Transboundary cooperation as a bedrock for sustainable growth

Alan Nicol

IWMI

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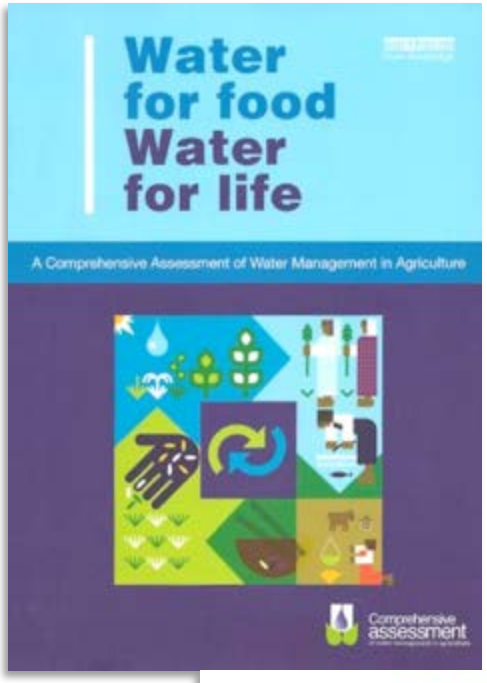
Outline

- Broad and complex relationships
  - Constraints and risks / implications and responses / interrelatedness
- Applying an analytical framework:
  - East Africa / South Asia
  - Examples of solutions
  - Collection action challenges
- Implications and ways forward

Constraints and risks

- 1.7 billion people live in river basins where depletion through use exceeds natural recharge
  - 60% more food by 2050
- Climate change is intensifying the planning and management challenge
- World Economic Forum 2015 *Global Risk Report*
  - water ranked as risk with single greatest impact potential
- Dedicated SDG on water, including cooperation

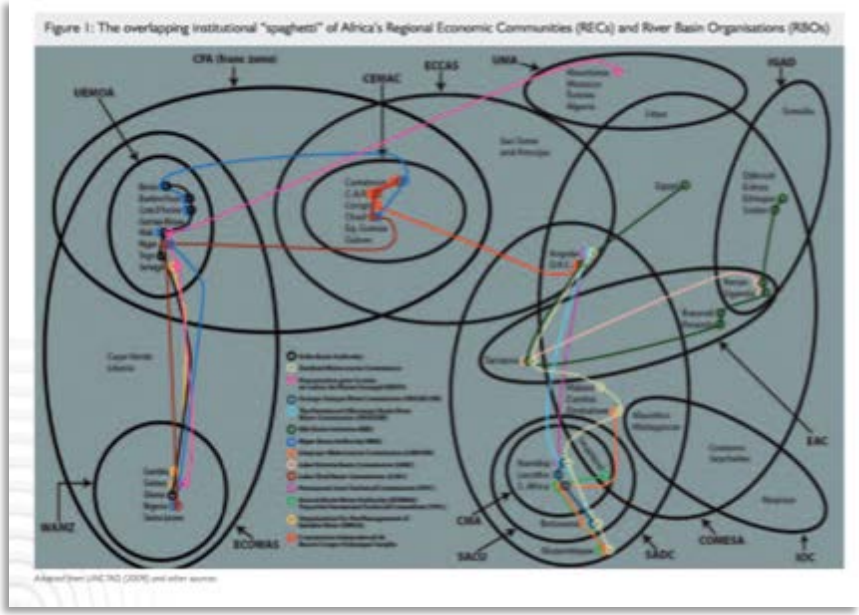


Implications and responses

- GWP and OECD
  - Water insecurity costs global economy about $500 billion annually; drag on the world economy of c.1% GDP (conservative estimate)
- Globalization
  - local risks become regional / international challenges
- Challenge of 'difficult hydrologies':
  - management through blending natural and built infrastructure
- Water security as a 'bundle' of securities
- Employment dependency:
  - WWDR three out of four jobs water-dependent
  - > 1.4 billion jobs, or 42% of the world's total active workforce, heavily water-dependent

