New paradigms for river management

Improved integrated planning strategies and techniques

Manfred Ostrowski
Technische Universität
Darmstadt
ostrowski@ihwb.tu-darmstadt.de

Introduction

The new millenium brought us

→ New objectives in water management
→ New paradigms in water management

- water millenium goals
- EU- water framework directives
- change of national water laws
- EU- Flood directives
- awareness of climate change impacts
- Agreed orientation towards IWRM

IWRM

What is it?

Integrated water resources management

„A **process** which promotes the co-ordinated development and management of water, land and related resources in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital eco-systems“

(Toolbox - Global water partnership, 2003)

IWRM

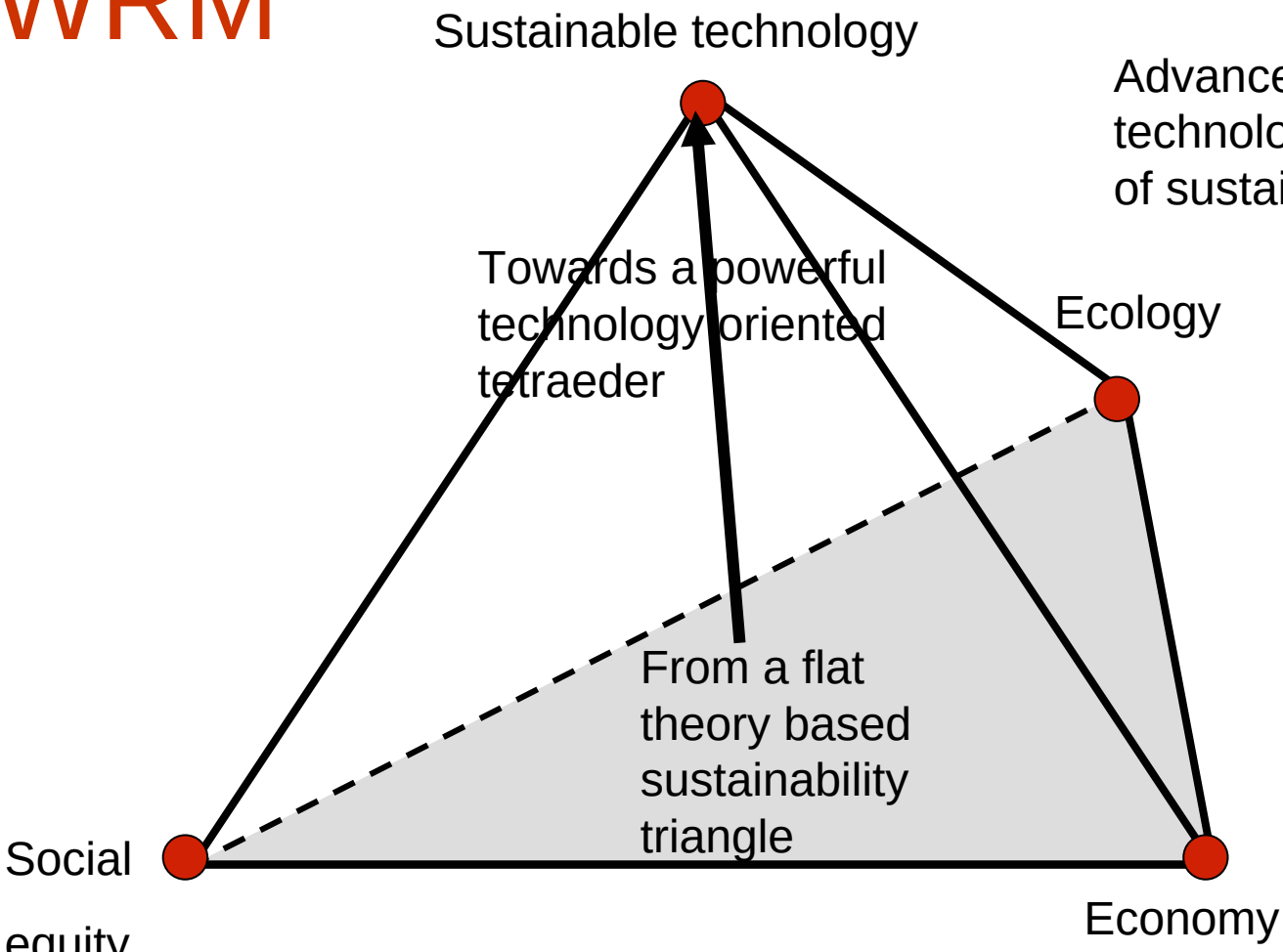
The new overall paradigm is

Integrated water resources management

Question:

Beyond good will what do we need to do to bring IWRM from political lip service to a continuous operational approach ???

