

Water Resilience Design and Execution: the State of the Art

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CEO, Resolute Development Solutions and Ambassador, The Resilience Shift



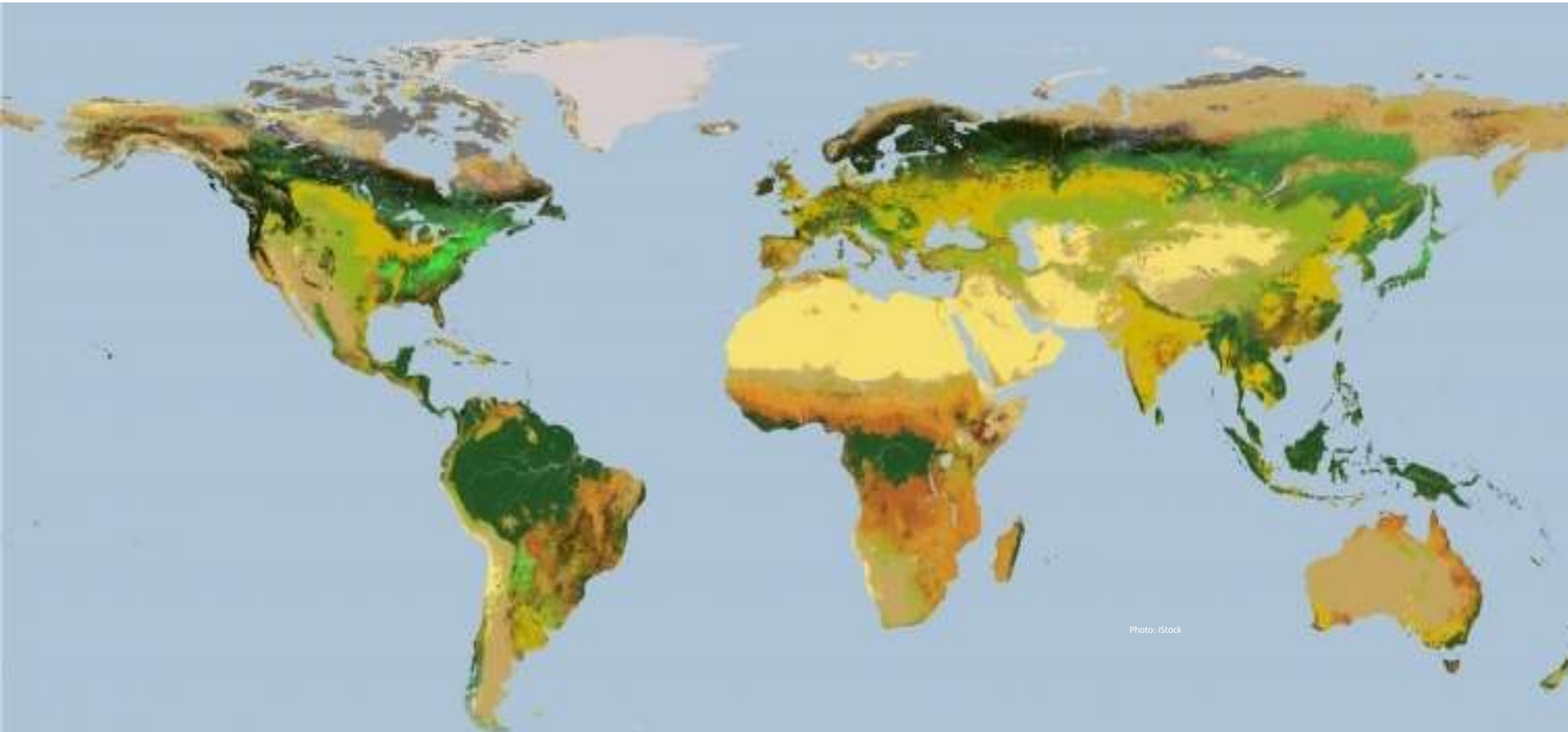


Photo: iStock

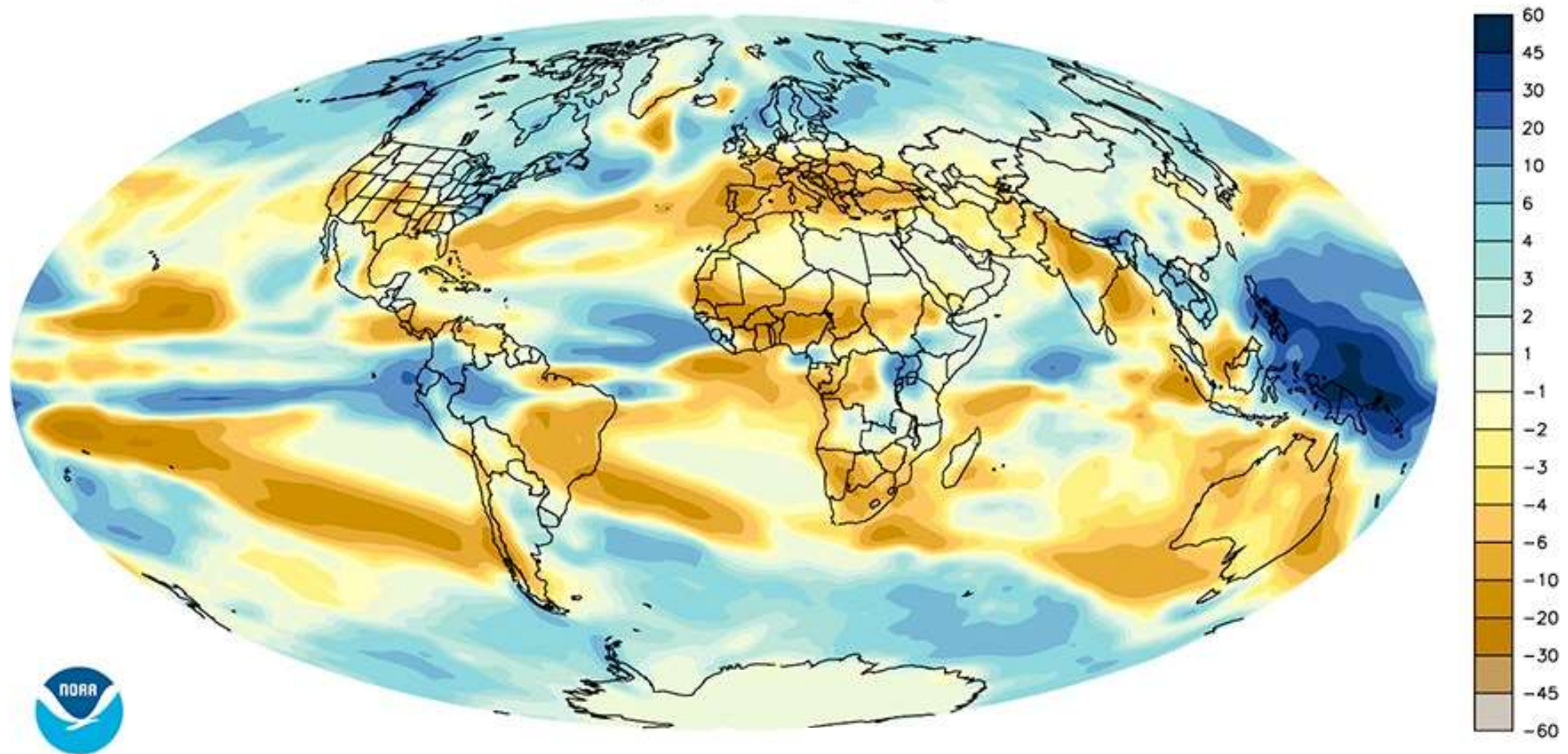
water delineates the biosphere and will guide its adaptation



