The ethic of transition: evidence from multi-level governance in Alberta

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Abstract

The Canadian province of Alberta inaugurated a shift towards adaptive, multi-level governance under its 2003 Water for Life strategy for sustainability. The strategy now coordinates a three-tier governance system comprised of a provincial Water Council, regional Water Planning and Advisory Councils (WPAC) and the recognition of local water stewardship groups. Based on semi-structured interviews with governance practitioners and analysis of the provincial water strategy this research shows how the transition to multi-level governance has, and still is, occurring. Because Alberta is home to some of the world's largest unconventional oil deposits (the Tar Sands), special focus is given to the implementation challenges in jurisdictions where reductions in state-led governance create difficulties for mediating different agendas and for generating consensus. It identifies and considers the political implications of the 'ethic of transition' in the institutional procedures employed for implementing multi-level water governance.

Key Words: ethic, transition, adaptation

Introduction

In 2003, the Canadian province in Alberta created a policy window for transitioning towards adaptive management by 2011-2014. That goal was part of a larger suite of reforms inaugurated under its provincial water strategy entitled *Water for Life: Alberta's Strategy for Sustainability* (Alberta Environment, 2003). In addition to the move toward adaptive management, the provincial strategy also created a new, multi-level governance model for water resources planning and management. This multi-level governance platform introduced many of the elements of transition management, including: understanding sustainability as a process and not as an end point, reordering governance structures, and differentiating between strategic, tactical and operational spheres of governance (Kemp *et al.*, 2007; Rotmans and Loorbach, 2009). Further, as the strategy evolved through assessment and renewal processes it sought to address some of the basic political issues often identified as being left out of transition management exercises (Voß and Bornemann, 2011; Smith and Stirling, 2010). Of particular interest is that the politics of adaptation and transition were explicitly engaged vis-à-vis discourse regarding the 'water ethic' of the province. As such, the Alberta case presents an ongoing policy exercise that touches on the basic theoretical issues at play in adaptive management, transition management and the political and normative issues that contextualize them.

This paper introduces and explores what is termed the 'ethic of transition'. The intent is to capture the political and ethical norms at work in the reorganization of water governance activities during transitions towards sustainability via adaptive management. To explore the coupled political and ethical dimensions of such transitions, this paper proceeds in three sections. The first introduces both transition management and adaptive management, specifically engaging in both the governance changes implied and the normative dimensions of these changes. The second develops further the nascent literature on water ethics, a field that is increasingly referenced as a way to unite the practical activities that influence water management with the political and ethical cultures that co-evolve with different governance regimes. The third section returns to the Canadian province of Alberta to provide evidence outlining how the transition towards adaptive management draws on political and ethical norms.

Herein, the term 'political' does not refer only to the power relationships and strategic interests of different governance actors. Rather, it is used to broadly characterize the ways that laws, institutions and governance structures make norms appear as natural outcomes of different social and ecological

processes (Foucault, 2008). From this perspective, we can seek to engage the ways that these processes of 'naturalizing' different power relationships are also choices that have consequences for social and ecological communities. Likewise, the term 'ethical' is not used to reflect a neat or completely coherent philosophical worldview that converges towards normative consensus based on states of affairs (see Williams, 1985). Rather, it refers to those practices that co-evolve as different norms are applied and revised in contexts that are dynamic and in which full certainty of outcomes is unlikely. The reasons for these caveats will become clearer below and, especially through the Alberta case, work to further the growing literature on how considerations of equity and fairness are central to determining the success of new forms of water governance under conditions of inherently limited knowledge (see also Whiteley *et al.*, 2008). In short: the rise of discourses regarding 'water ethics' offers a mechanism for coordinating the plurality of views that affect shared governance exercises.

