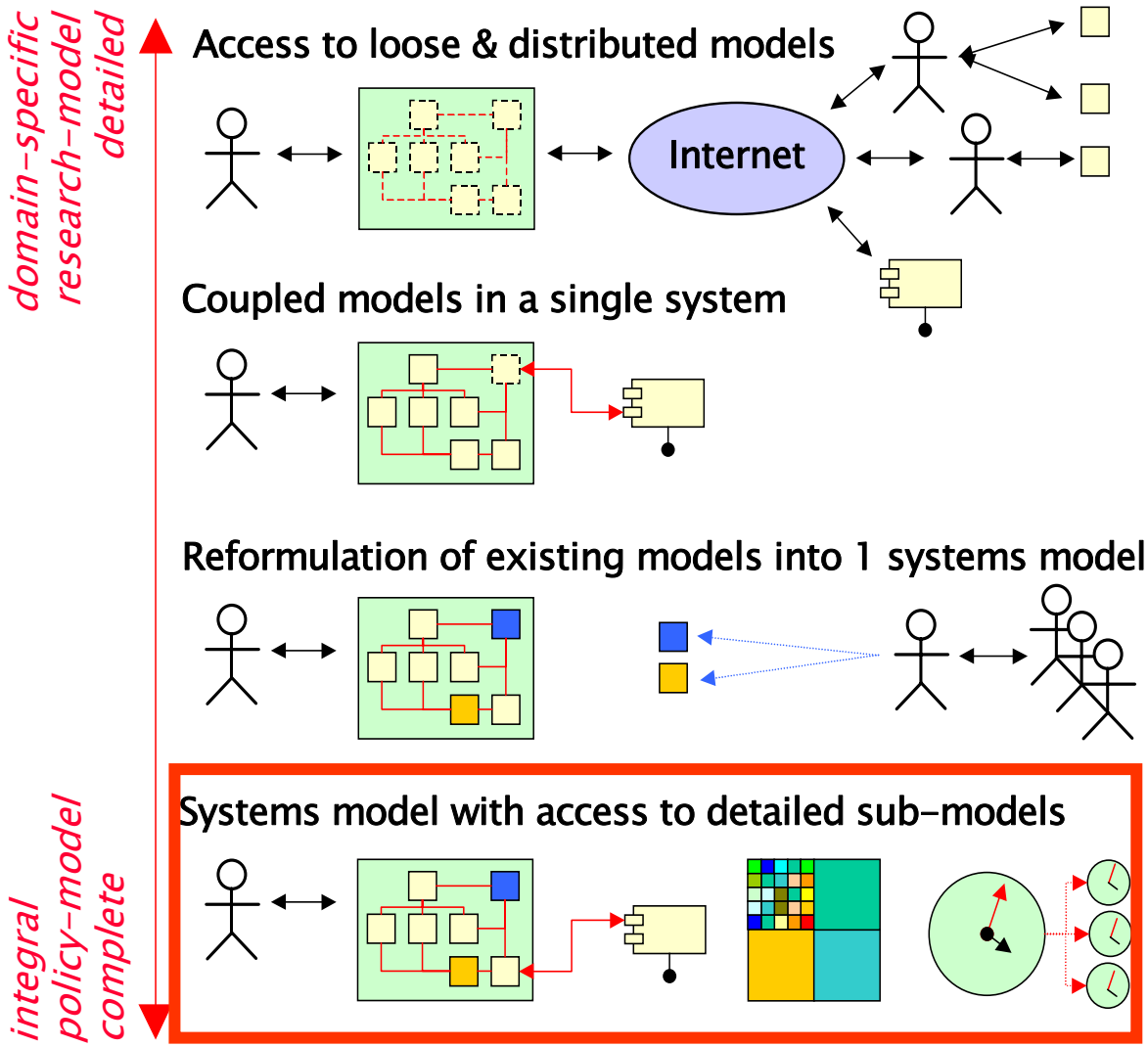
- ⇨ ***„Discussion“ support (even to the public!)***

operational level in the recent version



Decision Pyramid (after Loucks, 1995).

