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JOHN E. THORSON*

Visions of Sustainable Interstate Water Management Agreements

*There are voices in the mirror, faces at the door that opens on the
rivers we've never seen before....Rivers that you cannot see.
There are strange rivers that know our destiny.*

--Joan Baez, *Strange Rivers*

I. INTRODUCTION

We witness so many reminders these days about the importance of water. *National Geographic* has an especially thorough article on worldwide fresh water problems in its September 2002 issue. The issue reports detailed work at the University of New Hampshire indicating that two billion people live in highly water-stressed areas where more than 40 percent of available renewable water is used.¹ In India, 38 million people have been displaced due to the construction of large dams.² During the last decade, six of the warmest years on record have contributed to the fastest known decline in Great Lakes water levels.³

Recent coverage is not limited to a magazine that has always displayed an interest in water. Also in fall 2002, *Time* carried a long article about drought, including a profile of Montana's Chief Water Judge, Bruce Loble.⁴ Coverage of water in the *New York Times* has traditionally been in the travel section. Things have changed. Although the *New York Times* gave not a word to the centennial of the Reclamation Act in June 2002, it has been running almost daily articles on water issues around the world:

- Front-page articles on efforts to bring California within its Colorado River apportionment.⁵

- Articles and an editorial on the Everglades, urging both the federal government to stay the course and the state of Florida to avoid turning project into another way to fuel development.⁶

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▪ For real water policy junkies, daily coverage of the United Nations Johannesburg Summit on Sustainable Development where it was reported that, by 2025, almost half of the world's population will experience freshwater shortages.⁷

Most of these stories turn around some conflict over water resources. Certainly there are conflicts within each state, such as in North Carolina where, because of drought, cities like Charlotte and Raleigh "are paying the price in the form of mandatory restrictions intended to reduce water use by as much as 20 percent."⁸ Or in Texas where T. Boone Pickens is planning to transport water "from the arid Panhandle to fill swimming pools and irrigate golf courses in Dallas" and other Texas urban areas.⁹

Increasingly, these water disputes are interjurisdictional in character. We see interstate and state-tribal-federal conflicts around the United States:

▪ Ongoing litigation before the U.S. Supreme Court in *Kansas v. Colorado* over the Arkansas River. Similar litigation is pending between Kansas and Nebraska over the Republican River and between Virginia and Maryland involving a Virginia water intake on the Potomac River.¹⁰

▪ Brewing litigation between Texas and New Mexico over the Rio Grande, to add to their Pecos River woes.

▪ A half-century of growing conflict among ten Missouri River basin states with apparently nowhere left to go but to court.

▪ The very complicated Klamath River basin situation with conflicts between Oregon and California, between tribes and irrigators, between the upper basin Klamath Tribe and the lower basin Yurok Indian Tribe, between the Bureau of Reclamation and the U.S. Fish and Wildlife Services and the National Marine Fisheries Service, and between the federal government and everyone else.¹¹

We have major, transboundary conflicts on most every continent. Worldwide, almost 200 river basins are shared by two or more countries. Thirteen are shared by five or more countries. Four basins, the Congo, Danube, Nile, and Niger, are shared by nine or more countries.¹² Here are some examples:

▪ Controversies between the United States and Mexico over the Rio Grande Treaties and the diminished Colorado River Delta.¹³

▪ Armed skirmishes in 1995 between Ecuador and Peru over control of the headwaters of the Cenepa River, part of an ongoing boundary conflict between the two countries.¹⁴

▪ Growing tensions between Israel and its upstream neighbor over Lebanon's plans to increase diversions by 40-fold from the Hasbani River, a tributary to the River Jordan.¹⁵

▪ Degradation of Nile River water leading to tensions between Egypt and Ethiopia and other upstream countries.¹⁶

▪ India's diversion from the Ganges River just upstream of the Bangladesh border "has increased salinity levels and reduced water supplies in the Padma River (as the Ganges is known in Bangladesh), threatening the livelihood of millions of Bangladeshis."¹⁷

▪ While there have not been any disputes reported from Antarctica, it is not much of an exaggeration to predict eventual rival claims over breakaway icebergs.

In the following, I will discuss the changing meaning of water and interjurisdictional conflicts, particularly interstate conflicts in America. I will also explore the prospects of transforming these interjurisdictional conflicts into improved, sustainable water management.

II. THE COMPLEX HYDROLOGIC CYCLE

In our part of the world, the first interjurisdictional disputes concerned surface water—our rivers and streams. Many of these disputes arose in the Southwest along such systems as the Colorado River and the Rio Grande, although the dispute between Indian and upstream non-Indian irrigators along Montana's Milk River, the incident that produced the *Winters v. United States* decision, also qualifies as a multi-jurisdictional dispute. At the time, these disputes reflected our understanding of the hydrologic system. Rainfall was believed to follow the plow. Ground water was a dark, hidden, mysterious realm. Plants and animals were so abundant that they appeared immune to any impact from our mines, dams, or farms.

The hydrologic cycle is much more complex and our water-related problems increasingly reflect that complexity. Charles Wilkinson's famous law review article traces a single salmon through the dams and legal systems and along the Columbia River. In a similar fashion, a single molecule of water through geologic time can make its way through many venues of controversy. Even suspended in air as water vapor, the molecule may be subject to competing claims by an upwind state that is attempting cloud seeding and a downwind state that fears the cloud seeding interferes with natural precipitation.¹⁸

Once the molecule falls to earth, it faces various life choices. It may temporarily escape back to the ethers, as evaporation, to be reincarnated in some future life in an earthbound form. It may remain suspended in high mountains as ice until the next warming phase of the planet—a time when all interjurisdictional controversies will become scrambled. Or, the molecule may soon make its way into a rivulet that becomes a creek that becomes a large river. Or, the molecule may descend into the ground, to reemerge miles downstream, or to be later pumped onto a farmer's fields leaving in its wake a diminished but

related surface stream. In all cases, the molecule may soon or eventually be subject to the claims of competing jurisdictions.

The interrelated nature of water, complicated in magnitude in interjurisdictional settings, is well illustrated by the problems of groundwater-surface water interaction and return flows.