water bounds human growth and security

CHANGE IN PRECIPITATION BY END OF 21st CENTURY

inches of liquid water per year



climate change will drive Earth system change through water

water is the master variable



**solving for the
resilience of
diverse sectors,
systems, and
scales**



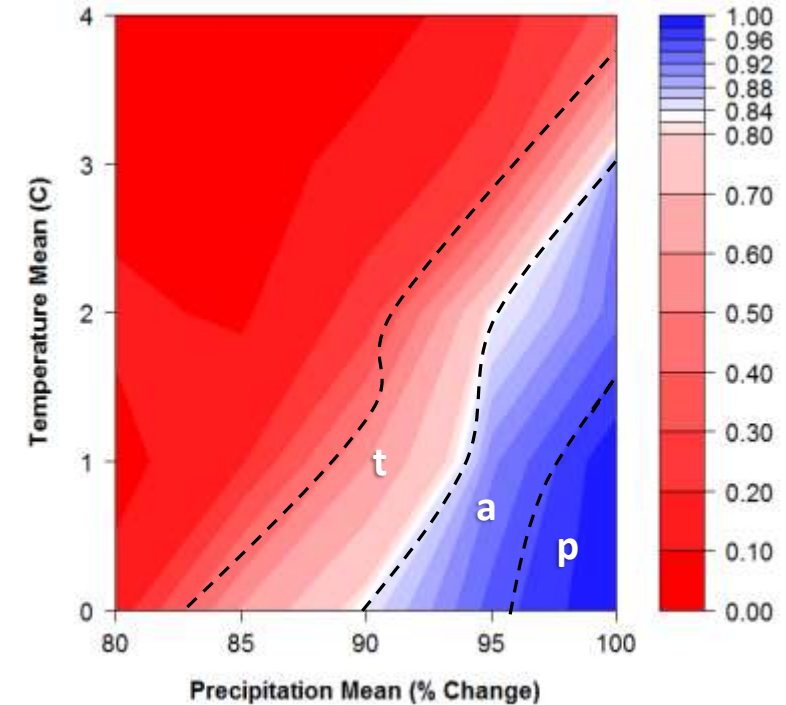
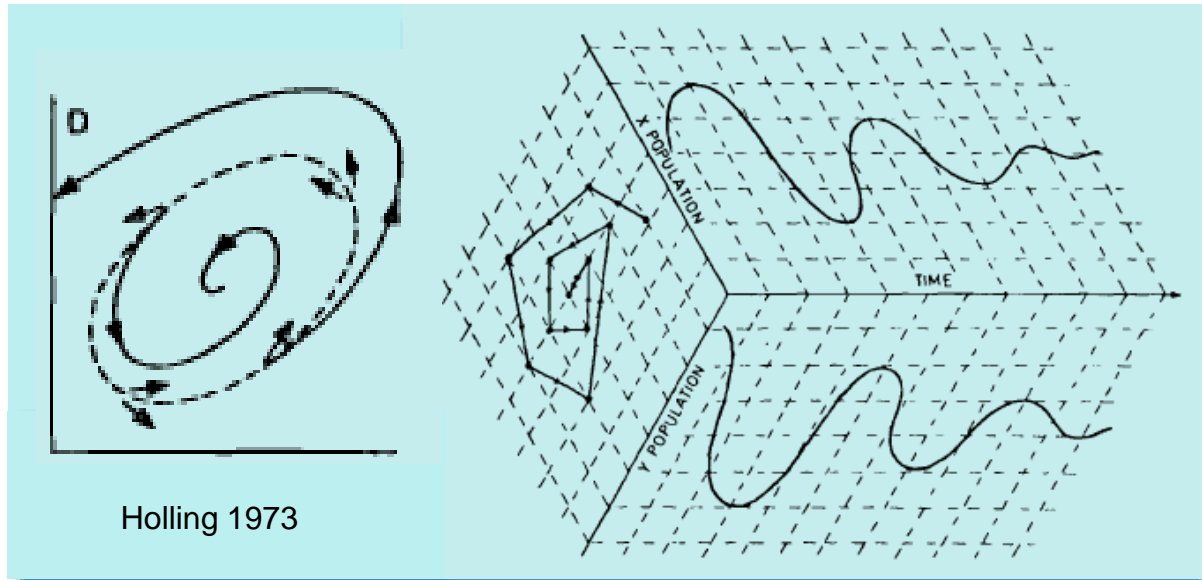
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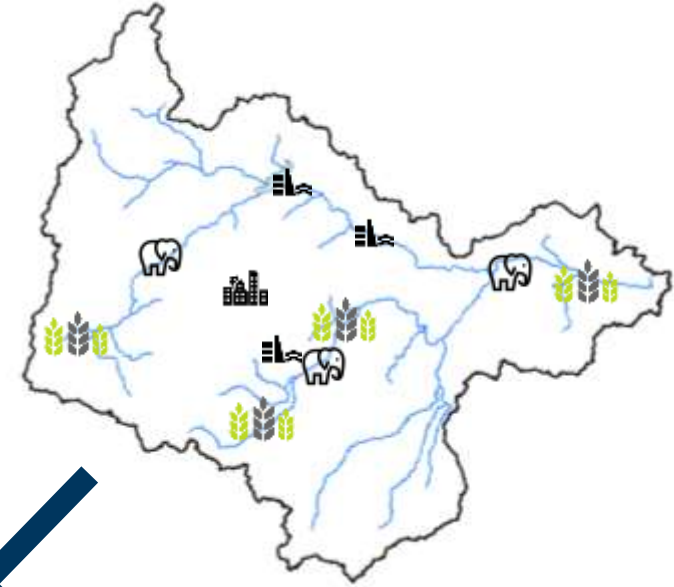
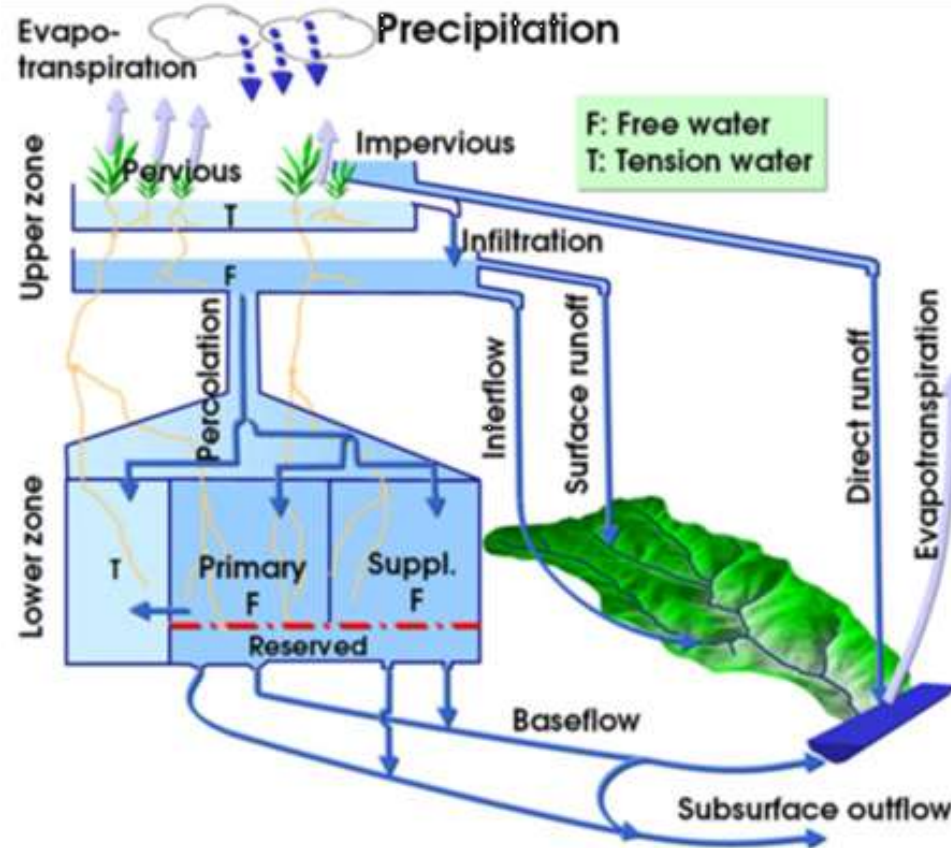
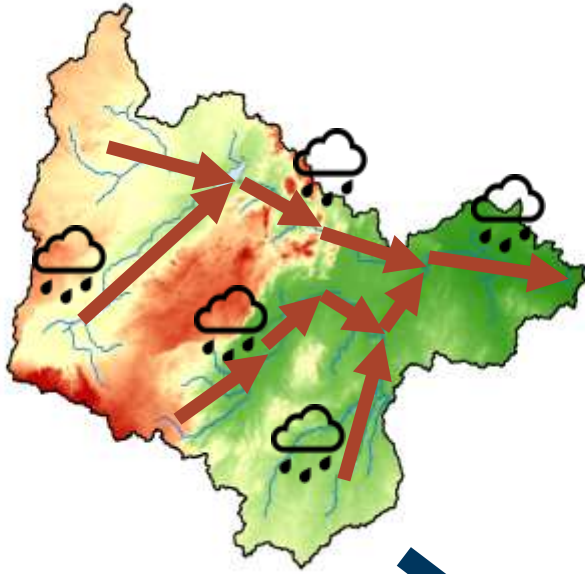
resilience