IWRM


Sustainable technology
Advanced and high technology is the spearhead of sustainable development
Towards a powerful technology oriented tetraeder
Ecology
From a flat theory based sustainability triangle
Social equity
Economy

IWRM

Basic principles

- Open and transparent
- Inclusive and communicative
- Coherent and integrative
- Equitable and ethical

Performance and operation

- Accountable
- Efficient
- Responsive and sustainable

(Toolbox - Global water partnership, 2003)

IWRM

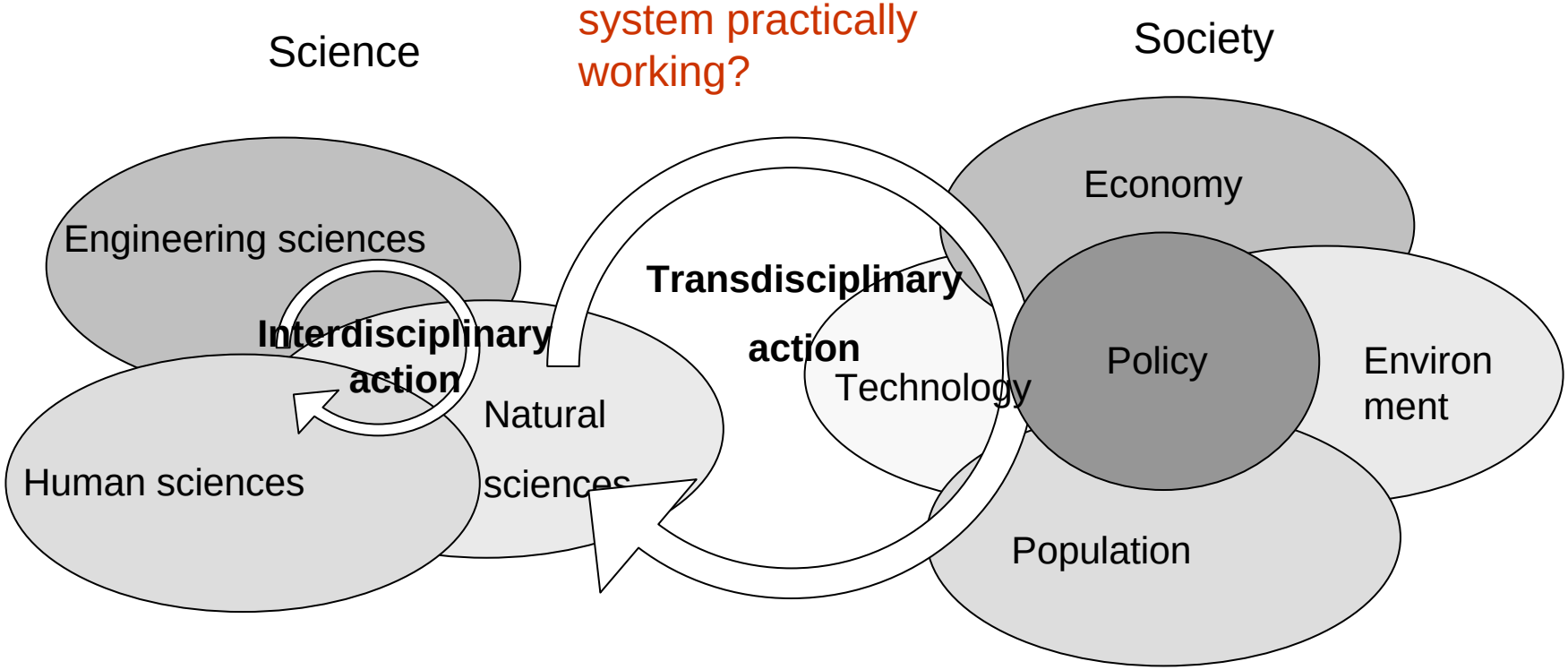
How do we get from words to action?

By

- Free foreward thinking
- Development of methods
- Trial application
- Learning
- Assessment
- Feed back action

Doing nothing
is a scenario
but no option!!!

How can we get this extremely complex system practically working?



Transdisciplinary interaction avoids the creation of ivory towers

Obstacles and bottlenecks

The ways from sectorial thinking and acting towards a fully integrated water management is very stony with one way and dead end roads as well as closed circles.