A. Groundwater-Surface Water Interaction

The San Pedro River rises in the Mexican state of Sonora and flows northward into Arizona. Along its route, the surface waters support one of the most important water bird sanctuaries in North America. Yet, these natural values are threatened by the accumulated effect of pumping in the water-short basin. Many agricultural surface diversions have been replaced by pumps pulling similar amounts of water from groundwater tributaries to the river. Mines continue to pump for their operations. Fort Huachuca and 44 municipal systems and private water companies, including the rapidly growing city of Sierra Vista, pump from the Arizona portion of the basin. Mexico maintains over 200 wells for irrigation, livestock, and municipal and industrial use, including Fort Huachuca and the city of Cananea, with 30,000 residents.¹⁹ International treaties and interstate agreements can no longer be one-dimensional concerns; they must address the complex, multi-dimensional nature of these waters. Robert Glennon's recent book, *Water Follies: Groundwater Pumping and the Fate of America's Fresh Waters*, has significantly advanced public understanding of this dilemma.²⁰

B. Return Flow and Reuse

The second example concerns the growing importance of return flows and water reuse. In many venues, we are relearning an old lesson: Everyone is downstream of someone else. Nowhere is this more painfully apparent than on the Rio Grande/Rio Bravo running between the United States and Mexico. In the upper basin area north of El Paso, American diversions dramatically reduce water supplies to the detriment of Mexicans. What flow does make it to Mexican head gates is polluted with the minerals of agricultural use. Go several hundred miles down the river, and the conditions are entirely reversed. Reduced flows along the Mexican tributaries such as the Rio Conchos have severely damaged Texan farmers. As reported during Spring 2002:

What started as a local dispute along the Rio Grande has turned into an international imbroglio, a question of national security for Mexico and a matter of survival for several million Texans and Mexicans....In the Rio Grande valley, where the population has gone from 200,000 to 20

million since the water treaty was signed in 1944, the United States and Mexico "have been promoting growth"—industrial and agricultural—"as if there were no limit," said Alberto Szekely, Mexico's national water secretary." "And water is one," he said.²¹

Look below the surface around El Paso and Juarez, and you soon learn of the growing contamination of the ground water underlying both cities. While strands of barbwire and concrete barriers attempt to keep these urban peoples apart, they are fundamentally joined at the hip—more accurately, joined in the aquifer—when it comes to their water supplies.

III. MULTIPLE MEANINGS OF WATER

As we have improved our understanding of the physical cycle and manifestations of water, we also have improved our understanding of our own multi-faceted relationship to water. Abraham Maslow presented a famous hierarchy of human needs and how we progress up the pyramid from satisfaction of our bodily needs to realization of our intellectual and spiritual potential (see Figure 1). This hierarchy well-illustrates our relationship to water.

From primitive society to today, water has always served these many human needs—culinary water, water as defensive perimeters, water as a focus of group identity, water as a source of literary or spiritual expression. Perhaps what has changed is our appreciation of the multi-dimensional importance of water to our lives. Charles Wilkinson has stated well this multi-dimensional value set. Increasingly, we see and value water as an intricate part of the natural and human environment. Water has been a means of navigation, a component of agriculture, an engine for industry, and a fuel for urban development. Water has been a source of spiritual and community identity. At the most basic level, water is a source of sustenance.²²

In all its aspects, water is both singular and multi-dimensional. Water is the life force on which we and all natural systems depend. It manifests itself both physically and in its social and spiritual significance to cultures and individuals.

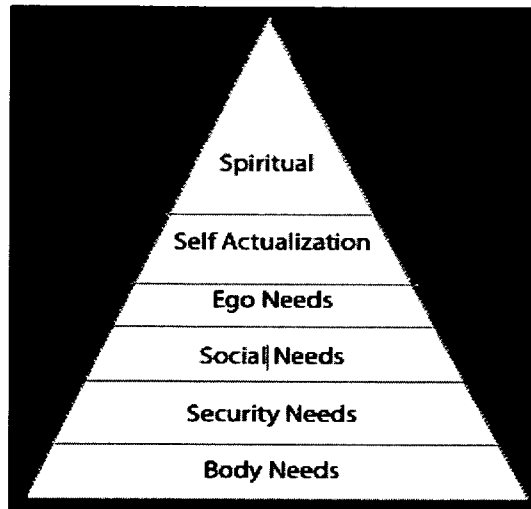


Figure 1
Abraham Maslow's Hierarchy of Needs

IV. THE CHANGING MEANING OF "INTERSTATE"

Let's turn to the peeling of onions and the rubbing of pentimentos. Rub any contemporary water problem that on the surface appears to be an interstate problem, peel any onion of water-related conflict, and you'll soon find a multi-layered, multi-jurisdictional problem. In the intergovernmental field, it would be called "marble cake federalism," to really mix the metaphors!

For those of us who have been exposed to Gary Weatherford's pioneering concept of the "hydrocommons," this characterization should come as no surprise. The "hydrocommons" perspective suggests that we can no longer look at geologic basins to understand our water resources. As a result of our interventions, we move water far from its basin or source. We extract electricity from water's kinetic power to light distant cities. Some promoters envision moving ice from Alaska or Antarctica to quench the thirst of growing populations. One result is a changed meaning of the nature of an interstate water dispute. The following are examples:

"Interstate" with Tribal Dimension: Rub an interstate controversy and you may soon find a dispute involving tribes as well. As early as 1922, negotiators from seven states believed they could divide up and develop the Colorado River and simply ignore the claims of Indian tribes. By 1963 and the Supreme Court's decision in *Arizona v. California*,²³ it was apparent that future decisions about the river would involve complex decision making among the federal government, states, tribes, and Mexico. More recently, California and Nevada learned that

their interstate compact could not be approved without addressing the claims of the Pyramid Lake Paiute Tribe to the Truckee River system.

"Interstate" with Local Dimension: Take another more contemporary interstate water dispute, that involving the states of Georgia, Florida, and Alabama over the Apalachicola-Chattahoochee-Flint (ACF) basin. The states laudably implemented an interstate compact approved by Congress in 1997,²⁴ and University of New Mexico law professor Chuck Dumars deserves much credit for assisting the states in this effort. But the initial drafting appears to have been the easy part. The states have now labored for over five more years to negotiate a water allocation formula under compact provisions. Peel this onion carefully and you soon realize that the dispute has strong local dimensions. The city of Atlanta is a key player in the dispute; with 70 percent of its water supply coming from this three-river system, its officials are concerned whether there will be enough water for development over the next 30 to 50 years.²⁵ What on its surface appears to be an interstate issue has very important local manifestations.

"Interstate" with International Dimension: New Mexico, Texas, and Mexico appear poised to engage in another battle over the resources of the Rio Grande. As we have discussed, this is both a national and international river. The federal reclamation projects span all three states. The 1909 treaty²⁶ requires the United States to deliver 60,000 acre-feet/year to Mexico in the upper basin; and, in the lower basin, the 1944 treaty²⁷ allocates the waters in the lower river about equally between the two countries.²⁸ Similarly, discussions among North Dakota, South Dakota, and Minnesota concerning the Red River of the North soon implicate Canada as well. Upstream land and water management in those three states impact flow conditions, and often flood consequences, all the way down the river to Winnipeg, Manitoba.²⁹

"Interstate" with Implications for Another Major River System: One would think that in a basin as large as that of the Missouri River, the disputes among the ten states would be complex enough. But the flows of the Missouri are important down stream for Mississippi River navigation. The states of Iowa and Missouri may be in the lower basin of the Missouri, but when the frame of reference changes to the Mississippi, they become upstream states in the view of Mississippi and Louisiana. Peel the onion of Missouri River issues to the core and you find yourself debating Mississippi River issues.