Interrelatedness

- More than 280 transboundary basins
  - Include 45% world's surface
  - 40% global population
  - Provide 60% annual renewable water
- Plus…
  - Key deltas
  - River transport
  - Ecosystem services
  - Strategic resources
- Complex political economies



Toward an analytical framework:

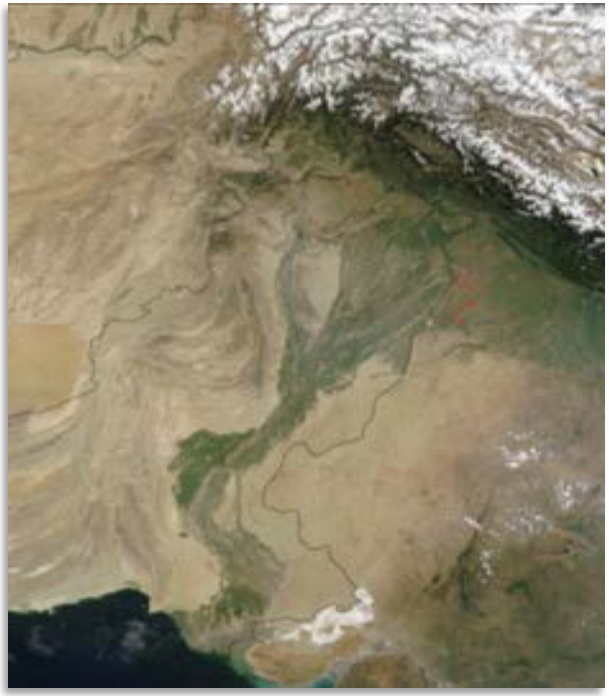
Breaking down cooperation-growth relationships

Risk reduction:
- Sharing data
- Information flows
- Informed populations
- Capacity to plan / pre-empt
  • Too little water
  • Wrong kind / timing
  • Too much
	Enabling services:
	- Energy generation
	- Agriculture
	- Biodiversity
	- Tourism
	- Transport
	- Water supply
	- Plus indirect (health, etc)

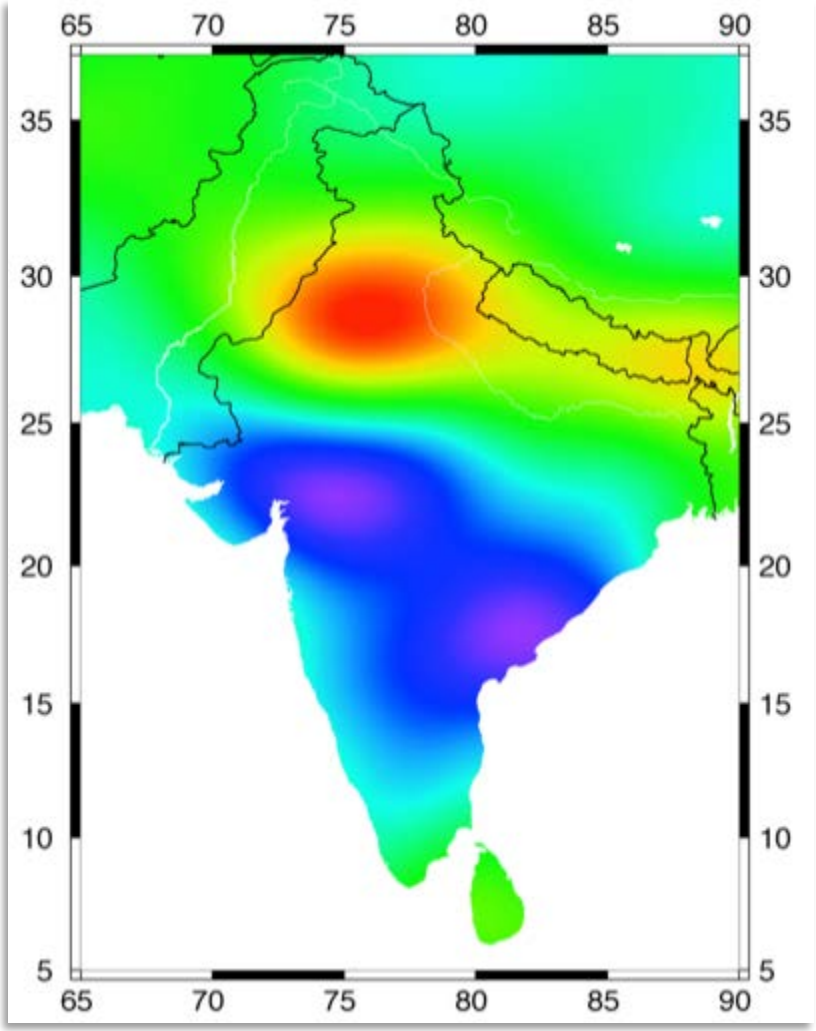
Establishing stability: - Political engagement - Inward trade and investment - Capacity to anticipate - Good neighborliness	**Building resilience**: - Systemic understanding - Combining natural and built infrastructure - Capability to withstand shocks