System architecture



- **PC application for Windows NT, 2000, XP**
  (min. 256 MB, better > 512 MB)
- **access via kontext-sensitve user interface**
- **<u>no licences required</u>**
- **<u>no special IT-knowledge required</u>**

State of the Project „Elbe-DSS“

- Pilot-DSS is available via internet and ready „to play with“

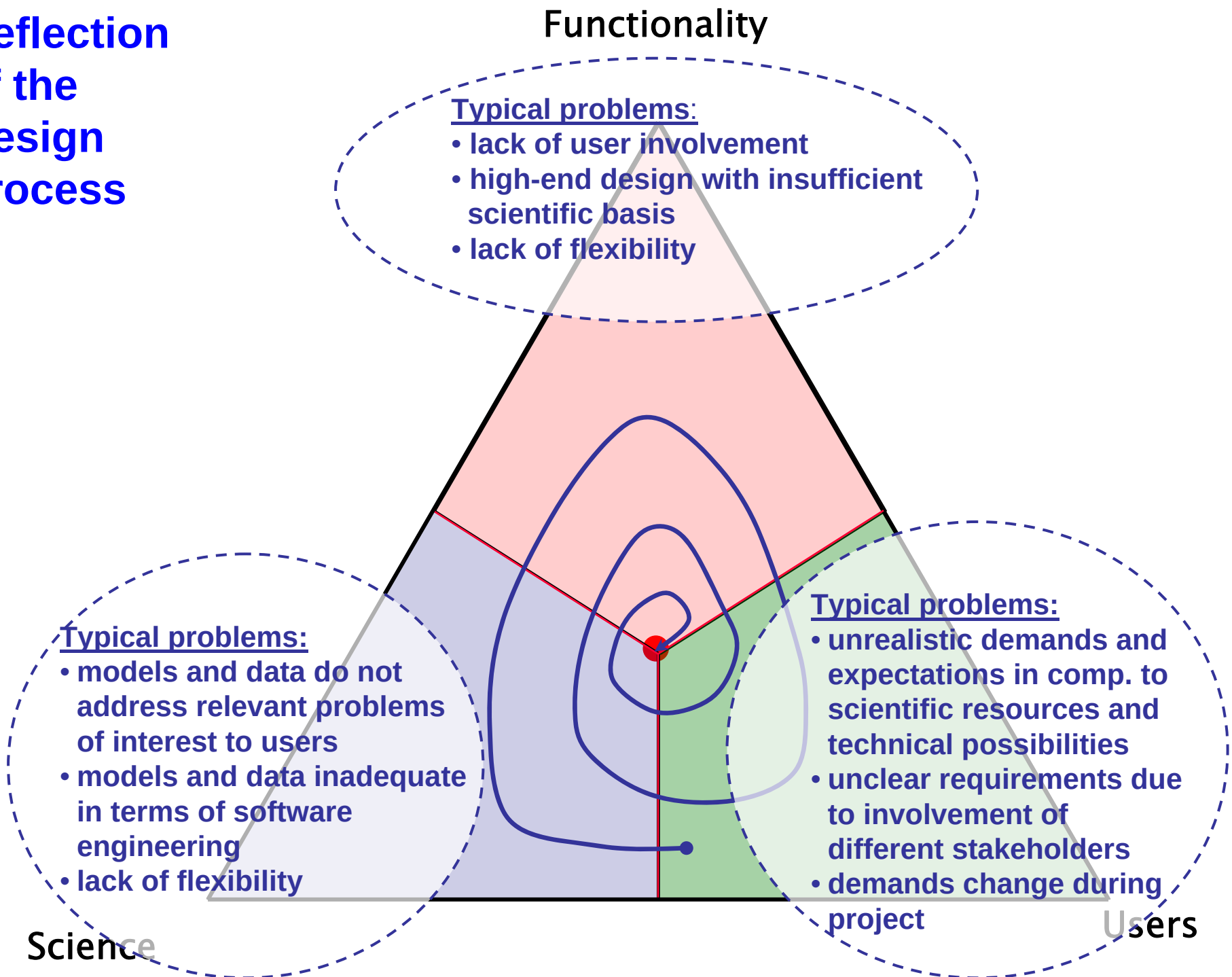
- Potential users like the idea and the funtionalites, but cautious to really use it in daily practise

