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Introduction to Water Governance and to Comparative Analysis

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"Water: A Crisis of Governance"

2nd World Water Development Report 2006

"The Water Crisis is Mainly a Governance Crisis"

OECD Programme on Water Governance

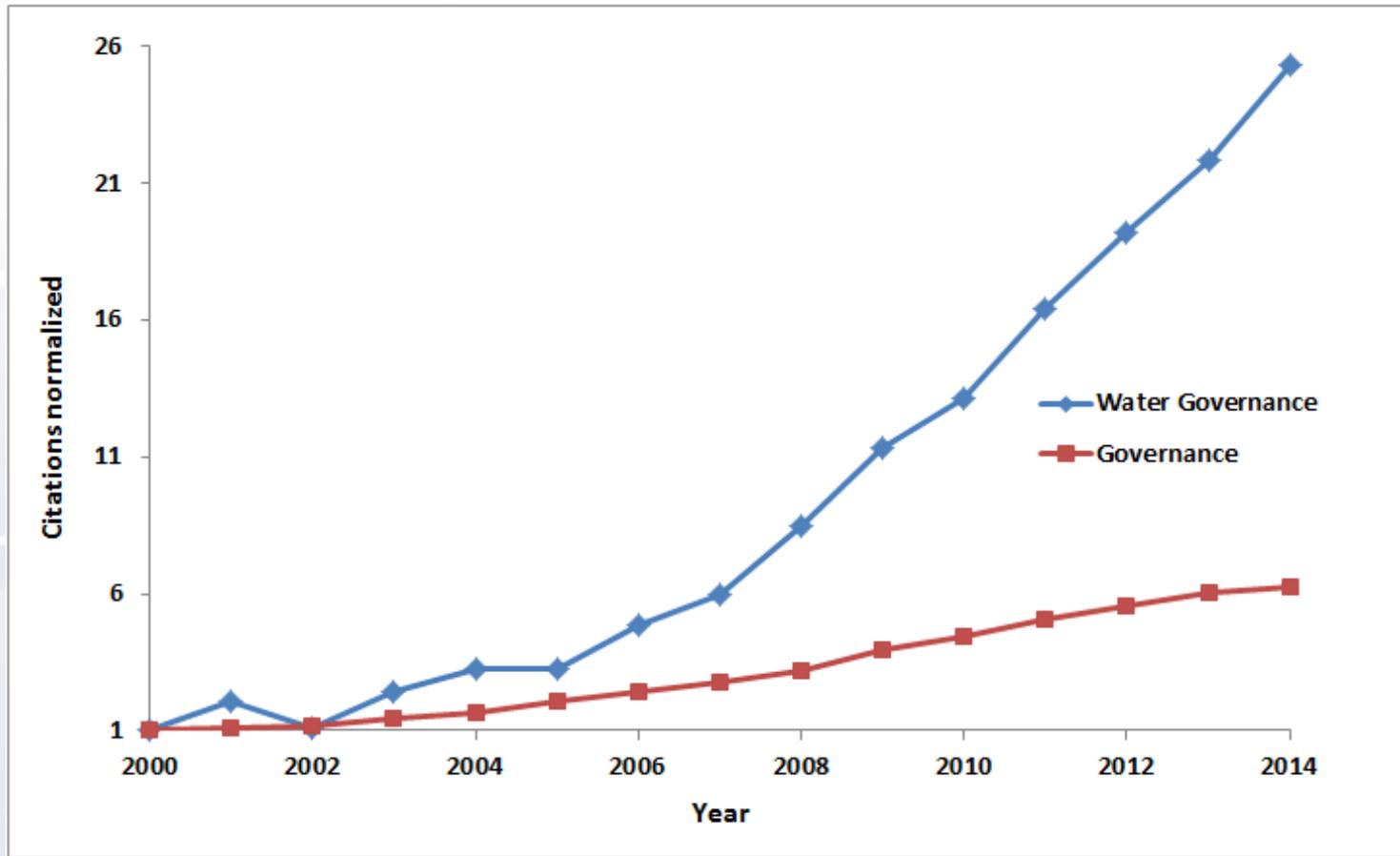
Governance Failures...

- ▶ Inappropriate governance settings – fragmented, lack of horizontal and vertical coordination, sectoral fragmentation
- ▶ Lack of implementation of governance arrangements (capacity problems, lack of political will, asymmetric power structures)
- ▶ Focus on technical, natural science approaches to analyse problems and to identify solutions
- ▶ Prevailing water governance and management paradigms lead to increasing trade-offs between human and environmental water security

Similarities in paradigm shifts in water management derived from sources published since 2000

- ▶ *participatory* management and collaborative decision making
- ▶ increased *integration* of issues and sectors
- ▶ management of problem *sources not effects*
- ▶ decentralized and more *flexible* management approaches
- ▶ more attention to management of *human behaviour* by “soft” measures
- ▶ include *environment* explicitly in management goals
- ▶ introduce the hydrological principle to manage at *basin scale*
- ▶ open and shared *information* sources
- ▶ incorporating iterative *learning cycles*

Water Governance - an Emergent Field of Research



Results from SCOPUS Analyses using the search terms included in title, keywords or abstract (date 04.10.2015)

Challenges for (Water) Governance Research

WATER GOVERNANCE – POPULAR DEFINITION

Water governance refers to the range of political, social, economic and administrative systems that are in place to regulate development and management of water resources and provisions of water services at different levels of society (UNDP, 2000)

systematic comparative research

- ▶ Water governance has not been an accepted domain for scientific scholarship
- ▶ *Do you agree to these challenges? What is the biggest challenge you have encountered in your research work?*

Water Governance – Concepts, Methods, and Practice

Claudia Pahl-Wostl

Water Governance in the Face of Global Change

From Understanding to Transformation

 Springer



**First volume of book series
on Water Governance –
Concepts, Methods, and
Practice**

Contributions welcome!



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Chapter 2

Water Policies - From Panaceas Towards Embracing Complexity

Topics Chapter 2

- Major Trends in Water Policy Over Last Few Decades
- Evolution of the European Union's Water Policy
- Neither Privatization nor Community Governance Can Meet the Water Governance Challenge
- Environmental Governance — Shifting Away from Panaceas and Towards the Mastering of Complexity
- The Challenges Ahead

Trends in Water Policy

Trend	Role Government	Role Market / Economy	Role Civil Society - Community
60s & 70s Hierarchical Command and Control	Problem solver and service provider	Problem generator	By-stander
80s & 90s Decentralization and Privatization	Problem generator	Problem solver and service provider	Public voice expressing lack of satisfaction
90s & 00s – Participation and Networks	Problem generator	Problem generator	Problem solver (and service provider)
Present	Problem generator and solver	Problem generator and solver	Problem generator and solver

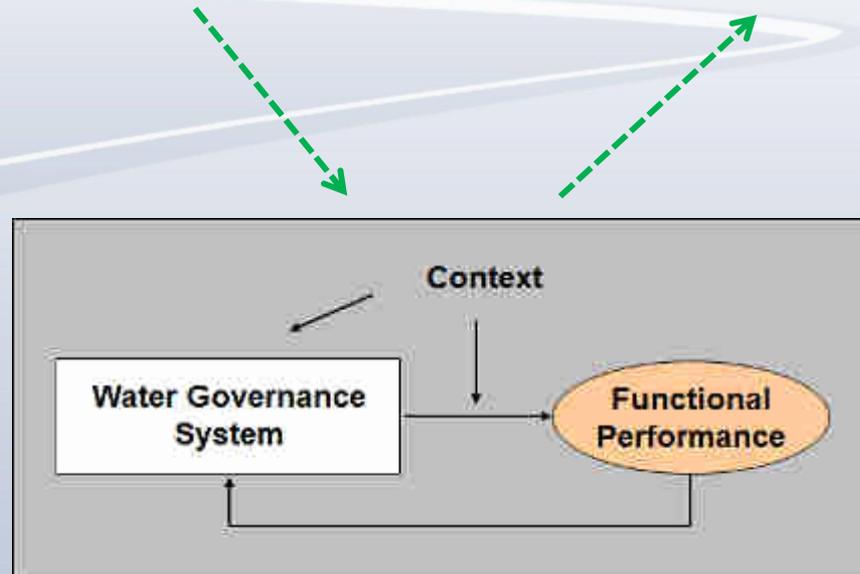
Panaceas in Water Policy

- **Decentralization**
- **Markets and Privatization**
- **Basin governance – Basin management plans**
- **Participatory management – Water User Associations**
- **.....**

