

# *Water Governance in the Face of Global Change: From Understanding to Transforming*

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# *Guiding Research Questions*

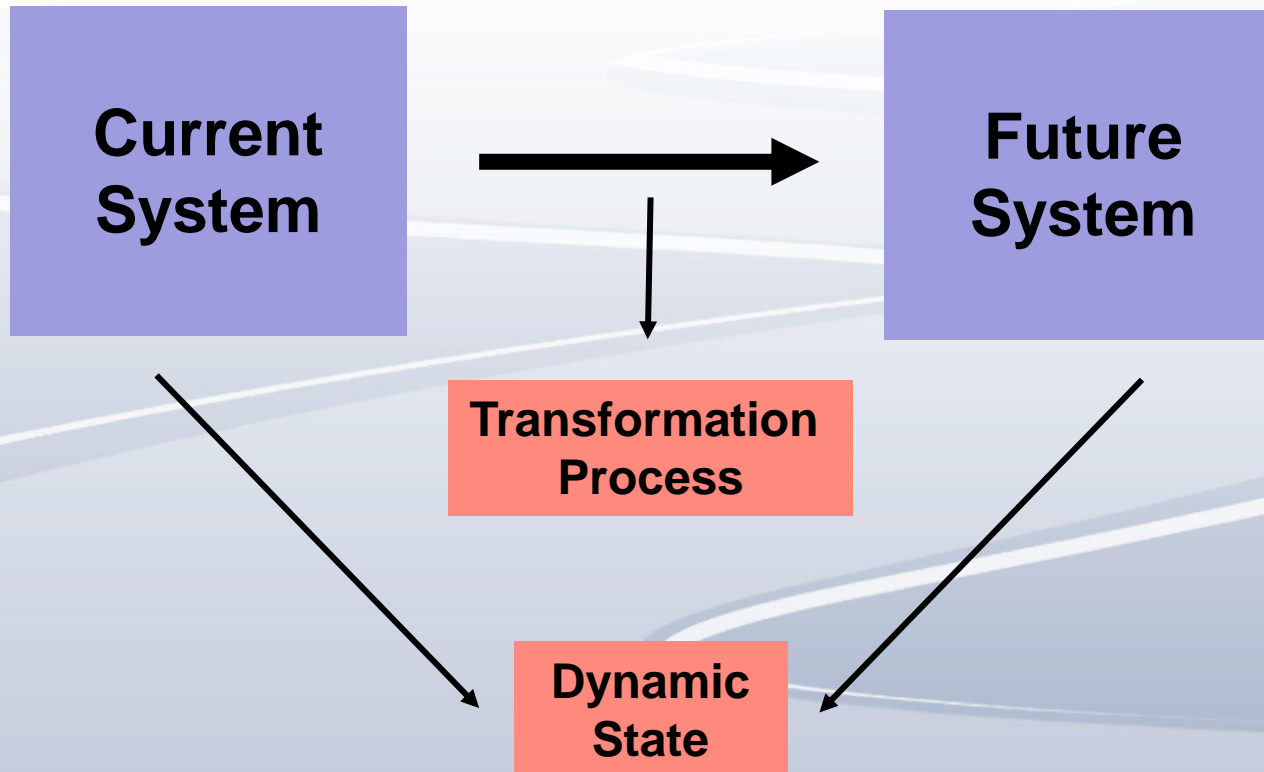
Which factors determine *adaptive and transformative capacity* of (water) resource governance and management systems?

What are requirements for multi-level social and societal *learning processes*?

How to *govern the transition* to sustainable water management and to which extent can transformative change be governed?