"Intrastate" with Interstate and International Implications: Rub even an intrastate water problem and you may find interstate and even international implications. Under natural conditions, the Sacramento and San Joaquin River flowed into San Francisco Bay; but through the massive Central Valley and States Water projects, these rivers are the source of water for 23 million people, many of whom live

in Southern California. Efforts are underway to reduce these southward exports so as to improve Bay-Delta water quality and recover vulnerable fish populations, but this may jeopardize California's commitment to live within its 4.4 million acre-feet/year allocation. This commitment, in turn, may affect the available water to restore depleted conditions in Mexico's Colorado River Delta. The dominos of cause-and-effect sometimes fall through a hydrocommons as large as the entire North American West.

Interstate water problems have never been purely interstate. States do not use water. People and localities do. However, the interdependencies among all the governmental entities—indeed, among all water users—have become more profuse. We continue to *aspire* to legalistic, formalistic methods of ordering interstate affairs that are increasingly outmoded. Yet, we are *actually* practicing a much more amorphous, situational method of interjurisdictional conflict resolution. Our theories and aspirations need to catch up with our practice.

V. VARIOUS MEANINGS OF "SUSTAINABLE"

We hear a lot about sustainability—sustainable use, sustainable development. Everyone knows what sustainability is, but no two people can agree on what it really means. Perhaps we should revisit some earlier formulations of the concept.

A. Evolving Meanings of "Sustainability"

The concept of sustainability was discussed in 1972 at the United Nation's Conference on the Human Environment. In 1987, sustainable development became a UN policy goal. In a report to the UN World Commission on Environment and Development, Norway's Prime Minister Gro Harlem Brundtland defined sustainable development as "meeting the needs of the present without compromising the ability of future generations to meet their own needs." The 1992 Conference on Environment and Development in Rio de Janeiro refined the concept, stating that countries must "seek the mutual goals of economic development and environmental protection for the purpose of fulfilling the basic needs for all."³⁰ President Clinton's Council on Sustainable Development discussed two aspects of the concept:

- Sustainability of renewable natural resources—when the rate of extraction equals the rate of production of that resource.
- Sustainability of human living standards—concentrating on the nature of the interaction between humans and Earth (which may affect the sustainability of resources).³¹

The recently concluded Johannesburg Summit on Sustainable Development reaffirmed the Brundtland definition of sustainability but gave particular emphasis "to the important linkages between poverty, the environment and the use of natural resources."³² Energy and sanitation were also given special attention.

B. Sustainability Problems in Interjurisdictional Water Disputes

Even these basic formulations do not capture all the nuances of sustainability in the context of interjurisdictional water issues. Sustainability problems arise in four basic ways in these disputes:

Sustainability of Existing Water Uses: In resolving transboundary disputes, can and should existing water uses be sustained? We are justifiably concerned that traditional water uses and entitlements have been trumped by political or economic power in the past. Owens Valley in California, Fort Berthold Reservation in North Dakota, and Colorado's Western Slope are all stark reminders of that sad history. The prior appropriation doctrine, however, was born out of a need for change. Its fundamental architecture, the beneficial use concept,³³ enables change. If that were not enough potential for change, most western states have incorporated the public interest in their constitutions and codes and some, like California, have embraced the public trust doctrine that requires an ongoing reevaluation of water use.

We are reaching a public judgment that much of our water will move from agriculture to cities. You only have to look at a demographic map of the West to understand what is happening. So in this larger sense, existing uses are not sustainable; and if we truly understand our water allocation system, stability of existing uses has never been the case. What we must concern ourselves with, however, is the avoidance of destabilizing change. We must also be sensitive to the needs of both human and other natural communities undergoing change.

Sustainability of Future Water Use Opportunities: We have the obligation to sustain opportunities for water use by future generations. We use water today in ways our ancestors could not have imagined in 1900: bottled spring water, water parks, car washes, windboard sailing. We should not have any confidence that we can predict how and where water will be used in 2100. We are trustees, today, of an asset held for the benefit of future generations. The asset is fundamentally the opportunity for future generations to make use of water as their needs require. So we must sustain that asset of opportunity. Our fiduciary obligation is similar to that of the American riparian—to pass the water downstream in time, undiminished except for reasonable use.

Sustainability of Ecological Systems: We have an obligation to sustain existing natural systems recognizing, of course, how poorly we

understand nature's complete bounty and its own evolutionary course. We probably should do so in modest recognition that we are just one of many members of the living community. More practically, we must tread lightly to sustain ecological systems because if we fail to do so, we shave away at the slim margin between our own survival or demise. The more natural systems decline, the more we have to step in, in our feeble ways, and attempt to hold things together. We add ignorance to our earlier arrogance.

Sustainability of Peaceful Prospects: Human society has always struggled between the winds of war and the gentle breezes of peace. That may be our destiny. But in our policies concerning water, we have the obligation to nurture, pursue, and attempt to maximize conditions that encourage social harmony over conditions that lead to conflict. We must not naively assume that we ever escape into a blissful, conflict free nirvana. The relationship between war and peace is much more incestuous. In so many instances, the plow would not exist had not its metal come from the sword.

What is especially difficult is that these four different sustainability problems intersect, forming a complex bioplasm of challenges, opportunities, and frustration. We are adept at a sustained emphasis in pursuit of one value, such as deriving economic benefits from water use. It is exponentially more difficult to pursue all meanings of sustainability in an interrelated system where one sustainability goal may compete with others. Unless the decision maker is particularly wise, the result may be a zero-sum game.

VI. CHANGING THE MEANING OF "MANAGEMENT"

The meaning and emphasis of natural resource management has changed as America, particularly the American West, has grown up. In very simple terms, the transition has been from pragmatism, to formalism, to the advent of what I call contingency management.

A. Pragmatic Era

For purposes of this discussion of natural resources, I date the pragmatic era from the optimism of the Lewis and Clark expedition of 1804–1806 to the cynical tenure of Secretary of the Interior Albert B. Fall with his participation in the Teapot Dome Scandal of the early 1920s. During this long period, Americans undertook many public and private initiatives, but the overriding goal was the settlement and development of the vast trans-Mississippi territory.

