Constitutional Choice and Water Governance in the Western U.S.

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Abstract

Vincent Ostrom's early career was spent examining and explaining the governance and management of water in the western U.S. By the early 1970s, Ostrom turned his attention to developing theories of democratic administration, federalism, and democracy. He never returned to a consideration of western water governance. This paper uses the democratic political analysis initially developed by Ostrom in The Choice of Institutional Arrangements for Water Resources Development and further expanded in his later works to engage in a constitutional choice analysis of two different constitutional settings involving water in the western U.S. A constitutional choice analysis of Arizona water governance illustrates the importance of states' constitutional choice traditions in shaping the ability of citizens to address water problems and conflicts. A constitutional choice analysis of interstate river compacts illustrates the distinction between federations and federal systems of governance and the special problems federations pose for democratic governance.

Constitutional Choice and Water Governance in the Western U.S.

Vincent Ostrom spent a good portion of his early career puzzling over water -- water law, water policy, and water organizations, particularly in California. Over the course of trying to make sense of the "water industry" in California, Ostrom's thinking about political theory and policy analysis was transformed. As he admits in the opening pages of The Choice of Institutional Arrangements for Water Resource Development, "My graduate education was largely in the classical public administration tradition. However, my subsequent work on problems of water resource administration seriously challenged many of the theoretical precepts I held. My effort to understand the logic inherent in the strategies pursued by public entrepreneurs among water agencies, assuming that they were rational and intelligent individuals, led me to reformulate my approach to the study of public administration" (Ostrom 1971:v).

The transformation is readily traced in his writings. For instance, in 1953, Ostrom wrote "If the western states are to assume a greater role in the conservation and development of natural resources, they must first put their own houses in order. Resource programs need to be developed in terms of a comprehensive review and re-definition of agencies, values, assumptions and policies. … Otherwise, so far as resource development is concerned, the states are apt to become anachronisms like counties, to be tolerated as they muddle through" (p.493). By the time Ostrom completes The Choice of Institutional Arrangements for Water Resource Development his attention has turned from the inability of the western states rationalize water development and management to explicating a theory of democratic administration, as opposed to bureaucratic administration, and illustrating the theory through an analysis of the California water industry.

While The Choice of Institutional Arrangements for Water Resource Development focuses on one state, it is clear that Ostrom intended the findings and analysis of the report to extend beyond the boundaries of a single state and to encompass both American public administration and the American water industry. His challenge to mainstream public administration is direct and sharp. Mainstream public administration's insistence that there was one form of administration good for all circumstances was misguided and dangerous. Centralizing, consolidating, and rationalizing the American water industry, an industry that was vibrant and dynamic, although not without its shortcomings, would cripple it. "Reliance upon an inappropriate way of conceptualizing policy problems can lead to proposals which amplify errors rather than resolve problems."(p.iv). For Ostrom, the better alternative was an institutional analysis that could "specify the capabilities and limitations inherent in different types of institutional arrangements and to indicate the consequences which can be expected to follow when those limits are exceeded" (pp.6-7). More specifically, Ostrom was engaged in developing a democratic institutional analysis. "Can political analysis help us reach warrantable conclusions regarding the choice of decision rules which will increase the probability that a political community can be organized to meet simultaneously the conditions of consensus and political constraint under a system of constitutional law?"(p.92).

Central to a political analysis that would yield "warrantable" conclusions regarding institutional performance was a focus on constitutional choice. The constitutional choice level of decision making establishes the institutional context for collective problem solving. The ability of citizens to come to a common understanding of their shared problems and reach common agreement on decision rules that allows them to resolve problems and take advantage of shared opportunities is strongly influenced by the constitutional choice setting.

After the publication of The Choice of Institutional Arrangements for Water Resource Development , Ostrom turned his energies to political theory publishing "The Theory of a Compound Republic" in 1971 and "The Intellectual Crisis in American Public Administration" in 1973. He extends his original analysis of the U.S. constitution to encompass contemporary problems confronting American federalism in "The Meaning of American Federalism" in 1991. In other words, he never returns to the American water industry to reanalyze it in light of his theories of democratic administration and American constitutionalism.

This paper is an initial and modest attempt to extend the application of constitutional choice analysis beyond the California water industry. It does so in two ways. First, California's constitutional choice setting sits at one end of the constitutional choice experience of western states. California's constitutional tradition, and constitutional setting, is rich in the opportunities and alternative arrangements it affords its citizens to engage in problem solving and self-rule. The constitutional inclination in California is to err on the side of empowering citizens. At the opposite end of the constitutional choice experience is Arizona. Its constitutional choice tradition is parched and dry. The opportunities that its citizens have to engage in problem solving and self-rule are as rare as a perennial stream in the desert. Its legislature closely holds and jealously guards its governing authority. And, it views with considerable suspicion attempts on the part of citizens, local jurisdictions, other independently elected state officials, and the judiciary to engage in problem solving through the creation of new and innovative institutional arrangements. While Ostrom noted that California was a special case he expected its patterns to generally hold across states because of their common experience of the U.S. constitution. While I generally agree with Ostrom's assertion, there is notable variation in the states' constitutional

choice structures, variation that has real consequences for the citizens of the western states, and variation that brings the critical nature of constitutional choice settings into sharper focus.

Second, water governance in the western U.S. does not only occur within states boundaries. Most western rivers and streams flow through or by more than one state. Consequently, regional governance of river basins has long been experimented with and practiced. The most widespread and enduring form of regional governance is the interstate river compact. A compact is a constitution devised by states that share a river. The constitution establishes a water allocation mechanism and a collective choice process that allows the states to jointly govern their use of the river. All compacts allocate water; some compacts also address other issues such as water quality.