Under disturbance, a resilient system exhibits **PAT** :

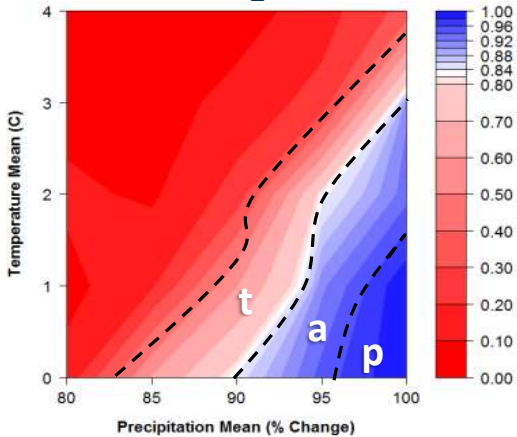
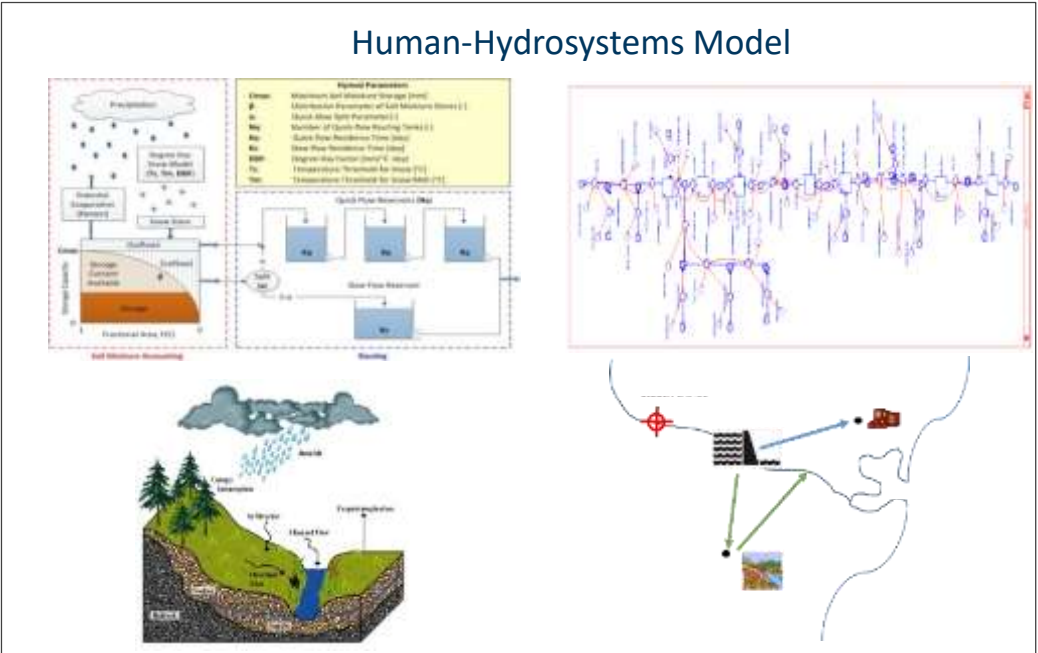
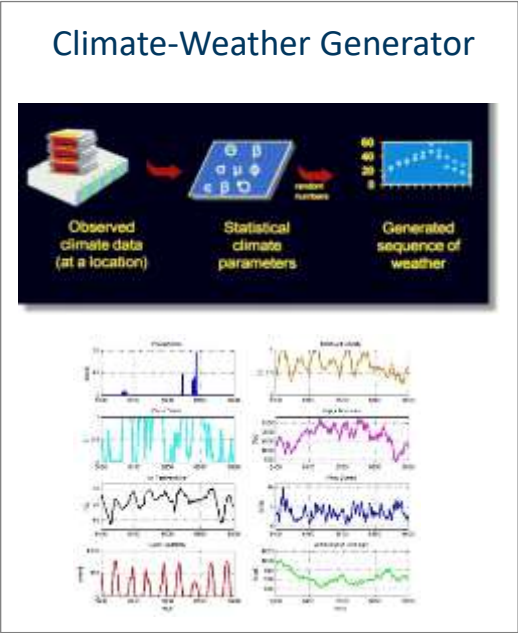
- **Persistence**: its function and identity (components, configuration) remain the same
- **Adaptability**: its function can be maintained with a change in its identity
- **Transformability**: its function and identity change, shifting to a new, acceptable steady state