***DEVELOPING A  
CONCEPTUAL  
FRAMEWORK***

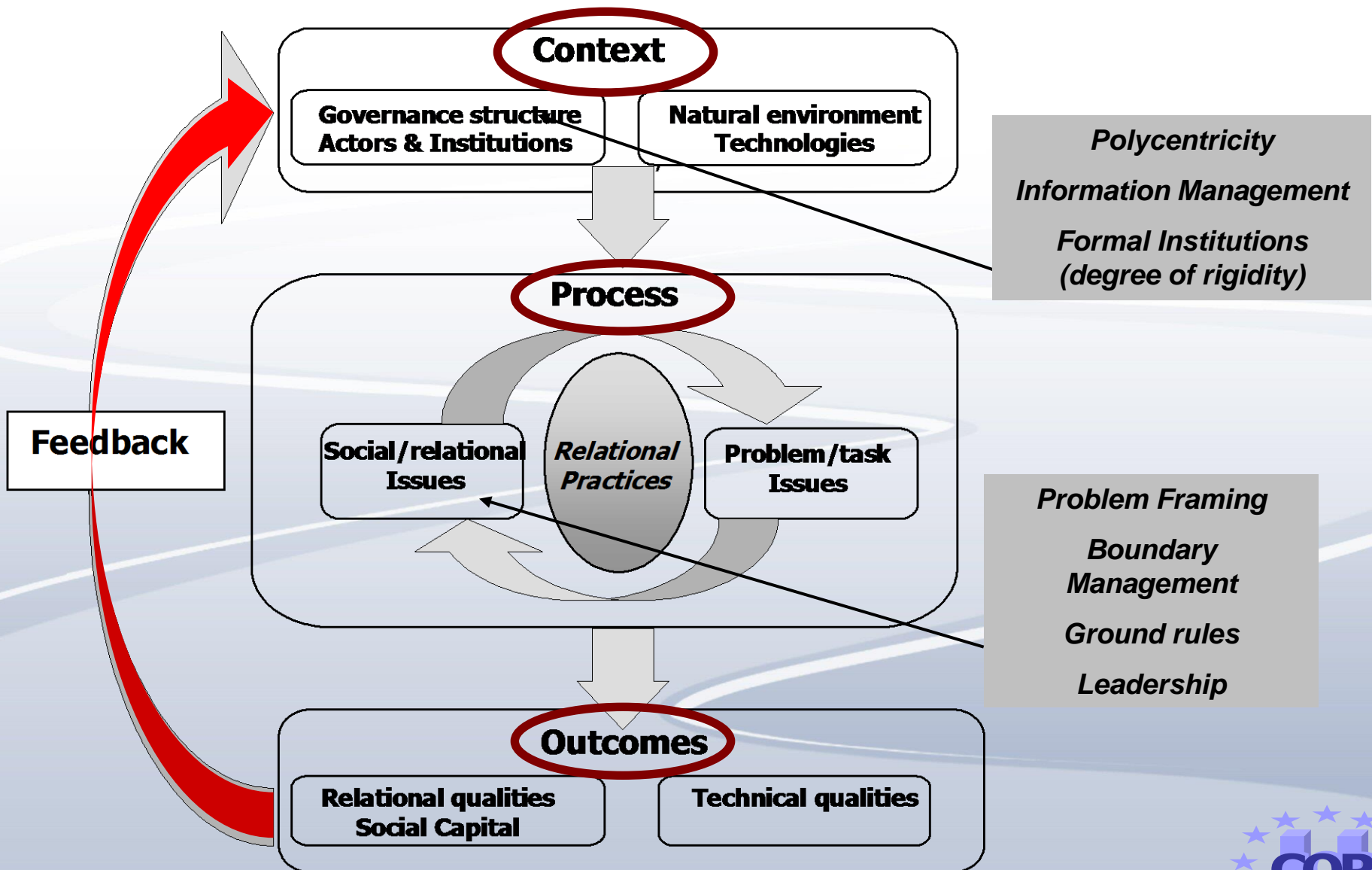
# *Elements of a Framework*



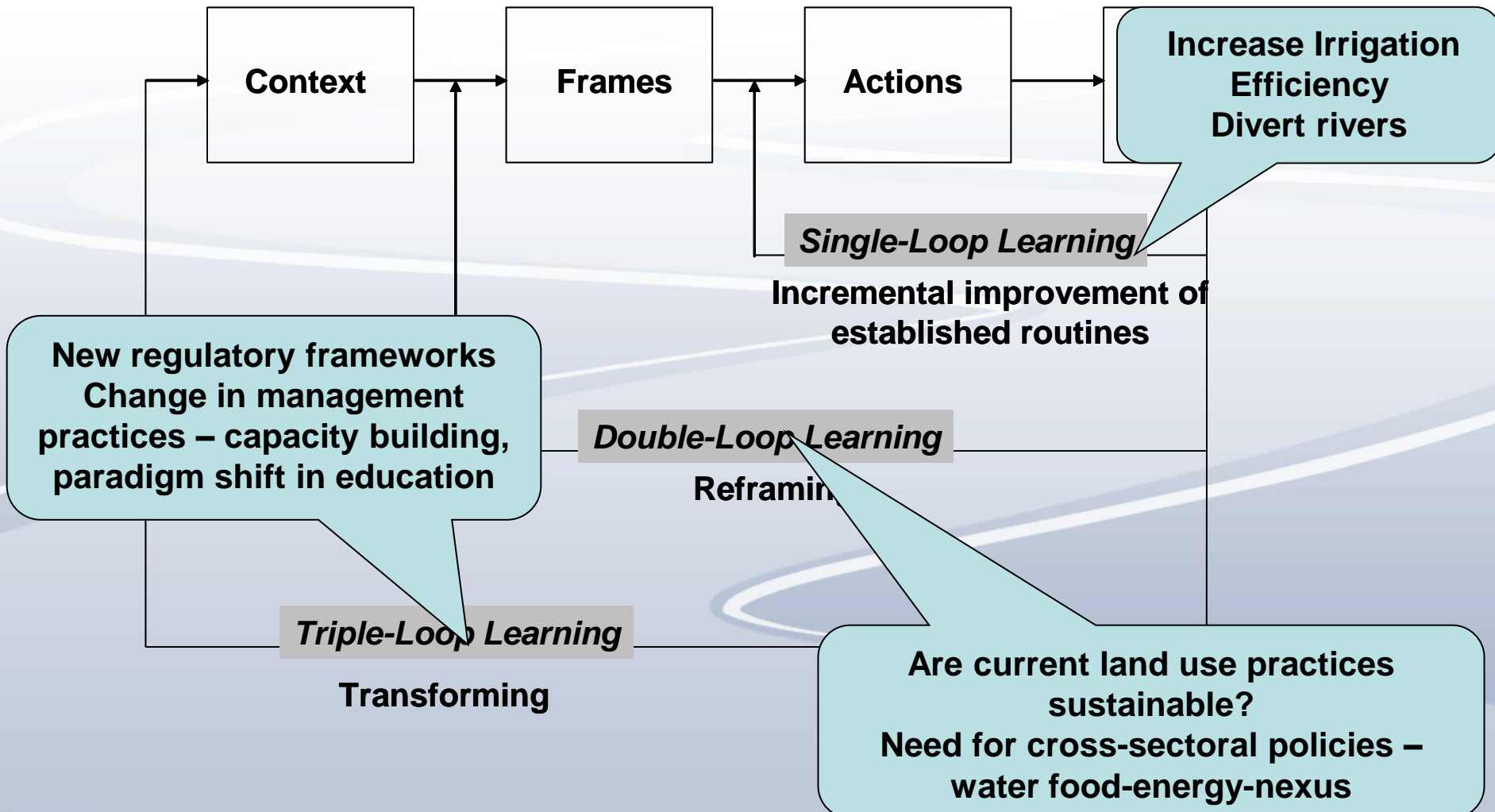
# *Characteristics of.....*

	<i>.....Integrated, Adaptive Regimes</i>
<b>Governance style</b>	Polycentric, broad stakeholder participation
<b>Sectoral Integration</b>	Cross-sectoral analysis identifies emergent problems and integrates policy implementation
<b>Scale of Analysis and Operation</b>	Transboundary issues addressed by multiple scales of analysis and management
<b>Information Management</b>	Comprehensive understanding achieved by open, shared information sources that fill gaps and facilitate integration
<b>Infrastructure</b>	Appropriate scale, diverse sources of design – decentralized - centralized
<b>Finances and Risk</b>	Financial resources diversified using a broad set of private and public financial instruments