- Single economic objective dominates multi-objective thinking in society
- Short political horizon and unsuitable administrational structure
- Ignorance
- Missing methods and experience
- ….

national legal framework (under the European Framework)

national organisational/administrational/institutional framework

national water management sectors

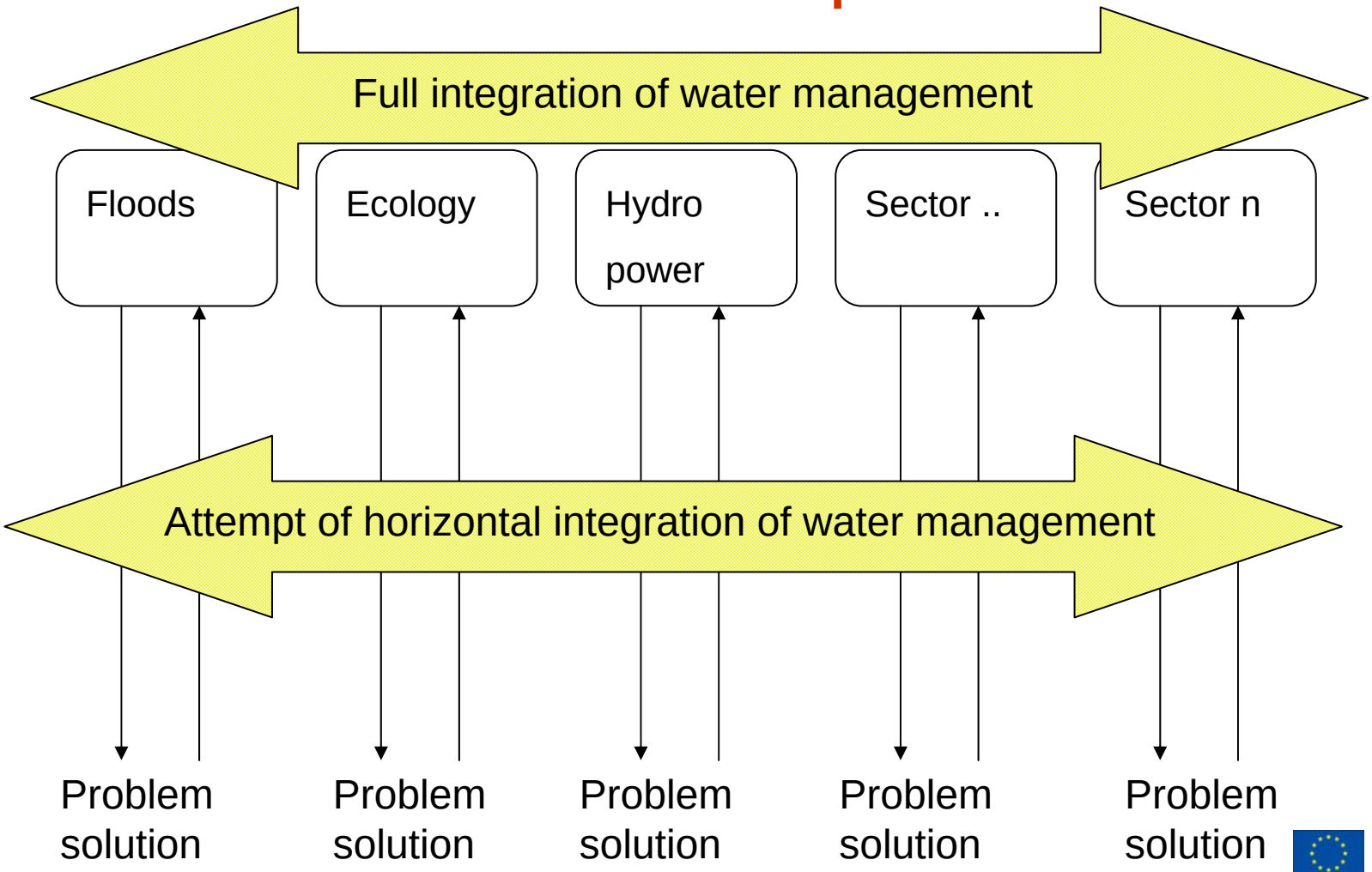
nofdp

Flood management | Ecologic standards | Water supply | Irrigation | Navigation

Operational integrated sustainable water resources development and management on a regional catchment scale ~ 500 - 2000 km^2

Identification of multi-objective development and management strategies by negotiating and deciding on a set of feasible structural and non structural management measures based on discussion and decision support systems

The basic administrative problem



WFD and Flood Directives

WFD: Member States may designate a body of surface water as artificial or heavily modified, when: that body which would be necessary for achieving good ecological status would have significant adverse effects on:

- (iv) water regulation, flood protection, land drainage…

This is all !!!!

