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Comprehensive River Basin Management: The Limits of Collaborative, Stakeholder-Based, Water Governance

ABSTRACT

The allocation of scarce, freshwater resources is complicated by the transboundary nature of most significant surface water sources. These jurisdictional challenges exist across national borders and within federal nations like the United States. An obvious and long advocated solution is the creation of river basin authorities to bridge jurisdictional boundaries. This article examines the rationale for river basin water management, describes several examples of river basin management regimes in the United States and other nations, and explains why many such schemes have failed or experienced limited success. Although there is much enthusiasm for collaborative integrated management of water and associated river basin resources, particularly in Europe and on the part of international organizations, established river basin management regimes usually have been long on process and short on the resolution of transboundary disagreements. The central problem is that water management regimes are seldom contemplated in the absence of scarcity; under circumstances of scarcity, consensus is difficult to achieve without some preexisting understanding of relative rights. On an international basis, the establishment of such rights is generally dependent on the circumstances of topography, diplomatic negotiation, or force. In the United States, the federal government has the authority to equitably resolve such disputes but has often lacked the political will.

I. INTRODUCTION

Fresh water has always been in short supply in much of the American West. A combination of steady economic growth and late twentieth-century environmental regulations has led to similar shortages in many other regions of the country over the past few decades. As a result every state faces periodic challenges in supplying water for municipalities, industry, agriculture, and environmental protection. A strong tradition of federal deference to state responsibility for water allocation and management has assured that states do not lack legal authority to allocate water among competing uses. But the fact that political jurisdic-

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tions do not conform to hydrological and topographic realities has handicapped state governments in the exercise of their considerable legal authority over water. It has long been suggested that the solution is some form of river basin management, but bridging the political boundaries of the existing states has proven difficult. The challenge of implementing such a system of transboundary governance is well illustrated by the longstanding dispute among three states in the American Southeast.

The Apalachicola-Chattahoochee-Flint (ACF) River Basin arises in Georgia and extends into Alabama and Florida. Beginning in 1939, the federal government undertook several projects to develop the basin, including Buford Dam and the resulting Lanier Lake (reservoir), which supplies domestic and industrial water to Atlanta. Severe droughts in the early and mid-1980s led the U.S. Army Corps of Engineers (Corps), operator of Buford Dam, to propose a shift of 20 percent of Lake Lanier's storage capacity from hydro-generation to water supply.¹ The State of Alabama sued the Corps claiming that providing more water to Atlanta would lead to increased hydropower costs and more pollution in Alabama.² Florida and Georgia intervened in the lawsuit, with Florida claiming harm to the \$70 million Apalachicola Bay oyster industry and Georgia asserting its sovereign authority to manage water within its borders. With the court's permission, the three states and the Corps agreed to study the problem and see if they could reach agreement. With congressional approval, the result was the ACF Compact for the purpose of "promoting interstate comity, removing causes of present and future controversies, equitably apportioning the surface waters of the ACF, engaging in water planning, and developing and sharing common databases."³ The Compact created the ACF Basin Commission comprised of the governors of the three states and a non-voting federal member.⁴ All decisions required unanimity⁵ and disagreements were to be resolved by non-binding mediation.⁶ If agreement on apportionment of ACF waters was not achieved by the end of 1998, the Compact would

1. For a discussion of the history of the ACF dispute, see Josh Clemons, *Interstate Water Disputes: A Roadmap for States*, 12 SE. ENVTL. L. J. 115 (2004), available at <http://www.olemiss.edu/orgs/SGLC/MS-AL/acf.htm>.

2. For a discussion of the lawsuit, see Roy R. Carriker, *Water Wars: Water Allocation Law and the Apalachicola-Chattahoochee-Flint River Basin*, Univ. of Fla. Coop. Extension Serv. (2000), available at <http://web.archive.org/web/20050331010307/edis.ifas.ufl.edu/pdf-files/FE/FE20800.pdf>.