# *A Relational Concept for Social Learning*

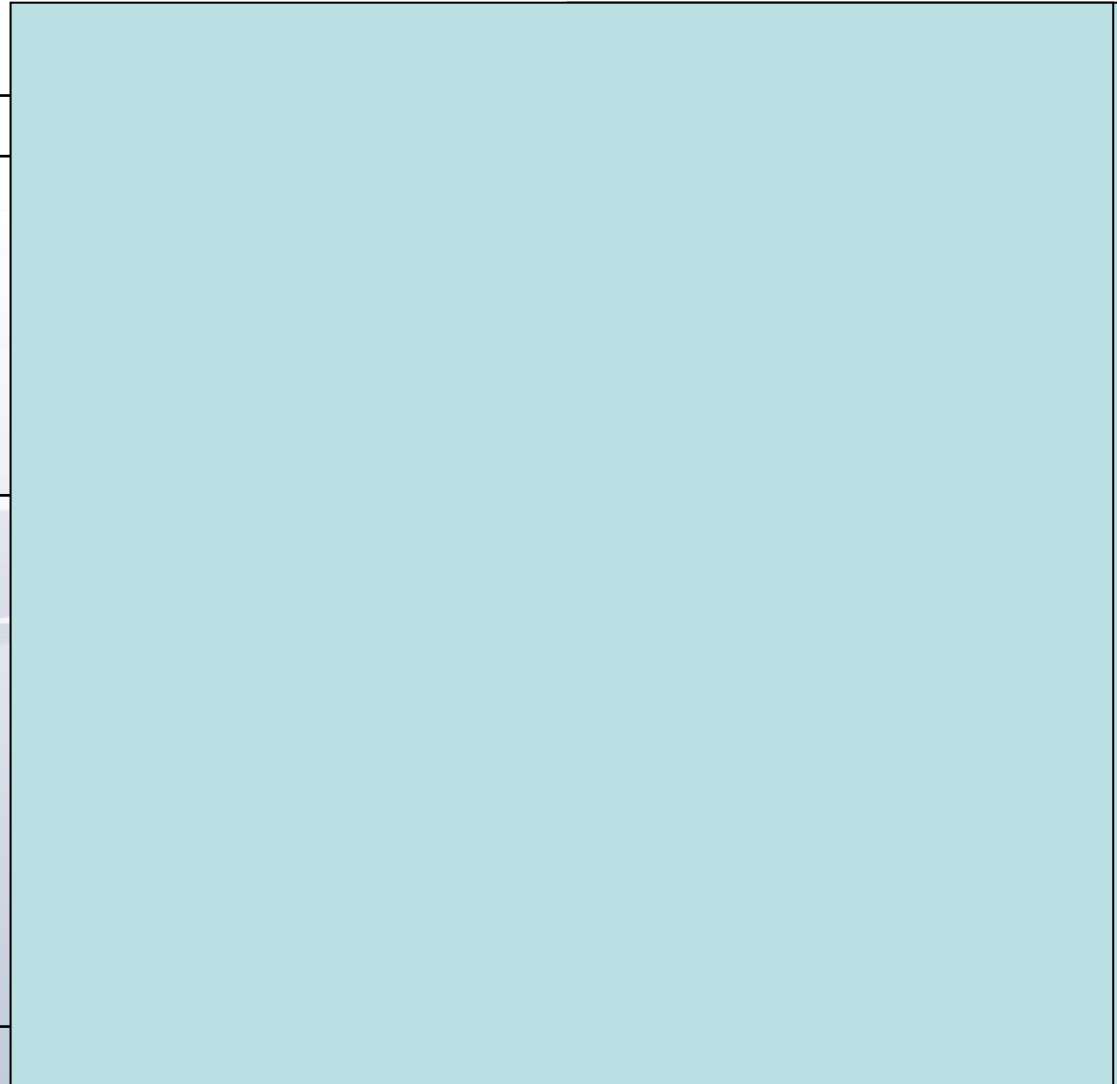


# *An evolutionary perspective on societal change*



# *Change along different dimensions*

	<b>Single Loop</b>
<b>Institutions</b> (regulative, normative, cultural- cognitive)	No calling into question of established institutions, unilateral reinterpretation
<b>Actor Network</b>	Actors remain within their networks – communities of practice  Established roles and identities not called into question



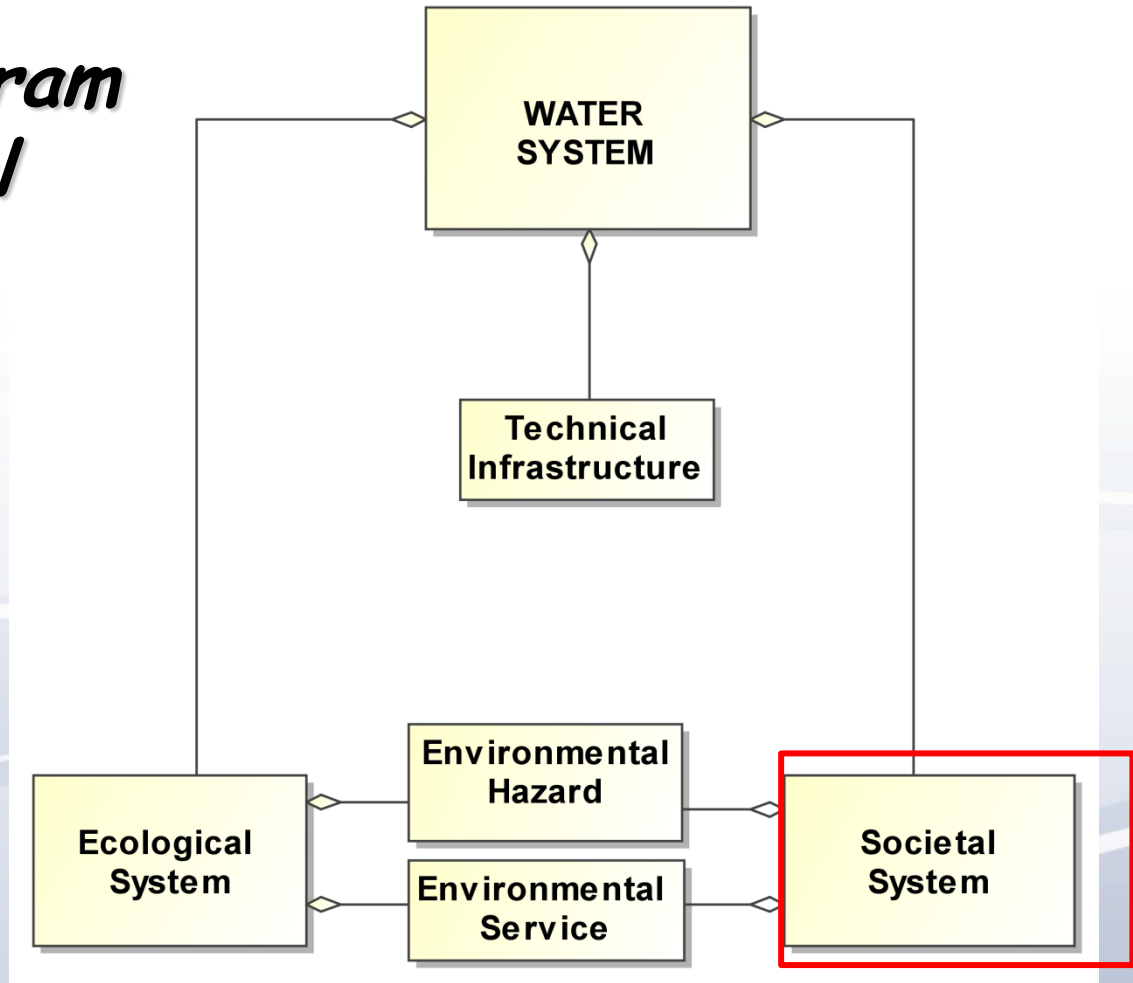


# *The Management and Transition Framework (MTF)*

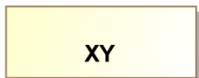
# *What is the MTF?*

- is a flexible framework to analyse complex water management and multi-level governance regimes and transition processes
- is applicable in and supports analysis of different environmental and governance contexts
- provides base for comparative analysis (standardized language)