Discussion Questions

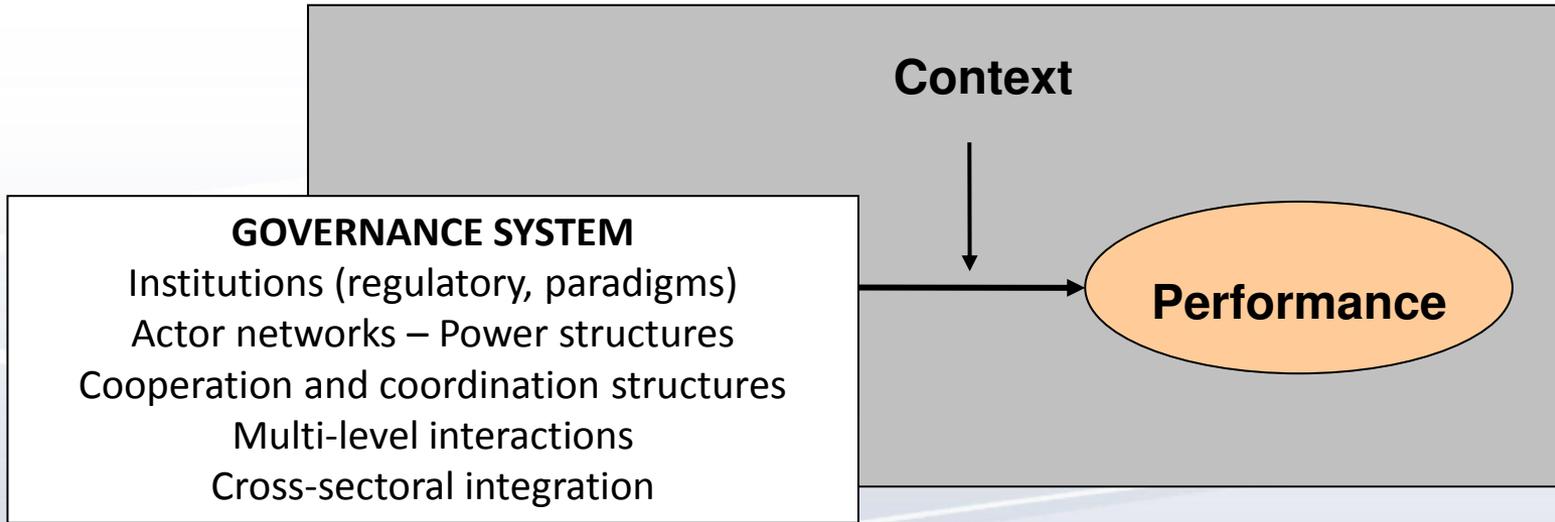
- *Do you find similar patterns - trends in the (water) governance systems you are analysing and/or in your home country?*
- *Have there been any striking governance failures?*

From Understanding to Transformation



**Diagnostic
Approach**

A Diagnostic Approach



A diagnostic approach identifies links between characteristics of governance

system and performance.

It does not provide blueprints for an ideal governance system, but strategies for

implementing change which take into account historical context, and

biophysical and societal characteristics.

What is your view on a diagnostic approach? Is it realistic?

Do you pursue something alike in your own research?



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Chapter 3

Conceptual and Methodological Framework

Topics Chapter 3

- **Clarification of Guiding Assumptions and Terminology**
- **Finding General Patterns**
 - **Causality and Dynamics in Complex Governance Systems**
 - **Requirements for a Diagnostic Approach**
- **Conceptualizing Governance Systems**
 - **Institutions—Formal and Informal**
 - **Role of Actor Groups—State, Non-state Actors**
 - **Governance Modes**
 - **Multi-level Interactions**
 - **Processes of Social and Societal Learning**
- **Conceptualizing and Operationalising Multi-level Governance Processes -> MTF Introduction on Thursday**

Water Governance

Popular Definition

Water governance refers to the range of political, social, economic and administrative systems that are in place to regulate development and management of water resources and provisions of water services at different levels of society (UNDP, 2000)

Do you use this or another definition of water governance in your own work?

Definitions I

Water governance is the social function that regulates development and management of water resources and provisions of water services at different levels of society and guiding the resource towards a desirable state and away from an undesirable state.

A **water governance system** is the interconnected ensemble of political, social, economic and administrative elements that performs the function of water governance. These elements embrace institutions as well as actors and their interactions.

A **water governance regime** is the interdependent set of institutions (formal laws, societal norms or professional practices) that is the main structural component feature of a governance system.

Definitions II

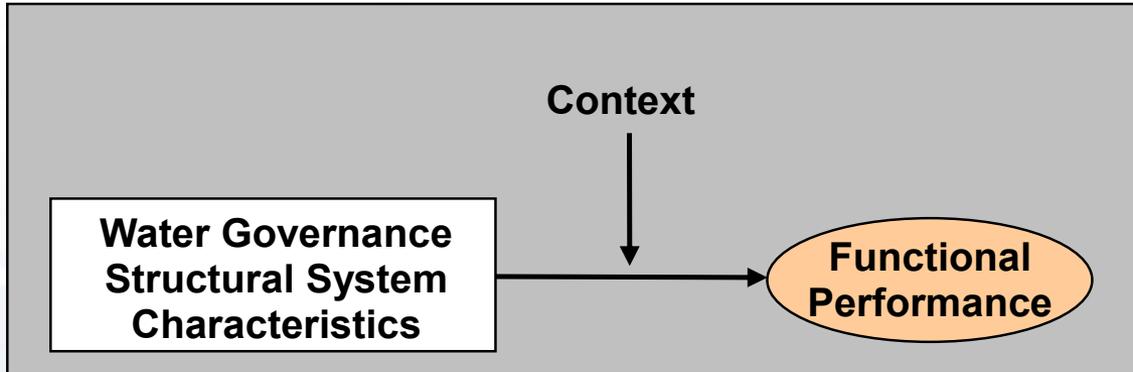
Water governance is the social function that regulates development and management of water resources and provisions of water services at different levels of society and guiding the resource towards a desirable state and away from an undesirable state.

Water management refers to the activities of analysing and monitoring water resources, as well as developing and implementing measures to keep the state of a water resource within desirable bounds.

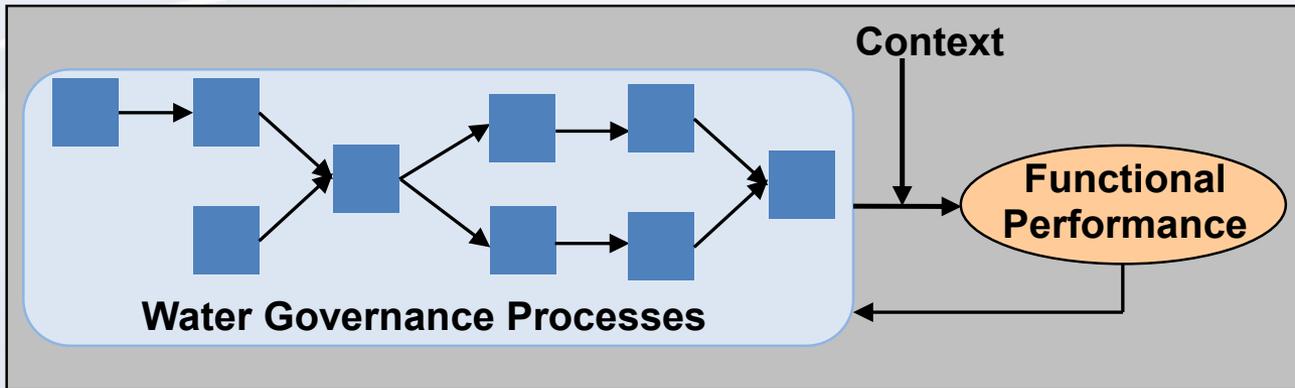
Causality and Dynamics in Complex Governance Systems

- **Governance Systems are Complex Adaptive Systems**
 - **Multifactorial causality**
 - **Emergence**
 - **Path dependence**
 - **Learning and anticipation**
- **Configurational analysis and causal reconstruction**
 - **Search for patterns – constellations of factors**
 - **Identification of typologies**
 - **Equifinality**

Diagnostic Approach...