As several analysts have noted (Hart 1966; Derthick 1974) regional governments do not fit comfortably within the American federal system. They are not creatures of the national government, they are not states, nor are they state entities, such as special districts. Unlike almost every other type of government in the U.S. (national, states, counties, municipalities, special districts) they are not composed of and they do not govern citizens, rather they are composed of and they govern states. In that way, they are islands of federations in an ocean of federalism.

Even though compacts are federations, they are not second class entities. Compacts are enforceable agreements that supercede state law. They cannot be unilaterally amended, nor can they be unilaterally dissolved, both acts require consensus among the states party to the compact. Since every western river that crosses state boundaries is governed by a compact, except for the Columbia River, compacts are important, but little tended to, water institutions. Given the unusual constitutional structure of compacts, a constitutional choice analysis of their capabilities and limitations promises to enhance our understanding of their performance.

In the following section constitutional choice analysis will be briefly explained. Next, Arizona's constitutional choice setting and its effects on the ability of citizens to engage in problem solving will be explored (and implicitly compared with the constitutional choice settings of states with strong home rule traditions). Then the paper will turn to interstate river compacts; in particular, three compacts that are generally representative of the compact experience. These compacts have recently consumed the time and energies of the U.S. Supreme Court. All struggle to gain and/or maintain the cooperation and support of water users (aka citizens). The concluding section will return to a consideration of constitutional choice analysis and its importance in understanding the governance of water in the western U.S.

Constitutional Choice

Many policy scholars and their students who are aware of constitutional choice level of analysis were first introduced to the concept through the Institutional Analysis and Development (IAD) Framework developed by Elinor Ostrom and colleagues at the Workshop in Political Theory and Policy Analysis (Kiser and Ostrom 1982). One of the critical features of the framework is the levels of analysis, one of which is the constitutional choice level. Constitutional choice rules, "affect operational activities and their effects in determining who is eligible and the rules to be used in crafting the set of collective-choice rules that in turn affect the set of operational rules" (Ostrom, Gardner, and Walker 1994:46). At some point, if one wants to understand the patterns of order in a society, from the productivity of a local water industry, to the sustainability of coastal fishing grounds and its associated fishing industry, to the resolution of conflict among citizens, to the choices of institutional arrangements available to citizens, one must pay attention to constitutional choice (V. Ostrom 1999).

Constitutional choice in a federal system exhibits distinctive features from that of other types of systems. At its foundation, federalism is a blend of self-rule and shared rule, with citizens as the basic components of governance. They are both the governors and the governed. Achieving a workable combination of self-rule and shared rule depends on the relationships among participants, relationships that protect the integrity of each participant (self-rule) while supporting and encouraging "the energetic pursuit" of common ends (shared rule) (Elazar 1987:5).

In a federal system, such as the U.S., relationships among citizens, among citizens and governments, and among governments are critically spelled out in constitutions. The U.S. federal structure and its associated logic is generally well understood (Ostrom 1987). Instead of laying it out once more, only a few general points, important for the later analysis, will be emphasized. Citizens are sovereign and they are the focus of governance. The sovereignty of citizens is exercised in a variety of ways – citizens devise and amend constitutions (not the governments created by the constitutions); they elect and may recall their representatives; they make laws through the initiative process; they sit on juries, and so forth. Government powers are divided among different branches and many different offices. The offices of the different branches are selected by diverse constituencies and hold terms of different lengths. The branches exercise veto powers in relation to one another and they use different decision rules depending on the decision to be made. For instance, the U.S. House of Representatives uses a simple majority decision rule to pass a bill, but a supermajority rule to overturn a Presidential veto. The extent to which 1) citizens are the subject of governance; 2) citizens may actively engage in self-governance and hold public officials accountable; 3) the different branches respond to different constituencies and maintain their independence of each other; 4) the different governments that form the federal

system are able to maintain their autonomy and independence from one another; and 5) the extent to which federal thinking permeates the society, the more vibrant the federal system is likely to be.

Such a complex governing system contains many centers of decision making – it is noncentralized[1] or polycentric (Elazar 1987; Ostrom 1987). A polycentric system allows for considerable discussion and debate before collective decisions are made. Also, citizens may access multiple venues to pursue their interests and to hold public officials accountable. Ostrom (1987) argues, a federal system allows for democratic governance of complex societies while avoiding the republican disease of majority tyranny.

As Ostrom (1971) notes, constitutional choice analysis cannot occur in a vacuum. In crafting and analyzing constitutional choice rules, the analyst must attend to more than one dimension. Certainly, decision making costs of different rules are important considerations. Placing a decision in the hands of a single person may substantially reduce decision making costs, say compared to a simple majority rule, however, it opens the door to high deprivation costs. That is, the single decision maker could readily trample on the rights of citizens. Deprivation costs could be lowered by increasing decision making costs, perhaps by using a unanimity rule. While deprivation costs may be reduced to zero, decision making costs would increase dramatically. As Ostrom (1971) points out, such an analysis is too simplistic. Both deprivation costs and decision making costs are conditioned by other types of factors. For instance, granting an individual sole decision making authority may not necessarily lead to an abuse of that authority if the sole decision maker operates in an environment of other decision makers who can check his actions. Indeed, in some settings, such as emergencies, it may be

important to act quickly to address an imminent threat. Thus, for Ostrom (1971) a democratic political analysis does not just focus on decision rules, but decision rules in a larger institutional and physical environment. Designing and analyzing institutional arrangements requires careful consideration of the problems that individuals confront, matching decision rules to the problems, and considering how decision makers relate to one another.

A constitutional choice analysis of water arrangements promises to provide at least an initial understanding of the opportunities of citizens to engage in problem solving and self-rule, choices among alternative institutional arrangements, and the nature of the capabilities and limits of those arrangements. In the following sections, the democratic political analysis that Ostrom (1971) outlined in The Choice of Institutional Arrangements for Water Resource Development will be used to examine the constitutional choice context of intra-state and interstate water governance arrangements.