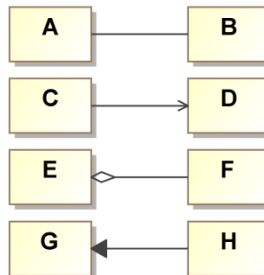
# MTF Class Diagram Highest Level



## Legend



Class XY



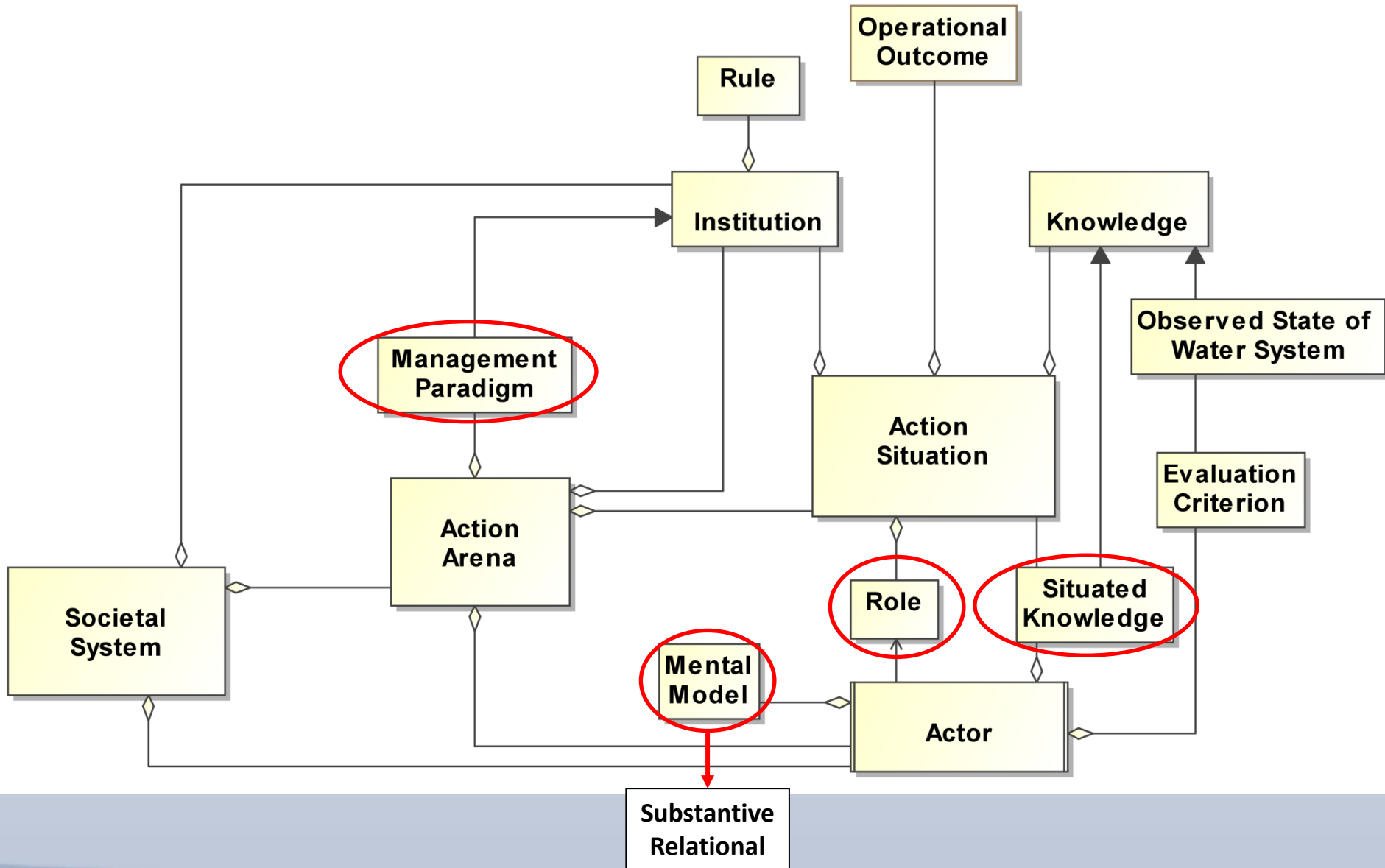
**Association:** Relationship between objects of class A and objects of class B with unspecified direction of the relationship.

**Uni-directional Association:** Relationship between objects of class C and objects of class D with specified direction of the relationship.