Normative aspects of Transition Management and Adaptive Management

Transition management and adaptive management ground studies of socio-technical and socio-ecological dynamics, respectively, in theories of complex systems (van der Brugge and van Raak, 2007; Rotmans and Loorbach, 2009; Gunderson and Holling, 2002). As such, both perspectives dissent from the normative position that the 'command and control' of complex systems is a viable long-term goal for sustainability (Holling and Meffe, 1996; Holling, 1996). This is because complex systems are understood to be characterized by change, not stability, and to maintain distance from equilibrium as they evolve and adapt to both endogenous and exogenous disturbances (Schneider and Sagan, 2005). Further, without the presumption of stability, the planning and decision tasks of management and the institutional coordination tasks of governance must be reconfigured to reflect our inherently limited knowledge of complex systems. As Vitek et al (2008) argue, there are 'virtues' to this sort of learned ignorance because it enables us to reorient our basic normative dispositions towards complex system while keeping the long-term goal of sustainability in view.

In adaptive management, the task of reorienting the very project of resource management has given rise to basic questioning regarding what we actually know about complex systems and this has proved both impetus and catalyst for efforts in social learning. As many others have detailed (Reed *et al.*, 2010; Walters and Holling, 1990; Pahl-Wostl and Hare, 2004; Pahl-Wostl *et al.*, 2007) the processes of social learning involves both individual and social changes that take place as purposeful experiments are designed and assessed in (often cooperative) management practices that test existing institutional structures, social values and customary practices. However, given the large-scale uncertainties of our knowledge of complex systems, social learning has long been acknowledged as an iterative ideal that, "…probably never converges to a state of blissful equilibrium involving full knowledge and optimum productivity" (Walters, 1986: 8). More recently, this has led to attempts at clarity regarding just what is the aims, scope and assessment of social learning is. The concern, as Armitage et al (2008: 87) argue, is that potential benefits of social learning may get lost in practical application by ambiguous notions regarding "if, who, how, when and what type of learning actually occurs". In complex systems, the specification of learning goals and experimental design inevitably requires simplifying complex systems and, as such, Fennel et al (2008) have likewise queried adaptive management as to whether there is any core ethical theory that supports how we ought to characterize 'good' governance.

From the perspective of transition management, efforts towards sustainability likewise require changes toward multi-level governance structures that encourage 'policy windows' that open out upon increasingly diverse set of values and possibilities (Olsson *et al.*, 2006). These different levels can be grouped into three types—strategic, tactical, operational—that interact based on respective tasks of setting the vision, agenda and experimental objectives of reflexive governance (Kemp *et al.*, 2007; Loorbach, 2010). In the case of water management, a significant obstacle for such transitions is the highly interconnected nature of water across social, ecological and technical systems (Pahl-Wostl, 2007). As such, any experiments in one part of the water system immediately imply tradeoffs in others. These tradeoffs do not only involve technical issues, but also the types of upstream-downstream value dilemmas that characterize socio-hydrological systems. In this regard, a key area of crossover between transition management and adaptive management is in the recognition that socio-technical norms and values co-evolve with changing social and ecological systems. For its part, the literature on transition management

is explicit about the move from 'coproduction' to 'coevolution' because of the basic roles of both competition and cooperation in governance decisions (Rotmans and Loorbach 2009). As such, high-level, strategic orientation in transition management recognizes the need to re-orient social values and ethical norms toward a long-term political vision of sustainability (Loorbach, 2010).

The convergence of both adaptive management and transition management on the topic of ethics suggests several intuitive ideas. The first is that in the face of large-scale uncertainty we are unlikely to find normative agreement based on 'the way things are' since the current states of affairs is precisely what is contested (and acknowledged to be changing). Second, it highlights how, in complex systems, there is no privileged position from which to describe systems' behavior; all perspectives are partial and involve narrating the behavior of complex systems in a way that is compelling, but not objective (Kay, 2000). Third, it reveals how the basic attempt to ground environmental regulations in such presumptions—such as those of equilibrium in command and control governance—actually presuppose precisely what is at issue by suggesting that regulatory and legal tests can be free of value judgments regarding what evidence counts and why (Kysar, 2010). As such, and especially in the water sector where implications of access, timing and control of water directly affect both lives and livelihoods, this turn towards ethical considerations has become an increasingly prominent part of efforts towards sustainability.