Arizona Water Governance

Rather than building suspense, I will begin with my conclusion, Arizona citizens have few local options for addressing local and regional water problems, such as developing sustainable supplies for rapidly growing rural populations, protecting riparian habitat, settling conflicts among groundwater and surface water rights holders, among others. Consequently, solutions to these problems will require legislative action, and legislative action on these issues in any form – allowing for local options, granting state agencies greater authority to act, or even creating new state agencies -- is unlikely. Few local options and few legislative options can largely be attributed to the interaction of the constitutional choice setting and the system of water

[1] Elazar (1987:166) explains: "Noncentralization ensures that no matter how certain powers may be shared by the general and constituent governments at any particular time, the authority to participate in exercising them cannot be taken away from either without their mutual consent."

rights. Ultimately, then, solutions to Arizona water problems will require constitutional revisions and water rights reforms.

The Constitutional Choice Setting

Arizona was the last of the lower 48 states to join the union, moving from territorial status to state status on February 14, 1912. Arizona languished as a territory for an extraordinarily long period spanning the Civil War, Reconstruction, and the Progressive Movement, forty-nine years in all (McCory 2001:17). All three events cast a shadow over the state being admitted into the Union and the form and content of its constitution. First, as a territory, Arizona sided with the southern Confederacy. It was a short-lived arrangement with the arrival of a small force of Union troops. Second, after the Civil War, Arizona and its citizens and officials who overwhelmingly belonged to the Democratic Party, was viewed with considerable suspicion by many members of the largely Republican Congress and President. There was little sympathy for allowing Arizona to achieve statehood. Rather, the territorial positions, particularly those appointed by the U.S. President, were largely used for political payoffs and office holders were, for the most part, corrupt, using their positions for their own personal benefit and providing few public services. Thus, for several decades Arizonans chafed under a hostile national government and a corrupt territorial government controlled by the national government. By the time the Arizona problem was addressed at the national level, the Progressive Movement was in full swing, and its constitution reflects it in certain ways. Considerable authority was granted to citizens to actively participate in politics and to hold public officials accountable, however, the Progressive theme of centralized administration and professionally trained bureaucrats never did take root in the state.

Citizens.

The designers of the state constitution wanted to place considerable authority in the hands of citizens. They did so in a variety of ways. All major state offices are elected for short terms and are subject to recall. The exception to this is judges, who are appointed, but subject to approval elections and recall. Citizens also have the powers of initiative, referendum, and recall. Using initiative powers, citizens can place either constitutional amendments or statutes on the ballot. These powers have not been used to address water issues, however, they have been used to address a host of other issues that citizens felt the legislature has neglected, such as adding victim's rights to the constitution. The legislature has only reluctantly supported citizen sponsored statutory initiatives. Shortly after Arizona became a state, citizens adopted a constitutional amendment to prevent the legislature from ever changing a citizen passed initiative, however, the state supreme court interpreted the constitutional amendment very narrowly. Usually, the legislature would wait several years before attempting to revise or repeal citizen initiatives. Conflict between citizens and the legislature reached a boiling point in the mid-1990s when the legislature immediately gutted several high profile statutory initiatives, such as one liberalizing the use of marijuana. In response, citizens passed a constitutional amendment in 1998 that forbids the governor from vetoing a citizen approved measure and allows the legislature to modify such a measure only if it furthers the purpose of the measure, however, the legislative modification must be passed by a supermajority (McCory 2001:77-78).

The Executive Branch.

The executive branch is relatively weak, with authority divided and allocated among multiple elected officials. The Governor, the Secretary of State, the Attorney General, the Superintendent of Schools, and members of Corporation Commission are all elected. Initially,

their terms of office were for two years, allowing citizens to hold them closely accountable, however, the constitution has since been amended to allow them four year terms. The Governor has constitutionally defined powers to veto bills passed by the legislature, including a line item veto, to call the legislature into special session, to appoint (with the consent of the Senate) heads of major departments and some commissions, and to appoint (from a short list developed by an independent commission) judges. Her removal powers, however, are strictly limited. As will be briefly discussed below, the legislature has passed one major piece of water legislation, largely because the Governor at the time astutely used his special session powers.

The Legislative Branch.

The legislative branch is the most powerful of the three branches in terms of constitutionally defined authority. It exercises the usual powers of making laws and developing budgets. What is particularly striking about the legislature, however, is how its members are elected and the constituencies members respond to. As is the case with most states, the legislature is divided into a House and a Senate. Until 1966, each county was allowed to elect two senators. The House, however, was composed of representatives elected from districts based on population. Rural Arizona had a powerful voice through the Senate, whereas urban Arizona, especially Maricopa County, exercised its voice through the House. In 1966, this changed. Due to a number of U.S. Supreme Court decisions on voting, three federal judges eventually divided Arizona into 30 districts of equal population. Citizens within each district elect one senator and two representatives every two years. In other words, the House and the Senate largely respond to a single constituency, citizens of Maricopa County which contains more than half of the thirty districts. Also, the legislature was granted the authority to revise the districts every decade. The consequences were dramatic. Rural Arizona, which was largely Democratic, lost numerous seats

and influence, Maricopa County, which was largely Republican, gained numerous seats and influence. The Republican Party, now in control of both houses of the legislature for the first time in state history, promptly protected its new found influence by engaging in remarkable acts of gerrymandering. The effects of gerrymandering can be seen at the polls. During the 1990s, the average percentage of Senate races without opposition from the opposite party hovered around 51% (McClory 2001:40). As McClory (2001:40) notes, “In essence, the majority of Arizona’s senators attained their offices simply by filing an application with a few hundred nominating signatures”.

The legislature is considered a citizens’ legislature. It meets for relatively short periods of time, usually 100 days or less, turnover is relatively high, it has minimal staff, and party leaders maintain strict party discipline by stripping legislators of their committee chairs if they refuse to follow party leaders on major policy issues.

