

Water Security ...

and Its Evolution as a Framing Concept

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Mileposts for today's talk



- The idea of “water security”
- Evolution of concepts in water governance
- “Hard-path” / “soft-path” approaches
- How should we understand water security? Some definitions
- Salient features of the water-security paradigm
- Is this an enduring concept?

“Water security” has emerged as a concept to address societal challenges of **access**, **availability**, and **use** as well as **vulnerability to water-related risks**

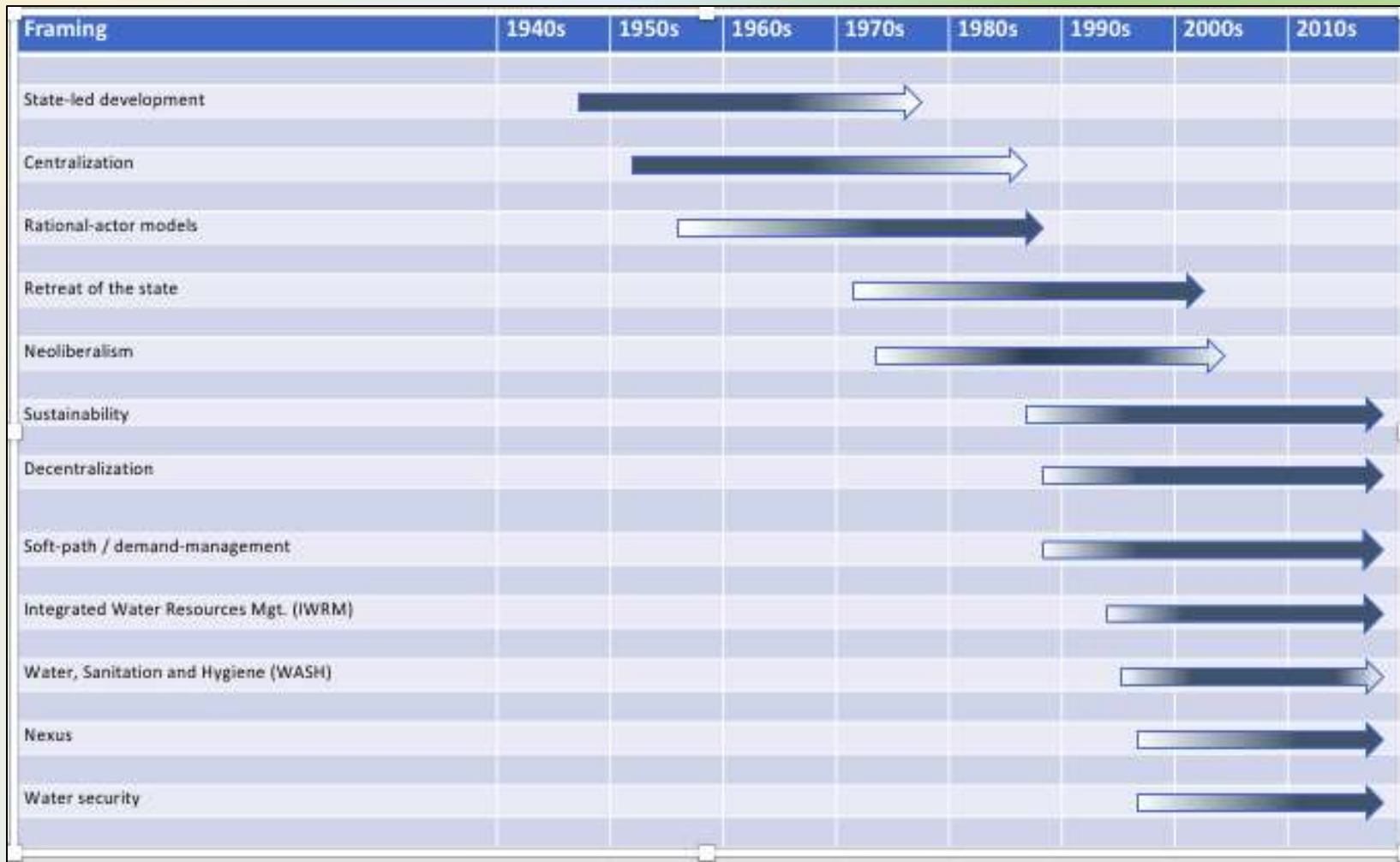


Context

- Decades of attempts to find suitable framings and paradigms
- Water security is among the latest to emerge
- But it's only one of many ways to characterize the importance of water to society and the environment



Evolution of concepts in water governance*



Adapted from Varady et al. 2009

** Water governance is the framework of water-use laws, regulations, and customs, as well as the processes of engaging the public sector, the private sector, and civil society.*