Private initiatives took the form of families migrating to the West, squatting on federal land, Mormon settlement of the Salt Lake

Valley and parts of Idaho and Arizona, utopian communities like the Union and Longmont colonies in Colorado,³⁴ private ditch and canal companies, and innovative water uses that produced the prior appropriation doctrine.

Public initiatives took the form of military land bounties, the General Ordinance of 1785 (school grants, land sales), railroad land grants,³⁵ the Morrill Act of 1862 (college grants), the homestead acts (1862, 1909, 1912, 1916), the Desert Land Sales Act (1877), the General Mining Act (1872), the General Allotment (Dawes) Act (1887), and ultimately the National Reclamation Act (1902).

This era was characterized by an often reckless, mass transfer of public property into private lands, frequently at the expense of Indians, plants, and animals who got in the way; and a great reliance on the private sector, fueled by free or low-cost resources, to accomplish national goals. The period also was one of creative innovation as to the methods and organizational forms to get things done—the things of western development.

B. Formalistic Era

As the twentieth century commenced, scientific management and the conservation movement spread like wildfire across the western prairie. The pragmatic approach expanded to include the need for humans to take an active part in the long-term management of natural resources and the availability of the latest in science and technology to do so. Upstart, visionary agencies sprouted up to pursue this mission, *e.g.*, the U.S. Geological Survey, the Forest Service, and the Bureau of Reclamation.

Over the ensuing decades, these vibrant new agencies became larger and more rule-bound; the agencies centralized decision making, standardized methods, instituted planning processes, and took on political lives of their own. In the public lands field, this trend was represented by the Mineral Leasing Act (1920), the Taylor Grazing Act (1934), the creation of the Bureau of Land Management (1946), the Multiple Use Sustained Yield Act (1960), the National Environmental Policy Act (1969), the National Forest Management Act (1976), and the Federal Land Management and Policy Act (1976). In the water resources field, this progression toward federal bureaucratic dominance was paralleled by passage of the Federal Power and Water Act (1920); the Tennessee Valley Authority and similar proposals for other rivers; massive reclamation and flood control projects during the Depression along the Missouri and Columbia rivers, and in California's Central Valley; and similar river and harbor initiatives undertaken by the Corps of Engineers. The Water Resources Planning Act (1965), authorizing

permanent river basin commissions in many parts of the country, became the mantra for permanent comprehensive planning processes that, except for large dams, ultimately produced little more than plans.

Formalism also found its way into the interstate agreements entered into during this period. These compacts emphasized sovereignty, careful legal drafting, quantification, and, in most instances, a one-time effort to set all things straight. The ultimate expression of formalism arguably is the appointment of several blue-ribbon commissions to make formal recommendations on how to improve the organizational forms. For instance, the 1992 congressional mandate to the Western Water Policy Review Advisory Commission (which produced excellent studies and reports) requested the following:

- [P]ossible reorganization or consolidation of the current water resources development and management agencies;"

- "[R]eview the legal regime governing the development and use of water and the respective roles of both the Federal Government and the states...;" and

- "[R]eview the activities, authorities, and responsibilities of the various Federal agencies with direct water resources management responsibilities...."³⁶

C. Contingency Era

The current era is increasingly characterized by contingency management of our water resources. We are seeing both a subtle and express rejection of formalism—a rejection of many conventional values and approaches that have been enshrined in our professions, laws, and institutions:

- Exhibit A—The prior appropriation doctrine is often faulted for elevating inefficient, low-valued uses to the detriment of more pressing social and natural system needs. Critics attempt to work around the doctrine, utilizing such theories as the public trust doctrine, or federal regulatory rights, such as the Endangered Species Act.

- Exhibit B—In addressing interstate water issues, compacts are less frequently mentioned as the preferred strategy. Some longstanding proponents, such as Jerry Muys, now argue for authority to modify existing compacts to incorporate "green" values. State decision makers, however, appear to prefer simpler, less legally encumbering approaches to reach agreement. They also seem to prefer less cumbersome and less binding agreements at the end of the process. The ACF states may be an exception, since they recently reached a compact, but even these three states left the water allocation terms out of their original compact.

- Exhibit C—Locals are increasingly taking the lead in solving their water problems. They act because they often do not see sufficient

leadership from federal and state agencies. They may not be able to do the job alone, but when they seek state or federal assistance, they are increasingly doing so on a cafeteria-style basis.

▪ Exhibit D—Many sophisticated water users have about given up on the court system to solve anything. They are experimenting with other dispute-resolution approaches whether it is mediation, private judging, buying out objectors, or using market mechanisms.

At best, contingency management is based on the premise that we do not know enough about complex systems, how they work, or how our interventions affect their dynamics. Under the rubric of adaptive management, we assess, experiment, monitor, assess, modify, and experiment again. Through an iterative process, we hopefully improve management outcomes.

At worst, the contingency era may be cover for values and institutions at drift. We have become immobilized in a three-dimensional chess game split among economic, equity, and environmental considerations. Our soul is divided along many dimensions. We have not reached a public judgment on where we are headed. Perhaps a more fair-minded, hopeful appraisal is that we have returned to practicality—whatever works! The New Pragmatism! What appears to be working is a tacit rejection of traditional rules, procedures, and organizational forms of the past.

VII. VISIONS OF A SUSTAINABLE FUTURE

I was asked to provide some “visionary” comments about interjurisdictional water management in the future. I know full well that one who presumes to be a visionary frequently documents only his or her legacy as a fool. I will summarize what I believe are among the most promising suggestions for water-related values and didactic principles, decision-making and dispute-resolution processes, and organizational forms and institutions to assist us as we venture into this “brave new world” of sustainable interjurisdictional water management.

A. Values: The Search for Didactic Principles

Fortunately, for the last decade or more, we have been engaged in a lively discussion over our values concerning water. While the public aspects of this discussion may have started with Marc Reisner’s *Cadillac Desert* in 1986, many contributors to the *Natural Resources Journal* commenced the academic debate years before.

Values are important. Even innovative organizations soon have values grafted on them. Institutions are organizations that have become fused with values, “a natural product of social needs and pressures—a

responsive, adaptive organism."³⁷ Indeed, public "shaming" is receiving new recognition as an effective means of pollution enforcement.³⁸ Let me review two formulations of water-related values, one very old, the other relatively new, but both meriting contemporary consideration.

1. Revisiting Our Spanish Heritage

Influenced by Roman law and other sources, the Spanish developed complete water law doctrines and obtained extensive water management experiences in the arid regions of their country.³⁹ As they began colonizing the Southwest in 1520, the Spanish faced considerable challenges in managing a vast New World empire from a distance of over 5000 miles.