The legislature has provided few opportunities for citizens, or local jurisdictions, to engage in self-governance, especially when it comes to water. When enabling legislation is passed, it usually contains strict conditions and short time limits. In other words, citizens are given brief windows of opportunity to create local arrangements for addressing pressing problems, if they fail, the opportunity is lost. For instance, in the early 1990s, the legislature adopted enabling legislation that allowed local jurisdictions in Maricopa County and Pima County the opportunity to create local water banks. The purpose of the banks was to allow the various water providers (public and private) to lease and/or sell their water and water rights to one another. The local jurisdictions in both counties attempted to form water banks, however, they could not gain the necessary consensus within the short time period allowed under the law.

Currently most Arizona water problems are scattered throughout the rural parts of the state, that is, they occur outside of Maricopa County. However, water outcomes will largely be determined by Maricopa County senators and representatives. Furthermore, the most powerful interests that Maricopa County senators and representatives respond to are real estate developers. Given that they are part-time citizen legislators with very little staff to call upon, they are largely dependent on well-organized interests for their research, information, and campaign organization.

The Judiciary.

The Arizona judiciary is largely viewed as independent, professional, and conservative. Courts, however, provide few opportunities for citizens to develop solutions to local water problems, largely because of the structure of Arizona water law. Courts can address conflicts among water users using their powers of injunction. That is, they can stop practices that violate water laws, however, they do not have the ability to use their equity powers to help local water users craft arrangements to resolve water conflicts.

Arizona Water Law

Surface water law can be summarized in two words – prior appropriation. Groundwater law is somewhat more complex and certainly more problematic. Two distinct bodies of law govern groundwater. Until 1980, all groundwater was governed by the reasonable use doctrine. The reasonable use doctrine allows landowners overlying a groundwater basin to pump as much water as they can put to reasonable use on their land. The reasonable use requirement was intended to limit the waste of water, not the pumping of water. The only use considered unreasonable was any non-overlying use that interfered with other well pumpers (Gould 1990:14). The reasonable use doctrine does not prevent or resolve disputes among overlying

landowners over well spacing or overdrafting of the basin. As long as an overlying well owner is making reasonable use of her water, she is not liable for any interference that she may cause another well owner. Furthermore, well owners may pump "until they can no longer afford the cost of ever greater pumping depths or until the aquifer is exhausted" (Gould 1990:16).

Not only are well owners not liable for any interference with another well owner, but they are not liable for the effects of their pumping on surface water flows. Arizona law does not recognize the hydrologic connection between groundwater and surface water. Water users, both ground and surface, have repeatedly asked Arizona courts to recognize the connection and to at least exercise their injunctive powers to protect their water rights, but to no avail. The courts have repeatedly held that Arizona water law does not recognize the hydrologic connection and thus there is no harm for them to enjoin. In their favor, courts have called upon the state legislature to correct this problem, but to no avail. Thus, a surface water user can request a court to impose an injunction on another surface water user who is interfering with her rights. A groundwater user can request a court to impose an injunction on another groundwater user who is violating the reasonable use doctrine and interfering with her rights, but surface water users and groundwater users are powerless against one another. They have no forum in which to settle their conflicts.

In 1980, after decades of conflict, adverse court decisions that threatened municipal groundwater use, and a threat from the federal government that the Central Arizona Project would not be built unless Arizona changed its groundwater laws, the legislature passed, and the governor signed into law the 1980 Arizona Groundwater Management Act.[2] The law only

[2] Governor Bruce Babbitt used his authority to call a special session of the legislature. Prior to the special session, legislative leaders, representatives of the major water users, and the governor met in secret over a period of several days and developed the law. The legislative leaders promised to hold an up or down vote on the bill. No amendments or debate were allowed.

covered the groundwater basins underlying the most populated area of the state extending from Prescott through Phoenix and Tucson to the Mexican border. Five active management areas were created, each encompassing the boundaries of a basin or sub-basin. The act replaced the reasonable use doctrine in these basins with a complex set of groundwater rights allocated to agriculture, mining, and municipalities. The active management areas encompassing Prescott, Phoenix, and Tucson have an identical goal, achieve safe yield by 2025. The area encompassing the agriculture intensive area between Phoenix and Tucson was allowed considerable drawdown, with the intention of leaving deep groundwater for municipal demands. The area encompassing the Santa Cruz River between the international border with Mexico to Green Valley (just south of Tucson) recognized the hydrological connection ground and surface water. The goal for the Santa Cruz Active Management Area is to maintain existing water tables over the long term so as to sustain the flow of the Santa Cruz River.

The 1980 Act has been amended several times to address various water problems. For instance, cities in the Phoenix and Tucson active management areas initially signaled their intent to meet safe yield goals by importing water from rural areas outside of active management areas. Citizens in rural communities near Phoenix and Tucson were alarmed that their groundwater was going to be exported. For more than a decade, rural citizens attempted to gain approval of a law that would forbid importing groundwater into an active management area. Finally, in 1992, once the Central Arizona Project was complete and cities had access to their Colorado River allotments, urban interests dropped their opposition, and area of origin laws were adopted.

Initially, the Central Arizona Project was more curse than blessing as demand was low for the highly priced water. Farmers, and some cities, preferred to use their groundwater rights over CAP water. This problem too was handled through amendments to the Groundwater Act.

Direct and in lieu recharge credits were recognized, encouraging cities and irrigation districts to store surplus CAP water underground or use CAP water in lieu of groundwater, for instance.

