Paradoxes, Possibilities, and the Obstacles to Integrated Water Resources Management:
Lessons form the Institutional Rational Choice Literature

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Institutional Perspective on IWRM

- **Challenge is finding ways to integrate the governance system when organizations rarely have the ability to solve problems by working alone**
  - *Governance*: means for achieving direction, control, and coordination of organizations with varying autonomy to advance objectives to which they jointly contribute
  - It involves more than the configuration of governmental and nongovernmental organizations
  - Includes enabling statutes, financial resources, programmatic structures, and rules, norms, and routines governing relationships
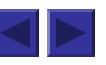 - Involves politics, bargaining, negotiation, and compromise

Central Arguments

- **Institutions matter**
  - Institutions are enduring regularities of human action structured by rules, norms, and shared strategies, as well as the physical world
  - What differentiates institutional analysis is the focus on rules
  - Rules are implicit or explicit attempts to achieve order and predictability among humans
  - Rules can be formal or informal, operate configurationally at different levels for different actors, and occur in nested systems

- **Context matters**
  - Has to be a good fit between institutional design and the contextual setting

Central Arguments

- **IWRM involves lots of strategic choices – "think holistically, act strategically"**
  - Lots of choices about how to "integrate" – scale/boundaries, scope of problems/issues, and who to involve
  - As scale increases, so to do problems, actors, and institutions involved

How do you determine how "integrated" water resources management is?

Underdal (1980) argues integrated policies meet 3 basic requirements

- **Comprehensiveness is viewed in terms of**
  - *Time*, *space* (geographic scale), *actor* (proportion of actors involved), and *issue* (proportion of interdependent issues)

- **Aggregation**
  - Extent to which problems and policy alternatives are framed from an "overall" perspective rather than that of particular actors

- **Consistency**
  - *Horizontal*: organizations at same level pursue the same policy
  - *Vertical*: organizations at different levels pursue the same policy

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"Integrated" Water Resource Management

- **Strategic choices about**
  - Timeframe, space (geographic scale), actors, and issues
  - Organize around focal problem(s) that motivate collective action
- **Who makes decisions? How will decisions be made?**
  - Design of the preference aggregation process
- **Horizontal consistency may be easier to achieve than vertical consistency**
  - While policy actors at the watershed level may have the ability to change things (horizontal level), they also have constraints imposed on them that are difficult to change (vertical level)
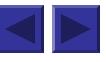
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What institutional settings are appropriate for IWRM?

Context Matters

- **IWRM is influenced by:**
  - *Physical environment*: size, location, relative isolation, visible boundaries, proximity of organizations
  - *Political environment*: trends include performance measures, reinvention, resource shortages, shifting local politics, etc.
  - *Socioeconomic environment*: are there local resources to support implementation?
  - *Institutional environment*: institutional ecosystem creates opportunities and constraints on joint action
  - *Local culture*: rural vs. urban, nature of the problems, local preference for specific policy solutions
  - *Situational histories*: particularly previous governance efforts, history of organizational conflicts
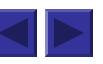
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Design Principles for CPRs

- **Ostrom's (1990) 8 design principles might be a useful starting point**
  - Used to help identify institutional settings where IWRM may lead to enduring changes in the governance system
- **Principles1, 2, & 3 help solve core problems with free-riding and resource use**
  - Clearly defined resource boundaries and rules that define the resource users
  - Congruence of appropriation rules managing resource use and provision rules specifying inputs for resource maintenance
  - Individuals affected by operational rules need to be able to participate in modifying institutional rules

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Design Principles for CPRs

- **Rules are not self enforcing so Principles 4, 5, 6 provide mechanisms for interpreting rules and imposing sanctions to increase agreement**

  – *Monitoring*

  – *Graduated sanctions*

  – *Conflict resolution mechanisms*

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Design Principles for CPRs

- **Principle 7 recognizes and legitimizes the rights of those who self-organize within the governance system**