integrated human-hydrological systems

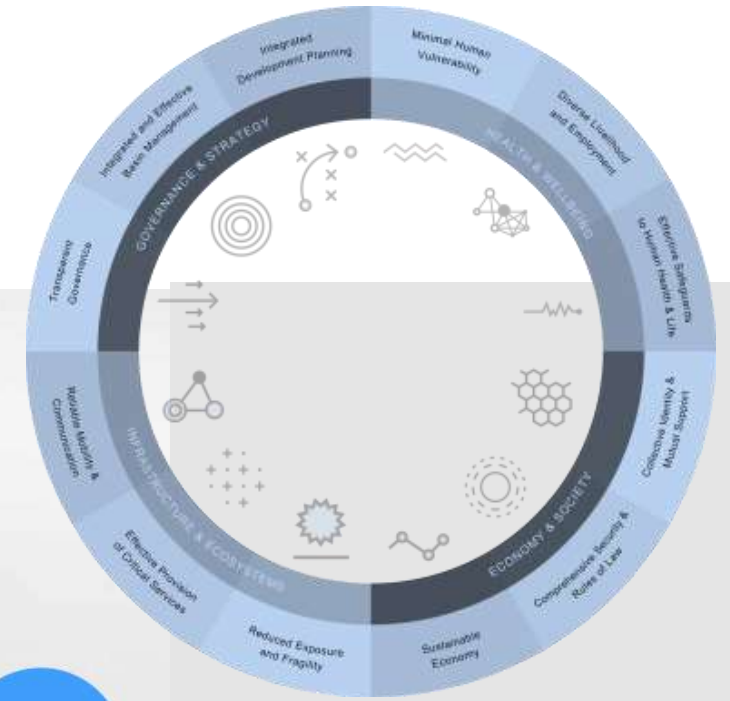


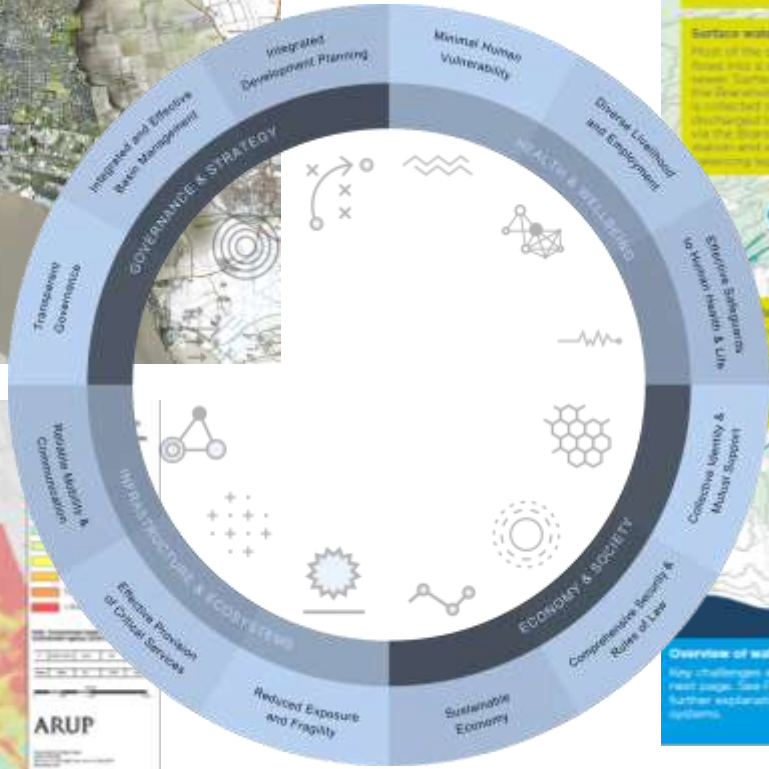
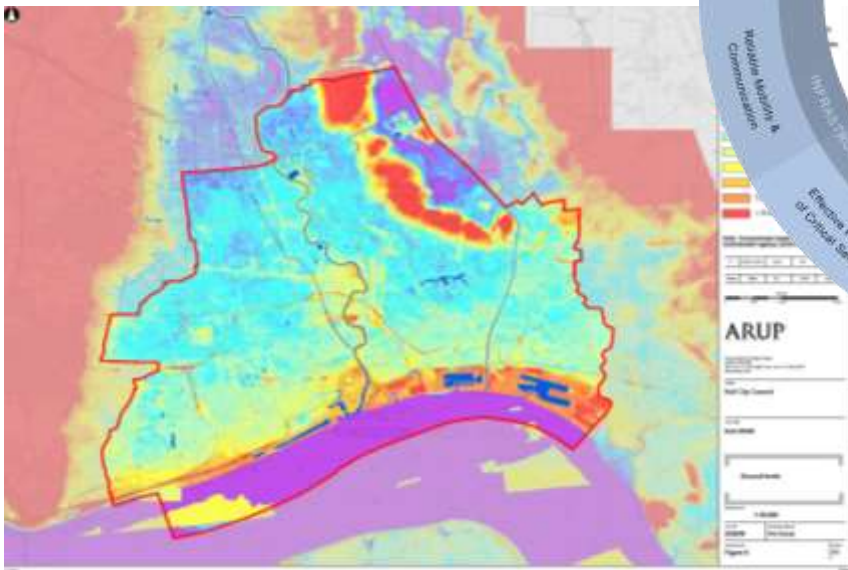
human-hydrosystems resilience model

Uncertainties: climate, demography, economy, environment,...