.... a configuration-based approach



.... a process-based approach

Topics Chapter 3

- Clarification of Guiding Assumptions and Terminology
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- **Conceptualizing Governance Systems**
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Institutions and Role of Actor Groups

Institutions - formal and informal

- ‘Institution’ is used to denote rules governing the behaviour of actors.
- Formal and informal refer to the nature of processes of development, codification, communication and enforcement.
- Formal institutions are linked to the official channels of governmental bureaucracies.
- Informal institutions refer to socially shared rules such as social or cultural norms.

Institutions - classification according to Scott (2008)

“Institutions are comprised of regulative, normative and cultural-cognitive elements that, together with associated activities and resources, provide stability and meaning to social life”.



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Governance Modes

Governance Modes

- ▶ **Describe a certain logic of political steering, dominant forms of interactions and preferred instruments**
- ▶ **Hierarchical governance mode – «Command and Control»**
- ▶ **Market-based governance mode**
- ▶ **Network governance mode**

Governance Modes Differences Role of Actors and Institutions

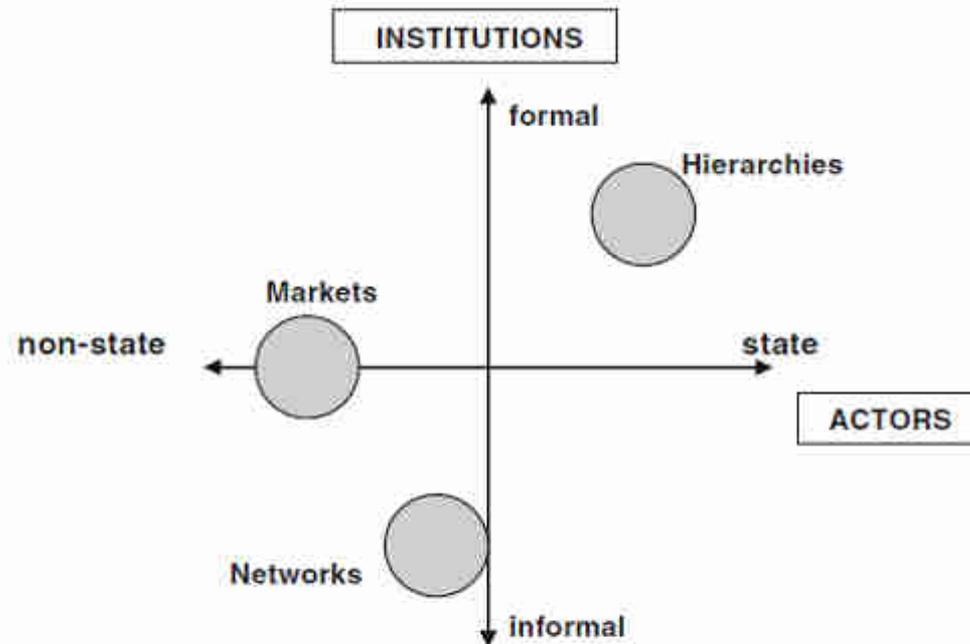


Fig. 5.1 Difference in governance modes of bureaucratic hierarchies, markets and networks with regard to the formality of institutions and the importance of state and non-state actors (Reproduced from Fig. 1 in Pahl-Wostl 2009, p. 358, with permission)

Governance Modes Difference in Power and Control



Fig. 5.2 Different structures of interactions between actors and the locus of power and control in a hierarchies, b markets and c networks. *Red colour* and *size or shading*, respectively, denote the locus of power

Meta-Governance

-> combination of governance modes

Meta-governance is a reflexive process of societal learning to develop, to evaluate and to adapt governance approaches with the purpose of addressing complex societal challenges (Pahl-Wostl, 2015).