Water ethics

Growing pressures on water systems, combined with long-recognized needs for more integrated resource management, have led to calls for a new water ethic. Schmidt (2010: 4) defines a water ethic as a "normative framework guiding actions that affect water." This umbrella definition is intended to capture several tensions at work in the search for new ways to characterize and confront existing patterns of water use and the values that underlie them. For instance, water governance practitioners (i.e. West, 2007; Delli Priscoli *et al.*, 2004) have argued that a water ethic should not be thought of in a strict philosophical sense or as a species of the types of problems addressed in the field of environmental ethics (for an overview of how the two fields interact see Brown and Schmidt, 2010). This ambivalence can be traced, in part, to the fact that the histories of water management and governance have not historically divided issues of ethics from those of politics (see Feldman, 1991). In this regard, the history of water management is itself part of the co-evolutionary process that orders political and ethical norms affecting water (Delli Priscoli, 2000). The task here is to link this co-evolution to a complex systems perspective amenable to both socio-technical and socio-ecological systems.

At the global level, there is an increasing call to link the social and natural sciences in assessments of how new directions for water governance should proceed (Vörösmarty *et al.*, 2004). Since the 1977 UN Water Conference in Mar del Plata, integrated water resources management (IWRM) has been the predominant paradigm for water governance (see Conca, 2005). Yet while initial attempts for integration held out for 'objective' and 'scientific' ways to rationally maximize the benefits derived from water, there has been no value neutral way to operationalize the concept and this has led many to reject IWRM because of its ambiguity with regard to social processes, values and political and institutional cultures (Jeffrey and Geary, 2006; Biswas, 2004). Nevertheless, the basic goal of integration makes intuitive sense since, at least *prima facie*, it seems better to have coordinated governance than not. Hence, rather than construe integration in terms of 'objectivity' or 'rationality' we may orient it towards the project of fitting water governance to a complex systems worldview.

In a series of essays (Falkenmark and Folke, 2002; Falkenmark and Folke, 2010; Folke, 2003) Malin Falkenmark and Carl Folke have developed a new conceptualization of the tasks of 'integrated' water management that attempt to fit governance norms to the pervasive role that water plays in the resilience of complex socio-ecological systems. They argue for a view of water ethics as "ecohydrosolidarity" which they define as "…the ethical right to a just sharing of the rainfall over catchments and in landscapes that provides freshwater for human development and simultaneously accounts for the critical role of freshwater in generating ecosystem services for human well-being" (Falkenmark and Folke, 2010: 248). This project takes some of the basic notions of adaptive management—social learning, increasing resilience, experimental monitoring—and connects them to a

normative view where governance coordination seeks to increase human welfare. A key move in this perspective is the acknowledgment that human activities affect entire socio-hydrological systems across both the blue (i.e. visible) and green (i.e. invisible) flows of water. As such, the goal is not to set limits to what is managed and what is not, or to prescribe 'no touch' rules for development, since these tend to perpetuate the idea that humans are distinct from nature. Rather, the goal is to embrace more fully the complexity of human-water interactions and to seek out the maximal welfare gains possible without exceeding watershed resilience.

The broader literature on adaptive management likewise shares the normative position that humans and nature should not be understood as distinct systems for the purposes of either governance or ethics. Interestingly, the judgment of 'command and control' management made by Holling and Meffe (1996) is dedicated to Aldo Leopold (1966), the forester who laid much of the groundwork for connecting an ecological and ethical worldview. As is well-known, it was Leopold's view that the ethical test for action was whether it enhanced the 'beauty, integrity and stability' of the ecological community. Despite the term 'stability', Leopold's view is a possible forerunner for the entire field of adaptive management and its emphasis on experimental policies, social learning and sustainability (Norton, 2005).