Groundwater law is bifurcated in Arizona. In active management areas, water users hold relatively well defined, legally enforceable, rights to specific amounts of groundwater. These rights may be transferred under strict limitations. In the Prescott, Phoenix, Pinal, and Tucson active management areas, water users have access to CAP water as an alternative to groundwater. Active management areas provide few opportunities for local water users to engage in self-governance. True, each area develops 10 year management plans in consultation with citizens advisory committees, but the content of the plans are strictly defined in state law. Problems facing water providers in active management areas, such as leasing and exchanging water rights, coordinating groundwater recharge, preventing the drying up of riparian areas, and so forth, are not covered under the authorities of the active management areas. Also, the Prescott, Phoenix, and Tucson areas face a looming problem. It is now apparent that the goal of safe yield cannot be achieved by 2025 unless new sources of water are developed. The only immediate and relatively cost effective sources of water are located in the groundwater basins of rural Arizona, water sources that are currently forbidden to urban areas.[3]

The Verde and San Pedro Rivers

The most intense water conflicts occurring in Arizona center on the Verde and San Pedro Rivers. Both the source of the conflicts and the barriers to their resolution stem from Arizona water law. Both rivers are rivers in the usual sense (although unusual in the Arizona sense) – water flows in their beds most months of the year. However, the surface water flows are

[3] Another potential source of water is that controlled by Indian nations won recently through a series of congressionally authorized settlements and court cases. Due to the nature of some of the settlements the water cannot be transferred off of the reservations. The state of Arizona opposes allowing tribes to sell their water rights, particularly to out of state buyers.

threatened by increased groundwater pumping, and as discussed above, surface water rights holders have no recourse, under Arizona law, to protect their water rights.

The San Pedro River is one of the last free flowing rivers in the American southwest. Also, it is one of the prime birding areas in North America because of its location and its rich riparian habitat. Increased pumping from its alluvial aquifer by water utilities serving the fast growing city of Sierra Vista, located approximately ten miles from the river, and to a lesser extent, pumping to serve an adjacent Army base raised the possibility that the river was drying up. A hydrology model developed and tested in the late 1980s confirmed that groundwater pumping was intercepting water that otherwise would feed the river (Glennon 2003). Hydrologic models and investigations conducted since the original model was developed have further specified and defined the impact of pumping on the river. The hydrology of the aquifer and the river is relatively well understood including the effects of pumping.

The fate of the San Pedro River and its aquifer are bleak. In the last year, the Arizona Department of Water Resources denied a petition by concerned citizens in the basin to actively manage and regulate groundwater pumping. The Department of Water Resources determined that the basin does not meet the criteria establishing an active management area. Sufficient groundwater exists to meet all water needs well into the future, pumping has not affected water quality, and subsidence has not occurred (Tobin 2005). In other words, the management status quo – the reasonable use doctrine – will remain in place. It will remain in place because there are no other governance or administrative options for citizens to call upon. Alternative arrangements will have to wait for the state legislature to act or for citizens to place initiatives on the ballot.

Three months after the state declined to act the river dried up in segments that have historically flowed, even during droughts (Davis 2005). Considerable debate erupted over the

cause – drought, the late onset of summer rains, or pumping (Davis 2005). In the meantime, real estate developers continue to announce ever larger residential and commercial developments in the area.

In April, 2006, the non-profit environmental organization, American Rivers, declared the Verde River, in central Arizona, to be one of the 10 most threatened rivers in the U.S. Why? Arizona water law, of course. The city of Prescott and the town of Prescott Valley intend to build a thirty mile long pipeline to the Big Chino Ranch, which they own and which is located above the Big Chino aquifer, which provides 86% of the upper Verde's flow, according to a recent USGS study (McKinnon 2006). The two municipalities intend to pump just under 10,000 acre feet annually. The Verde River flows year around, is home to a rich riparian area, is undammed and free-flowing to its lower reaches, and is the only river in Arizona that has a wild and scenic designation. When the 1980 Groundwater Act was amended to foreclose the importation of groundwater into active management areas, an exception was made for Prescott and its Big Chino Ranch. Currently, there is nothing in Arizona law preventing Prescott from drying up the upper reaches of the river.

What makes the situation of the Verde River somewhat different from that of the San Pedro is that a single organization owns most of the surface water rights on the Verde – the Salt River Project. The Salt River Project is the major water supplier to Phoenix. It probably wields enough influence to protect its water rights, however, when and how it would seek to protect its rights is unclear.

The Future of Arizona Water Governance

Ostrom (1971) suggested that the water industries of other states are likely to be similar to that of California in part because all states share a common constitutional history. In some

ways, Arizona's water industry does bear certain resemblances to that of the California water industry. Arizona has two large developers of water, the Salt River Project, which owns and operates a large surface water and delivery project encompassing the Verde, Agua Fria, and Salt Rivers; and the Central Arizona Water Conservation District, which operates the Central Arizona Project. These two projects make available over 2 million acre feet of water per year to municipalities and farmers in central and south central Arizona. Dozens of municipal and private water companies and numerous irrigation districts deliver water to businesses, residents, and farmers. Associations of water providers allow water utilities to discuss shared problems and to lobby the legislature. Citizens have formed over 100 watershed councils, 34 of which are active, working to protect flowing streams. State and local government officials, public and private water providers, and citizens are actively engaged with water, just like California.

Arizona differs in noticeable ways from California, primarily at the constitutional choice level, and from there the collective choice level. Arizona citizens and local jurisdictions have few options to develop institutional arrangements to solve local water problems or to take advantage of local water opportunities. They have few such options because of a constitution that is largely silent on water matters and local options, a legislature that is profoundly hostile to providing opportunities that may lead to the creation of governments, and water laws that provide little leverage for water users to address their conflicts.

Derthick (1974) in analyzing the creation, operation, and performance of regional organizations in the U.S. described the more effective ones as political accidents. For Derthick (1974:226) institutional innovations that run against the grain of American government are political accidents. Political accidents occur "only in very special circumstances, when there is a

fortuitous coming together of opportunity, leadership, and political backing, so that it becomes possible to go against the institutional grain and create a genuinely new form."