Case study: South Asia/Indus

- Global strategic importance (and pathways)
- Growing trade and investment hotspots (OBOR)
- Existing cooperation arrangements
  - But major resource stresses
  - Declining flows and quality (surface/groundwater)
- Mitigating and managing risk
- Dealing with surging youth populations

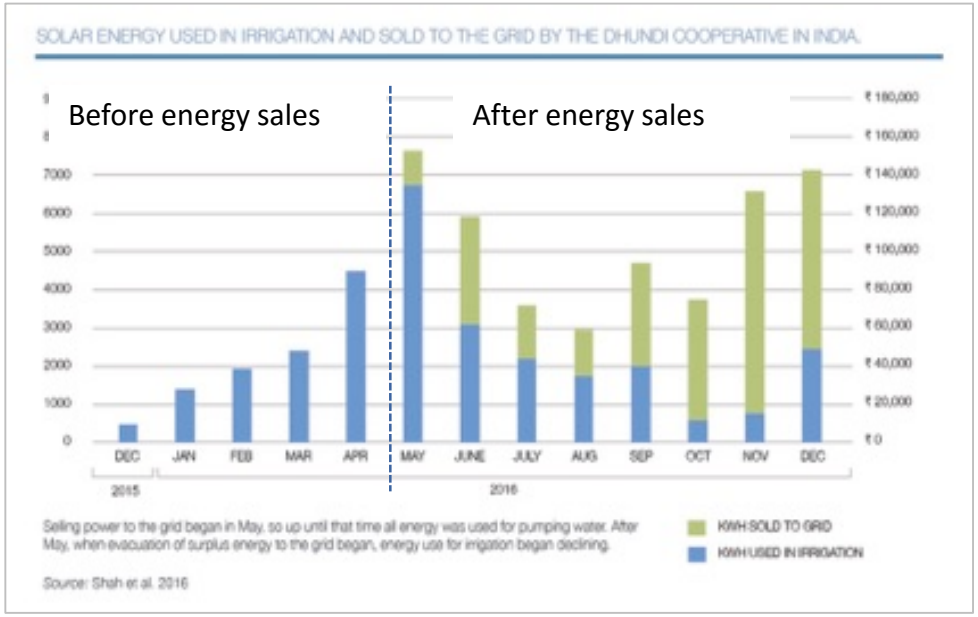


Snapshot: Current challenges



- Difficult food-energy-water nexus relationships
- Rapid depletion in groundwater – economic/social costs (losing buffer capacity)
- Demand outstripping environmental flow capacity to the Indus delta

Risk & the energy-food-water nexus



The context

- India has 130,000 GW of installed pumping capacity in the form of electric and diesel tube wells
- States subsidize solar pumps as "green solution"