The Spanish were forced to develop new approaches to govern from such a distance. While Spanish law had been codified by King Alfonso X in an historic document called *Las siete partidas*, a version was especially adopted for the New World in 1681. This *Recopilación de leyes de los reynos de las Indias* decentralized Spanish authority among numerous local officials in the colonies and provide them with broad policies and guidelines to assist in ascertaining and applying the Crown's will. This body of law set forth principles and procedures for resolving disagreement over water in the colonies. Pragmatic methods and equitable criteria were provided for resolving water disputes.

Parties would attempt to work out problems between themselves. Occasionally, they would ask local priests to mediate. The *Recopilacion* applied if disputes were resolved by civil authorities. While these procedures were sometimes cumbersome, they did represent an innovative method of allowing locals to apply broad principles established an ocean away. Even Roman law had not extended this far.

The contestants were first asked to produce evidence of just title. Originally, titles were granted with great informality, and this often led to abuses of Indians. Later, titles were scrutinized very closely in the Crown's effort to improve the protections of Indians from fraud, even to the point of requiring the titles were prepared on the right type of paper. Ultimately, formality worked to the detriment of Indians as they could not locate their original title documents.

Prior use or appropriation was important, but it was not a factor that outweighed all others. Priority "did not mean that whoever had used a water source first was entitled to continuing use without regard to the well-being of others."⁴⁰ Prior use could sustain a water right in the absence of title or other legal documentation. Priority was a "carefully controlled" principle and could not be used to monopolize water when water was scarce. An 1842 Spanish legal treatise summarized the principle: "Prior use contrary to reason or to good custom can never acquire the force of law, because in such a case it can be considered no

more than an old mistake, being less a use than an abuse and an infraction of law."⁴¹

Legal title and prior use were to be honored but they did not defeat the claims of especially needy people, the changing needs of the crown, important third party rights, or the common good. Spanish law weighed multiple relevant factors and attempted to avoid a "winner take all" solution.

Spanish law gave special emphasis to the legitimate needs of certain users. In some instances, basic need became the most important factor considered by the judges or officials. One property owner could not monopolize the supply in the face of need by others. Even a widow without title or prior rights, whose crops were so dry that they, in the words of the *alcalde* (mayor), "would not be saved by Holy Water," would receive water.⁴²

An historian who studied the application of these principles both in Valencia and San Antonio, Texas, provided this summary of the interaction of these principles:

Water rights are a society's idealized assessment of the best way to utilize water resources, according to the objectives most highly valued by that society. There is subtle interplay between the rights and practice, between the ideal and the real, and there has been a tendency to overstress the importance of rights in the overall picture....At best the legal structure provides a framework in which arrangements are worked out. If subsequent practice proves...that the idealized assessment of resource utilization was incorrect, or inappropriate to the situation, the rights are altered—often with resistance—to meet the exigencies of the environment.⁴³

2. *Searching Out the Headwaters*

A more contemporary, academic, value-based enterprise was launched by the Natural Resource Law Center of University of Colorado in 1988 and culminated in 1993 with the publication of *Searching out the Headwaters*. The purpose of the project was to articulate a "principled foundation for making water policy: a water ethic rooted in the basic value of our society."⁴⁴ At the project's culmination, three fundamental principles were recommended for western water policy, and they remain a compelling statement of fundamental tenets:

- Conservation ("water should be used with care").
- Equity ("the whole community should be treated fairly").
- Ecology ("nature should be respected").

By also appending the better features of Spanish law and the prior appropriation doctrine, this trilogy can serve as a more robust value framework for modern interstate water management. (See Figure 2.)

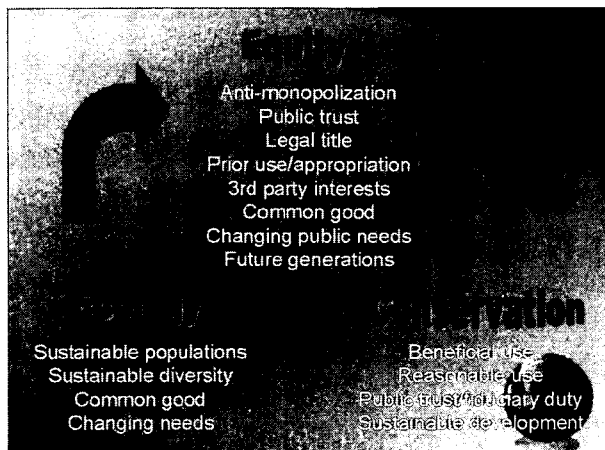


Figure 2
The Trilogy of Evolving Values

B. The Search for New Processes

Also during the last 15 years, we have witnessed new methods of reaching agreement and resolving conflicts concerning water resources. Some of these methods have been attempted in practice; others have been developed as normative recommendations. Contrary to critics of state water management, most of these methods have been stimulated by activities of the Western Governors' Association. They include the following:

Western Governors' Association—*Tuning the System*: In 1985, the Western Governors' Association sponsored an inquiry into how water efficiency might be improved in the West. This led to publication of the highly-acclaimed *Tuning the System*, authored by Bruce Driver, which suggested how economic methods could be used to improve efficiency.

Park City Principles: In 1991, the Western Governors' Association and Western States Water Council (WSWC) organized a series of three workshops, held in Park City, Utah, to address water issues in the West. The workshops were attended by water managers (federal, state, Indian, local, and private), water interest groups, and academics. This effort produced agreement on a set of six principles for consideration in western water resources management and policy development:

- There should be meaningful legal and administrative recognition of diverse interests in water resource values.

- Problems should be approached in a holistic or systemic way that recognizes cross-cutting issues, cross-border impacts and concerns, and the multiple needs within the broader "problemshed"—the area that encompasses the problem and all the affected interests.

- The policy framework should be responsive to economic, social, and environmental considerations. Policies must be flexible and yet provide some level of predictability. In addition, they must be able to adapt to changing conditions, needs, and values; accommodate complexity; and allow managers to act in the face of uncertainty.

- Authority and accountability should be decentralized within policy parameters. This includes a general federal policy of recognizing and supporting the pivotal role of states in water management as well as delegation to states and tribes of specific water-related federal programs patterned after the model of water quality enforcement.

- Negotiation and market-like approaches, as well as performance standards, are preferred over command and control patterns.

- Broad-based state and basin participation in federal program policy development and administration is encouraged, as is comparable federal participation in state forums and processes.⁴⁵

Enlibra Principles: The *enlibra* (meaning balance and stewardship) principles were originated by Utah Governor Mike Leavitt in 1997 as a means to refocus environmental management in the West. They originated in what he describes as a personal epiphany and were later defined during an Environmental Summit on the West, hosted by the Western Governors' Association in December 1998. These principles are as follows:

- National standards, neighborhood solutions. Assign responsibilities at the right level.