New forms of water governance and water organizations in Arizona are only likely as political accidents -- new forms of governance run against the grain of Arizona government. In Arizona, citizens are given many opportunities to engage in self-governance through the ballot box in the form of elections, recalls, initiatives and referenda, however, Arizona does not have a tradition of legislators working with local citizens to devise enabling legislation that would empower citizens to develop their own local solutions. Also, water laws do not provide citizens with opportunities to call on the equitable powers of courts to provide a setting for devising new institutional arrangements. Consequently, a highly unlikely alignment of crisis, leadership, and political backing at the state level must occur if the festering conflicts among surface and groundwater users are to be addressed. The legislature has created a working group, consisting of legislators, to develop solutions to rural water problems. The Governor just announced a broad based citizens committee to develop constitutional amendments and legislation to address state water problems. Whether either of these groups will be able to achieve a consensus among themselves on constitutional amendments and/or legislation and then gain sufficient statewide support to place items on the ballot or gain the support of the legislature and governor is highly uncertain.

Interstate River Compacts

Interstate river compacts may be created in three different ways, by Supreme Court decree, by Congressional authorization, and, the most common, by states. The collective choice processes established by compacts tend to be relatively simple – a single governing board, or

compact commission, that typically makes decisions based on a unanimity rule, with limited enforcement powers against member states, and no enforcement powers against citizens.[4] Compacts directly govern actions of states and only indirectly those of the states' citizens. Citizens of states are not citizens of compacts.

Given that compacts govern states and not citizens of states, a number of problems can be anticipated, similar to those experienced under the Articles of Confederation. First, the viability of compacts largely depends on the good faith of states and their willingness to carry out compact commitments. While states can sue one another before the Supreme Court, the Court discourages states from bringing complaints before it. Furthermore, a full blown Supreme Court case will often extend over many years and cost the litigants millions of dollars. Second, the unanimity rule, commonly used in compact collective choice processes, requires that states build consensus in order to act in the context of the compact, that includes developing consensus over what constitutes violations of the compact, consensus on what types of water uses should be monitored, and so forth. Compact commissions are unlikely to act swiftly. Third, water users will not feel compelled to follow the rules and regulations of the compact. Thus, we would expect that water users will violate the rules and regulations of compacts, compact commissions will be helpless to address such violations, and states will be slow to respond in attempts to bring citizens in line with compact requirements, particularly if bringing citizens in line requires major changes in state water laws.

On the other hand, compacts are valuable to states. They provide a relatively orderly way of allocating water. In allocating water, compacts also provide security and assurances to states and their citizens over uses of a shared river. They are a means of settling disputes present at the

[4] Some compacts have no commissions and instead rely on informal meetings of state water directors or engineers. Other compacts have no coordinating mechanisms.

time of their adoption, they allow for an equitable apportionment of a valuable resource, and they encourage comity among their members. Consequently, while the compact form of governance may be unwieldy, states have voluntarily entered into many such agreements, and they are likely to engage in institutional innovations that address the most awkward dimensions – allowing for more workable forms of governance to emerge. Overall, then, we should expect both conflict and institutional innovation in relation to compacts.

A cluster of three compacts among four states will be used to analyze the challenges of using compacts to govern water. The three are:

- the Arkansas River Compact (1942) between Colorado and Kansas; extending from the headwaters in the Rocky Mountains southeast of Denver to Garden City, KS; devised by the states to settle years of water conflicts among their citizens and to allow for the building of John Martin reservoir by the Bureau of Reclamation.
- the Republican River Compact (1943) between Colorado, Nebraska, and Kansas from the headwaters on the eastern plains of Colorado to confluence with the Smoky Hill River in north central Kansas; devised by the states to allow for the building of multiple reservoirs by the Bureau of Reclamation and the Army Corps of Engineers.
- the North Platte Decree (1945); a Supreme Court allocation of the water of the North Platte among Colorado, Wyoming, and Nebraska, from headwaters in the Rocky Mountains northeast of Denver to the confluence with the South Platte River in south central Nebraska; decreed by the Supreme Court to protect Nebraska's equitable share of the river

The three compacts have recently been before the U.S. Supreme Court, with a final decree for the Arkansas River Compact expected in 2006. In all three cases, the downstream

state sued over groundwater pumping in the upstream state, claiming that groundwater pumping, which was not counted against the upstream state's allocation, was depriving the downstream state of water that rightly belonged to them. Kansas sued Colorado in 1985 over the Arkansas River; Nebraska sued Wyoming (and eventually Colorado was joined to the suit) in 1986 over the North Platte River; and Kansas sued both Nebraska and Colorado in 1998 over the Republican River. The language of the three compacts did not explicitly include groundwater, however, by the time the first lawsuit was filed, the hydrological connection between ground and surface water was well understood, and at least in relation to Kansas and Colorado, was explicitly recognized in their state water laws.

Prior to filing suit before the U.S. Supreme Court, Kansas attempted to settle the groundwater controversies through the collective choice mechanisms of the Arkansas and Republican compacts.[5] For instance, over the course of three decades, from 1950, when the collective choice mechanism for the Republican River was created, until 1980, groundwater pumping in Colorada, Nebraska, and Kansas, dramatically increased, especially in Nebraska. According to Knox (2004:136), there were 98 wells in the Republican River valley in Nebraska that irrigated 113,500 acres. By 1980, there were 13,790 wells irrigating 1,355,950 acres. In 1986, the Republican River Compact Commissioners held a special session and all three states expressed considerable dissatisfaction with the water measurement and allocation system established under the compact, however, there was heated disagreement over how to handle groundwater. All that the three commissioners could agree upon was to have the engineering committee study how to include groundwater in the compact allocations. That just removed the controversy to the engineering committee who could no better resolve it. Nebraska did not want

pumping counted, period. By 1992, the Kansas representative publicly stated that Nebraska was in violation of the compact and that it must rectify the problem. From that point forward, the representatives to the compact understood that the actions they took were simply in preparation for the inevitable lawsuit, which Kansas filed in 1998 (Knox 2004).