The challenge

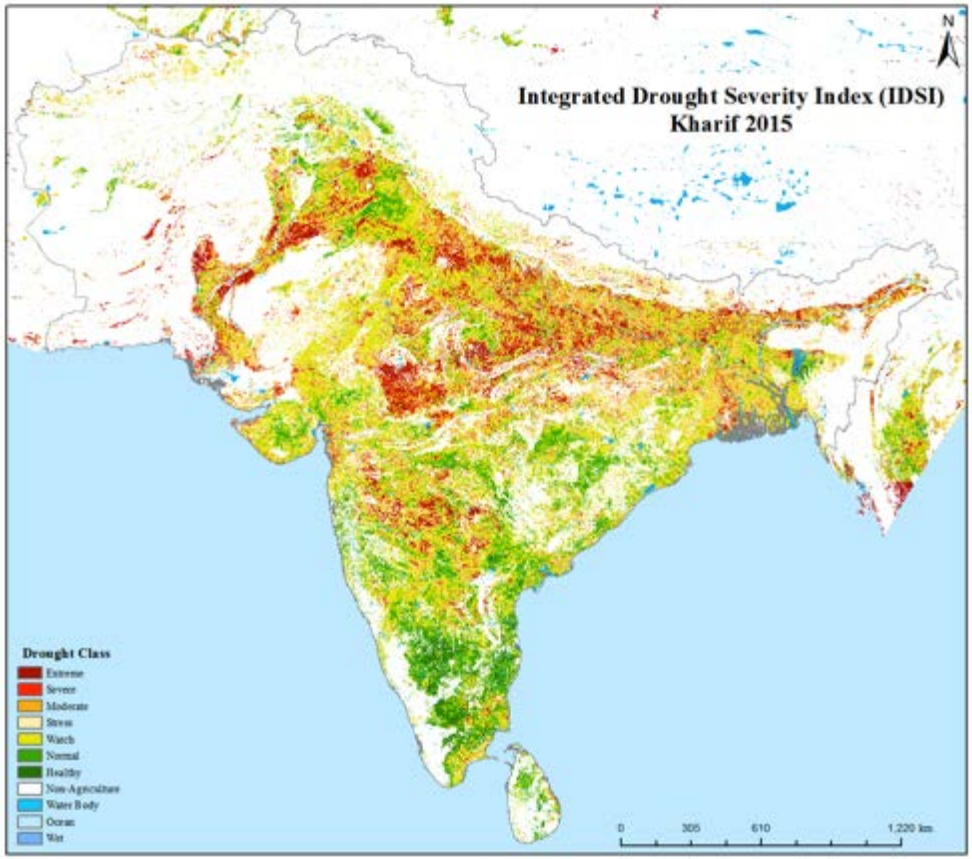
- Solar pump subsidies could incentivize over-pumping