An excellent synopsis of how Leopold unites an experimental philosophy with normative judgment is found in his less explored essay, *The Round River.* Therein, Leopold (Leopold, 1966: 188-202) begins by arguing that managers must learn in a manner analogous to evolution. In this evolutionary analogy we are part of a community and, consequently, our learning goals should aim for an account of the collective behaviors ecological systems. To accomplish this, Leopold advises we adopt a precautionary attitude towards experimentation with natural complexity given our ignorance of how organisms and their systemic interrelationships have evolved. For Leopold (p. 190), "To keep every cog and wheel is the first precaution in intelligent tinkering." From here he points out that, given the complexity of ecological systems, predictions regarding ecosystem responses to human actions are highly uncertain.

Given the uncertain nature of ecosystem responses to management (i.e. 'intelligent tinkering'), Leopold argues that we are prudent to acknowledge that, even though all management endeavors result in readjustments in ecological systems, we are often unconscious of them unless the results are bad. Given this lack of foreknowledge and the potential for limited reflexive capacity, Leopold (p. 200) argues that we should aim for management practices that mirror evolutionary processes, which indicate that, "diversity and stability are so closely intertwined as to seem two names for one fact." For Leopold, learning about these processes is predicated on having environmental policies that allow long-term knowledge to accumulate. This is the case because distinguishing natural evolutionary processes from the response of complex systems to human actions is not possible *a priori.* Rather, Leopold (p. 198) argues they, "…can only be told *ex post facto* by the effect...." Leopold concludes by connecting our lack of knowledge in systems behavior with a conjunctive obligation to build an ethical understanding for valuing natural organisms and their complex relationships through purposeful learning regarding natural systems.

Norton (2005) has advocated that Leopold's (1966) view presents a philosophical basis for adaptive management because its orientation towards the long-term testing of different truth claims is virtually synonymous with efforts in social learning. Environmental philosophers have questioned Norton's reading of Leopold (Callicot *et al.*, 2009). That debate notwithstanding, there is a more general issue that comes about in the attempt to follow adaptive management in orienting our actions towards an ecological account of complex systems. Namely, and as Lövbrand et al (2010) point out, once we recognize the large scale impacts of human activity across social-ecological systems—once we *internalize* the notion that we live in the anthropocene—we are confronted with two basic political questions: First, whom is being governed? Is it the autonomous, rational individual of the Enlightenment or an ecologically embedded citizen? Second, do we believe we can scientifically manage our way out of governance problems given the complexity of socio-ecological systems? These types of questions return us again to the problem of political contexts and the manner in which normative claims serve to contextualize how we define what is 'governable'. In the case of global water governance, for instance, it is increasingly recognized that the norms deployed to coordinate institutions need to be considered more explicitly alongside the analytical methods used to clarify emerging governance patterns (Pahl-Wostl *et al.*, 2008).

Let us return once more to the resources provided by Leopold, whose precautionary approach also incorporates the idea that we can manage complex systems ethically even without full knowledge of the effects of our action. Recently, Brown and Schmidt (2010) have argued that, provided we make a number of revisions to the basic ways in which we narrate the co-evolution of human norms vis-à-vis complex systems, we can develop the types of sentiments advocated by Leopold. Their account suggests that the main task for transitioning towards a sound ethic for water is to find a way to more clearly integrate our inherently limited knowledge into decision making frameworks. Implicit in this project is the idea that an appropriate water ethic must link socio-ecological *and* socio-technical systems. To accomplish this, they suggest a model that may be of service in the present discussion based on Aristotle. In Aristotle's view we there are three types of knowledge: The first is pure knowledge, or *epistêmê*, which deals with facts that are objective and unchangeable, such as water's chemical makeup as H_2O. The second is *technê*, which is the know-how required for social and natural technologies, such as dams, properly functioning markets, and the like. In the view of Brown and Schmidt, these two types of knowledge have dominated water management and the utilitarian search for maximizing the benefits derived from water. Generally understood, these types of knowledge have also been the primary axes for complex systems research and its aim of identifying the scientific constants (i.e. laws of thermodynamics) that allow self-organizing systems to grow in diversity and complexity both in socio-ecological and socio-technical terms. Yet Brown and Schmidt also suggest that we consider Aristotle's third type of knowledge, *phronêsis*, which has no modern equivalent but is often interpreted as a prudential style of reasoning that considers not only what is good for us, but also what supports various forms of the good life.