3. Apalachicola-Chattahoochee-Flint River Basin Compact, Pub. L. No. 105-104, art. 1, 111 Stat. 2219 (1997).

4. *Id.* at arts. VI(a), (b), (d).

5. *Id.* at art. VI(d).

6. *Id.* at art. XIII(a)(5).

expire unless extended by agreement of all compacting parties. After several extensions, the Compact expired in 2003 without any resolution of the apportionment or management issues.

While the competing interests agreed that river basin management—at least to the extent of an apportionment among the three states—is desirable for the ACF basin, there is little prospect that the controversy will be resolved by the three affected states with or without active federal participation in a negotiated agreement.⁷ In all probability, the core dispute over the appropriation of ACF waters among the three states will be resolved by Congress or the U.S. Supreme Court.⁸ Why has this very public effort at river basin management failed? Why is federal intervention the only likely solution? And, most importantly, what might we learn from the ACF and other efforts at river basin management in the United States and abroad about the best institutional arrangements for water resource management?

Part II of this article discusses the nature of the water resource and the relevance of river basins in any allocation and management scheme. Part III examines alternative institutional arrangements for the allocation of water and reviews the case for river basins as an appropriate geographical focus. Part IV considers some river basin approaches in Europe, Australia, and Canada, and Part V examines several river basin governance efforts in the United States. Part VI is a discussion of the concept of collaborative governance and its participating “stakeholders,” both of which are central to most arguments for, and approaches to, river basin governance. Finally, Part VII concludes with a discussion of the essential attributes of effective water governance on a river basin basis.

II. RIVER BASINS AND THE WATER RESOURCE

Since Thomas Malthus’s writing in the late eighteenth century,⁹ if not before, there have been periodic warnings of impending disaster if human civilizations fail to recognize the natural limits to growth on

7. Memorandum of Understanding Regarding Initial Allocation Formula for the ACF River Basin (July 22, 2003), available at http://gov.georgia.gov/00/press/detail/0,2668,78006749_91290006_91672860,00.html.

8. Congress’s power to apportion interstate waters derives from the Commerce Clause of Article I, Section 8 of the Constitution. Congress has exercised this power on only two occasions—in 1928, on the Colorado River and, in 1990, on the Truckee and Carson Rivers and Lake Tahoe. See The Boulder Canyon Project Act of 1928, 45 Stat. 1057 (1928); Truckee-Carson-Pyramid Lake Water Rights Settlement Act, Pub. L. No. 101-618, tit. II (1990).

9. THOMAS MALTHUS, *ESSAY ON THE PRINCIPLE OF POPULATION* (1798).

planet Earth.¹⁰ While none of these forecasts of doom have come to pass—at least not yet, or in the time frames predicted¹¹—there remains at least one resource that is widely thought to limit growth, if not on the planet as a whole, in particular regions. That resource is fresh water.

The problem with water is that supplies are not evenly distributed across the globe; some regions have far more water than they can possibly use, while others have virtually no water. Water supplies also vary dramatically on a seasonal basis and over longer periods of time as droughts come and go. The impacts of these natural characteristics of the earth's hydrology cycles are amplified by human preferences for warm and sunny climates, resulting in the location of large population centers in regions of limited water supply. Transportation and storage of water have helped alleviate nature's constraints and facilitate urban growth in arid regions of the planet, but the necessary infrastructure is expensive and often imposes large external costs in the form of environmental damage and ecological disruption.

For most of human history, the environmental consequences of water use and development were of little or no concern. Water policy was largely concerned with maintenance and development of water-based transportation, protection and expansion of water supplies, protection against floods, and "reclamation" of wetlands. Not until the second half of the twentieth century did environmental concerns relative to water use and development attract much attention; first in the context of pollution, and later in the broader contexts of wildlife habitat preservation and ecosystem protection. As with many other environmental problems, the search for both understanding and solutions led many to look to nature as a guide. In the case of water, river basins seemed to provide a logical basis from which to understand the challenge and to formulate solutions. On the surface, at least, the later interest in ecosystems made river basins even more attractive as a framework for water resource policy.