- Collaboration, not polarization. Use collaborative processes to break down barriers and find solutions.

- Reward results, not programs. Move to a performance-based system.

- Science for facts, process for priorities. Separate subjective choices from objective data gathering.

- Markets before mandates. Pursue economic incentives whenever appropriate.

- Change a heart, change a nation. Environmental understanding is crucial.

- Recognition of benefits and costs. Make sure all decisions affecting infrastructure, development, and environment are fully informed.

▪ Solutions transcend political boundaries. Use appropriate geographic boundaries for environmental problems.⁴⁶

Indian Water Right Settlements: The best example of new processes to resolve water right disputes may be the 21 congressionally approved Indian water right settlements entered into since the late 1970s. In some cases, these settlements have awarded tribes more than a million acre-feet per year of water and hundreds of millions of water development and economic development dollars. Most settlements have creatively avoided disrupting existing, non-Indian water uses. Settlements have been reached in Arizona (six), Montana (five), Nevada (two), Utah (two), California (one), Colorado (one), New Mexico (one), Idaho (one), Oregon (one), and Florida (one). Again, the Western Governors, along with Department of the Interior officials and western Tribes, have worked hard to encourage these settlements.

C. Action Forcing Mechanisms: The Role of Litigation

Many years ago, I shared the nature of western water rights disputes with a seasoned negotiator who had spent a lifetime resolving labor-management disputes. After listening carefully, he said, "I've never seen a significant dispute resolved without a deadline." This was a frank assessment we ignore too often in the water resources field as we have tolerated perpetual water adjudications and, more recently, in some areas, endless negotiation processes. David Hayes certainly made this point in his last months as Deputy Secretary of the Interior as he concluded that meaningful progress on Indian water rights settlement could not be made without the pressure of litigation. Too often, we find ways to postpone the inevitable, insulate ourselves from the consequences, and innocently or cynically delude ourselves into believing we are making progress. I am reminded of the marathon dance competitions of the Great Depression, so vividly portrayed in the movie, *They Shoot Horses, Don't They?*

Two recent stories are examples of process without apparent end. In northeastern Arizona, negotiations in the Little Colorado River adjudication have proceeded for almost eight years. The parties and the settlement judge have worked hard, and some subsidiary agreements have been reached, but the main goal of quantifying the claims of the Hopi and Navajo have eluded the participants. Once negotiations go on that long, litigation is no longer a credible source of pressure. Indeed, it is difficult for many procedural and resource reasons to even get back to litigation.

Move to the Missouri River basin where, for more than a decade, the Corps of Engineers has worked to comply with the National Environmental Policy Act (NEPA) processes and complete a revision in

the master manual of reservoir operations, hopefully to protect threatened and endangered species and provide more water for upper basin uses. The NEPA process has turned into a perpetual motion machine with preliminary environmental impact statements (EISs), and revised preliminary EISs, and so forth. The Corps was actually close to a record of decision during Spring 2002 when the whole process became engulfed in politics. The White House appears to have relegated the whole matter to the West Wing basement. Very little has been heard since.

Elsewhere, deadlines appear to have worked. In 1980, then-Governor Bruce Babbitt brokered the Arizona Groundwater Management Act under a Central Arizona Project-related deadline set by the Secretary of the Interior. In 1994, the Bay-Delta Accords, the genesis of the CALFED process, were signed by the State of California and the federal government after the Environmental Protection Agency threatened to impose its own permanent water quality standards on the region. A settlement was recently reached on the verge of trial before Special Master Owen Olpin in the original jurisdiction action of *Nebraska v. Wyoming*, concerning the North Platte River.

There are several examples where the jury is still out. In the ACF negotiations in the Southeast, the negotiators have set deadlines for themselves, only to extend them. It will be interesting whether these self-imposed deadlines can be of sufficient weight to forge an interstate agreement concerning water allocation.

The mandate given by the Secretary of the Interior to California to take significant steps to come within the 4.4 million acre-feet Colorado River Compact allocation by December 31, 2002, or face immediate water reductions, has had unanticipated results. The deadline passed without agreement and the federal government was frustrated by the courts in its ability to curtail water deliveries. Because of the large number of "moving parts" within the California water machine, even a draconian threat may not be a sufficient spur to settlement.

Deadlines are important, and meaningful negotiations often require a legitimate threat of litigation. To facilitate negotiation, deadlines must be realistic and should allow few opportunities for delay. The threat of litigation or an actual trial in a pending case can be quite useful as a deadline. The more you move toward litigation or trial, however, the more it diverts resources and attention away from negotiations. One must find the right balance.

Sometimes litigation becomes necessary and perhaps even desirable. In water law, courts have forged important doctrines in cases like *Winters v. United States*, *Arizona v. California*, and *Texas v. New Mexico*, or *California v. United States*, but these decisions alone did not bring water to the Fort Belknap Reservation, peace to the Colorado or Pecos

rivers, or sort out management of the Central Valley and state water projects.

Many people do not understand how poorly equipped judges are to deal with these issues. The judges are very busy on other cases and rarely have the background. They are insulated institutionally and do not always understand the context, history, or nuances in which these issues arise. They are often the last to know about important developments that affect their cases. The issues are often quite technical and document intensive. Often the record is frozen in time and does not reflect recent developments. The parties have lived with these controversies for years; they know every diversion, gage, and ditch in the system. They expect the court to sort this stuff out. Rarely can a judge or court, looking at a complex water issue for the first time, develop a better solution than the parties after some give and take on all sides.

D. The Search for New Organizational Forms

We have many examples of new organizational approaches for managing our natural resources. In the public land field, we have the Presidio Trust in San Francisco, the Valles Caldera Trust in New Mexico, proposals for trusts to manage the Missouri Breaks in Montana, and proposals for Charter Forests. In the water resources field, we have watershed councils, multi-jurisdictional arrangements like the Great Lakes Charter,⁴⁷ the CALFED state-federal partnership in the Bay-Delta region of California, and water banks. Former University of New Mexico law professor Albert Utton's own work contributed to the Ixtapa and Bellagio⁴⁸ draft treaties in the international realm. What's going on here?

1. Matrix Organizations

What may be going on is the practice of contingency management through the use of competency-based, matrix-type organizations. A matrix organization matches the functional expertise of numerous organizational units with the unique challenges of a particular problem in a relatively permanent modification of traditional organizational structure.⁴⁹ This organizational development is candid recognition that water-related problems or disputes are no longer in the domain of one powerful agency. Power is more diffuse, some established bureaucracies are in decline, influential parties come and go, and the water management system is susceptible to influence at a greater number of pressure points—be they the courts, Congress, scientific organizations, or the press.