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Multi-Level Interactions

Spatial Scale of Water Governance

Local

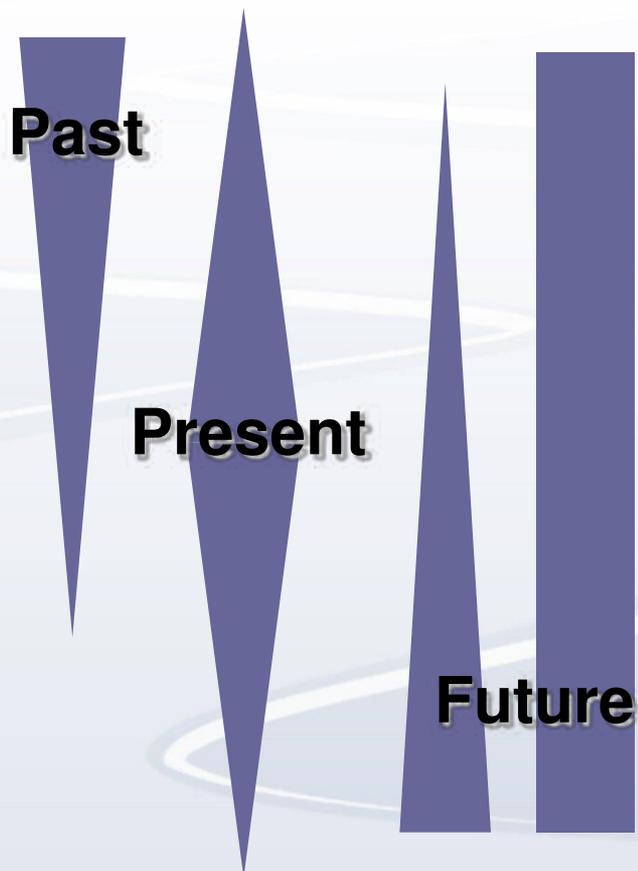
Past

Basin

Present

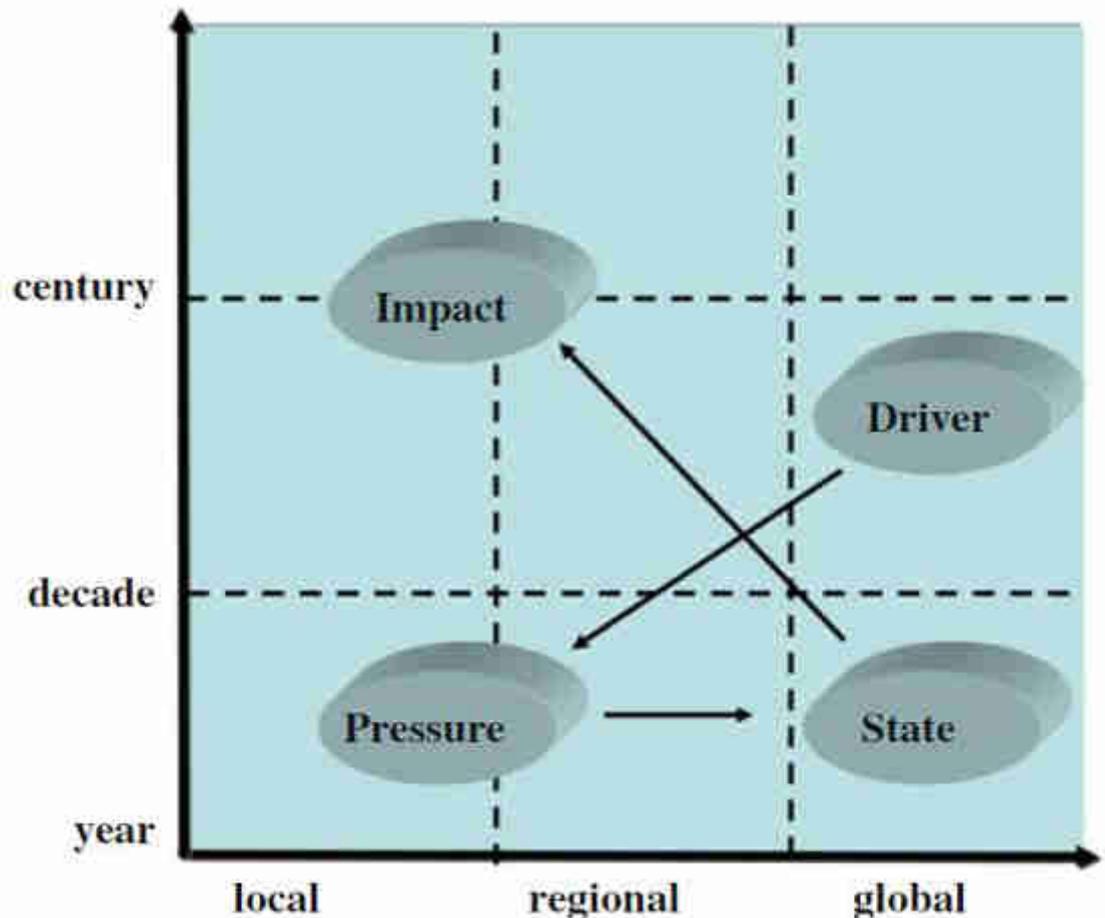
Global

Future?



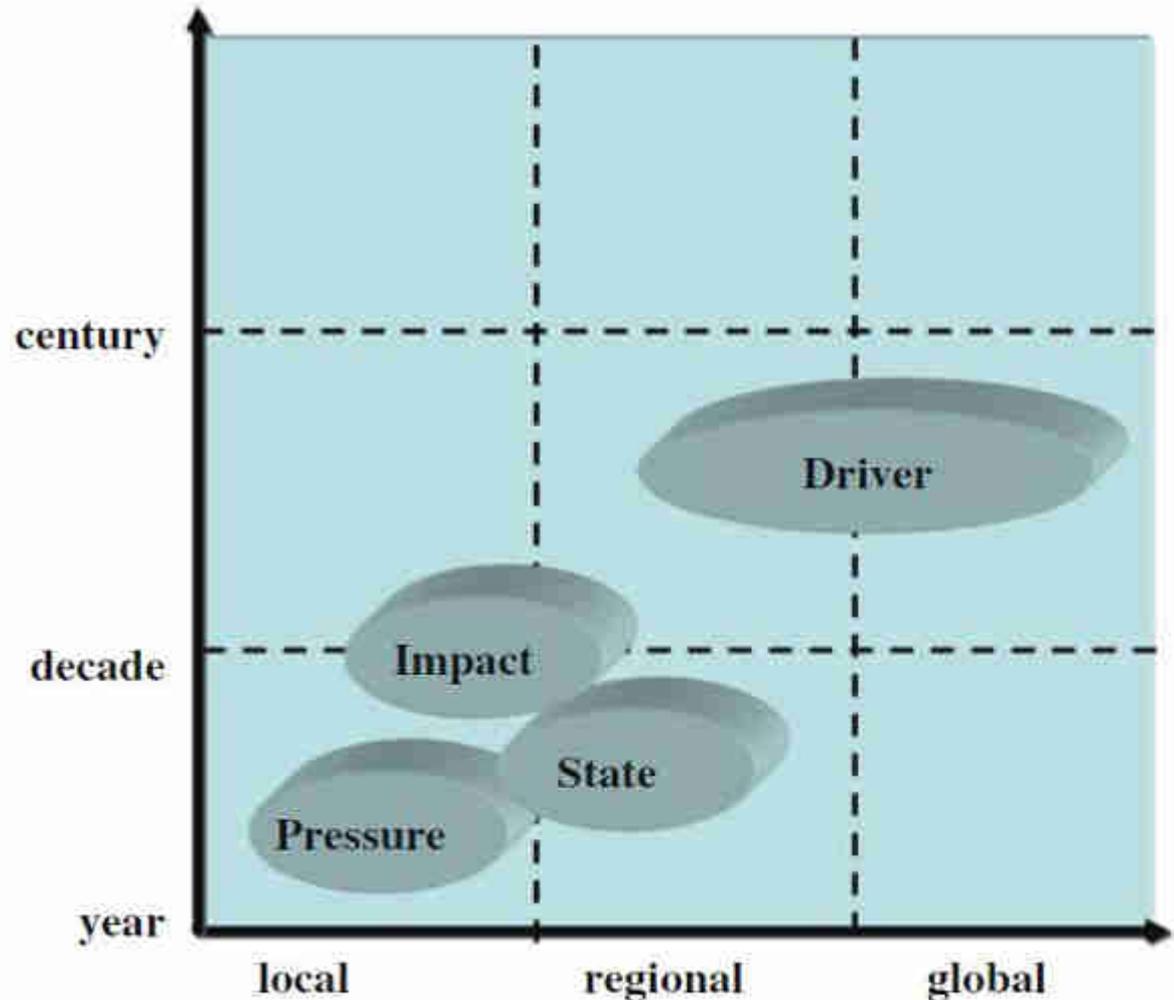
Climate Change Problem Domain from a DPSI Perspective

Fig. 6.1 Schematic representation of typical space-time-scale dependence of driver, pressure, state and impact for the climate change problem domain



Water Resources Problem Domain from a DPSI Perspective

Fig. 6.2 Schematic representation of typical space-time-scale dependence of driver, pressure, state and impact for the problem of water resources allocation





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Water Governance is a Multi-Level Challenge!

Multi-level Governance Gaps

Table 6.2 Multi-level governance gaps in water policy used in the OECD water governance framework (based on Table 3.1 from OECD (2011))

Governance gap	Manifestation in water governance
Policy gap	Overlapping, unclear allocation of roles and responsibilities
Administrative gap	Mismatch between hydrological and administrative boundaries
Information gap	Asymmetries of information between central and sub-national governments
Capacity gap	Lack of technical capacity, staff, time, knowledge and infrastructure
Funding gap	Unstable or insufficient revenues of sub-national governments to effectively implement water policies
Objective gap	Intensive competition between different ministries
Accountability gap	Lack of citizen concern about water policy and low involvement of water users' associations

Multi-level Governance Gaps in Different World Regions

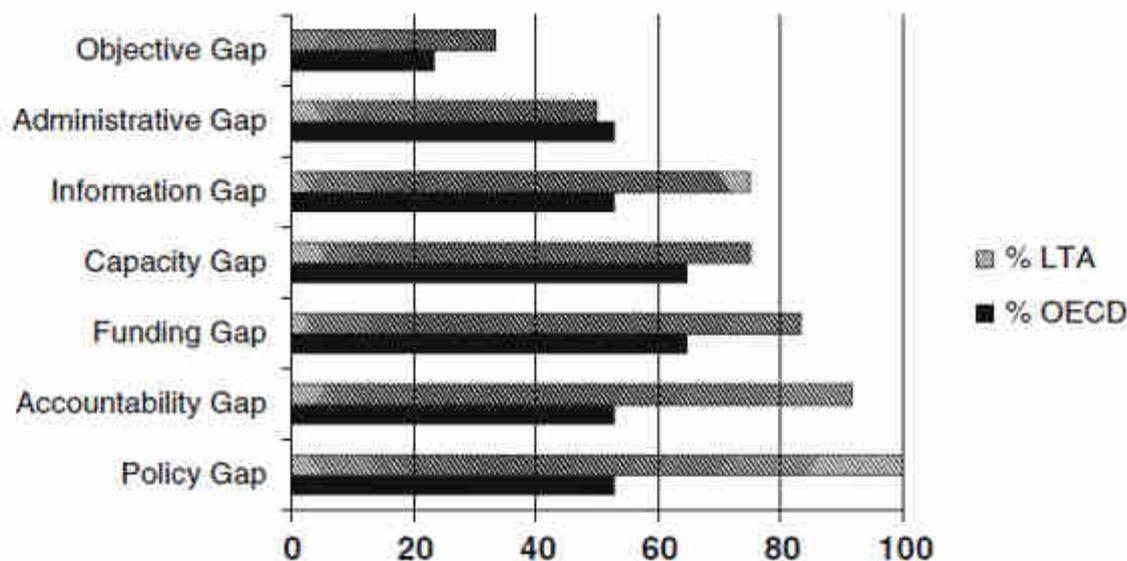


Fig. 6.3 Multi-level governance challenges for water policy making identified in OECD and in Latin American (LTA) countries. The x-axis provides the percentage of countries participating in the surveys that identified the respective gap as important or very important (based on Table 3.2 from OECD (2011) and Table 3.2 from OECD (2012))

Polycentric Governance - as Normative Concept?

