

Transitioning to a new era in Western US water governance: examining sustainable water policy for the Colorado River Basin

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Outline

- Motivation
- Research Questions
- Methods
- Results
- Conclusions and next steps

Motivations

- Numerous vulnerabilities throughout water systems
 - *Increasing demands, changing demands, climate variability and change, drought, etc.*
 - *Complexity of regional hydrologic cycle change*

Motivations

- Existing water institutions
 - *Inherent inflexibility, conservatism, and rigidity*

“The system has a lot of inertia and does not readily admit change.” (Leshy 2009 p. 139)

“...change is impeded due to the strong interconnectedness of factors stabilizing current water management regimes.” (Pahl-Wostl 2007, p. 61)

Thus any proposed institutional change may be confronted with barriers, and the reforms needed may be hindered by the nature of water institutions

Research questions

- Need for reform ----- Inherent rigidity



How can sustainable water policy bridge the gap and ultimately be identified and analyzed?

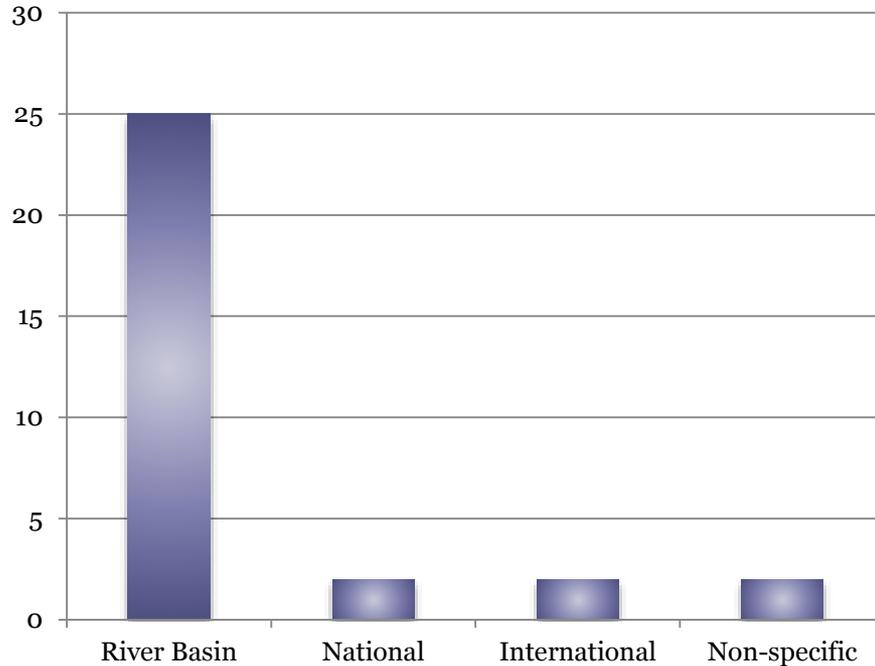
What criteria are needed for evaluating sustainability or equity at the basin-scale?

Methods

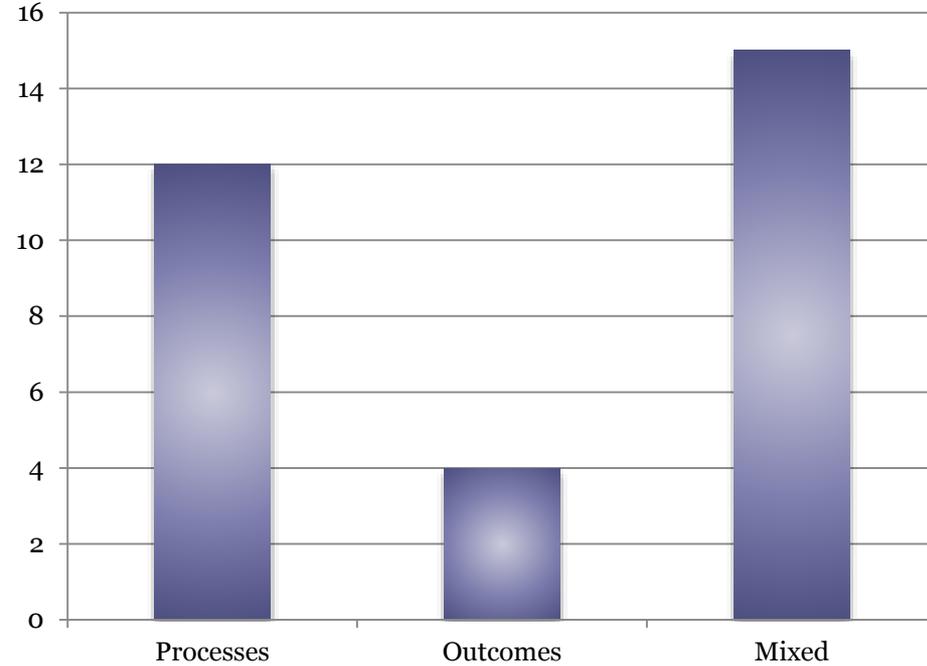
- Systematic review of the literature
 - Google Scholar and Web of Science
 - *“Sustainable OR equitable water governance basin OR watershed”*
 - *“Sustainable OR equitable criteria water management basin OR watershed”*
 - *“Sustainable OR equitable framework water governance basin OR watershed”*
 - Excluded results that were ‘municipal’ or ‘urban’ in scale, and focused on the developed world
- 74 articles were originally collected, but only 31 were ultimately included