We can develop the insights of Brown and Schmidt in the context of complex systems by noting the propensity to search for scientific grounds upon which to secure epistemic claims and the various ways that technology interfaces both with the production of scientific knowledge (Latour, 1993). Thought of in this way, we can see their call for a water ethic as reflecting a transitional ethic towards long-term societal changes that the literature on transition management and adaptive management are also pursuing. Indeed, we can modify the attempt to escape 'command and control' mentalities by seeing ecological science and technology as guiding water governance while we also maintain that effective governance is not reducible only to epistemic or technological knowledge. In addition to science and know-how, we also need a flexible and prudent approach towards governance that respects the diverse forms of life that have co-evolved alongside the simultaneously constraining and enabling conditions provided by water. On this view, our water ethic is itself a part of complex systems behavior and, as such, one that requires not only reflexivity and learning, but also reflection on the basic categories that we use to characterize water as 'governable'.

The position of Brown and Schmidt is distinct from Falkenmark and Folke insofar as they do not continue to orient the project of water management towards only increasing human welfare or of having 'ecological goods and services' being construed primarily in anthropocentric terms. As such, they argue that a water ethic should be working to 'moderate, not manage' the human-environment relationship given the ways in which current norms have co-evolved along paths that run counter to long-term sustainability. In this regard, they do not think even maximally reflexive responses go far enough since many of our inherited institutional and ethical norms narrate socio-ecological and socio-technical systems in non-empirical terms that often run counter to sustainability – such as by making human welfare the primary metric of water governance success. Given this background context of management techniques and politico-ethical considerations, Alberta's *Water for Life* strategy presents the opportunity to see how the transition to multi-level governance and adaptive management has been forwarded by an explicit engagement with the province's 'water ethic'.

Multi-level Governance in Alberta

Europeans settled what is now the Canadian province of Alberta in the late 19th century. These settlers extirpated to government reservations what remained of indigenous populations whose numbers were decimated through exposure to new diseases (Potyondi, 1992). In 1894, while the region was still under federal jurisdiction, the *North-west Irrigation Act* was passed. It created the basis for water governance in the region through a system of prior appropriation (first in time—first in right) water

licensing that made all water claims appurtenant to land claims (Percy, 1977). This tie of water to land granted licenses for indefinite periods of time in order to provide a guarantee to incoming settlers that they would have sufficient resources for agricultural activity.

Jurisdiction passed to the province in 1930 and Alberta's model of development in the 20th century followed a path similar to many other regions. The government subsidized water supply infrastructure to encourage economic activity and, as social and industrial demands grew, the government sought out new sources of water supply. This supply-side model of development eventually reached its upper limits on many of the regions river systems. In all but one case, the province's watersheds have their origins in the Rocky Mountains in the west and flow east along arterial across the dry, often semi-arid, prairies to the east. In the northern parts of the province, rivers flow through a series of large freshwater deltas and boreal forests. As such, the initial pressures on water were felt in the south and the large irrigation economy that now holds roughly 75% of water licenses. Increasingly, however, water demands in the north are pressing ecological limits as the world's largest unconventional fossil fuel deposits—the Oilsands—are being developed through extractive and often water-intensive processes that affect water quality (Kelly *et al.*, 2010). Confounding the social pressures is a growing understanding of climate variability, and climate change, for the region. Virtually all models forecast reduced water availability for agriculture in the late summer months coupled with increased evapotranspiration demands (Schindler and Donahue, 2006). In addition, paleo-climatic evidence shows that the 20th century itself was one of the wettest in the previous two millennia (Laird *et al.*, 2003) and that the region has experienced droughts that are longer, and more severe, than those since western settlement began (Sauchyn *et al.*, 2003).