**Aggregation:** Objects of class E contain objects of class F.

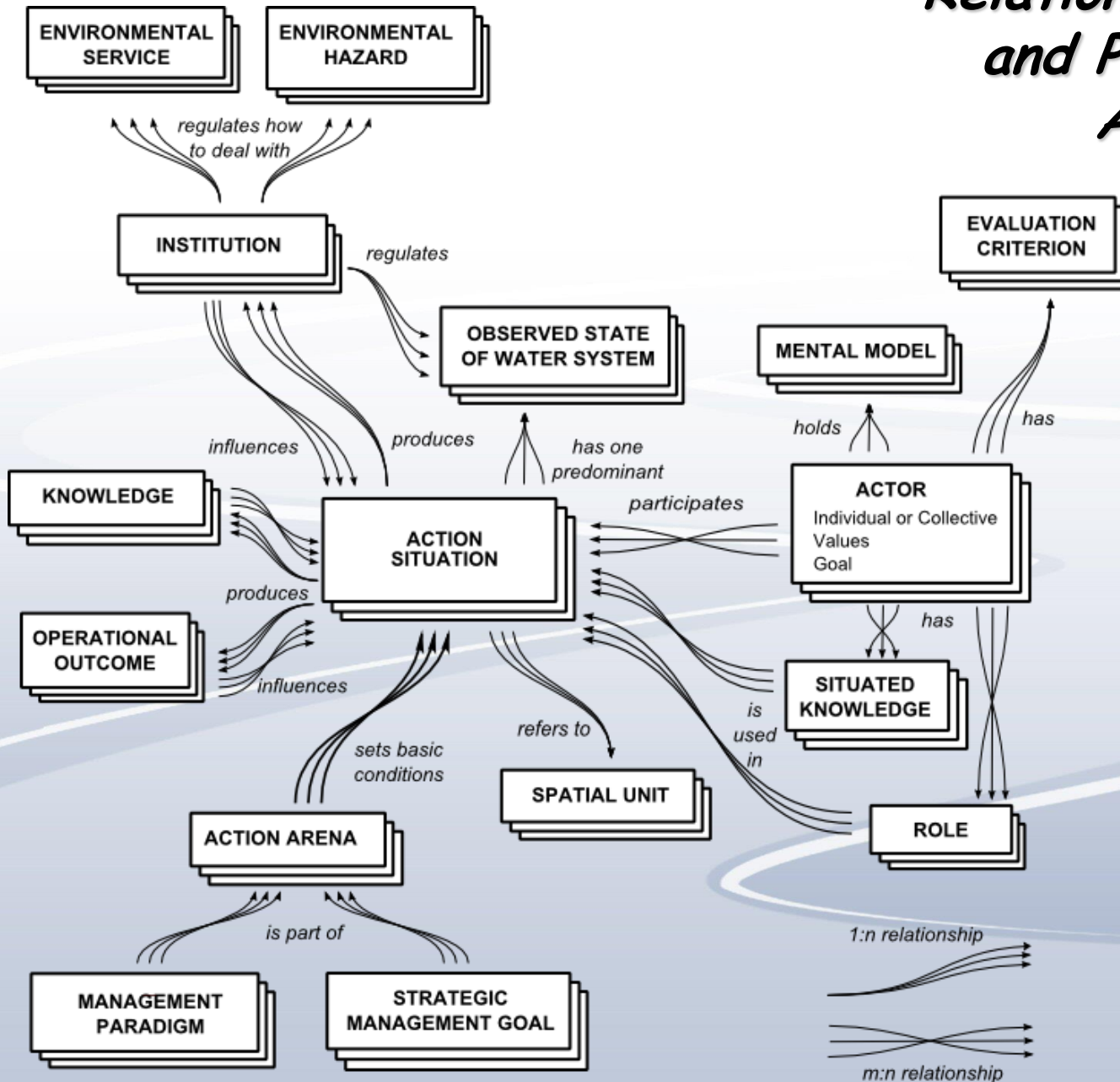
**Generalization:** Class H is a specialized form of class G.

# MTF Class Diagram - Governance and Management System





# Relational Data Bases and Protocols for Analyses



Guidance Books

*Develop knowledge base and test  
assumptions on requirements for and  
transformation towards adaptive and  
sustainable water governance by  
systematic comparative analyses*

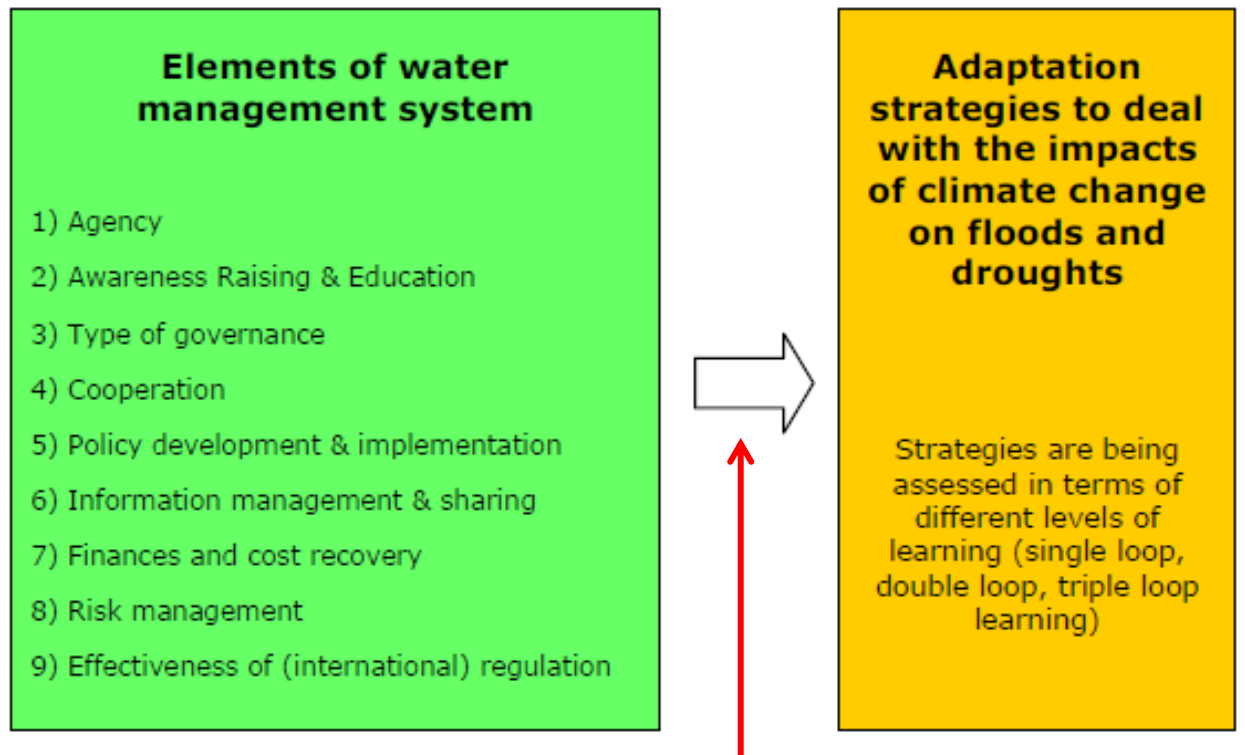
***Adaptive Water Management and  
Policy Learning in a Changing Climate:  
a Formal Comparative Analysis of Eight  
Water Management Regimes in Europe,  
Africa and Asia***

***Huntjens, Pahl-Wostl et al, 2011  
Environmental Policy and Governance***





# *Analytical Framework Comparative Analyses*



**Multi-value Qualitative Comparative Analysis (QCA)**  
**8 sub-basins**

# *Major Results*

- **Integrated cooperation structures and advanced information management are key factors leading to higher levels of policy learning**
- **Higher levels of learning are reflected in more advanced adaptation strategies for dealing with floods and droughts**
- **Balance between bottom-up and top-down processes needed**

***How Multilevel Societal Learning Processes  
Facilitate Transformative Change: A Comparative  
Case Study Analysis on Flood Management***