Results

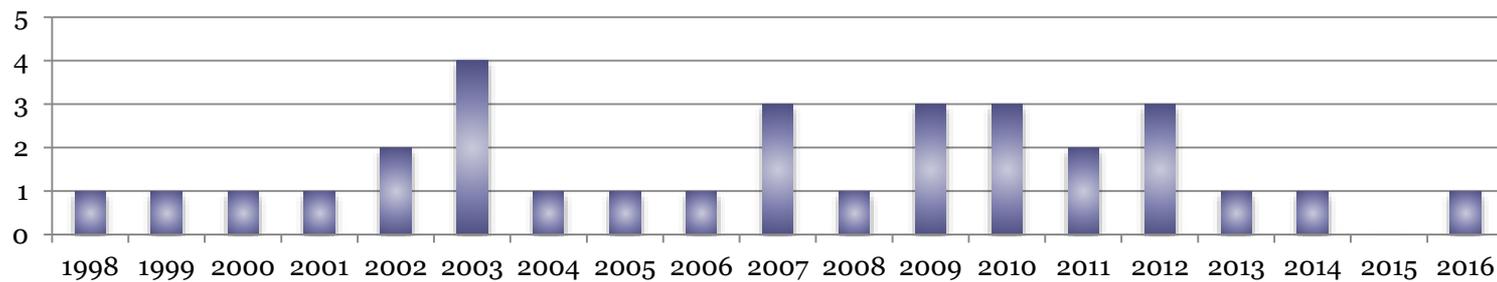
Geographic scope of article



Focus of article



Year of publication



- 37 criteria were identified

<u>Criteria</u>	<u>Articles</u>	<u>Criteria</u>	<u>Articles</u>	<u>Criteria</u>	<u>Articles</u>
Participation	25				
Information	19	Legitimacy	10	Credibility	5
Governance	18	Geographic	10	Accountability	5
Fairness	18	Flexibility	10	Feasibility	4
Evaluation	16	Demand	10	Leadership	3
Ecological	16	Supply	9	Scenario planning	2
Power relations	14	Efficiency	9	Scale	2
Integration	14	Clarity	9	Problem framing	2
Economic	13	Uncertainty	8	Outreach	2
Social capital	12	Transparency	6	Infrastructure	2
Capacity building	12	Salience	5	Coordination	2
Temporal	11	Quality	5	Decision support	1
Adaptability	11	Learning	5		
		Iterativity	5		

Results

“At the basin level, there are concerns that [Integrated Water Resources Management] is fraught with difficulties and implementation is difficult. Many significant implementation difficulties have been observed, primarily relating to **political will**, the lack of workable methods of distributive **governance**, the **role of law**, and **stakeholder participation**.” (Hooper 2003, p. 16)

Results

- Capacity building ('political will')

“...the need to reinforce local decision making and institutional capacity with resources and accountability to larger-scale policy objectives. Consequently, **nested governance arrangements provide a venue for coupling local institutional capacity with higher-level resources and authority.** The key design features involve the institutional linkages (or coordination mechanisms) to nest governance across (vertical) and within (horizontal) levels of government.” (Garrick 2011, p. 169)

“Where reforms of the magnitude of river basin management are introduced or expanded, there is resistance to change and concern over infringement on administrative level and agency “turf,” so **a strategic planning and implementation process based on communications, coordination, and cooperation** within a river basin organisation is developed.” (Hooper 2003, p. 17)

Results

- Governance (‘governance’ and ‘role of law’)

“Strong institutional capacity is required in the upper layers to provide effective processes of political representation, decision-making, judicial review and the clear expression of targets and guidelines decided upon.” (Reeve 2003, p. 5)

“...the existence of laws which support river basin management; laws characterized by strong and flexible arrangements.’ (Hooper 2010, p. 470)