the city water resilience framework

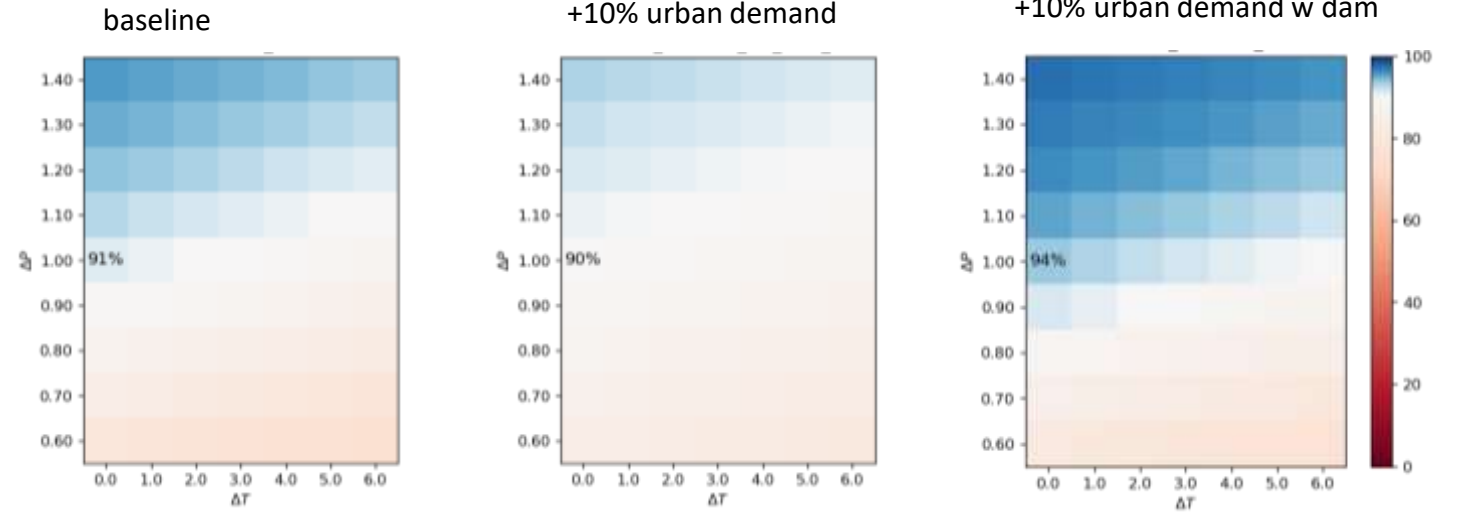




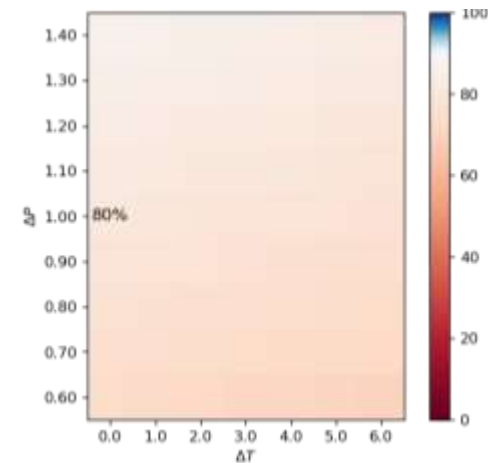
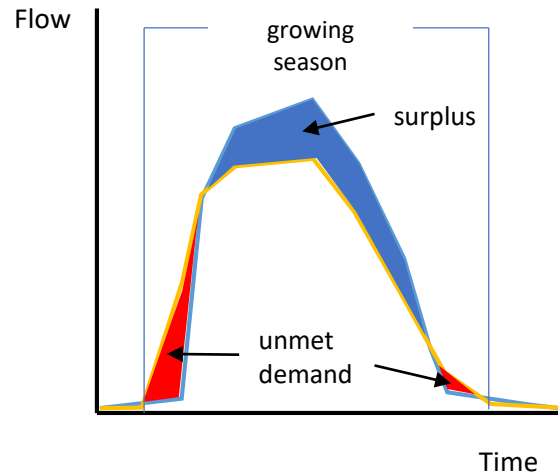
basin-level resilience: agriculture-urban nexus