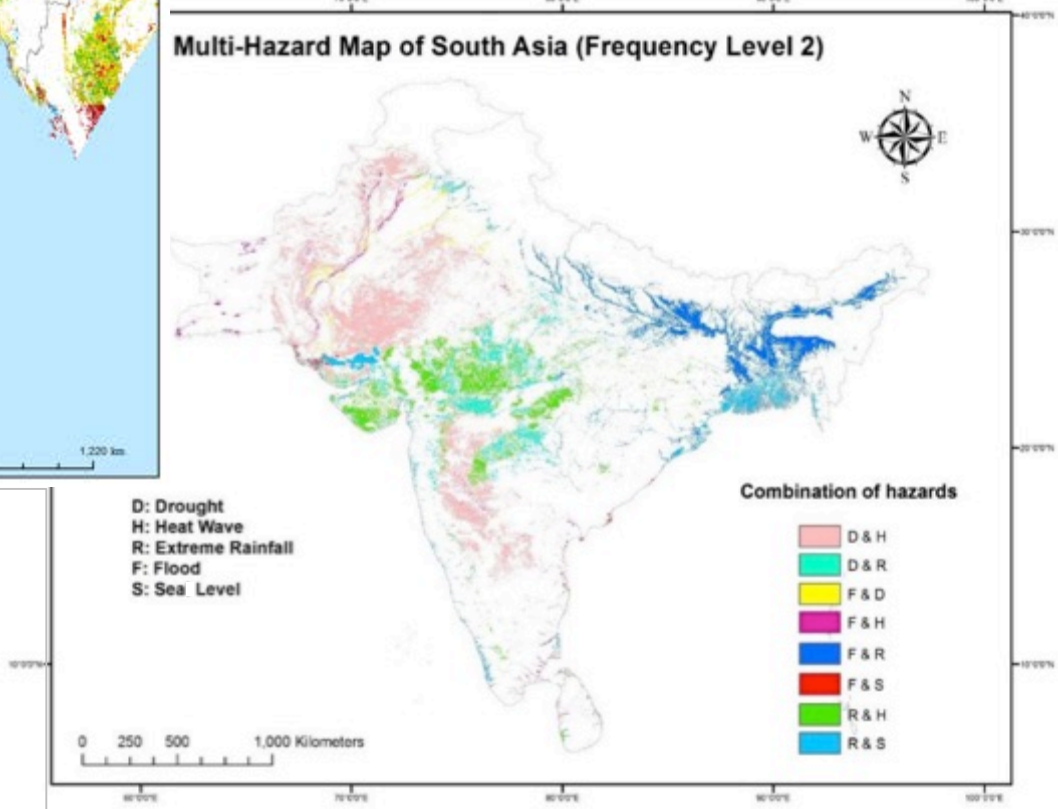
Solution: Solar Pump Irrigation Cooperative

- Sustainable solar irrigation pumps with feed-in tariff for selling excess electricity to the grid
- Reduction in greenhouse gas emissions
- Sustainable use of groundwater
- Higher incomes for farmers

IWMI-TATA Water Policy Program
CGIAR
Research Program on Climate Change, Agriculture and Food Security
CCAFS

Tackling risk: Identifying shared hotspots





Sharing data and knowledge

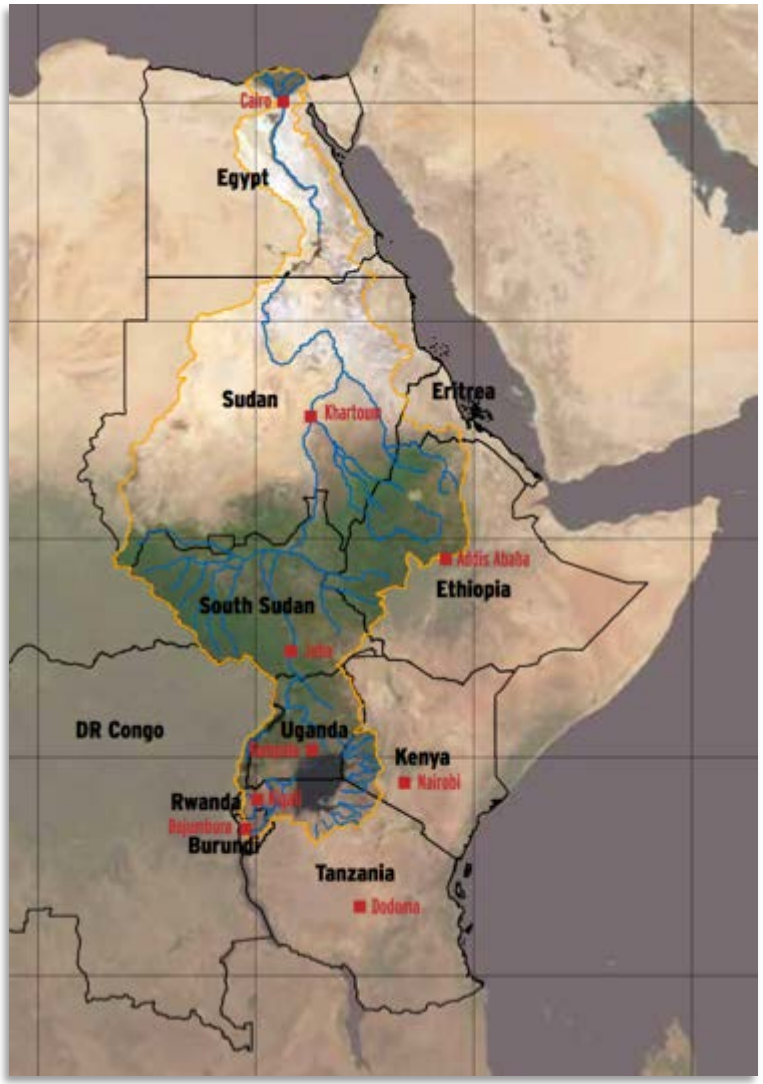
- Establishing platforms that open up access to knowledge (www.indusbasin.org)
- Establishing joint risk-reduction measures