***Pahl-Wostl, C., Becker, G., Sendzimir, J., and Knieper, C.,  
Ecology and Society, 2013***

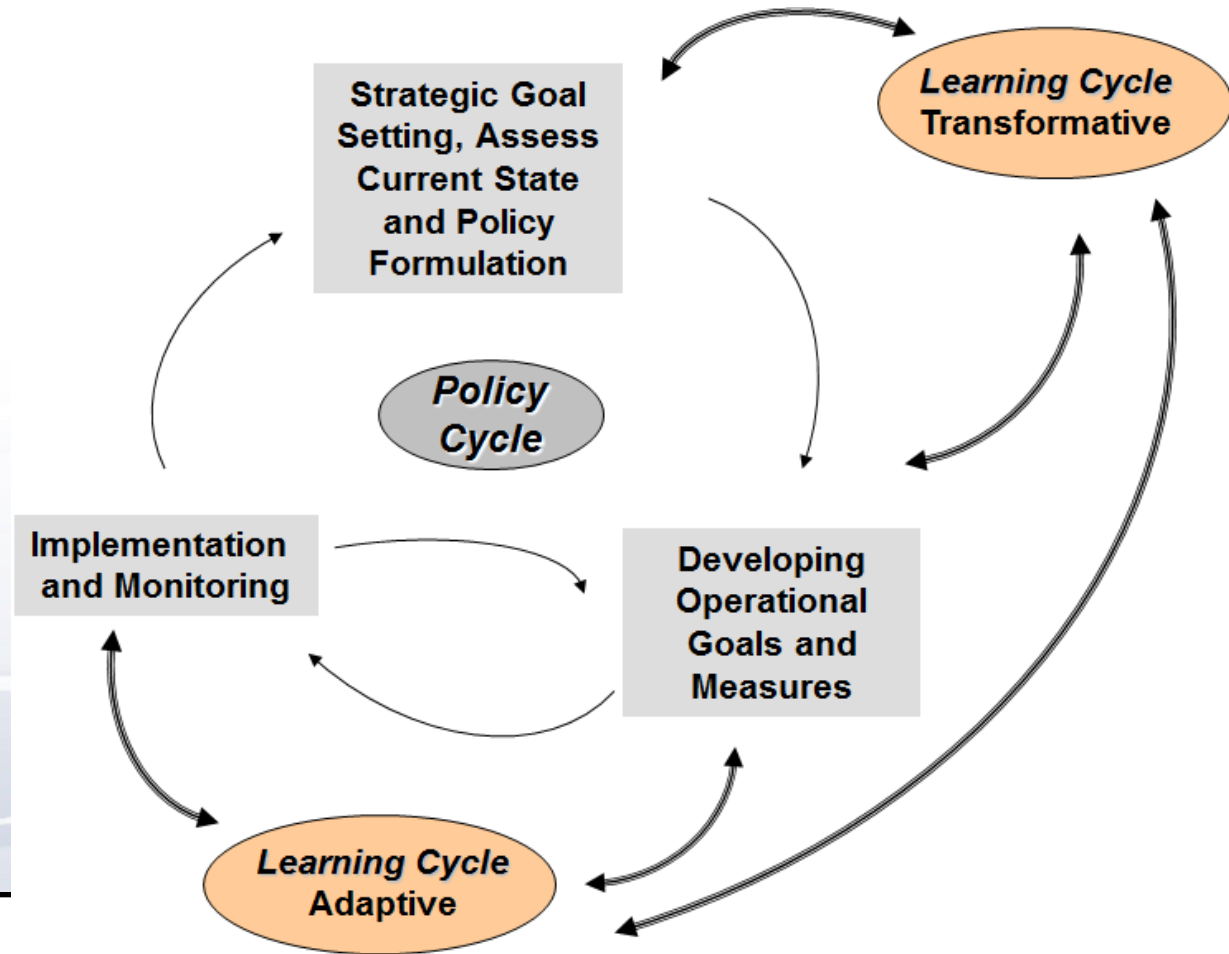
## *Research Goals and Method*

**Analyse the importance of higher levels of learning for the transition from traditional to integrated flood management**

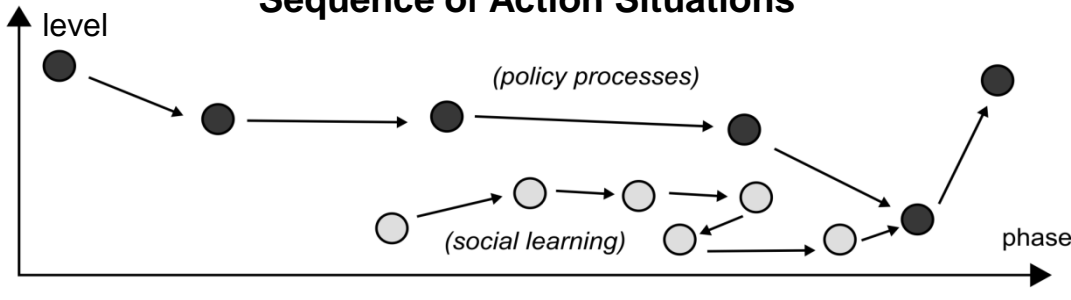
**Test the appropriateness of the triple-loop learning concept to analyse and explain change**