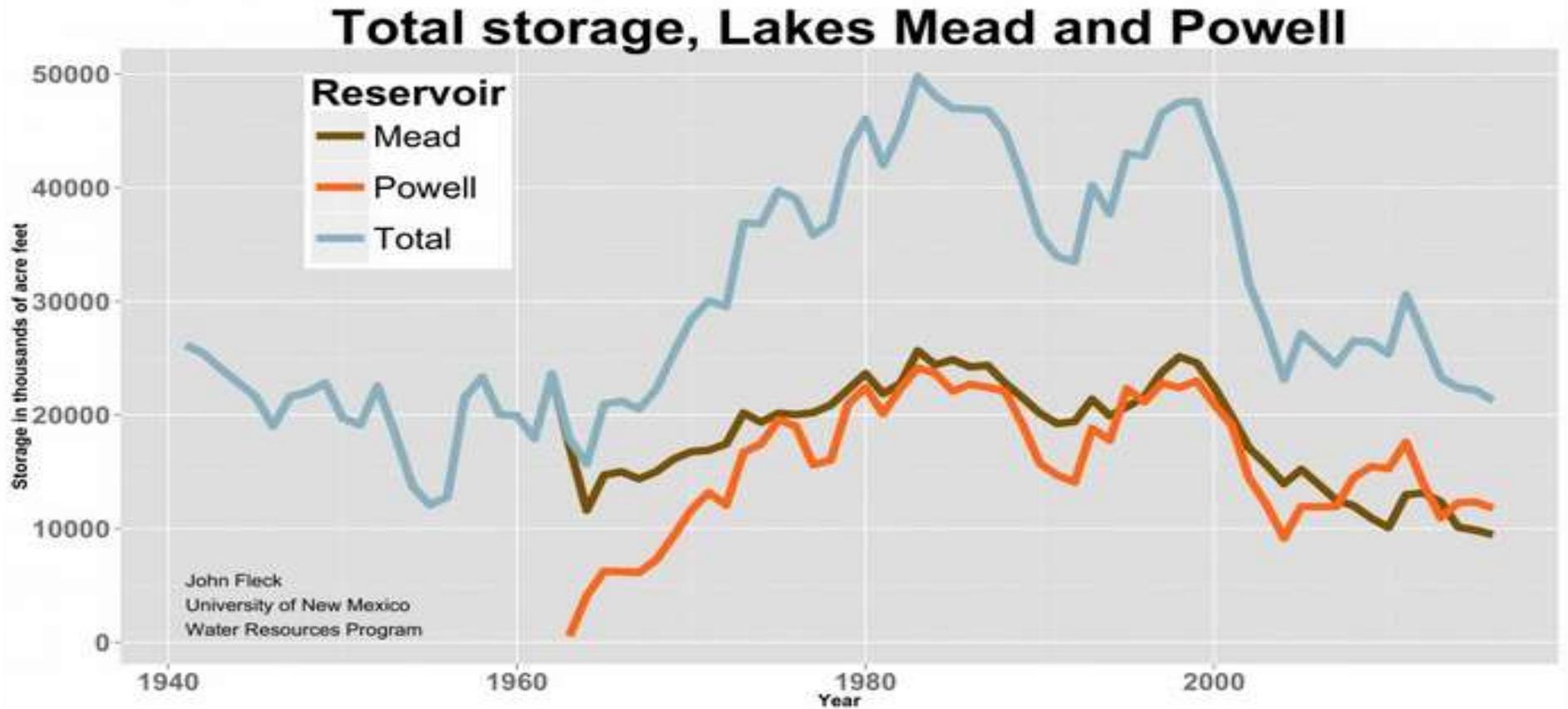
Results

- Participation ('stakeholder participation')
 - Specifically, things like:
 - *Early involvement*
 - *Adequate representation*
 - *Integration of various forms of knowledge/disciplines*
 - *Avoiding the "invite, inform, ignore" model*
 - *Learning from stakeholders*

“...it has to be recognized that **stakeholders have very different vested interests and value systems**, so their aspirations will inevitably be conflicting. Nevertheless, consensus building should not be regarded as a soft cover for an underlying strategy of driving through official preferences. If it is, **then it ceases to be sustainable.**” (Clark 2002, p. 353)

“...which **include participation, consultation and inclusive political institutions** to enable the mediation of the conflicting interests over water.” (Antunes 2009, p. 932)

Conclusion



Data source: USBR. 2016 projection based on USBR October 2015 24-Month Study

Conclusion

- Is the answer simply following these criteria? A checklist for each management decision?

Short answer is no. But the criteria could be used as a starting point to begin to holistically evaluate a decision-making process and its' ultimate outcome.

“Science-based approaches like adaptive water management, and participatory approaches like IWRM, have failed to realize their goals because they are divorced from the politics that shape real change.” (Wilder and Ingram)

“Not surprisingly, therefore, sustainable water resources management is, to some extent, an elusive and contested notion.” (Ioris 2008, p. 1191)

Next steps

- Survey and in-depth interviews with Colorado River Basin stakeholders
- Feedback on the criteria
- Development of a framework for evaluating sustainable and equitable decision-making processes

Thank you!

Questions or comments?

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