In the cases brought before the Supreme Court by the three compacts, the Court ruled that hydrologically connected groundwater was governed by the compacts. The compacts varied in their ability to respond to the Court's rulings, largely because of the compacts' allocation rules. Even though the Court ruled first in the Arkansas River case, the Arkansas River Compact was the last to be settled, and a final decision has not been entered. This is partly due to the Compact's highly ambiguous allocation rule. While the Arkansas Compact precisely allocated water from the John Martin Reservoir between Kansas and Colorado, its allocation language concerning the Arkansas River was at best vague. Article III, Section D, reads as follows:

> This Compact is not intended to impede or prevent future beneficial development of the Arkansas river basin in Colorado and Kansas by federal or state agencies, by private enterprise, or by combinations thereof, which may involve construction of dams, reservoirs and other works for the purposes of water utilization and control, as well as the improved or prolonged functioning of existing works: *Provided*, That the waters of the Arkansas river, as defined in Article III, shall not be materially depleted in usable quantity or availability for use to the water users in Colorado and Kansas under this Compact by such future developments or construction.

After the Supreme Court ruled in 1995 that groundwater pumping in Colorado materially depleted the waters of the Arkansas River, the two states argued over when the material depletion occurred as well as its magnitude. Those two questions had to be settled so that Colorado knew how much water it would have to provide to the river to be in compliance with the compact.

[5] The North Platte River allocation occurred through a Supreme Court decree. Thus, there was no collective choice mechanism available for Nebraska to attempt to resolve its differences with Wyoming. Nebraska's only alternative was to petition the U.S. Supreme Court to reopen the decree.

Not so in regards to the North Platte and the Republican. The allocation rules in both compacts are relatively well specified. States know more precisely the amount of water they are entitled to. For instance, the Republican River compact allocates acre feet of water by river reach and by tributary. Once the Supreme Court made its groundwater decision it was a relatively straightforward process of measuring groundwater pumping and subtracting it from the compact allocations. For instance, Kansas brought the Republican River compact suit in 1998, the Court ruled in 2000 that groundwater counted, and the states reached a settlement by 2002.

All of the states involved in cases before the Supreme Court – Colorado, Kansas, Nebraska, and Wyoming – were dissatisfied with the operation of the collective choice processes, or lack thereof, associated with each of the compacts. The states also took the opportunity that the lawsuits afforded to create or revise collective choice processes. The revisions centered on conflict resolution mechanisms and amending decision rules so that at least some decisions did not require unanimity. The most dramatic changes occurred in relation to the North Platte River decree. It had no collective choice mechanism associated with it. Colorado, Wyoming, and Nebraska had no means of discussing the decree and making collective decisions concerning it. The only alternative the three states had was to petition the Supreme Court to hear their grievances. In the most recent settlement, the three states proposed, and the Supreme Court accepted, the creation of a collective choice mechanism. Each state and the Bureau of Reclamation (which owns and operates several very large water projects on the river) have a representative on the North Platte D Committee. However, Colorado plays a more limited role because most sources of conflict and contention around the decree arise in Wyoming, the Bureau of Reclamation's operation of dams in Wyoming, and Nebraska. The

role of chair rotates among the BOR, Nebraska, and Wyoming only. The committee operates under a modified unanimity rule. It is modified in the extent to which Colorado is allowed to exercise a veto. The BOR, Nebraska and Wyoming must vote in the affirmative for the committee to make a decision. Colorado's affirmative vote is only required on matters of direct importance and consequence to Colorado. The committee also utilizes a conflict resolution mechanism. Members are first required to bring their complaints before the committee. If the committee cannot resolve them, then upon unanimous consent, the dispute may be referred either to mediation or binding arbitration. Only after a state has attempted to use these conflict resolution mechanisms may it petition the Supreme Court for relief. Finally, the committee has the authority to monitor water use, to engage in studies, and to modify its own charter as long as the actions do not violate the decree or state or federal laws (Final Report of the Special Master 2001).

The Republican and the Arkansas River Compacts have had their collective choice mechanisms revised. In both cases, alternative dispute resolution mechanisms have been adopted. For instance, in the Republican River Compact, at the request of a single state, a special meeting of the compact commission can be called to discuss the issue raised by the state. If the issue cannot be resolved, the state, on its own initiative can call for nonbinding arbitration. Binding arbitration is allowed, but only with unanimous consent of all three states. Also, a state may on its own request binding arbitration in relation to disputes over the groundwater model used to measure and track the effects of groundwater pumping on stream flows. In the final settlement of the Arkansas River Compact, it is anticipated that alternative dispute resolution mechanisms will be included. Thus, the states have used the equity powers of the U.S. Supreme court to settle water conflicts and to engage in constitutional choice decision

making. The three compacts have been revised in ways that create or restructure collective choice processes. The revisions have focused on developing institutional arrangements that allow states to more readily settle conflicts among themselves.

The U.S. Supreme Court decisions have not only prompted compact revisions, but in the case of Colorado and Nebraska, the decisions have resulted in major revisions of state water laws, rules and administration. In both cases, institutional changes have centered on more carefully governing and monitoring groundwater development and use. The changes have been less dramatic in Colorado, in part because they center on a single watershed, the Arkansas, and in part because the changes amount to Colorado simply administering and enforcing groundwater activities that had long been part of Colorado water law. Colorado water law has long recognized the hydrologic connection between ground and surface water. Tributary groundwater is governed by the prior appropriation doctrine as is surface water. In 1969, the Colorado legislature passed a major water law that, among other things, directed the State Engineer's Office to develop a system to fully incorporate groundwater use within the prior appropriation system. The legislature even allowed for out of priority pumping if sufficient augmentation or replacement water was made available to the river to protect the water rights of senior appropriators. After several years of intense conflict in the South Platte basin, the State Engineer's Office managed to adopt a set of rules acceptable to ground and surface water users to incorporate groundwater into the prior appropriation doctrine. The State Engineer was unsuccessful in his efforts to develop and adopt rules for the Arkansas River basin. It was generally understood that eventually such rules would have to be adopted. That is precisely what occurred in 1996, a year after the Supreme Court determined that groundwater pumping in Colorado violated the Arkansas River Compact. The adverse court decision provided the

State Engineer and surface water rights holders (who were also groundwater pumpers) the incentive to develop rules that fully incorporated groundwater pumping within the prior appropriation doctrine and that required groundwater pumpers to provide water to the river that replaced the pumped water that otherwise would have supported surface water flows.