Changes in the air

Late 1980s mark the emergence of different thinking regarding management:

- “Small is beautiful” and “appropriate technology” (Schumacher)
- Attention to governance
- Importance of society and human dimensions
- Centrality of sustainability
- Relevance of “demand management” . . . *and*



. . . Recognition of distinction between “Hard-path” / “soft-path” approaches



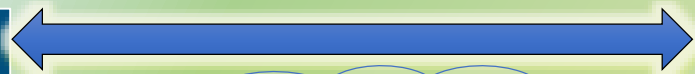
Hard-path characteristics

Centralized, top-down decisionmaking
Large-scale public works & infrastructure
Engineering, hard sciences
Emphasis on cost-effectiveness
Regulatory approaches

Governance & institutions
Public participation
Transparency
Sectoral integration

Soft-path characteristics

Interdisciplinary approaches
Sustainability
Human rights & equity
Conflict containment



Leading to the transition:
Three realizations

*Water is essential to
improving the human
condition*

*Water management
is becoming globalized*

*Human dimensions
are critical*

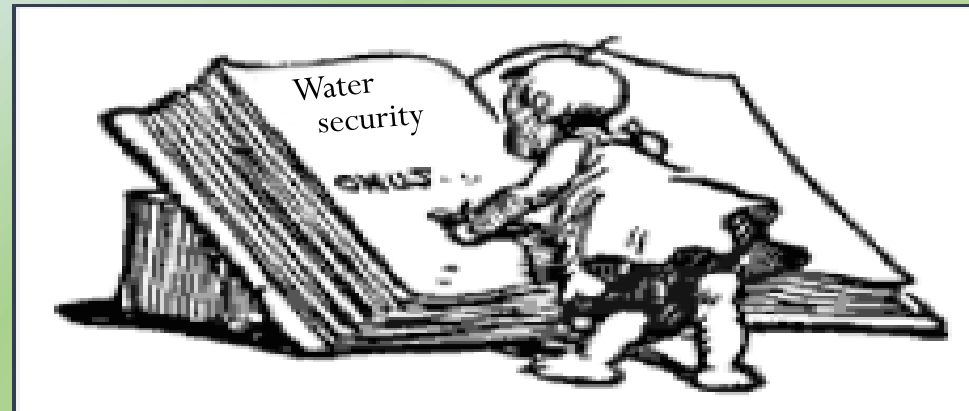
Themes in soft-path approaches



- Essential role of *institutions* in water policy
- Importance of genuine cooperation built on *trust*
- Value of *public participation* by stakeholders
- Vital significance of *information flows* & access to reliable data
- Critical role of *communities of practice*
- *Social-learning* and *adaptation* approaches

What is “Water security”?

Some working definitions



“Water security, . . . household to global, means that **every person** has access to **enough safe water at affordable cost** to lead a clean, healthy and productive life, while ensuring that the **natural environment is protected** and enhanced. Those using and sharing river basins and aquifers must manage their water sustainably, balancing water use for human development with protection of vital eco-systems and the ecological services they provide.”

—*Global Water Partnership, 2000*

“The availability of an acceptable quantity and quality of water for health, livelihoods, ecosystems and production, coupled with an acceptable level of **water-related risks** to people, environments and economies.”

— *Grey & Sadoff, Water Policy, 2007*

“Water security”

Working definitions



“The capacity of a population to safeguard access to adequate quantities of water of acceptable quality for sustaining human and ecosystem health on a watershed basis, and to ensure efficient protection of life and property against water related hazards—floods, landslides, land subsidence, and droughts.

— *UNESCO 2013*

The capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a **climate of peace and political stability.**

— *UN Water 2013*

Availability of adequate quantities and qualities of water for societal needs and resilient ecosystems, in the context of **current and future global change.**

—**Scott, Meza, Varady, et al., 2013**

Comparing definitions of water security

Source/Attribute	FAO	GWP	Grey/ Sadoff	UNEP	Norman et al.	OECD	Bakker	UN- Water	UNESCO	Scott et al.	Total
Year	1996	2000	2007	2009	2010	2011	2012	2013	2013	2013	
Quantity	X	X	X	X	X	X	X	X	X	X	10
Quality	X	X	X	X	X	X	X	X	X	X	10
Health	X		X		X		X	X	X		6
Economic growth	X		X	X		X		X			5
Access	X	X	X	X	X	X	X	X	X	X	10
Time	X										1
Preference	X										1
Ecosystems		X	X	X	X	X	X	X	X	X	9
Sustainability		X			X	X		X	X	X	6
Risk/hazards		X	X				X	X	X		5
Livelihoods			X				X	X			3
Sanitation				X							1
Food/energy				X							1
Industrial resources				X							1
Transport				X							1
Watershed					X				X		2
Policy						X					1
Peace/national security							X	X			2
Global change										X	1
Resilience										X	1
Uncertainty										X	1
Total	7	6	8	9	7	7	8	10	8	8	78