In this context, Alberta has been reforming its governance system. In 1999 the province's new *Water Act* came into effect. It severed the tie between water licenses and land claims and opens up the possibility for re-allocating water through new institutional channels, such as water markets. After public consultation, the province unveiled its *Water for life* strategy for sustainability. Together, the new legislation and new water strategy form the basis for the shift from government to governance in Alberta. In fact, they created a virtually synonymous framework to that identified in the transition management literature through the introduction of multi-level governance at a strategic, tactical and operational level. Strategically, Alberta created the *Alberta Water Council* which is a 24 member stakeholder alliance that attempts work out the vision for water sustainability in the province by engaging in issues of instream flow needs, water allocation, source water protection, etc. Tactically, the province created eleven watershed planning and advisory councils (WPACs) that are also stakeholder driven efforts to manage local water agendas based on the watershed boundaries in the province. Operationally, the large grass-roots activities of organizations of stewardship groups are recognized as part of the governance framework for implementing and testing different practices.

As part of the *Water for Life* strategy, Alberta committed to an adaptive management approach to watershed management. The goal of transitioning to adaptive management was part of the long-term goals identified and, initially, hoped to be implemented between 2011 and 2014. That initial goal proved too ambitious. Nonetheless, the renewal of the *Water for Life* strategy continues to reassert the strategy's initial orientation towards sustainability. As such, it accords with Kemp et al.'s (2007) assessment that long-range, strategic visioning is key to reordering and redirecting social systems in transition management. A second aspect of transitioning towards adaptive management in Alberta has been the development of new networks in multi-level governance. Olsson et al (2004) argue that 'shadow networks' are key to the preparatory work that enables multi-level governance to successfully transition towards new practices. In the Alberta case, this is also evident. Prior to the creation of the eleven watershed planning and advisory committees (WPACs) there were, in many watersheds, existing watershed alliances, river-keeping groups or other coalitions advocating for the protection and stewardship of water resources. In many cases, these networks were co-opted into the multi-level governance system in Alberta as the de facto WPAC for the region. As such, these networks brought different institutional histories and political agendas—along with existing projects and concerns—to the initial context of decentralized water governance.

What is particularly interesting in the Alberta case is how different political agendas are driving the search for transitional norms in water governance. For the most part, the first task of all WPACs has been to produce a 'state of the basin' report that details the current ecological condition of aquatic areas. The second is to produce an integrated management plan for the basin. Both of these tasks are conducive to the later introduction of more explicit adaptive management techniques, yet involve numerous judgments regarding what types of data are included in 'state of the basin' reports and which indicators are taken to be drivers of different systems. As such, there is an underlying political agenda that contextualizes adaptive management transitions and which makes 'state of the basin' reports both inherently limited and value loaded. A second interesting aspect of Alberta's water governance transitions is that, in cases where no 'shadow network' existed, the government approached corporate and municipal bodies to initiate the process of forming WPACs for their watersheds. As such, there has been a central procedural question regarding how WPACs set out the terms for their own self-organization. These concerns have very practical articulations, including: who is deemed to 'count' as a stakeholder, the role of advocacy in stakeholder deliberations, the definition of 'consensus' as a tool for decision making, and the funding of various WPAC activities (such as the long distances required to attend meetings in large watersheds). [*In the presentation to the World Water Congress I will detail some of the findings of interviewees involved in this process but for the purposes here I leave them excluded until all interviewees have a chance to member check their remarks*].

Germane to this discussion is the role of ethics at the strategic level in Alberta. For its part, the Alberta Water Council has set forth 'renewal' documents of the *Water for Life* strategy. These renewals set the agenda and normative goals for achieving sustainability as part of the ongoing assessment of how well various objectives of the strategy are being met. In particular, they attempt to bridge the political nature of different stakeholder orientations and the desire for fundamental social shifts, through appeals to ethical values. For instance, in 2007 the renewal of Water for Life included the following claims (Alberta Water Council, 2007):