- Trust has to be improved by really using it …

- Elbe-DSS-development of the last 3-4 years = sucessful .... ?
  → now testphase!
  - exercises in coop. with adminitratives/NGO in their office
  - Examples of daily management tasks
  - learning and getting used to such a system

- English demo in summer available

Reflection of the Design process



General experiences/statements

- DSS are useful for Partizipation und „disscussion support“! The demand for such tools is adressed to science and developers
- Developing a DSS requires
  - a clear set of objectives,
  - readily available base material,
  - a realistic time schedule,
  - resources and expertise.
- End-user involvement from the start on is essential!
- Modellintegration is at the beginning of its development
- Our technical solutions are not good enough yet, but more advanced than what most policy making institutions are currently ready and able to work with.
- Often resources are lacking for a good calibration, validation and uncertainty analysis, and pragmatic choices have to be made.

lessons/recommendations: user requirements (1)

- Start from policy questions instead of what data and models are available

- Find out the management tasks by asking the managers, not people who might know about it

- Find out requirements
  - of stakeholders
  - of the people on the “working” level and their requirements for DSS functions (there is knowledge of existing IT infrastructures)
  - of the decisive people and try to integrate them in the development process

- Classify scales (spatial/time) of the relevant management problems and related data and models

- develop adequate system, which is useful and effectively to solve the problems of the end users

lessons/recommendations: user requirements (2)

- Find out if there are restrictions to certain models in the user level

- Identify the indicators for representation of model results precisely according
  - to terminology of legal regulations like WFD…
  - to parameters of of legal regulations

- Create interfaces for users daily work
  - Useful tools/maps etc. and availabilty of DSS results for their reporting e.g.

- <u>Indicate the uncertainties of model results</u>

- Indicate in the system clearly scientific basis of approaches

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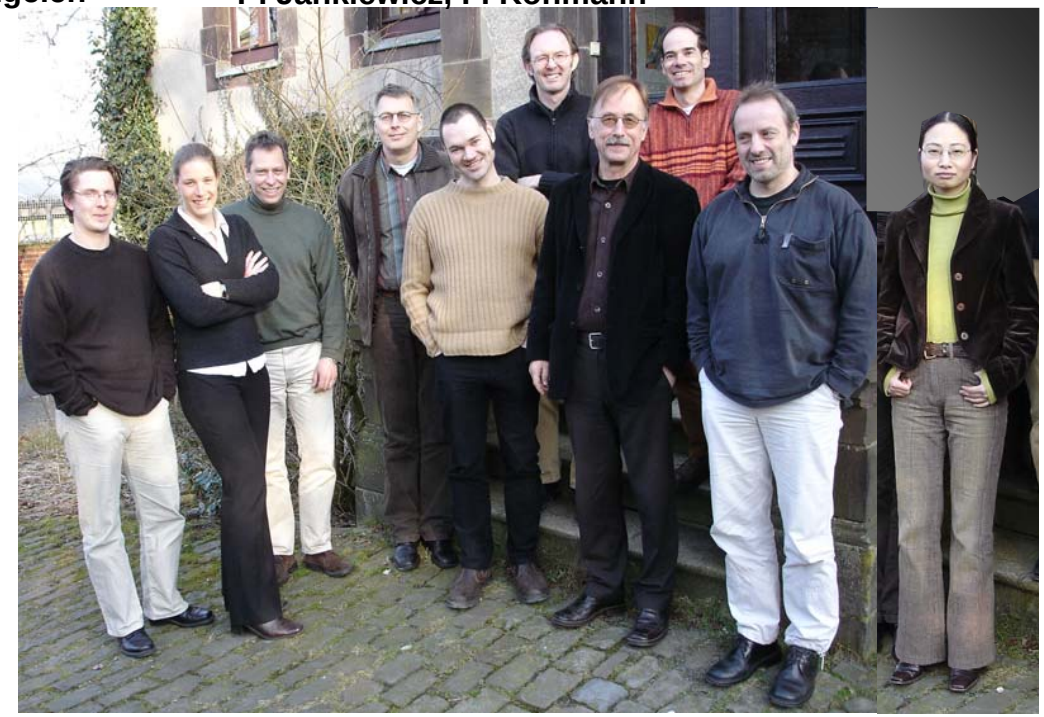

Thanks for attention!

http://elise.bafg.de/?3283

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