The recent public administration literature often characterizes these new organizational forms using an old legal concept, "partnership." In this context, a partnership

is a dynamic relationship among diverse actors, based on mutually agreed objectives, pursued through a shared understanding of the most rational division of labor based on the respective comparable advantages of each partner. This results in mutual influence, with a careful balance between synergy and respective autonomy, which incorporates mutual respect, equal participation in decision making, mutual accountability and transparency.⁵⁰

These are some of the characteristics of these new organizational approaches in the water resources field:

- They are more easily formed and more easily terminated.
- They are flexible, adaptive learning systems.
- They are often based around ecological systems.
- They tend to be independent from existing organizational structures and are often exempt from the traditional rules.
- They associate or link the different competencies of people, staffs, or units within disparate organizations.
- They utilize a "cafeteria" style of acquiring goods and services from others.
- They are accountable on a performance-standard basis through charters or licenses; some must even adhere to a fiduciary standard.
- They use innovative methods of financing, sometimes off-budget.
- They often employ innovative methods of public participation (see below).

2. "Vox Populi" and the Multi-Media Basin

As organizational structures are changing, so is a public that is interested in water resource issues. We must realize that we are increasingly dealing with both real and virtual river basins. In the real river basin, we have resident water users who actually utilize the water, often consumptively. But water and hydropower is used far beyond basin boundaries in an irregularly formed area aptly called the "hydrocommons." Increasingly, there are other nonresidents who experience the basin episodically, often virtually, and non-consumptively. They may come to the basin annually to fish or canoe. They may experience the basin in *National Geographic* magazine, on Discovery television programs, or at the IMAX theater. They may "experience" the basin at an attraction at a Disney theme park. Over the Internet, they may access real-time stream gauging data or monitor a river segment on an earthcam. Indeed, we now have "multi-media" river basins.

The Internet also affords new opportunities for involving these old and new publics in the decision-making processes concerning water, including interjurisdictional water. Unfortunately, most government agencies see the Internet only as a way to improve their delivery of services, such as providing information about permits and taxes, rather than a way to elicit discussion and opinion. In a recent pilot project conducted for New York City by Web Lab, 800 people participated, over a two-week period, in facilitated on-line groups discussing the various proposals for rebuilding on the World Trade Center site. The cost of this virtual public participation was \$120,000 as compared to \$2 million for an actual meeting convened for the same purpose. Ten thousand individual comments were exchanged on-line. Many of the comments were more diverse and reflective than those offered in person. Michael X. Delli Carpini, director of public policy programs at Pew Charitable Trusts, observed, "There is a hope that the Internet may be a tool that can allow people to talk in a structured way about things that really matter to them and revive the impetus to say, 'I want to be involved.'"⁵¹ These efforts, described by the *New York Times* as new models for civic engagement, may help develop greater communities of interest around these waterways.

E. Existential Meaning

At the end of the day, maybe the process is as important as any result. Even as the result eludes us in many water basins, the process should be encouraged and certainly should not be taken for granted or abused. Even though the Little Colorado River negotiations have continued for seven years, a settlement or lack thereof may be beside the point. Several dozen parties have been engaged in uneasy dialogue for those years, exchanging information and perspectives, learning more about the physical and social characteristics of the basin, developing new information and understanding, and influencing and changing behaviors in countless ways that would not have happened otherwise.

Yes, a settlement would be nice, but perhaps what is more important is keeping the process going, preventing one or more of the parties from walking away from the process to file a law suit or take some other destabilizing action. Perhaps the same may be said about the ACF negotiations in the Southeast. Certainly, this is a fertile research topic for the social scientists among us.

VIII. CONCLUSION

The greatest potential for increased cooperation along our rivers is still our common experience of that hydrologic place. While it may be

difficult to develop a close affinity to a groundwater basin, our rivers and lakes remain so emotionally powerful that they will capture the appreciation of every following generation. They remain powerful even as dewatered reaches of the Santa Cruz River or Arial Sea. So long as there is a remnant of an ancient river or lake, I am confident there will be future efforts to restore those waters, even as there are calls now to remove the concrete banks and restore the Los Angeles River. Although we have heavily burdened future generations with the diminished condition of our waters, their efforts will be much more successful because they will have the wisdom of what we have done poorly and what we have done well.

There is no silver bullet solution. No treaty will put an end to our problems. No compact will buy us fifty years of tranquility and water supply security. How much time or freedom did the signers of the Declaration of Independence or the drafters of the Constitution buy with their signatures? They bought us only the opportunity of a process that must be renewed, in countless ways, by countless people, every single day.

ENDNOTES

1. Fen Montaigne, *Water Pressure*, NAT'L GEOGRAPHIC, Sept. 2002, at 2, 16.
2. *Id.* at 29.
3. John G. Mitchell, *Down the Drain?*, NAT'L GEOGRAPHIC, Sept. 2002, at 34.
4. Maggie Sieger, *The New Dust Bowl*, TIME, Sept. 16, 2002, at 52.
5. See, e.g., Douglas Jehl, *Thirsty Cities of Southern California Covet the Full Glass Held by Farmers*, N.Y. TIMES, Sept. 24, 2002, at A22.
6. *Decision Time on the Everglades*, N.Y. TIMES, Sept. 23, 2002, at A24.
7. UNITED NATIONS, GLOBAL CHALLENGE, GLOBAL OPPORTUNITY: TRENDS IN SUSTAINABLE DEVELOPMENT 11 (Johannesburg Summit 2002), available at http://www.un.org/jsummit/html/documents/summit_docs/criticaltrends_1408.pdf.
8. Douglas Jehl, *Development and a Drought Cut Carolinas' Water Supply*, N.Y. TIMES, Aug. 29, 2002, at A1.
9. Karen Breslau, *Wildcatting for Water*, NEWSWEEK, Sept. 2, 2002, at 32.
10. Virginia v. Maryland, No. Orig. 129 (filed July 31, 2000).
11. Timothy Egan, *As Thousands of Salmon Die, Fight for River Erupts Again*, N.Y. TIMES, Sept. 28, 2002, at A1.
12. Kenneth D. Frederick, *Water as a Source of International Conflict*, RESOURCES 123 (Spring 1996), available at www.rff.org/resources_articles/files/waterwar.htm.
13. See Robert Jerome Glennon & Peter W. Culp, *The Last Green Lagoon: How and Why the Bush Administration Should Save the Colorado River Delta*, 28 ECOLOGY L.Q. 903 (2002).
14. Peter Gleick, *Water Conflict Chronology* (Sept. 2000), available at www.worldwater.org/conflict.htm.
15. *U.S. Role in Quarrel Over Mideast Water*, REUTERS, Sept. 16, 2002, available at <http://ecs319pc-02.engr.umbc.edu:8080/Courses/IntroductionToEnvironmentalEngineering/mideast01.pdf>.
16. Kristin Wiebe, *The Nile River: Potential for Conflict and Cooperation in the Face of Water Degradation*, 41 NAT. RESOURCES J. 731 (2001).
17. Frederick, *supra* note 12.

