River Basin Management: Developing Institutions - A Framework

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An Institutional Disconnect

Sometimes people cooperate in water management ...

- Bali’s *subak*
- Spain’s medieval precursors of *confederaciones hidrograficas*
- Flanders’ and Holland’s medieval *water boards*
  etc.
An Institutional Disconnect

But usually not, and if it works it takes much effort, and the “rational” choice is not effectuated.

- Murray-Darling Comm (Aus): took 80 years
- Rhine Comm (Eur): took half a century
- ACT - ACF (USA): ditto
- Jatiluhur Authority (Indon): degraded in 20 years
- Philippines: little progress
- India: only Tribunal awards

etc.
Water and Institutions

Barriers to cooperate increase with externalities, number of stakeholders, perceived short-term value, and costs - so does resistance to reform:

- Urban water supply
- Rural water supply
- Irrigation
- Wastewater treatment
- River basin management
River basins:
Technical and institutional development

There is no water scarcity,
But water is poorly managed.

Best guarantee for sustainable and “optimal” water management are appropriate institutions
River basins:
Technical and institutional development

- **Technical development**
  - what we know best
  - what Government asks
  - one sector
  - what can be planned

- **Institutional development**
  - what we know least
  - what the current Government may resist
  - across sectors
  - what cannot be planned and entails political risk
River basins: Technical and institutional development

Appropriate institutional arrangements comprise

- organizations
- incentives systems
- regulatory systems
- capacities (skills)
- confidence of stakeholders and society
Institutional design principles for river basins

Appropriate institutional arrangements depend on:

- Physical attributes of basin (wet, dry, …)
- Administrative structure of state
- Cultural and political traditions
- Demand & supply structure in basin
- Dynamics of economic & cultural development

Institutional design principles
Institutional design principles for river basins

Institutional design principles =

- economics (prices and markets)
- behavioral sciences
- management sciences
- public administration
River basin institutions: “Models”

“Optimal” arrangement for integrated water management depends on country and time period.

“Models” don’t exist -- they can’t be replicated as a whole.

Despite the wide variety of proven arrangements, their components and design principles can be applied elsewhere.
River basin institutions: Purpose

Basin organization’s tasks CAN include

- Water allocation & conflict negotiation
- Policy and coordination, planning
- Levy charges – preferably to be retained in Basin
- Infrastructure operation and maintenance
- Infrastructure development (construction)
- (Co-)financing
- Land - water interaction
- Create “river solidarity” and confidence, awareness
Main functions found among “performing” organizations

- Initiation and supervision by higher authority: Always
- Stakeholders participate or supervise: Nearly always
- Awareness creation: Always
- Task: policy and coordination: Always
- Task: planning: Usually
- Task: water allocation and conflict negotiation: Usually
- Operational task: finance generation/distribution: Usually
- Operational task: construction, operations: Sometimes
An Approach to Institutional Development
Comparative analysis

Typology

- Small and coordinating: “Secretariat” (Rhine)
- Large and executive: “Authority” (TVA, Neth.)
- Modest but a good start: Stakeholder Councils to guide and legitimize Govt. planning (Ceara)

- Simple but headache: Tribunal awards

- Simplest and best: voluntary coordination of existing organizations
Key institutional design principles for river basins

1  Separation of regulatory and executive roles
   Principal-agent relationship

2  Appropriate decentralization
   -> subsidiarity,
   -> delayering, unbundling

3  Organization must be (i) ‘task-specific’,
    and (ii) accountable
    (Case: Tarim basin, China)

4  Synergies (‘basin organization must add value’)
China's River System
Institutional design principles

Tarim “basin institution” before: monolithic, engineering

Governor

Other

Prov. Water Bureau

Prov. Bureau Mines

District Water Bureaux

Users
Initiatives

Tarim “basin institutions”: after: unbundled

- Prov. And District Water Bureaux (construction)
- Basin Commission (all water & users) (policy)
- Farmer Associations
  - Industrial estates
  - Urban water supplies (local allocation, O&M)
- Bulk supply Cy.

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Key institutional design principles for river basins

5 Critical mass
fiscally sustainable, technically competent, right skills

6 Corporatized organization must be given clear and consistent task description, authority and autonomy, and adequate financial base

(Case: Jatiluhur Authority, Indonesia)
Indonesia – New River Basin Organizations on Java Island
Min. Mining & Energy

Owns and operates several reservoirs and dams

River (basin) management

Min Public Works

Develops and owns all infrastructure assets (except MoME assets)

PT Jatiluhur

Operates and maintains assets incl. irrigation:
Cost recovered from cities, industry, hydropower; no cost recovered from irrigation and pollution

Local Govt

Develops, owns and operates minor irrigation systems, and may operate parts of larger systems

Central Govt

Develops and owns major irrigation systems. Overall coordination and financing

Irrigation

Water users:
- Cities
- Industries
- Farmers

Hydropower

H₂O

In-stream uses

Administrative/financing control

Service relationship
Trade-offs between design principles

Economies of scale, critical mass and basin-coverage
  -> top-heavy

    versus

Demand responsiveness, participation and stakeholder homogeneity
  -> locally based

“Ethical” organization vs. Stick-and-carrot
“Planner-knows-best” vs. Competition
Unity in command vs. Operator-regulator separation
Trade-offs between design principles

Optimum not driven by unifying theory but by internal and external characteristics (SWOT ...), internal consistency among the design components, external consistency, and win-win or other gains.

Draws in game theory and behavioral sciences.
River basin institutions: Balancing Central and Local Govt. Authority

Managerial autonomy vis-a-vis central government

Formal ownership by local governments

TVA

Netherlands

France

Mexico

Wolga
River basin institutions: Dominant basin features co-determine extent of central govt. role

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River basin institutions: Seeking Financial Sustainability

- Local finance generated as charge, not tax, and retained in basin
- Seek fiscal decentralization ... and enlist local stakeholders as owners by raising local revenue
- **1st level of Nirvana**: pay for O&M of commercially viable basin parts incl. infrastructure ...
- **2nd level of Nirvana**: pay for O&M of whole basin
- **3rd level of Nirvana**: pay for part of investment
- ... yet central govt. subventions usually required
Comparative analysis of institutional development for river basins

Important factors of successful performance

- Win-win perception among stakeholders, also those who stand to lose
- Strong stakeholder participation or supervision
- Initiative and supervision by higher authority
- Checks and balances (-> accountability, confidence)
- Sticks (regulation) + carrots (often of financial nature)
- Subsidiarity of tasks
- Successful water allocation and Conflict negotiation
An Approach to Institutional Development
Comparative analysis

Less important factors for success

- Fits a “standard”
- Must be large and build infrastructure
- Makes sense to water experts
An Approach to Institutional Development
Comparative analysis

A process

- Identify “champions” and “constraints”
- Share vision
- Make win-win visible, and reduce risks (raise confidence)
- Compensate losers
- Hear all users (also poor and environment)
- Use sticks and carrots to entice stakeholders
- Seek “window of opportunity” or trigger event

The process may be more important than the desired outcome
Conclusions

River basin agencies are important tools (but not always necessary)

Despite the win-win, constraints often arrest cooperation

ESAs have pronounced interest and can play *brokering* and supportive role
Water management is people business, and water doesn’t flow straight anymore ...