The concept of river basins as an appropriate unit of planning and management is not new. Ludwik Teclaff and others trace river basin

10. See, e.g., George Perkins Marsh, *The Study of Nature*, CHRISTIAN EXAMINER, Jan. 1, 1860, at 33; PAUL R. EHRLICH, *THE POPULATION BOMB* (1968); DONELLA H. MEADOWS ET AL., *THE LIMITS TO GROWTH* (1972); THE WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT, *OUR COMMON FUTURE* (1992).

11. In 1980, Julian Simon challenged Paul Ehrlich's prediction of growing scarcity in the global supply of various basic metals as reflected in the change in inflation adjusted price over a 10-year period. Their wager included five metals, all of which were less expensive after the 10-year period. Ehrlich sent Simon a check for \$576.07 to settle the bet. See Ed Regis, *The Doomsayer*, WIRED (2009), available at http://www.wired.com/wired/archive/5.02/ffsimon_pr.html.

planning to antiquity.¹² The customary law *maxim aqua currit et debet currere ut currere solebat* (water flows and should flow as it always used to do) provided the foundation for the riparian water rights system inherited from medieval law and is still the basis of water rights in most of the eastern United States.¹³ Based on his knowledge of eastern American rivers and his explorations of the arid American West, nineteenth-century explorer John Wesley Powell urged that the new governments of the West be formed to govern river basins.¹⁴ Nearly a century later, rural sociologist Carl Kraenzel urged a river basin focus in recognition of the social consequences of water development.¹⁵ Of course Powell's idea was not reflected in the eventual state boundaries of the American West, but river basins have periodically resurfaced as an organizing unit for water and resource management, both in the United States and abroad, for many of the reasons propounded by Powell, Kraenzel, and many others.

Dan Tarlock contends that the ebb and flow of interest in river basins as a focal point in water allocation "is in a part a function of the oscillations between progressive and conservative political dominance."¹⁶ The watershed protection objectives of the national forest system, the Progressive Era and New Deal efforts to plan for "comprehensive physical and social development" of river basins, and the 1973 proposals of the National Water Commission for basin-oriented planning, says Tarlock, "were undermined both by deep political opposition to any transfer of power from the states to regional, federally-created bodies and by the legal system."¹⁷ No doubt states resisted incursions on their traditional authority over water resources, but it does not necessarily follow that conservatives had, for the moment, gained the upper hand against progressives, nor is it clear that the riparian or ap-

12. Ludwik A. Teclaff, *Evolution of the River Basin Concept in National and International Water Law*, 36 NAT. RESOURCES J. 359, 361 (1996). Christopher J. Barrow suggests that efforts to monitor and control rivers dates back 5,000 years. Christopher J. Barrow, *River Basin Development Planning and Management: A Critical Review*, 26 WORLD DEVELOPMENT 171, 172 (1998). R.H. Chorley finds the river basin used as a planning and administrative unit as early as 1792. INTRODUCTION TO GEOGRAPHICAL HYDROLOGY: SPATIAL ASPECTS OF THE INTERACTIONS BETWEEN WATER OCCURRENCE AND HUMAN ACTIVITY 20 (Richard J. Chorley ed., 1971).

13. Teclaff, *supra* note 12, at 362. The general rule is that owners of riparian land have a right to make reasonable use of the natural flow of a stream or watercourse.