*What do you understand as
polycentric governance?*

Polycentric Governance

Ostrom School

▶ **Ostrom V., Tiebout, Warren (1961):**

*“Polycentric” connotes many centers of decision making that are formally independent of each other... . To the extent that they take each other into account in competitive relationships, enter into various contractual and cooperative undertakings or have recourse to central mechanisms to resolve conflicts, the various political jurisdictions in a metropolitan area may **function in a coherent manner** with consistent and predictable patterns of interacting behavior. To the extent that this is so, they may be said to **function as a “system”**.*

▶ **Ostrom V.** – initially within government – public administration

▶ **Ostrom E.** – broader interpretation in context of governing the commons – nested enterprises with local user communities and higher level government in multi-level governance system

▶ **Polycentric Governance - two major conditions** -> presence of multiple centers of decision making and coordination by overarching system of rules

Polycentric Governance and Resilience of SESs

Claimed properties of polycentric governance

- ▶ Higher flexibility and adaptive capacity and thus resilience
- ▶ More effective than mono-centric and hierarchical systems in dealing with complex tasks
- ▶ Efficiency – expected to be lower due to need for negotiation and redundancy – but efficiency and effectiveness should not be seen in isolation

Definition of Polycentric Governance

**Polycentric governance is characterized by a
distribution of power and effective horizontal and
vertical coordination structures**

Polycentric Governance - Reflections

- ▶ Polycentric regimes result from emergence and self-organization in combination with purposeful design
- ▶ Such kind of dynamics requires combination and interactions of different governance modes – networks, bureaucratic hierarchies and markets
- ▶ Systematic and more in-depth analyses required taking into account context and historical development
- ▶ This will lead to a more differentiated theory of polycentric systems – realized kinds of polycentric regimes and pathways how to get there.
- ▶ *What is your view on the potential of polycentric governance?*



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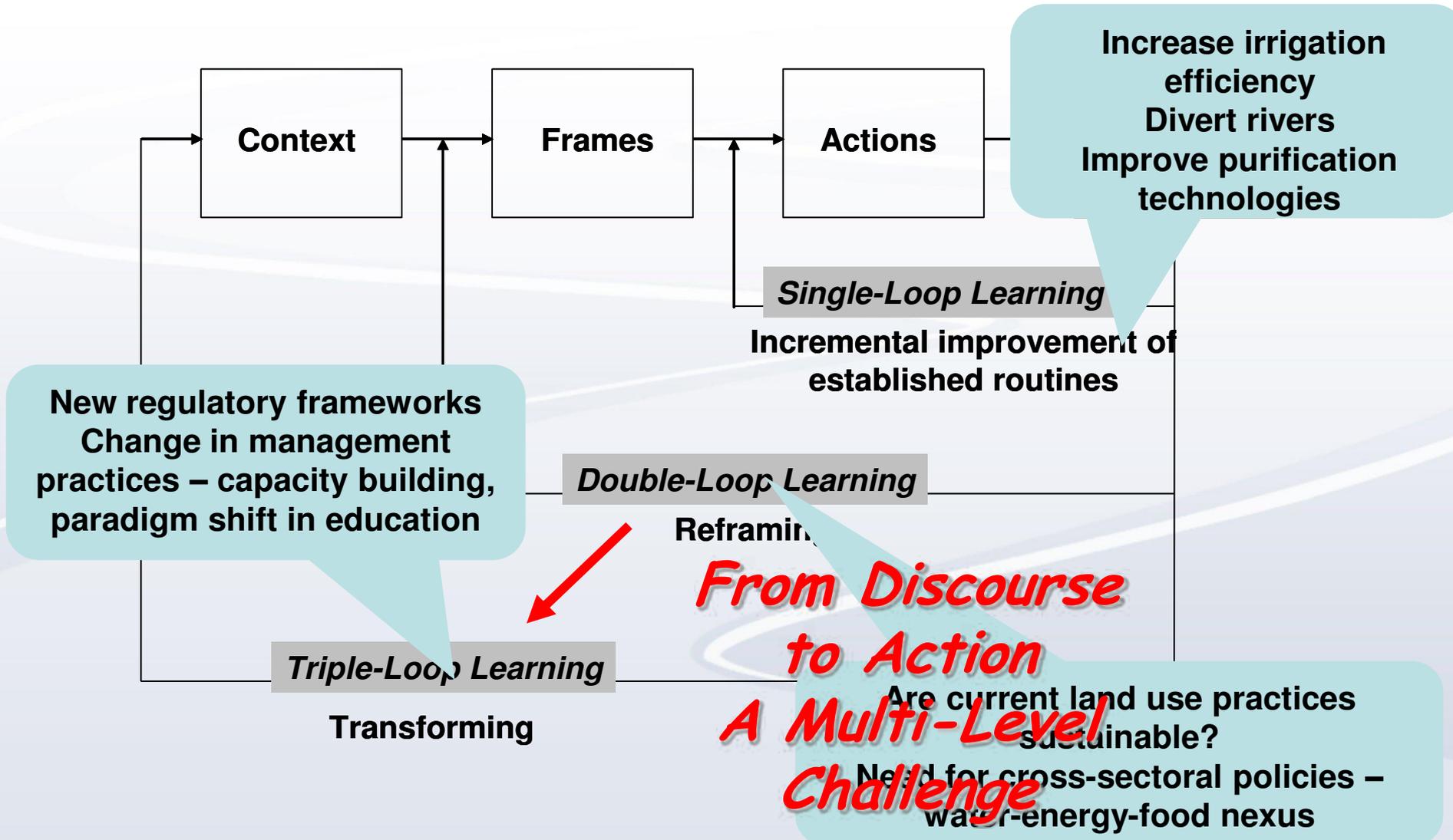
Social and Societal Learning

Definitions III

Adaptive capacity is defined as the ability of a governance system to alter processes and to adapt structural elements as a response to current or anticipated changes in the social or natural environment.

Transformative capacity is defined as the ability of a governance system to first adapt and, if required, transform structural elements as a response to current or anticipated changes in the social or natural environment.