Applying the framework to the Indus

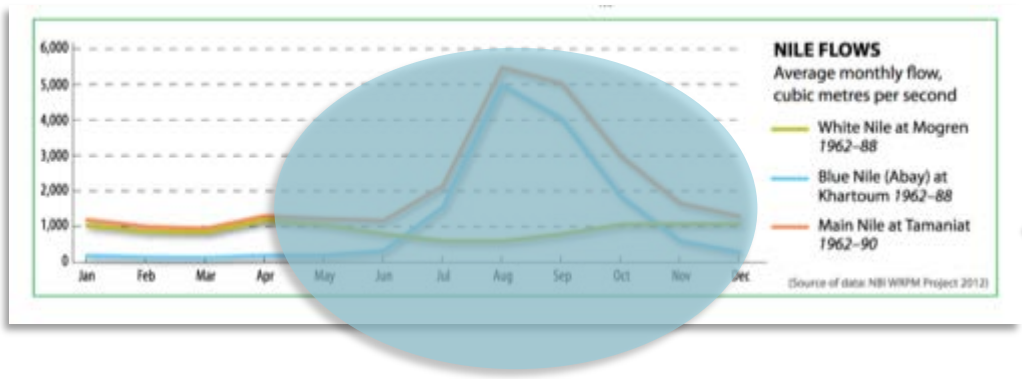
Risk reduction: - Data on flow forecasts and monitoring (Indus Telemetry) - Providing access to science to inform understanding - Improving 'publicness' of knowledge (supporting the media to report more responsibly and accurately)	**Enabling services**: - Energy generation (and trade) - Agriculture (irrigation efficiency, reducing demand/improving quality) - Biodiversity (ecosystems – downstream delta/fisheries) - Tourism (forward linkages) - Transport - Water supply (surface/groundwater relationships)
Establishing stability: - Encouraging G2G engagement - Supporting capacity to anticipate and respond to hazards (e.g. SAARC)	**Building resilience**: - Managing future flow challenges - Rethinking appropriate infrastructure investments - Combining natural/build infrastructure (e.g. flood planning and control)

Cast Study: East Africa/Nile

- 11 countries (Nile Basin)
  - Economic growth shifting upstream, with it, demand
- Climate uncertainty leading to system instability – economic and socio-environmental bads
- Cooperation processes and mechanisms exist
  - But need to move from cooperation to development action
- Collective action will be key 'bedrock' for development
  - Benefits of cooperation far outweigh 'unilateralism'



