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Evidence for Tackling the Complexities of Water Governance

Evidence in Public Administration

Abstract: *Water policy and management decisions are increasingly challenged by uncertainties associated with climate change, changing demographics, and social values. This article discusses how research by water governance scholars supports and complements Rob M. Skinner's arguments about the complexities of water planning and policy making and the importance of stakeholder engagement. Specifically, it focuses on how this decision-making context shapes the ways in which evidence is used and understood in water governance. To conclude, this article draws lessons for practitioners about the limitations of using evidence in water governance.*

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Reliable access to clean water is necessary to sustain ecological and human life, grow food, produce energy, and develop economies. However, water often is not available at the right place and time, or of the right quality, to meet these competing demands. As a result, collective decisions by communities and governments are often needed to establish rules and strategies to protect and maintain sustainable water supplies. These decisions can be challenged by uncertainties associated with climate change, changing demographics, and social values. Therefore, whether and how we continue to learn about these changing conditions and priorities for water use are important considerations for ensuring that our water policies and institutions are capable of meeting water needs in the future.

This article responds to the lessons offered by Rob M. Skinner about the changing nature of water policy and planning processes. In his article "Water Policy in a Time of Climate Change: Coping with Complexity," he highlights the use of "evidence"—particularly scientific or technical evidence—and the factors that influence the use of evidence in water policy and planning. First, he argues that several emerging issues, including climate change, new technologies, urbanization, and changing citizen expectations, have challenged long-held assumptions that water management can be based on clear-cut "evidence-informed" processes. Second, he emphasizes that political considerations often take primacy in making water policy and management choices. Skinner uses three examples of water planning processes in southeastern Australia to illustrate his points. In exploring these cases, Skinner concludes that authentic stakeholder engagement has become critical in addressing the complexities of water planning and that new leadership by public administrators is needed to foster such engagement. In response to Skinner, this article discusses how research from water governance scholars, or scholarly evidence in general, supports and complements his arguments. It concludes with lessons learned about the use of evidence in water governance, drawing on insights from the literature and Skinner's examples.

Support for Skinner: The Complexities of Water Policy, Planning, and Management

The three Australian cases that Skinner uses to illustrate his arguments are not unique. Many countries in recent years have faced extreme hydrological events and growing uncertainties over how to meet existing and future water needs. In 2016 alone, the Global Drought Information System identified severe droughts in multiple countries across nearly every continent—including parts of the United States, Canada, India, China, Brazil, Malawi, Namibia, Central America, and Southern Europe. Warming temperatures resulting from climate change are expected to exacerbate such trends in coming decades. At the same time, numerous countries regularly experience water crises associated with poor water quality, water access, and flooding—challenges that can compound water scarcity dilemmas (Lall et al. 2008). While evidence of the physical drivers of such crises typically comes from research in fields such as hydrology and climatology, how humans understand, define, and influence such crises have been examined by scholars in public policy, geography, political science, public administration, and economics. Like Skinner, these researchers recognize that water crises are not simply

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defined as physical problems. They result from multiple drivers—including institutional, political, and sociocultural factors—and the combination of these drivers have created "wicked" problems for policy makers and water managers (Garrick 2015; Kallis, Kiparsky, and Norgaard 2009; Memon and Weber 2010; Weber and Khademian 2008). As Skinner and others argue (e.g., Brunner and Steelman 2005), because wicked problems have multiple, interactive causes with no straightforward solution, technical evidence alone is insufficient to inform water governance decisions.

The second part of Skinner's argument highlights the underlying political considerations associated with water policy and management decisions that emerge in wicked contexts—considerations that may trump technical evidence. Skinner's first political consideration—a "burning platform" or crisis—is recognized across much of the public policy literature as an impetus for change (Nohrstedt and Weible 2010). In the case of water, crises can be important drivers for major policy change and institutional innovation in watersheds that previously had been mired in conflict (Heikkila and Gerlak 2005). Yet crisis alone may not foster policy change, even in the face of well-documented, reliable evidence supporting that change. Skinner recognizes that other political considerations (i.e., the feasibility or simplicity of the solution and whether it appears to be "game changing") also play a role. In the water governance literature, several scholars have recognized the importance of a diversity of factors, such as organizational culture and political priorities, when weighing technical evidence in decision making (see, e.g., Kirchhoff, Lemos, and Engle 2013; Lemos 2015; Rayner, Lach, and Ingram 2005).