**Use MTF for structured qualitative comparative analysis of three national basins**

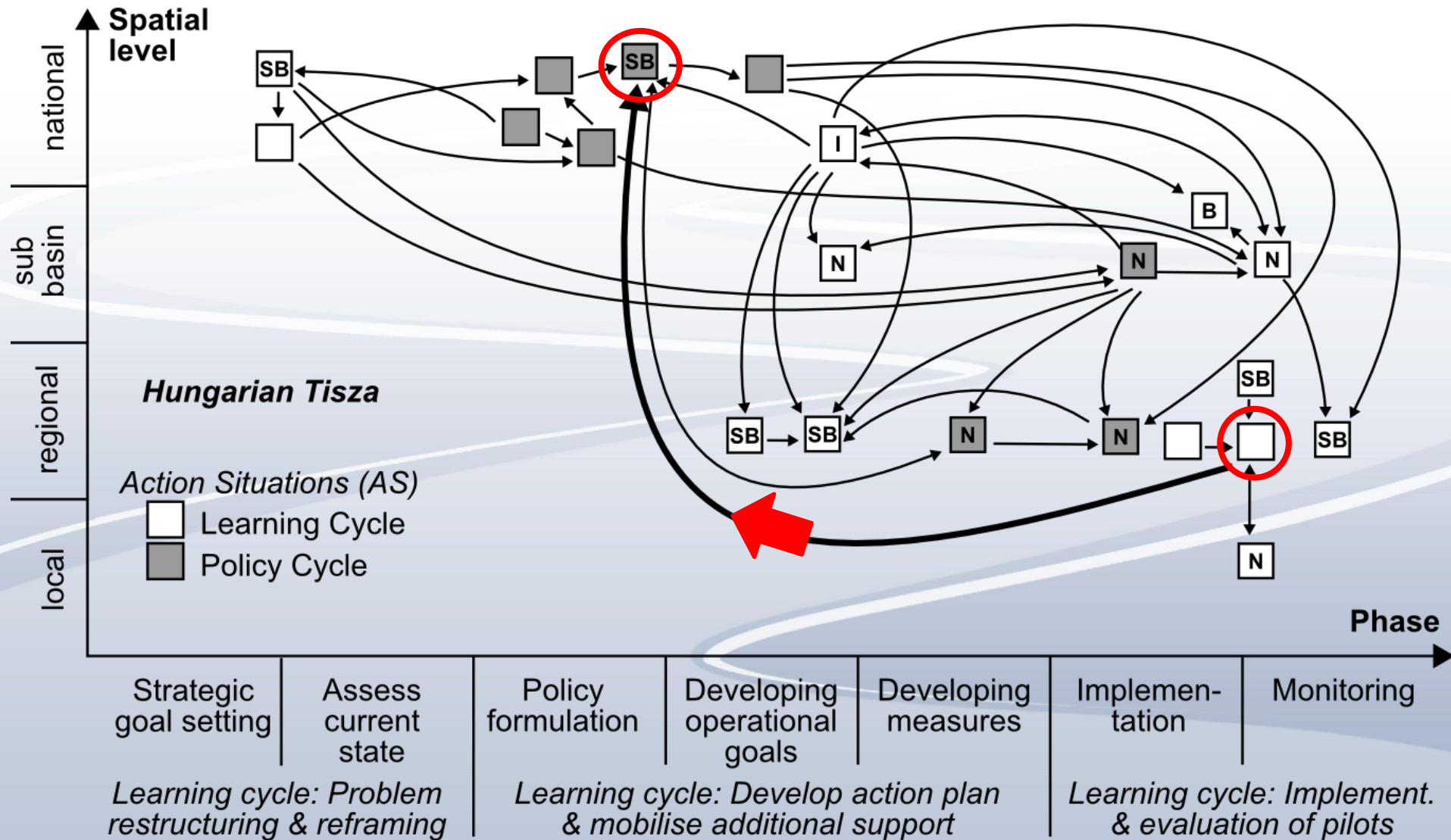
# Multi-level process representation



## Sequence of Action Situations



# Multi-level representation Hungarian Tisza



# *What drives change?*

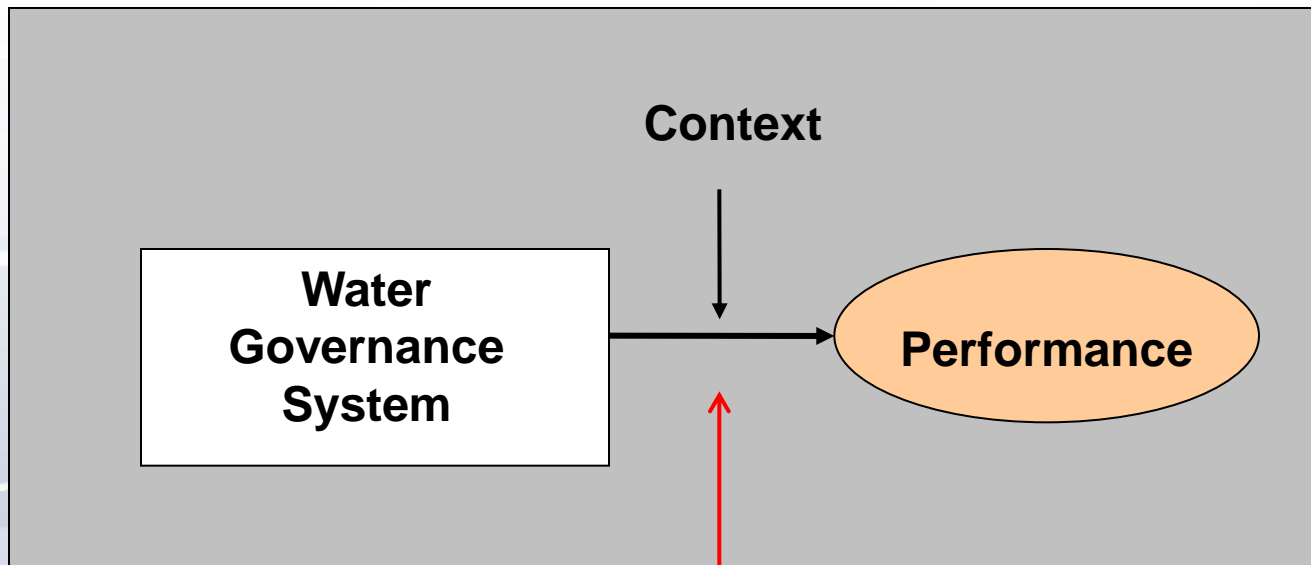
- **Moving from discourse to structural transformation depends on *effectiveness of links between informal settings and formal policy processes.***
  - **Informal spaces and diverse actor networks important to support integration of knowledge and experimentation with innovative approaches**
  - **Connections between learning and policy processes (e.g. hinge on individual actors) are fragile if innovative approaches are not codified in formal institutions and widely shared practices**
- **Disasters as windows of opportunity for policy change**
- **Change takes place on time scales of years - decades**

***Towards Adaptive Governance  
in River Basins:  
From panaceas to context  
sensitive analyses and  
recommendations***