In Nebraska, too, the U.S. Supreme Court decision in 2000 in regards to the Republican River Compact, helped prompt water law changes that many public officials and water users realized were inevitable. In 1978, the U.S. Fish and Wildlife Service listed several species as endangered whose habitat included stretches of the Platte River in south central Nebraska. Between 1978 and 1998, all proposed water projects in the Platte Basin were stopped, deferred, or substantially modified (Aiken 1999). In the early 1990s two irrigation and power districts with facilities on the Platte River, sought to relicense their hydropower dams. The Federal Energy Regulatory Commission, which regulates and licenses hydropower dams, requested that as a condition for relicensing the districts make available half of their stored water for species recovery. Preventing the development of new projects was one thing, taking water from existing projects was another. At that point, under the leadership of the Nebraska governor and the U.S. Secretary of the Interior, Colorado, Nebraska, and Wyoming entered negotiations to develop a basinwide "habitat conservation plan" that would allow new and existing uses of the Platte River to move forward while the states actively implemented species recovery plans. All parties agreed that groundwater law reform in Nebraska was critical to the success of the habitat conservation plan. Colorado and Wyoming were reluctant to provide additional water to the Platte River if that water could then be intercepted by center pivot irrigation systems used by Nebraska farmers.

Nebraska water law does not recognize the hydrologic connection between ground and surface water. Surface water is governed under the prior appropriation doctrine and administered at the state level of the Department of Natural Resources. Groundwater is governed by the reasonable use doctrine and administered by local natural resource districts whose boundaries coincide with watersheds, or portions of watersheds. While the natural resource districts were permitted to develop intensive groundwater management plans that would supercede the reasonable use doctrine, they were not required to do so, and most did not. In general, farmers, who were the constituents of natural resource districts and who sat on their governing boards, strongly opposed groundwater regulations.

Over the course of a decade, from the mid 1990s until 2004, the Nebraska governor, key members of the legislature, and several citizens task forces worked diligently to revise state law to allow for groundwater regulation. The state faced multiple critical water conflicts with groundwater at their center. Nebraska was negotiating with Wyoming and Colorado over the North Platte River decree, asking the Supreme Court to count Wyoming groundwater pumping against Wyoming's decreed allocation. Nebraska's surface water providers/users who required federal permits had their water rights exposed to endangered species concerns, while groundwater pumpers were not being held accountable, and finally, Nebraska anticipated the Kansas lawsuit over the Republican River in which Nebraska was likely to have to count the water pumped by well owners in the Republican River basin against the state's compact allotment.

The Nebraska legislature adopted a series of laws over the course of a decade that both granted natural resource districts greater regulatory powers over groundwater and that restricted their discretion over whether to actively manage groundwater. Finally, in 2004 the Department

of Natural Resources was granted the authority to declare over appropriated basins. Once a basin is declared over appropriated, a moratorium on new and replacement wells occurs until a groundwater management plan is adopted and implemented by the natural resources districts. This law applies to the entire state. It is modeled on a law that the legislature had passed earlier in the 2000s that only applied to the Republican River basin in response to the Supreme Court decision.

Interstate river compacts are unlike the constitution of the U.S. and the constitutions of the fifty states. Rather, interstate river compacts are much more like the Articles of Confederation, and they exhibit problems similar to those that plagued the Articles of Confederation. Instead of dissolving compacts and devising new systems of governance, however, states have negotiated revisions to compacts using the equity powers of the U.S. Supreme Court. States have revised decision making rules, no longer exclusively relying on a unanimity rule in all situations, they have adopted multiple conflict resolution mechanisms, providing them with multiple opportunities to resolve conflicts before turning to the U.S. Supreme Court; and, although not discussed in this paper, they have also adopted more rigorous monitoring systems, primarily in the form of sophisticated groundwater models. States have also engaged in revising their water laws to bring their citizens in line with compact commitments. In all cases, however, such revisions allowed citizens of states to resolve multiple intrastate water conflicts as well as interstate water conflicts. It is unlikely that states would have engaged in such water law revisions only for the sake of abiding by compacts.

Conclusion

Most policy analyses of western water conflicts rarely address the constitutional choice level, however, many conflicts as well as their solutions originate there. This is most readily

illustrated among interstate river compacts and states' efforts, through the U.S. Supreme Court, to revise compacts/constitutions to address conflicts and provide additional conflict resolution mechanisms. It is also the case for intra-state water conflicts. Arizona is not the only state whose citizens are struggling with constitutional barriers limiting their choice of governing arrangements. The citizens of Colorado have been embroiled in a decades long conflict to incorporate tributary groundwater into the prior appropriation system. To date, collective choice rules have been revised that have allowed temporary relief to the most intense flare ups between ground and surface water users, however, without constitutional revisions that modify the prior appropriation doctrine, the conflicts will not be settled. A strict application of the prior appropriation doctrine, which is written into the Colorado constitution, and is supported by more than a century of case law, does not provide the citizens of Colorado with sufficient flexibility to devise workable institutional arrangements that will allow them to integrate surface and ground water uses. Failing to address the constitutional choice level in policy analyses is likely to lead to the amplification of errors rather than resolution of problems (Ostrom 1971)

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