WFD and Flood Directives

(17) Development of river basin management plans under Directive 2000/60/EC and of flood risk management plans under this Directive are elements of integrated river basin management.

The two processes should therefore use the mutual potential for common synergies and benefits

WFD and Flood Directives

Member States …coordinate the application of this Directive and that of WFD focusing on …

- improving efficiency
- information exchange
- achieving common synergies and benefits having regard to the environmental objectives laid down in Article 4 of WFD

WFD and Flood Directives

The … flood risk management plans … shall be carried out in coordination with, and may be integrated into, the reviews of the river basin management plans provided for in Article 13(7) of WFD

The active involvement of all interested parties …shall be coordinated, as appropriate, with the active involvement of interested parties under WFD

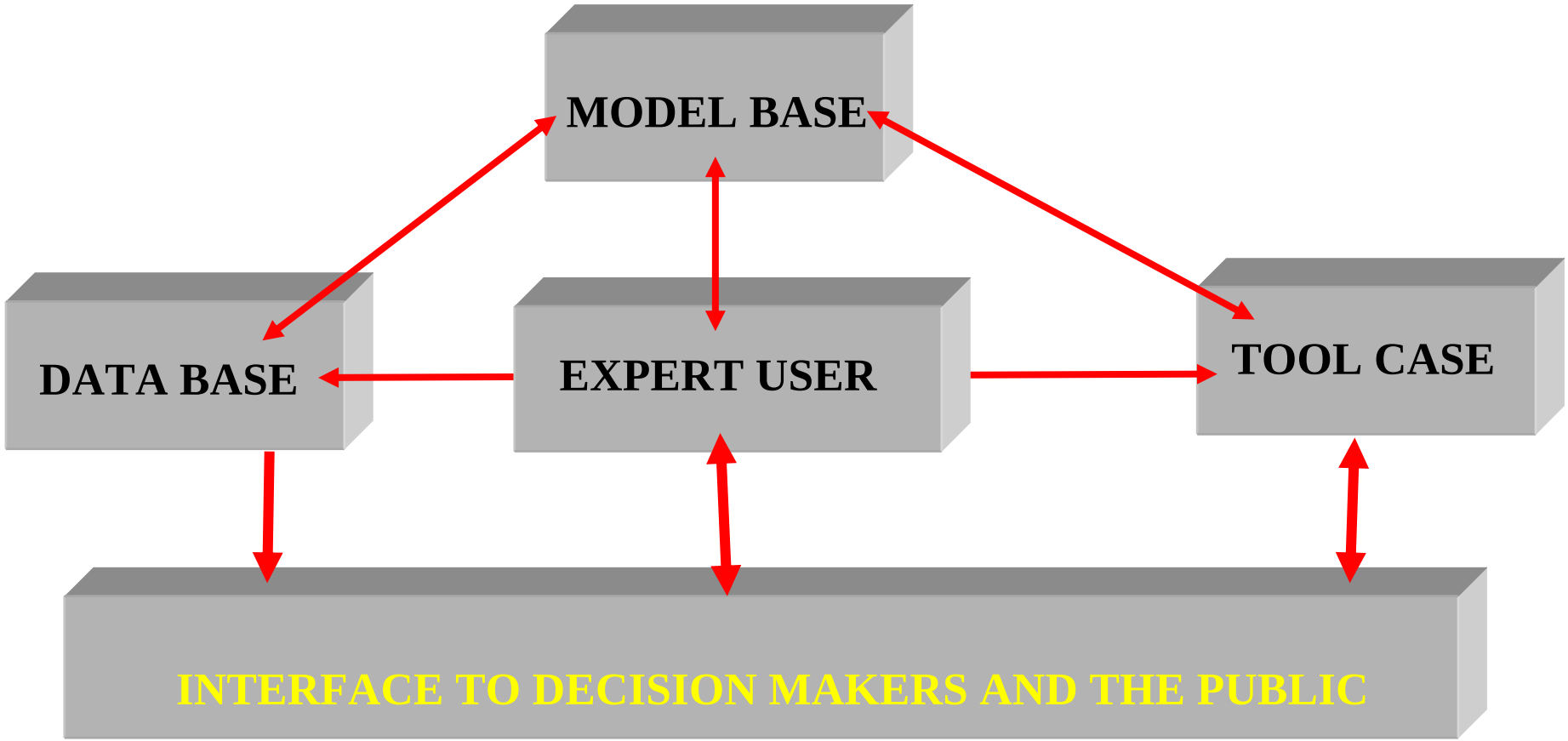
WFD and Flood Directives

Personal interpretation:

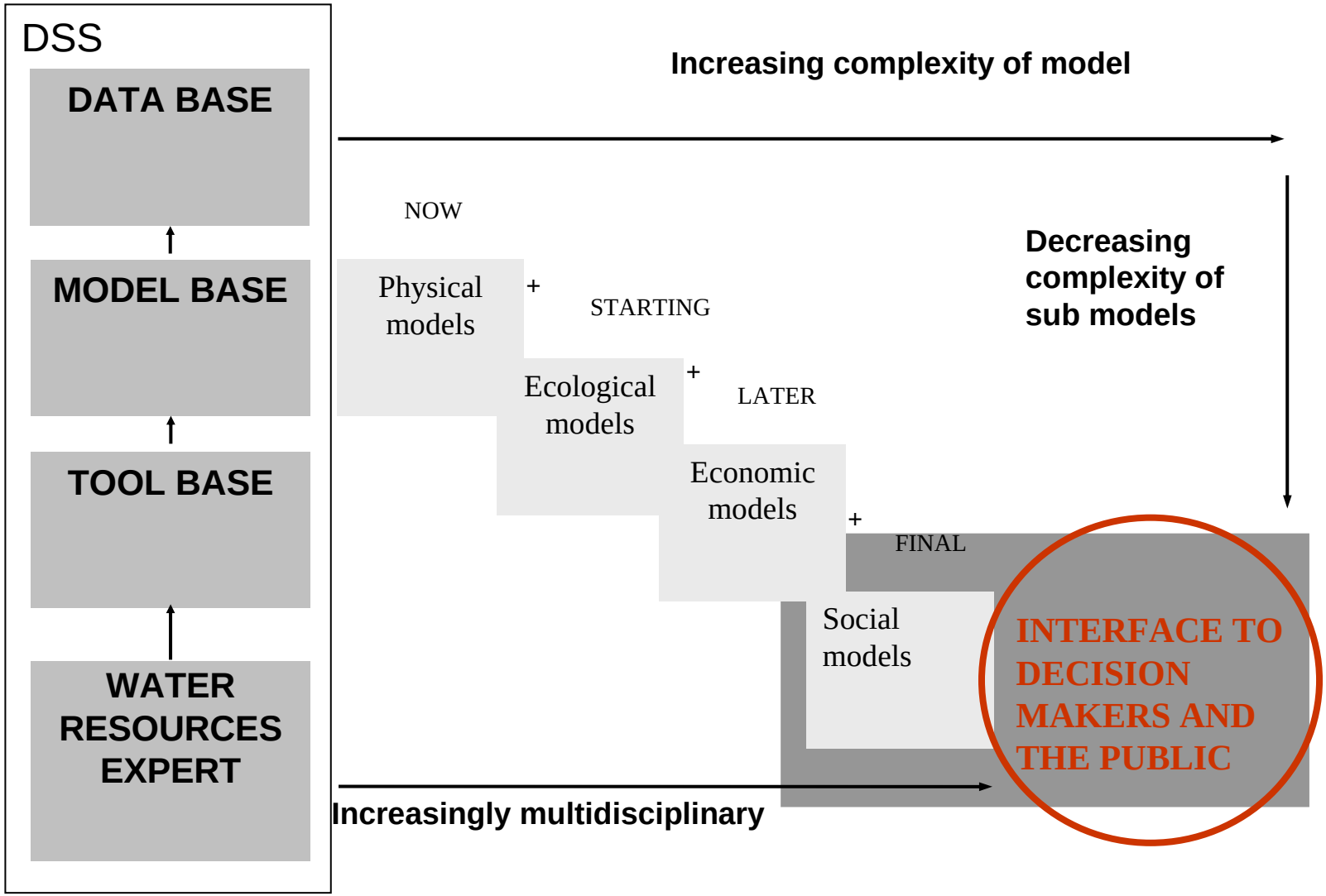
After neglecting flood issues more or less completely in the WFD 2000/60 the feedback processes were fully recognised and implemented in the Flood Directives 2007/60.

It provides the opportunity for integrated management plans

Technical decision support



Technical decision support systems



Some remarks on DSS

- DSS do not make decisions, they should support the process
- DSS are no expert systems, but they can be linked to them
- Models are often helpful but not compulsory
- They can be powerful tools as well as dangerous toys, they can be misused
- The most critical part is the interface

Conclusions

Combine low flood risk with high ecological value at adequate cost

in a complex planning environment by developing and applying user oriented and computer based information and decision support systems