  – *Minimal recognition of rights to organize*

- **Principle 8 recognizes the importance of embedding self-organization in the larger governance system that participants cannot change**

  – *Nested enterprises*

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Complex Environmental Commons

- **IWRM**
  - Contextual settings differ in important ways from the CPRs examined in the literature

- **CECs are characterized by 3 factors**
  - Complex network of organizations is involved in rule making
  - High diversity in the perceived value and appropriate use of the resources
  - Multiple, interrelated problems affecting multiple resources

- **Kauneckis & Imperial (2007) propose 5 design principles for CECs**
  - Identify institutional settings conducive to IWRM

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Design Principles for CECs

- **Establishing trust among organizations**
  - Recognizes the need to craft network relationships and maintain routine interactions needed to produce the trust required for self-organization (collective action)

- **Developing a shared definition of the focal problem(s) that motivate collective action**
  - CECs have a variety of interests who frame problems in different ways.
  - Institutional arrangement provides opportunities for actors to develop a shared definition of problems may have greater capacity for self-organization

Design Principles for CECs

- **Recognize mutual interests and avoid win-lose situations**
  - Participants can frame issues to highlight mutual interests
  - Institutional choices are viewed as non-zero sum games to encourage cooperation and self-organization

- **Balance of power among policy actors, at least within the confines of the decision making process**
  - Participation in IWRM is often voluntary
  - Participants may be reluctant to participate if they think they can achieve their goals by other means
  - When there is no BATNA or there is a NATNA, then cooperation is more likely

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Design Principles for CECs

- **Wide range of policy instruments are used in problem solving**
  - Enlarging the range of policy instruments increases the range of alternatives for problem solving
  - Increases likelihood that solutions can be framed in terms of a non-zero sum game
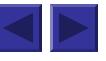 - Increases range of ways to improve governance system

What strategic choices are associated with designing the interactive processes associated with IWRM?

Designing Watershed Partnerships

- **Watershed partnerships are structured systems of rules, routines, and competencies**
  - Imperial & Koontz's (2007) approach borrows heavily from the institutional rational choice literature
  - Rules are explicit or implicit attempts to achieve order and predictability
  - Prescriptions that forbid, permit, or require actions or outcomes and the sanctions or rewards associated with following the rules
  - Rules operate configurationally in that the way one set of rules operates can affect another and rules function at different levels
  - Formal or informal and wide variation in level of formality
  - Boundary (member and strategy), decision, and coordination rules

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Boundary Rules

- **Configuration of *member* and *strategy* rules generates the boundary that distinguishes the watershed partnership from other organizations**

- **Member Rules**

  – Who can or cannot be a member

  – Different types of members (member, associate member, ex officio)

  – Members are organizations but individuals might be included

  – Voluntary or required by a higher-order set of rules (e.g., state statute)

  – Rules pertaining to expansion or expulsion of members

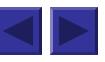- **Selection of members influences and constrains the watershed partnerships strategic options**

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Boundary Rules

- **Strategy Rules**
  - Specify shared definitions of a problem or set of problems within the partnership's domain
  - Specify the responses to problems that are legitimate or illegitimate – what it can or cannot do, what are its roles or processes
  - Specify how it acquires resources needed to accomplish tasks
  - Specify the relationship between the partnership and other network members

- **Strategy influences the watershed partnership's membership structure**

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Decision Rules

- **Determine how members interact and make decisions**
  - Rules evolve towards formality and complexity and may have a path-dependent quality

- **Preference Aggregation Rules**
  - Consensus is common but formal structures may have more complex voting systems

- **Distribution of Power Rules**
  - Equality, voting vs. nonvoting, creation of executive boards, centralized vs. decentralized

- **Distribution of Roles/Responsibility Rules**
  - Officers, sub-units, work groups, specialization of functions