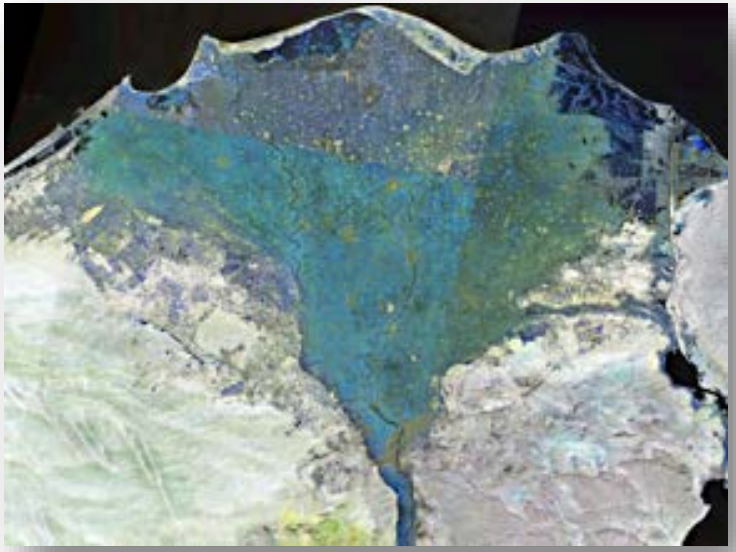
Snapshot: Current challenges



Energy potential / energy demand

Complex climate-water-energy relations

- Climate impacts on evapo-transpiration rates (+4%)
- Increasing crop-water requirements (+10%)
- Changes in rainfall patterns
- Downstream sea-level rise / salinity
- Upstream energy-soil-carbon relationships
- A case for stronger 'nexus planning' at all scales
- Critical livelihoods issues



Applying the framework to the Nile

Risk reduction: - Data on flow forecasts and drought management - Information on sectoral demand trends - Public willingness to accept change and support new agreements - Capacity to plan / pre-empt • Too little water (avoiding harm) • Wrong kind / timing (water quality/flow) • Managing floods	**Enabling services**: - Energy generation (and trade); blending old and new infrastructure - Agriculture (irrigation efficiency) across system to reduce consumption and support biodiversity (ecosystem flows) - Tourism (forward linkages to youth employment) - Transport - Water supply (variable significance of basin versus river system)
Establishing stability: - Political engagement - Inward trade and investment - Capacity to anticipate change and manage responses	**Building resilience**: - Understanding projections and scenarios - Managing infrastructure at basin scale as one system