**Twin2Go**



# *Framework of analysis for diagnostic approach*

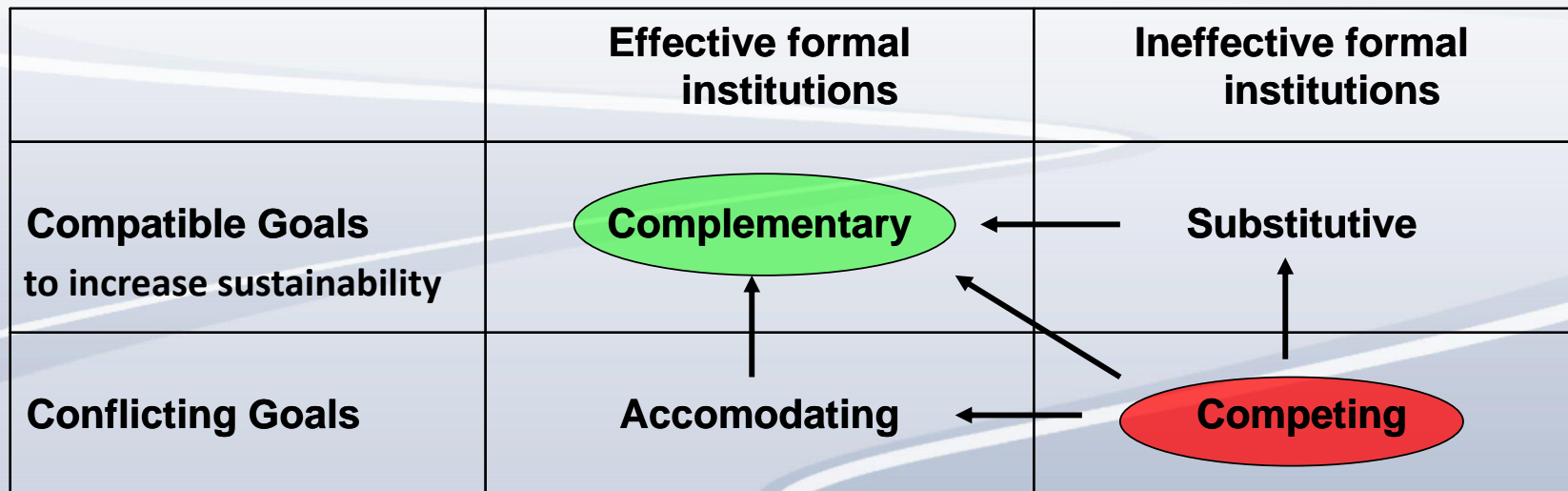


**Statistical Regression**  
**Fuzzy set Qualitative Comparative Analysis (QCA)**  
**26 national-basins**

# *Major Insights*

- **Advanced climate change adaptation strongly related to polycentric governance and innovative ways for dealing with uncertainty**
- **Efforts towards decentralization seem often to lead to fragmentation rather than polycentric regimes**
- **Transfer of general guiding principles and good practices for implementation that still can be tailored to context**
- **Central role of institutional development (CPI) - more important than economic development (GDP) for both high and low performance**

# Trajectories of Change - Building Transformative Capacity

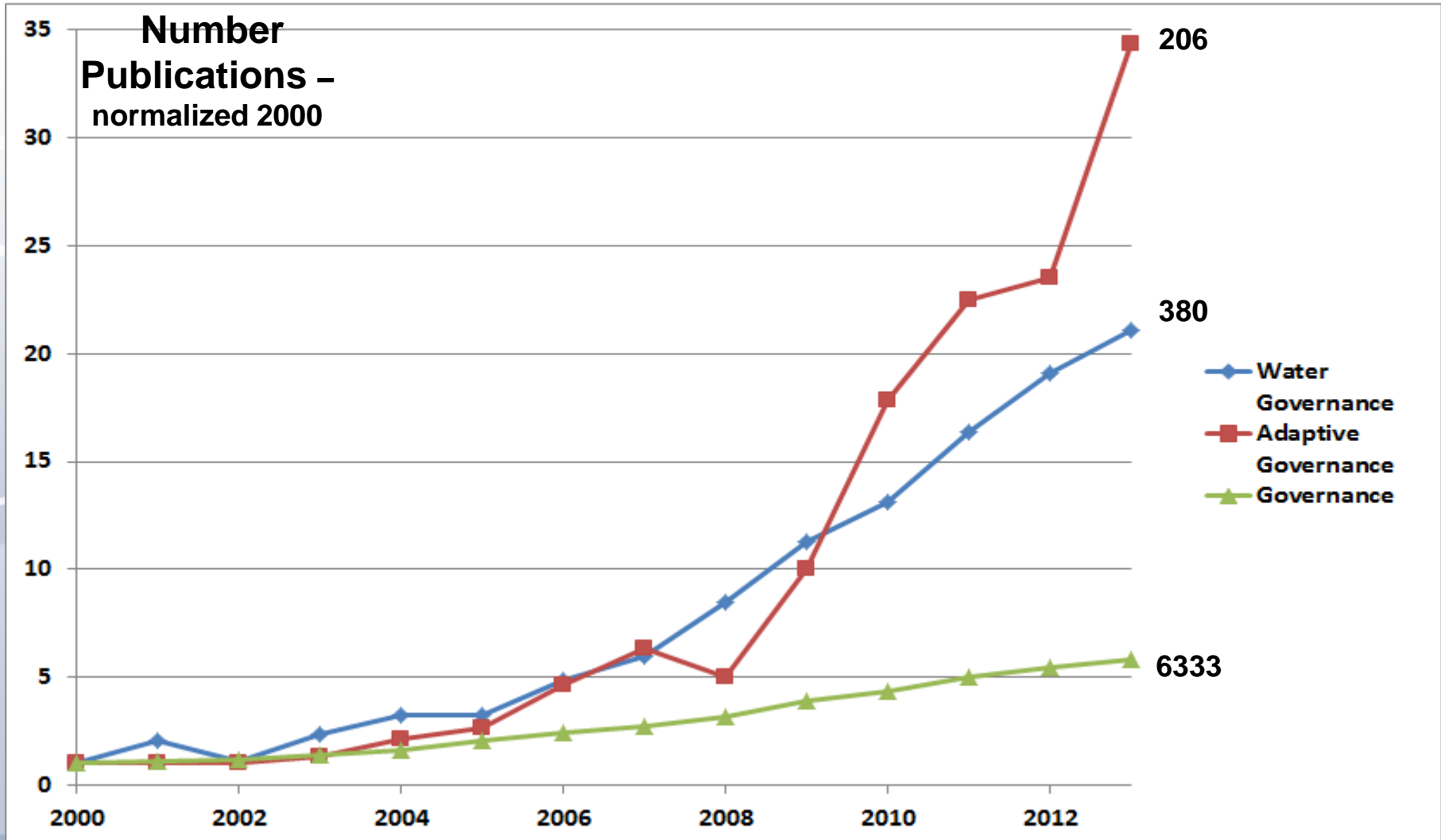




***Some Reflections on  
Frameworks and Evolving  
Communities***

# *Adaptive and Water Governance*

## *- Emerging Research Fields*



# *Framework and Theory Development...*

- ... is an evolutionary process
- ... integration of conceptual frameworks and/or use of complementary frameworks required to capture complexity of the dynamics of governance systems
- ... joint development and application of deep frameworks demanding due to costs in using the framework
- ... agreement on light standards essential to compare (the results of application of) different frameworks

***THANK YOU FOR YOUR  
ATTENTION!***

# *References*

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