An Evolutionary Concept of Societal Learning



Tension between Structure and Agency

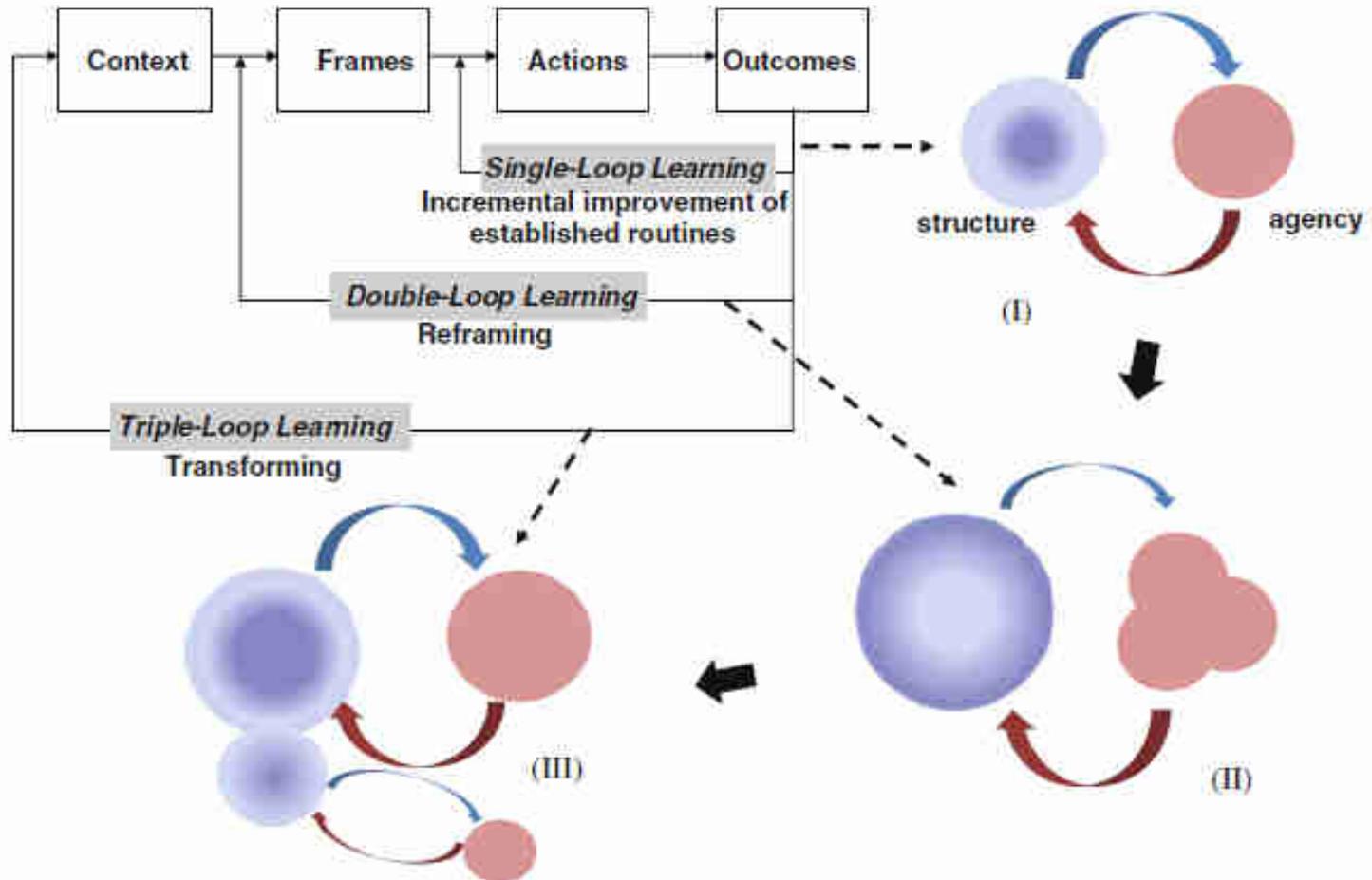


Fig. 8.2 Different stages of triple-loop learning and schematic representation of corresponding changes in the interplay between structure (blue spheres—left) and agency (red spheres—right)

Table 4.1 Characteristics of institutional change for the three different levels of learning (Modified from Pahl-Wostl 2009)

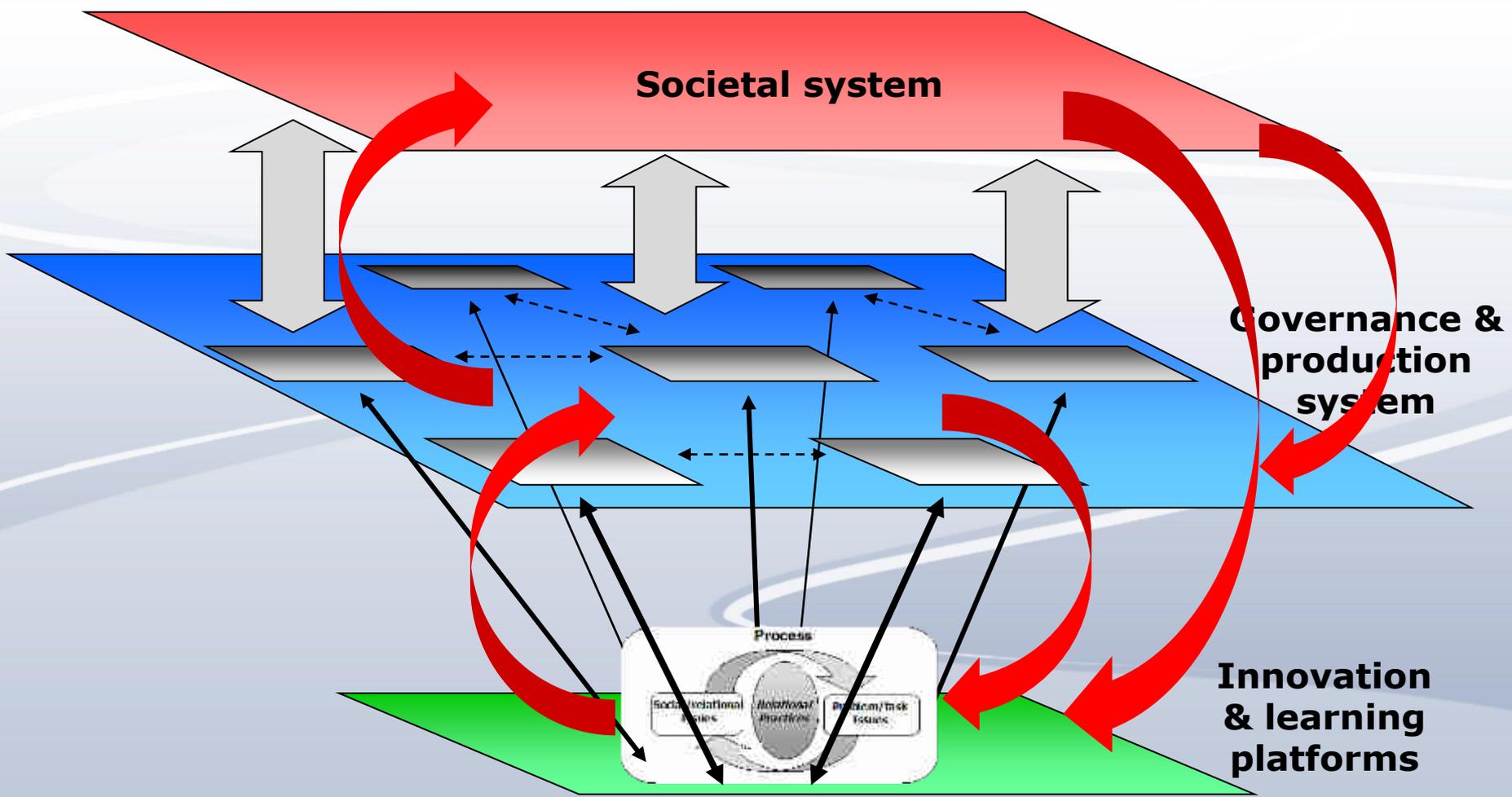
	Single loop	Double loop	Triple loop
Institutions general	Reproduction and no contesting of established institutions, signs of unilateral reinterpretation	Reinterpretation and contesting of established institutions by many parties	Established institutions changed or abolished and new institutions implemented
Regulative institutions	Existing regulations are strictly adhered to and used to justify established routines Introduction of new by-laws and interpretations of existing law to accommodate exceptions	Regulatory frameworks identified as major constraints for innovation Juridical conflicts about interpretation of rules Exemptions allowing innovative approaches and experimentation	Substantial formal changes in regulatory frameworks, new policies implemented Institutions reflect logic of a new paradigm
Normative Institutions	Established norms are used to justify prevailing system Relying on codes of good practice	Established norms and routines are contested	Change which can be identified in public discourse and new practices
Cultural-cognitive Institutions	Discourse remains in established paradigms that are refined Radical alternatives to reigning paradigm clearly dismissed	New ideas emerge beyond isolated groups Discourse (media, political debate, public hearings, scientific conferences) embrace new paradigm Strong arguments on alternative views —“ideological” debates	Discourse dominated by new paradigm Powerful representatives of “main-stream” support the new paradigm

