

An IWRM Perspective on Water and Climate Resilience

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Resilience

Resilience as a concept

- “the capacity to persist in the face of change”
- “the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, and feedbacks, and therefore identity”

Resilience as a buzzword

- “more resilience is always better”?

Resilience as a critique of an assumption of...

- full knowledge
- system control
- optimal solutions
- linear processes
- efficiency ...



A Traditional Perspective on Water and Climate Resilience

Resilience capacities

- Absorptive capacities – absorb a punch
- Adaptive capacities – deflect/avoid punch
- Transformative capacities – fight a boxer with karate



IWRM

***Integrated Water Resources Management (IWRM)** is a process which promotes the coordinated development and management of water, land and related resources in order to maximise economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems and the environment.*

Boundaries that IWRM tries to bridge (Mostert et al. 2008):

- 1. Human and natural boundaries:** sees them as part of interconnected coupled systems
- 2. Hydro physical boundaries** between surface and groundwater, water quantity and quality, freshwater and coastal waters, water resources and land resources, different geographical scales and different timescales;
- 3. Administrative boundaries** between different countries, government levels and policy sectors;
- 4. Social boundaries** between different social and economic groups and between these groups and government; and

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IWRM offers a deeper more holistic view on resilience. Let's see why!

1. Resilience of what?

- Which system (and what about it) is supposed to become resilient?

2. Resilience to what?

- What the is system supposed to become resilient to?

3. Resilience at what scale?

- What are spatial and temporal scale for resilience?

4. Resilience for whom?

- Which social groups are supposed to become resilient?

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1. Resilience of what? – bridging human-nature boundaries

a) Hydrological resilience:

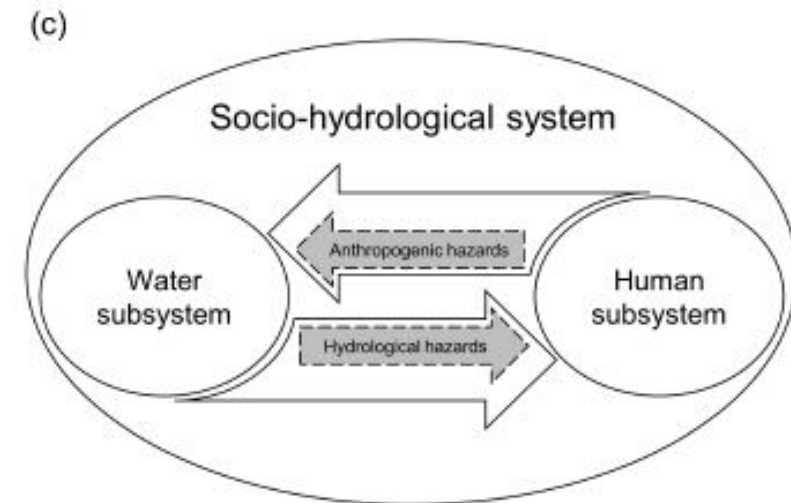
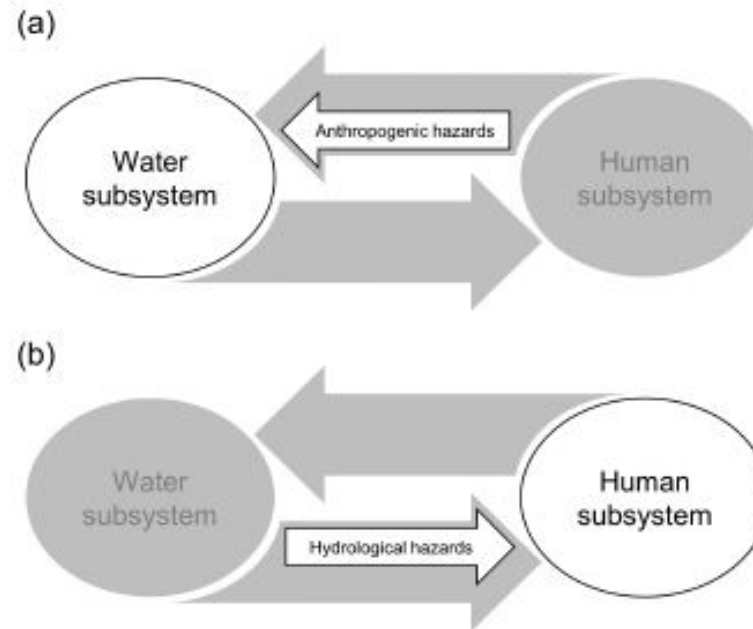
- How are water and ecological systems can cope with human hazards (over abstraction, pollution, dams, etc.)