Scholarly research also supports Skinner's concluding point, which emphasizes the shifting landscape of water governance processes—particularly the move toward more stakeholder involvement in water policy and management. Skinner's assessment is supported by an extensive literature on the emergence and structure of collaborative water governance institutions (e.g., Heikkila and Gerlak 2005; Kallis, Kiparsky, and Norgaard 2009; Memon and Weber 2010; Margerum and Robinson 2015; Sabatier, Weible, and Ficker 2005; Schneider et al. 2003). The proliferation of this form of governance arguably reinforces Skinner's contention that simple, linear, "evidenced-based" decision processes are not the norm today. This recognition is evident in many scholarly studies that have explored not just collaborative governance but also adaptive governance of water resources as an alternative to the traditional "scientific management" approach (e.g., Brunner and Steelman 2005; Pahl-Wostl, Kabat, and Möltgen 2008). The philosophies of both collaborative governance and of adaptive governance have been to embrace the complexities of competing water demands imposed by divergent stakeholder interests. Researchers have identified several benefits of these governance tools. For instance, new "ways of knowing" (Lejano and Ingram 2009) can emerge in collaborative, multistakeholder processes when leadership and institutional mechanisms allow participants to engage in knowledge coproduction.

Complementarities from the Literature: A Focus on Institutions and Political Values

Scholars of governance and institutions provide additional research that can complement Skinner's insights on the factors that influence evidence-based decision making. First, in discussing three different decision-making processes around water, Skinner indirectly touches on the issue of institutional design. For instance, he points to institutional features such as what rules govern who participates, how information is shared, and how disagreements are addressed, which are also recognized in the water governance institutional literatures (Ostrom 2005; Schlager and Heikkila 2011). At the same time, other institutional design considerations can be found in the literature. For decades, scholars in public administration and governance have argued that "polycentric" institutional arrangements—those with multiple centers of decision making that maintain mechanisms for coordination—can support robust governance of natural resources as well as other public goods (McGinnis and Ostrom 2012; Toonen 2010). As one example in the water sector, research on 27 water governance institutions around the world—including cases in Asia, Europe, Latin America, and Africa—found that institutions that are more polycentric adapt better to climate change relative to more centralized or fragmented institutions (Pahl-Wostl and Kneiper 2014). Such institutional arrangements can be important in water governance because most institutional boundaries do not overlap the physical boundaries of watersheds. Typically, multiple types of rules, organizational arrangements, and decision-making processes are responsible for governing different water-related issues (e.g., supply, quality, storage, water rights/markets, etc.). Although such diversity can add to the complexities of the context surrounding water governance, institutional diversity can foster creative problem solving, social capital and new networks, and adaptability to local conditions (Berardo and Lubell 2016; Ostrom 2007; Schlager and Blomquist 2008; Toonen 2010; Wallis and Ison 2011). In other words, polycentric institutional design can provide alternative forms of evidence, including institutional experimentation at different scales.

Another complementary point from the literature relates to Skinner's political considerations. While Skinner recognizes that citizen demands and diverse stakeholder interests are important, the water policy and politics literature offers additional insights. In particular, it emphasizes that the degree to which people have competing values and interests is a key political consideration (see, e.g., Sabatier, Weible, and Ficker 2005; Scholz and Stiftel 2005). Such competing values or interests can result in water conflicts, which can be difficult to resolve without formal and costly conflict resolution processes (Heikkila and Schlager 2012). Moreover, it is the divergent values, interests, and perceptions over how best to use water and who is likely to be impacted by particular policy or management choices that can explain why technical or scientific evidence may be ignored, or often manipulated. This behavior is reinforced by the tendency of humans to be cognitively biased in how we assimilate information (Jones 2002; Kahan, Jenkins-Smith, and Braman 2011; Sabatier 1988). That is, we tend to seek out information from people we trust or believe, and we tend to discredit information from people who do not share our core beliefs. Additionally, people selectively use information, and sometimes manipulate that information, as evidence to reinforce their own policy beliefs. These tendencies have been studied extensively in debates over climate change (e.g., Kahan, Jenkins-Smith, and Braman 2011; Marshall 2014), underscoring the power that our values and beliefs have over how evidence is used.

Lessons Learned: How Does the Evidence Stack Up?

What can we learn from Skinner's experiences and from the broader research in the water governance field? The following are some lessons learned and potential pitfalls to avoid when trying to engage in decision-making processes related to water planning, policy, and management.