Institutional Change

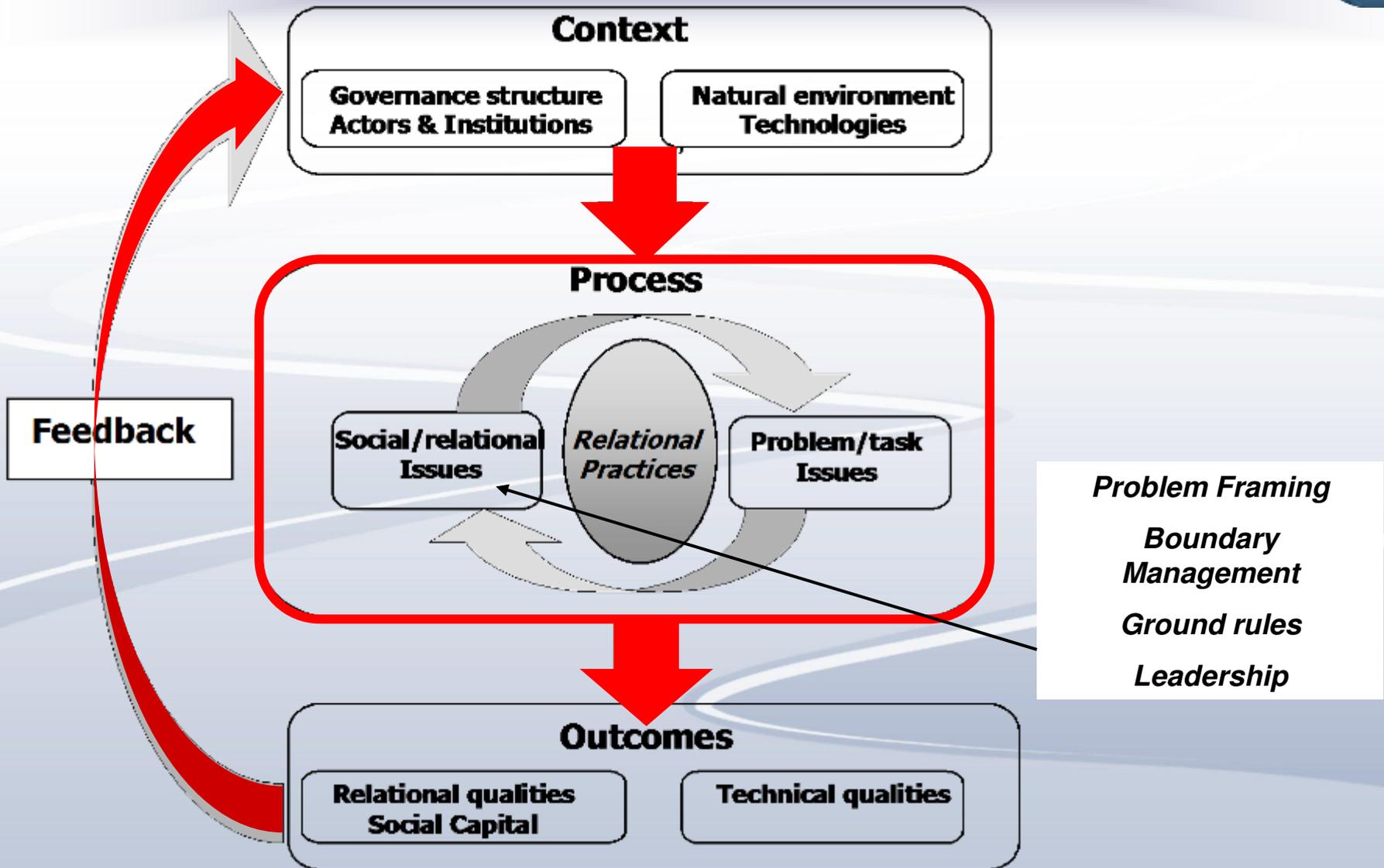
Discussion Questions

- *What are the most important institutional changes you could observe in your home country?*
- *Would you refer to these changes as single, double, or triple loop learning?*

Societal Learning Multi-Level Perspective



A Relational Concept for Social Learning



Influence of Actor Networks on Social Learning

Table 4.3 Hypothesized influence of several network characteristics on learning (extracted from Table 2 Newig et al. 2010)

Network function (network characteristic)	Information transmission	Single-loop learning	Higher levels of learning
Homophily (average)	+	+	-/+/- (concave curve)
Relation of weak to strong ties	+	○	+ (-)
Network size	+	+	-/+/- (convex curve)
Density	++	+	-
Cohesion/absence of structural holes	+	+	-
Centralization	+	+	+

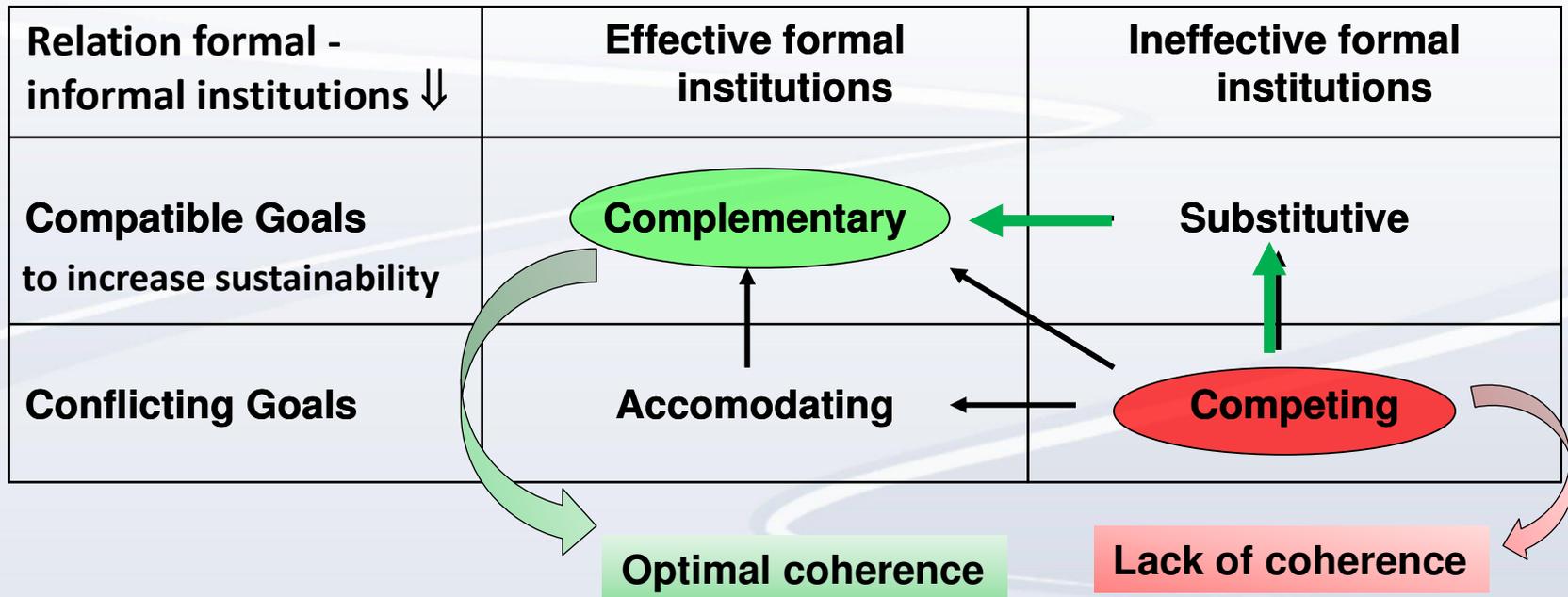


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What is Required for Transformative Change?

Building Transformative Capacity Synergy between formal and informal institutions



What is Required for Transformative Change?