- **Distribution of Participation Rules**
  - *Width*: degree each member participates in each decision
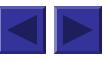 - *Depth*: degree each member can influence a specific decision

Coordination Rules

- **Coordination rules define mutual exchange rights among members**

- **Exchange Rules**
  - Operating procedures that govern resource exchanges between members and the watershed partnership

- **Monitoring Rules**
  - Govern exchange process and ensure that members follow through on commitments

- **Dispute Resolution Rules**
  - Specify how conflicts will be resolved

- **Enforcement Rules**
  - Sanctions for noncompliance or rewards for compliance

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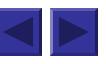# What factors contribute to the longevity of watershed partnerships?

Stability vs. Change

- ## Stability in structures when viewed over time
  - Researchers refer to this as *structural inertia*
  - Inertia is not a symptom of "bad" management but is the by-product of an well designed system
  - Changes in core strategies, structures, and processes will be more difficult to achieve than peripheral changes
  - Changes associated with IWRM may prove beneficial over the long term but disruptive aspects can have dire consequences
  - Is "adaptive management" of natural resources possible?

Reliability & Institutionalization

- **Modern world favors organizations that reasonably can claim a capacity for *reliable* performance**
  - Watershed partnership must *reproduce* its structure consistently
  - Reproduce structure by institutionalizing rules, routines, and procedures
- **Institutionalization is a "two-edged sword"**
  - Institutionalization can lower the transaction costs and promote stability that allows a watershed partnership to endure
  - It also makes it resistant to change because change disrupts internal routines and external linkages, which reduces reliability

Accountability

- **Accountability is also a "two-edged" sword**
  - Modern world favors organizations that *account* rationally for their actions
  - Watershed partnership must document how resources are used and be able to reconstruct the series of decisions, rules, and actions associated with outputs or outcomes
  - Peer pressure at the political, professional, and individual level encourages self-organization
  - Too much emphasis on accountability or poorly designed monitoring systems can create disincentives for joining and/or contributing resources to a partnership

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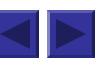
Legitimacy

- **Some minimum level of legitimacy is needed to acquire resources (e.g., membership, public or political support, money, etc.) needed to survive**

  - Watershed partnership must be perceived as a legitimate response to water resource problems

  - Enhance (or reduce) legitimacy through choices related to membership, strategy, decision, or coordination rules

  - As partnership ages, it should develop stronger exchange relationships, become part of the hierarchy, and have their actions endorsed by powerful actors

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Summary & Conclusions

- **Complex behavior emerges due to the interactions among members of a governance system**
  - Behavior is unlikely to be dictated, controlled, engineered, regulated, or coordinated by a central "watershed manager"
  - To understand how the watershed is "managed" you have to understand how the whole portfolio of policies and programs operates and interacts

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Summary & Conclusions

- **Think holistically, but act strategically**
  - IWRM is a strategic endeavor
  - Practical limits to how much any collection of policies can or should be "integrated" at the horizontal or vertical levels
  - Prospective gains of any institutional change must be weighed against the potential costs of change
  - Sub-optimal level of integration is intentional or desirable because the transaction costs to move to an alternative institutional arrangement are too high

Summary & Conclusions

- **Institutions matter**
  - Some contextual settings are more conducive to IWRM than others
  - Institutional arrangement will limit how much integration is possible or desirable

- **No substitute for well-designed decision making process**
  - Strategic choices related to the rules governing membership, strategy, decision making, and coordination
  - No one "best" way to organize the interactive processes associated with IWRM

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Summary & Conclusions

- **Integration does not cure all governance problems**
  - Integration should not be viewed as an end in and of itself – it is a means to an end
  - While integration is nicer sounding and makes people feel better than fragmentation, duplication, conflict, or competition, that is beside the point
  - Value only if it produces better performance or lower costs
  - Political struggle to achieve greater integration is costly, time-consuming, and divisive and sometimes the benefits are limited

Questions?