- "The Alberta Water Council believes the *Water for Life* strategy creates the possibility for a new water ethic in Alberta—one based on conservation, sound science and shared responsibility for watershed management planning." – page 1.
- "From a conservation perspective, promoting the full value of water can encourage a greater conservation ethic if Albertans realize water is not a 'free' and 'unlimited' resource, and that it has value beyond our daily economic needs (e.g., water has intrinsic values such as for scenic enjoyment)." – page 27
- "We believe that broad stakeholder involvement and a strong resolve to evolve from a consumption to a conservation ethic are necessary." – page 28
- "The Alberta Water Council believes that, in the long term, the wise use of water, through effective management of demand, is a critical component in the development of a true conservation ethic in the province." – page 28

These articulations of a new water ethic turn variously on both arresting existing patterns of resource development and on uniting new practices in informal networks of decision-making. The Alberta Water Council (2008a: 15) also states that a key direction for water conservation in Alberta is for: "All sectors understand how their behaviours impact water quality, quantity and the health of aquatic ecosystems, adopt a 'water conservation ethic' and take action." Alongside these strategic calls for a new ethic has been a strong push towards using the existing networks in the province to establish a more robust governance framework even without *Water for Life* being a formal regulatory tool (Alberta Water Council, 2008b). In fact, the informality of the Albertan model may be a key consideration in its turn towards a 'conservation ethic'. This is because, despite the creation of multi-level governance structures, the actual responsibility for all decision making still resides in the government, which maintains public ownership of all water in the province. As such, a great deal of the work done by different strategic, tactical and operational partners is conducted on good faith rather than through regulation or binding legislation.

Conclusion

Water governance in Alberta is a union of adaptive management and transition management concerns. The shared foci of these management approaches on issues of ethics presents one way to consider the political claims and histories that underlie multi-level governance partnerships. The water ethics literature has increasingly looked towards the co-evolution of norms with the landscapes that co-evolve in coupled and complex systems. In the view of Brown and Schmidt (2010) transitioning towards sustainability requires explicitly incorporating our ignorance of many aspects of complex systems alongside both epistemic and technological knowledge. This incorporation sets the stage for considerations of politics, since it is the contests over how we should seek out what we do not know that directs the paths of many programs for social learning. In the Alberta case, the tactical determination of what is or is not included in 'state of the basin' reports has been complimented by continued strategic visioning regarding 'conservation' and 'stewardship' as the basis for a new water ethic in the province. Although the two levels of water governance in Alberta considered here—the Water Council and WPACs—do not create a formal regulatory regime, the broader water ethos provided by the *Water for Life* strategy presents the basis for coordinating water norms in the province. Further, the link between socio-technical institutions for water governance and the transition towards the adaptive management of socio-ecological systems is, in the Alberta case, being mediated by the development of a new normative narrative. This narrative has prioritized 'conservation' and 'stewardship' as ethical tools for this transition and as a broad legitimating vision for the provinces new, multi-level governance framework.

Why does the turn to a 'water ethic' matter for adaptive or transition management? One of the reasons is that it carries several claims to legitimacy in construing Alberta's complex socio-ecological and socio-technical systems. It does so: (1) by narrating that complex system from a perspective where previous development paths are judged inadequate and, hence, now require (broadly speaking) 'good governance'; (2) by appealing to the institutional knowledge and memory of the shadow networks upon which multi-level governance is premised such that even without full knowledge regarding the 'state of affairs' obtaining in many watersheds we can motivate the obligation to participate as partners in informal institutional arrangements. This is accomplished by subsuming different political agendas under a broader water narrative, such as that of 'conservation' or 'stewardship', which reflect broadly shared values; and, (3) by stating that sustainability goals are long-term, iterative ideals that require fundamental shifts across all sectors of society through education, new institutional arrangements and more effective monitoring and management. This expansive project rests on cultivating a normative base that is broad enough to handle pluralistic conceptions of the good life as can be seen in appeals to water's 'full value' in both instrumental and intrinsic terms. It further rests on devolving responsibility without consequent shifts in authority and this, under standard notions of democratic or community governance, requires the consent of the governed. Such consent is perhaps most fundamentally convened via a shared normative basis for understanding obligations and duties with respect to shared goods, in this case water.

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