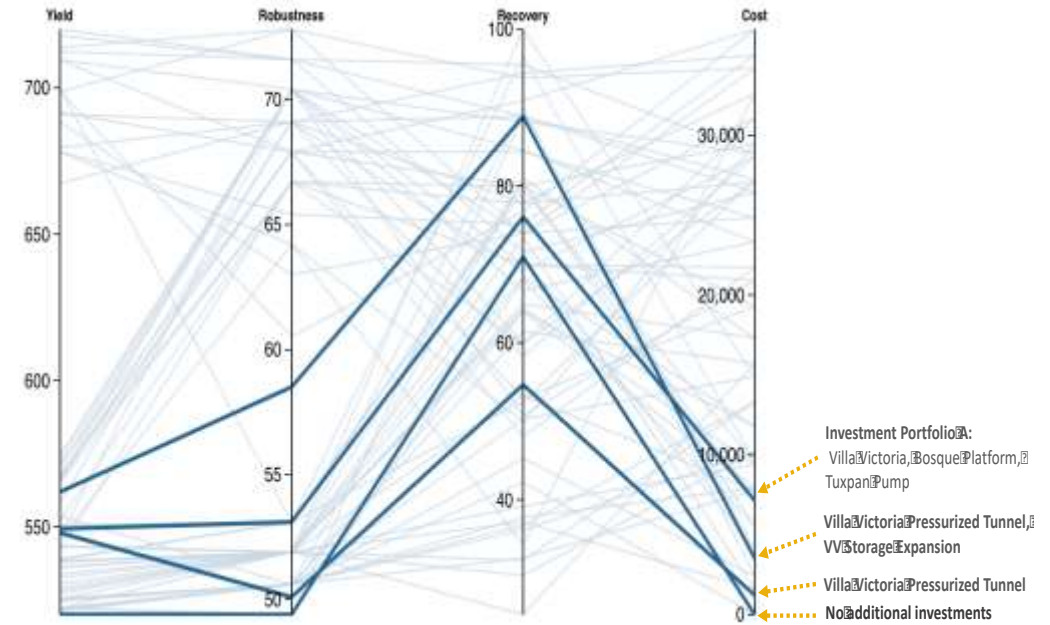
Wami-Ruvu Basin, Tanzania



+10% urban and agricultural demand w dam



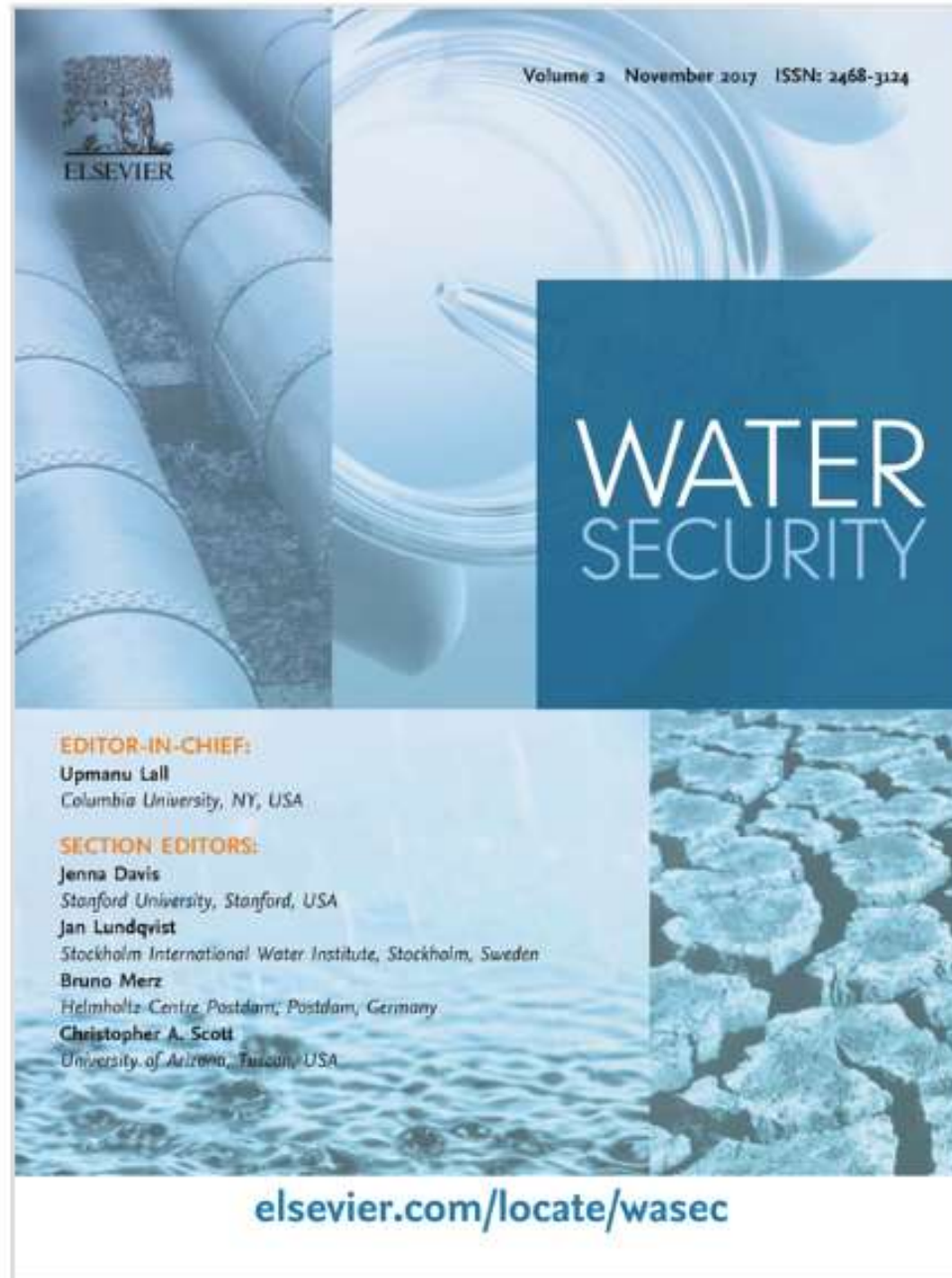
nested systems resilience: cities within basins



Mexico City and the Valley of Mexico

**Water is the
Master
Variable:

solving for
the resilience
of human
systems in the
modern era**





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