Adapted from Gerlak et al. 2018

Critiques of Water Security



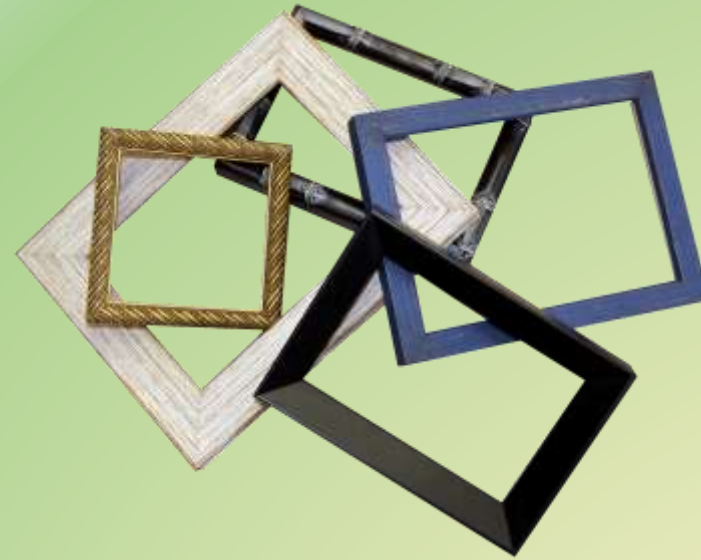
- **Definitional vagueness** (Sinyolo et al. 2014)
- Caution to **use water indices carefully** due to complexity of social & ecological systems (Gunda et al. 2015)
- Need to consider sociopolitical & biophysical aspects and resulting **inequities** (McEvoy 2014)
- Tendency to **ignore poor people** from developing countries (Jepson 2014)
- **Difficulty of measuring** water security reliably (Lemos et al. 2016)
- Inability to **translate goals into policy** (Jepson 2014)
- Need for **multiscale assessment** to better assess water security at national & local scales (Basu et al. 2015)
- Weakening of water security by **interests of dominant groups** (Boelens et al. 2014)
- Ironically—given usual emphasis on supply-side solutions to water—**literature refers insufficiently to supply side** of water security and instead emphasizes demand side (Wegerich et al. 2015)

Further dimensions of water security

Framing the problem

Key elements

- Scarcity & social vulnerability
- Rate of urbanization
- Degree of reliance on groundwater
- Ecosystem resilience
- Water-energy-food nexus
- Transboundary considerations
- Inclusiveness of decisionmaking process



Operationalizing soft-path water-security approaches

How is the concept used?

- Human resources, incl. culture
- Economy & revenue-raising capacity
- Governance: Legal systems, administration, regulation, enforcement
- Robustness and engagement of institutions & civil society
- Interdisciplinary approaches
- Sustainability
- Provides strength, vitality, integration of nexus sectors (water, energy, food)
- Human rights & equity
- Conflict containment



Importance of institutions



Are institutions:

- Using best available data & research?
- Well-connected to government/policymakers, NGOs, private sector, community, and scientists?
- Employing current models, scenario-analysis technology?
- Served by necessary trained personnel & human resource capacity?
- Sufficiently flexible & resilient in structure & management?
- Seeking and heeding stakeholder input?

Importance of institutions



Are institutions:

- Transparent?
- Financially viable?
- Using sustainable procedures and policies?
- Backed by appropriate authority?
- Sharing best practices with other, related institutions?
- Effective in promoting, supporting, & achieving water security?

Public engagement & science-policy dialogues

INCLUSIVITY—INTERACTION—INVOLVEMENT—INFLUENCE



- ***Public participation*** in decisionmaking by full range of stakeholders from ***all Nexus sectors*** (water, energy, food)
- Robust ***communities of practice*** linking policymakers, managers, scientists
- Recognition of interconnectedness & inseparability of ***water management*** and ***climate mitigation & adaptation***
- Access to ***reliable data & information flows***
- Significance of good, transparent, supportive ***governance***
- ***Trust*** needed for genuine cooperation

Water Security

Passing Fad — or Durable Concept?



The notion of “water security” will certainly undergo continuing metamorphosis.

Already, new terms are entering the lexicon: e.g., “water safety,” “water architecture”; others are sure to follow.

But the basic principles of **access to water, soft-path approaches, and attention to governance** will likely endure.

Thank you

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