Assuming Scientific Evidence Is Sufficient for Institutional Change

In water governance, scientific knowledge about factors such as climatic conditions, emerging pollutants, droughts, and changing demographics may raise awareness about water management challenges, but such information is inadequate to produce institutional or policy change. This is because institutional change inevitably involves questions of competing values. Choices that favor one set of values over another can impose threats to certain groups, which then can lead groups to mobilize to oppose or stymie change (Tilly and Tarrow 2007). Processes that allow for dialogue to explore how new policies or strategies may affect the interests or values of different actors and that provide opportunities to find common ground may be necessary to foster institutional change or new approaches to management (Bryson, Crosby, and Bloomberg 2014). As Skinner describes in the Murray-Darling case, once a framework was established, "there was no shortage of evidence" about what was needed; however, that evidence was not what produced a policy decision. As Skinner notes, it was decided by "protracted negotiations" among various stakeholders. Rather than focusing purely on the evidence, many public administration scholars suggest that it is better to establish opportunities for dialogue and deliberation of values and evidence.

Assuming Evidence Is Neutral in Water Governance

Evidence can be produced by people who are trusted and seen as politically "neutral" in a debate. Additionally, research on climate debates has found that information from trusted sources is more likely to be used in water governance (Lemos 2015). Yet even if the source of evidence appears to be neutral, that evidence can be used to fuel debates and even become the source of a debate. In Skinner's example of the Melbourne desalination case, he notes that despite the "evidence-informed strategic response," people felt excluded. As a result, the evidence was not perceived as necessarily the right evidence. More important in shaping the use of information, according to some research, may be whether that information is coproduced in networks (Feldman and Ingram 2009; Lejano and Ingram, 2009; Kirchhoff 2013). This includes ensuring that knowledge is "actively and reflexively" managed (Lemos 2015, 51).

Failing to Understand and Promote Learning and Adaptation with Diverse Forms of "Evidence"

Solutions to water management problems usually are incomplete and require constant knowledge building to adapt over time. How we manage collective and social learning in decision-making processes related to water has been a popular topic of scholarly discussion (Huitema et al. 2009; Huntjens et al. 2012; Muro and Jeffrey 2012). Yet we are only just beginning to understand the mechanisms and processes that promote learning in a collective decision-making process (Gerlak and Heikkila 2011). Still, there is growing evidence that, at a minimum, learning can be facilitated by diverse forms of knowledge in more open networks (Lejano and Ingram 2009; Muro and Jeffrey 2012). Skinner's example of the *Water for Victoria* planning process supports the argument for diverse forms of knowledge; it brought together a variety of stakeholders and information from multiple policy and water domains.

Assuming We Have Clear-Cut Evidence to Promote Overarching Solutions to Deal with Complexity

We have to be careful not to assume that because we are seeing trends toward particular forms of water governance, both in practice and in the literature, those forms will adequately deal with emerging water challenges. As Elinor Ostrom was fond of saying, "there are no panaceas." Certain choices or policies may seem the most politically expedient, comprehensive, and effective for a given place and point in time, but as contexts and conditions change those same choices may no longer match current conditions (Meinzen-Dick 2007; Ostrom 2007; Raadgever et al. 2011). Determining what might work in particular places depends on our ability to observe outcomes over time, compare with other cases, and actively examine multiple performance metrics (including political and institutional). As Skinner notes in his conclusion, "Time will tell whether the new processes (analytic and bureaucratic) will be sufficiently developed and accepted." This is likely true not just with the *Water for Victoria* plan but also with many new water plans and programs that are under way worldwide.

While the lessons presented here are targeted at practitioners and interested stakeholders involved in decision making around water management, they arguably extend beyond the water domain. Numerous public sector issues, such as urban sustainability, transportation, public health, homeland security, and emergency management, face dynamic and complex challenges that will require public administrators and policy makers to learn about and adapt policies, strategies, and management to their changing environments. Research that explores how evidence and values are incorporated into such decisions, what types of institutional arrangements can support effective decision making to adapt to diverse sources of knowledge and information, and how such decision-making processes compare across different public sectors and issues will be critical. More broadly, if we embrace Fiorino's (2010) call to use sustainability as a core concept in public administration, answering such questions will be fundamental to informing public choices that promote stable and equitable social, economic, political, and environmental systems.

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