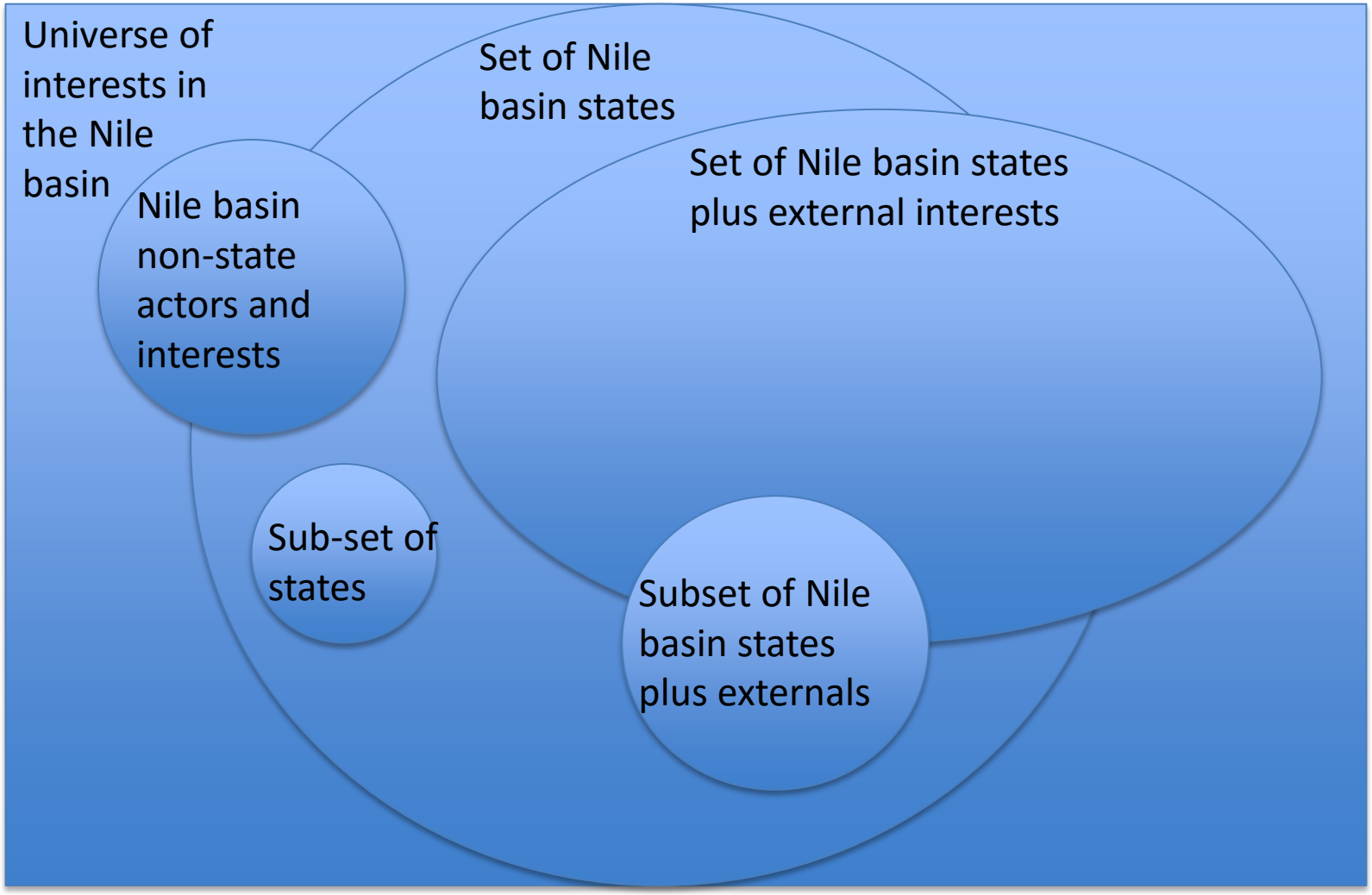
Cooperation is collective action

- From a largely externally-governed space to system of independent states
  - From independent states to subdivisions (Eritrea, South Sudan)
- Stake of the collective members varies widely (and over time)
- Changes in enabling factors for cooperation
- Growing imperative for cooperation: shared issues

Building on collective action theory

- Elinor Ostrom: notion of ‘polycentrism’,
  - Principles of cooperation and organization
    - **Clear boundaries to the group identity**
    - **Match rules and conditions (conditions change, change the rules – but must be done collectively)**
    - **All participate in rule modification**
    - **Rule making compliance with collective decisions (nested collectives?)**
    - **Systemic monitoring of behaviour**
    - **Graduated sanctions / low-cost dispute resolution**
    - **Tiered responsibility for governance**

Complex collectives: Cooperation as a multi-scale / multi-directional act



Implications and next steps

- We can identify features of cooperation that are key to sustainable economic growth
  - But these will vary in different contexts (a mosaic of types)
- Solutions to shared challenges can exist at a variety of scales
  - From farmer-level, to large-scale infrastructure (combination key)
- Balancing all competing demands is (probably) impossible
  - Establishing agreement on priorities is key (linked to notions of subsidiarity and human, economic and environmental security)
  - Principles and values should be a shared starting point (political context) as should be clarity on benefits and costs of action/inaction
- Comparing transboundary-growth contexts and establishing commonalities and differences can assist in building more effective support interventions
  - Identifying what works/does not work/and where
  - What can be shared, what still needs invention

Thanks!

- For further information on IWMI's Transboundary Waters Initiative, please email a.nicol@cgiar.org