b) Social resilience:

- How humans can cope with droughts, floods, silts, landslid etc.)

c) Social-hydrological resilience:

- How the integrity and function of our coupled human-water system can be sustained



Source: Mao et al., 2017

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2. Resilience to what? – bridging hydro-physical boundaries

What the is system supposed to become resilient to?

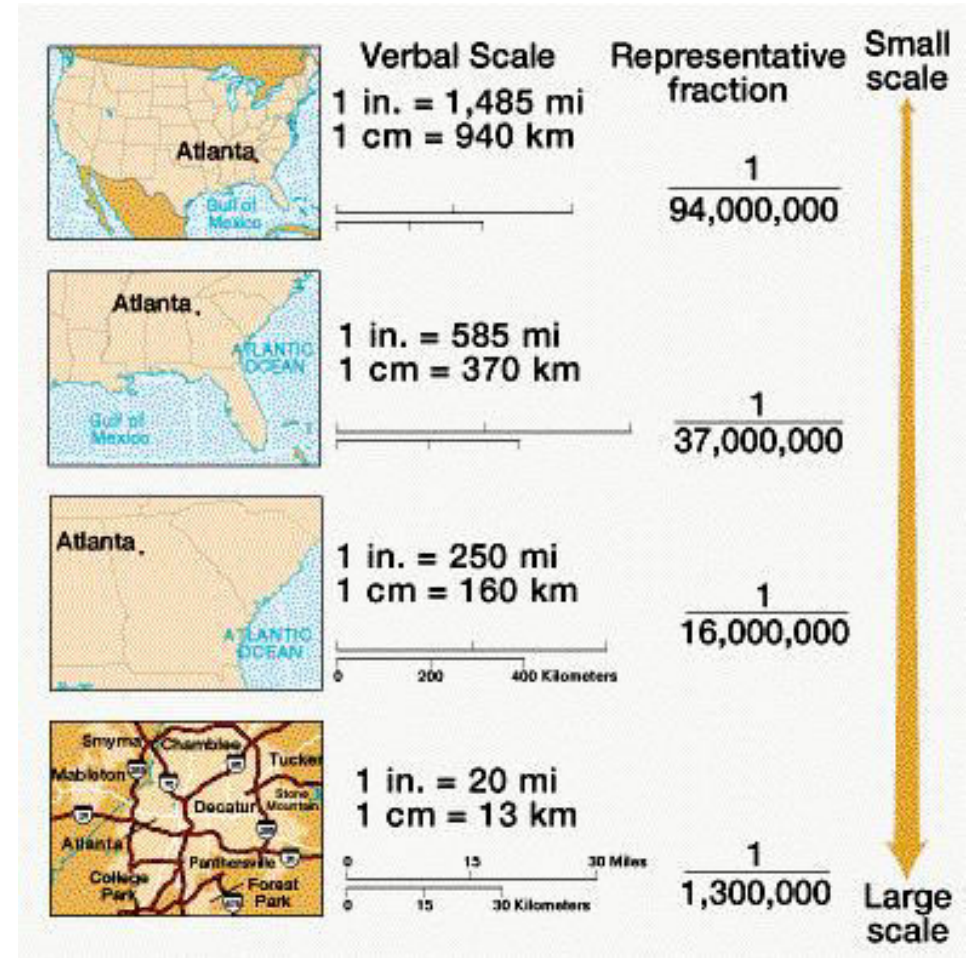
- To droughts or to floods? to pollution?
- To slow changes or rapid changes?
- Stress, shocks, or disturbances



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3. Resilience at what scale? – bridging administrative boundaries

- Scale framing, politics of scale
- Trade offs between spatial scales (local versus national versus global)
- Trade offs between short term and long term resilience (current versus future generations)



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4. Resilience for whom? – bridging social boundaries

- Who is to become resilient?
- When does my resilience become someone else's vulnerability?
- Who is bearing the cost of improving my resilience?



Thank you!