- **Polycentric structures with flexible and effective coordination – across sectoral boundaries and across levels**
- **Balance between top-down and bottom-up processes**
- **Effective links between informal settings and formal policy processes**
 - **Informal networks important to support integration of knowledge and experimentation/innovation**
 - **Connections between informal learning and formal policy processes fragile if innovative approaches not codified in formal institutions and shared practices**
- **Effective implementation for ecosystem services concept**
- **Combination of governance modes (Markets, Bureaucratic Hierarchies, Networks)**



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Chapter 9

A Methodological Framework for Empirical Analysis

Topics Chapter 9

- **Methods for Comparative Analysis**
- **Harmonized Databases and Governance Indicators**
 - **Standardization in the Social Sciences**
 - Standardized Databases and Analytical Protocol for the MTF -> Thursday
 - Illustration of Applications of MTF Databases -> Thursday
 - Methodological Diversity

Table 9.1 Typology of methods for comparative case study research in water governance based on Pahl-Wostl and Lebel (2011b)

Typology of comparisons	What is compared
Specific variables	
Systemic	

Importance of Standardization and Shared Frameworks

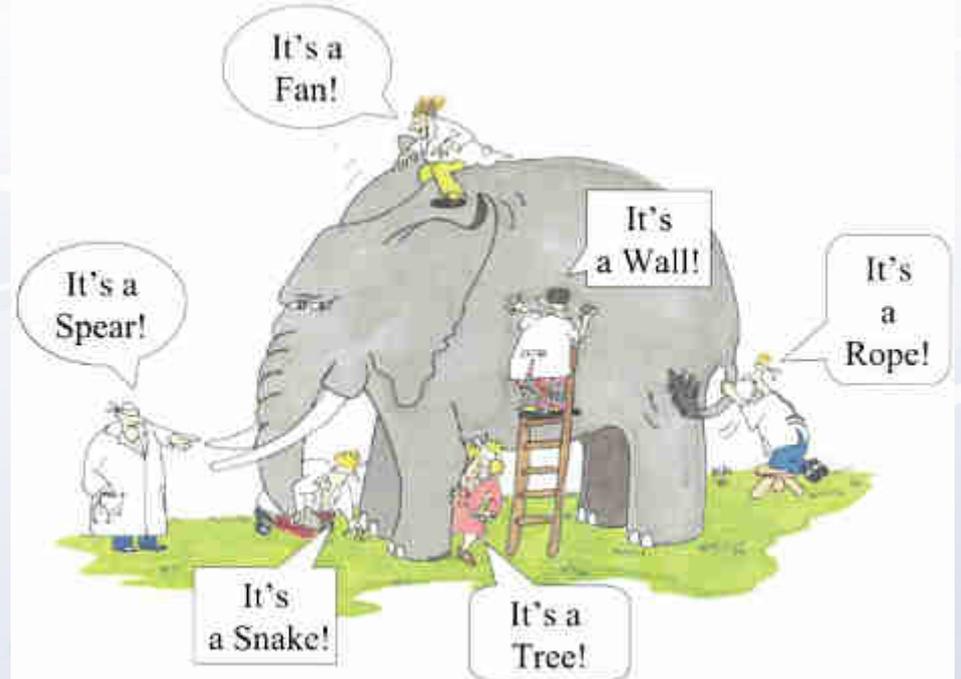
- ▶ *“A framework provides a set of assumptions, concepts, values and practices that constitute the way of viewing the specific reality”*
(Binder et al. 2013).
- ▶ Flexible frameworks allow diverse applications and a stepwise entry for use
- ▶ Most sophisticated is a formalized approach
- ▶ Desirable – report in transparent and reproducible way choices made

Different applications of frameworks

Table 9.2 Comparison between 'light' and 'deep' applications of frameworks

Criterion	Light	Deep
Effort involved for new user to apply the framework	Low	High
Use operationalized terms for overall categorization—higher tier variables	Yes	Yes
Use categories for lower-tier variables (zoom in on details)	Partly	Yes
Standardized definitions of concepts	No	Yes
Standardized definition of operational variables	No	Yes
Protocols for data collection	No	Yes
Protocols for analysis	No	Yes
Further development of the framework by individuals who apply it to their research foci	Yes	No

Shared frameworks are important



to avoid...



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RESERVE SLIDES

Failure to Acknowledge Messy Problems



Values and Goals

High Consensus

Low Consensus

**Factual
Knowledge**

High
Consensus

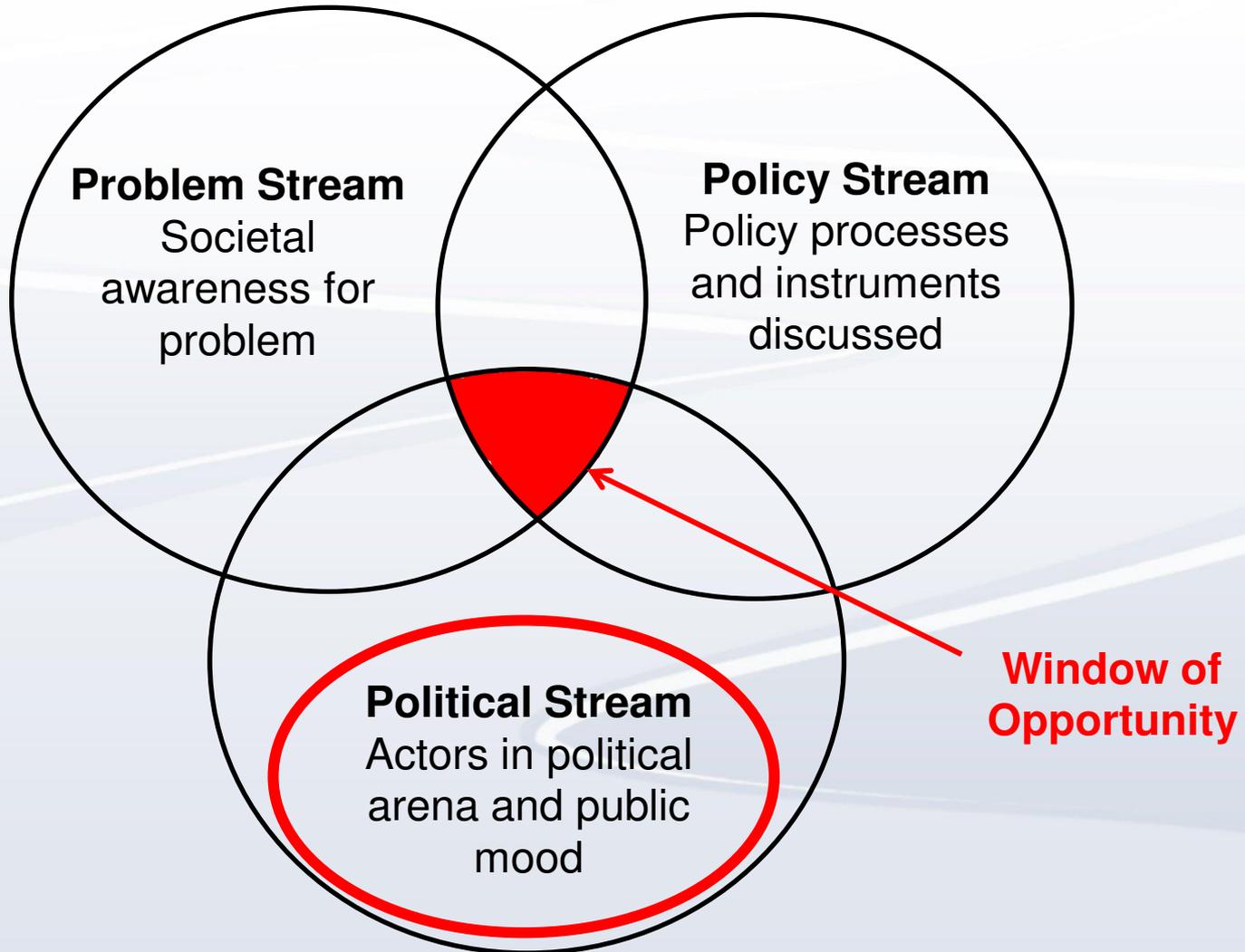
**Structured
Problems**

Low
Consensus

**„Messy“
Problems**

	High Consensus	Low Consensus
High Consensus	Structured Problems	
Low Consensus		„Messy“ Problems

Kingdon's Multiple Stream Model





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