18. See DAVID H. GETCHES, *WATER LAW* 116, 288 (1984).
19. See A. Dan Tarlock & John E. Thorson, *Coordinating Land and Water Use in the San Pedro River Basin: What Role for the CEC?*, in GREENING NAFTA: THE EXPERIENCE AND POTENTIAL OF THE NORTH AMERICAN COMMISSION FOR ENVIRONMENTAL COOPERATION (David L. Markell & John Knox eds., 2002).
20. ROBERT J. GLENNON, *WATER FOLLIES: GROUNDWATER PUMPING AND THE FATE OF AMERICA'S FRESH WATERS* (2002).
21. Tim Weiner, *Water Crisis Grows Into a Test of U.S.-Mexico Relations*, N.Y. TIMES, May 24, 2002, at A3.
22. SARAH F. BATES ET AL., *SEARCHING OUT THE HEADWATERS* 14-48 (1993).
23. 373 U.S. 546 (1963).
24. Apalachicola-Chattahoochee-Flint Compact, Pub. L. No. 105-104 (Nov. 20, 1997).
25. Charles Seabrook, *Florida Again Coaxed to Stay in Water Talks*, ATLANTA J.-CONSTITUTION, June 13, 2002, at A12; Charles Seabrook, *Campbell Suspicious of Three-State Pact to Divide Chattahoochee's Waters*, ATLANTA J.-CONSTITUTION, Sept. 24, 1996, at C1.
26. Rio Grande Irrigation Convention with Mexico, 34 Stat. 2953, T.S. 455 (May 21, 1906).
27. Treaty of Feb. 3, 1944, with Mexico respecting utilization of waters of the Colorado and Tijuana rivers and of the Rio Grande, 59 Stat. 1219, T.S. 994 (Nov. 8, 1945).
28. Albert E. Utton, *International Streams and Rivers*, in 2 WATERS AND WATER RIGHTS § 152.1 & 152.2(B) (Robert E. Clark ed., 1967).
29. See INTERNATIONAL JOINT COMM'N, *LIVING WITH THE RED, A REPORT TO THE GOVERNMENTS OF CANADA AND THE UNITED STATES ON REDUCING FLOOD IMPACTS IN THE RED RIVER BASIN* (2000).
30. UNITED NATIONS, *REPORT OF THE U.N. CONFERENCE ON ENVIRONMENT AND DEVELOPMENT (Rio de Janeiro, June 3-14, 1992)*, available at <http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm>.
31. See Update on President's Council on Sustainable Development, American Geological Institute (June 19, 1998), available at www.agiweb.org/legis105/pcsd.html.
32. United Nations, *The Road from Johannesburg, World Summit on Sustainable Development, What Was Achieved and the Way Forward* (Aug. 26-Sept. 4, 2002), available at <http://www.un.org/esa/sustdev/media/Brochure.PDF>.
33. As well as reasonableness requirements and forfeiture and transfer provisions.
34. ROBERT G. DUNBAR, *FORGING NEW RIGHTS IN WESTERN WATERS* 21-23 (1983).
35. See THOMAS E. ROOT, *RAILROAD LAND GRANTS FROM CANALS TO TRANSCONTINENTALS* (Nat. Resources L. Section, Monograph Series No. 4, 1987).
36. WESTERN WATER POLICY REVIEW ADVISORY COMMISSION, *WATER IN THE WEST: THE CHALLENGE FOR THE NEXT CENTURY* 1-3 (1998).
37. PHILIP SELZNICK, *LEADERSHIP IN ADMINISTRATION* 5 (1957).
38. Tarlock & Thorson, *supra* note 19.
39. MICHAEL C. MEYER, *WATER IN THE HISPANIC SOUTHWEST* 20-23, 147-64 (1984). See also JOHN O. BAXTER, *DIVIDING NEW MEXICO'S WATERS, 1700-1912* (1997).
40. MEYER, *supra* note 39, at 148.
41. Joaquín Escriche, *Diccionario razonado de legislación civil, penal, comercial y forense* 686 (1842), quoted in MEYER, *supra* note 39, at 150.
42. MEYER, *supra* note 39, at 152-53.
43. THOMAS GLICK, *THE OLD WORLD BACKGROUND TO THE IRRIGATION SYSTEM OF SAN ANTONIO, TEXAS* 50-51 (1972), quoted in MEYER, *supra* note 39, at 161.
44. BATES ET AL., *supra* note 22, at ix.
45. D. Craig Bell et al., *Retooling Western Water Management: The Park City Principles*, 31 LAND & WATER L. REV. 303 (1996).
46. J.M. Souby, *Enlibra: A New Shared Doctrine for Environmental Management and the Evolution of Environmental Policy in the West*, 1 ENVTL PRAC. 181 (1999).

47. The Great Lakes Charter, signed among eight states and two provinces in 1985, remains the best example of this approach. The participating jurisdictions agreed upon a set of five guiding principles: protecting the integrity of the Great Lakes Basin, improving cooperation among the jurisdictions, protecting the lakes from significant consumptive diversions, utilizing prior notice and consultation among the signatories, and undertaking cooperative programs and practices. Under each principle, a set of implementation actions was developed.

48. The Bellagio Draft Treaty, authored by Albert Utton, Robert Hayden, and others, addresses the management of international aquifers while emphasizing joint, optimum utilization of the resource, minimal intrusion on state sovereignty, and adequate procedures for avoiding or resolving conflict. See Robert D. Hayton & Albert E. Utton, *Transboundary Groundwaters: The Bellagio Draft Treaty*, 29 NAT. RESOURCES J. 663 (1989).

49. STANLEY M. DAVIS & PAUL R. LAWRENCE, MATRIX (1977).

50. Jennifer M. Brinkerhoff, *Global Public Policy, Partnership, and the Case of the World Commission on Dams*, 62 PUB. ADMIN. REV. 324, 325 (2002). Conflict and trust have particularly important roles in these partnership processes. [T]he more intense the conflict—and consequently the more painful its implications—the easier it may be to bring the stakeholders to the table and attain at least some agreement on process....Stakeholders must perceive that the process is [proceeding] in good faith [and] by stated goals and principles...." *Id.* at 332-33.

51. Amy Harmon, *Vox Populi, Online*, N.Y. TIMES, Sept. 26, 2002, at G1.