14. DONALD WORSTER, *RIVERS OF EMPIRE: WATER, ARIDITY AND THE GROWTH OF THE AMERICAN WEST* 138 (1985).

15. Carl F. Kraenzel, *The Social Consequences of River Basin Development*, 22 LAW & CONTEMP. PROBS. 221 (1957).

16. A. Dan Tarlock, *Reconnecting Property Rights to Watersheds*, 25 WM. & MARY ENVTL. L. & POL'Y REV. 69, 71 (2000).

17. *Id.* at 71-72.

appropriation water-rights regimes spelled doom for a river basin focus.¹⁸ Progressives found fertile ground in some states that were as jealous of their sovereignty as any other state and conservatives have seldom had qualms about resorting to federal power when it is in their hands. To the extent that a river basin focus was thought to imply public rather than private control of water, those with rights under existing state water law would certainly have resisted river basin thinking. But there is no reason that private rights might not be honored when taking full account of the various interests made more evident from a river basin perspective.¹⁹ Indeed, a river basin perspective could underscore the economic importance of defining clear rights and transferability in a private rights system.

The better explanations for the changing emphasis on river basins as an organizing concept for water governance are changing demands on the water resource and new technologies that facilitate transport and storage. Teclaff notes that the earliest legal regimes covering river basins extending beyond political borders were international agreements with respect to navigation. In other words, the importance of unrestricted navigation to the political and economic welfare of the affected countries led to river basin thinking. But technology, says Teclaff, made river basins less relevant as it became possible to move water from basin to basin, to store vast quantities of water for competing uses like agriculture and hydropower, and to conduct commerce by other efficient means of transportation. Politics was no doubt a factor, but it was largely a politics of interest more than principle. Changing demands and new technologies also best explain the renewed interest in river basin planning and management in conjunction with rising concerns about environmental protection and ecosystem preservation.

III. INSTITUTIONAL ALTERNATIVES AND THE CASE FOR RIVER BASIN MANAGEMENT

As with most policy discussions relating to the allocation of scarce resources, water policy debates have considered the relative suitability of

18. Riparian doctrine assigns rights in the use of water to owners of riparian lands, while the appropriation doctrine assigns water rights on a first in time, first in right basis. See discussion *infra* at text following note 62.

19. Teclaff suggests that economists favoring markets over regulation contributed to a decline in river basin thinking. But a preference for market allocation of water would not make river basins irrelevant. To the contrary, river basins and sub-basins would be important to the definition of what attributes of a water right could be transferred and what could not because of the dependency of other rights holders on the return flow. Market proponents would be resistant to river basin thinking only if it is understood to mean government planning and management. Teclaff, *supra* note 12, at 370–71.

public management, regulation, and private markets. Although private rights have played an important role in the United States, there has always been a strong case made for public control based on the claim that water is a unique and special resource. A 1993 World Bank study concludes that around the world “water’s special characteristics, [make] it . . . difficult to use unregulated markets to deliver water efficiently, or to allocate it among sectors.”²⁰ “[W]ater is not an ordinary commodity,” states a Global Water Partnership study.²¹ “The peculiar characteristics of water resources stem from its polyvalent environmental, economic and social roles. They include, *inter alia*, public good aspects; external effects; imperfect competition; risk, uncertainty, and imperfect information; potential for social and environmental inefficiencies and inequity, and vulnerability to monopolisation.”²²

Parallel to this view of water as particularly unsuited to market allocation is the conviction that water has a special place in the lives of individuals and communities—that water is a peculiarly public resource. Speaking for the U.S. Supreme Court, Justice Oliver Wendell Holmes stated: “[A] river is more than an amenity, it is a treasure. It offers a necessity of life that must be rationed among those who have power over it.”²³ More recently, Dan Tarlock has argued that the treatment of water as a commodity “has allowed the law to ‘detach’ rivers from their surrounding ecosystems.”²⁴

Rivers, streams, lakes, and their surrounding areas, both natural and manmade, certainly do have a special, even spiritual, place in the lives of many people. The reality evidenced over centuries of competition for scarce water resources, however, is that water seldom rises above the fray, whether treated as a market commodity or a political good. But by whatever methods water is allocated, it does pose significant challenges because of its physical characteristics, its uneven distribution across the landscape, and the many and varied human demands

20. K. WILLIAM EASTER ET AL., *WATER RESOURCES MANAGEMENT* 27 (1993), available at <http://www.docstoc.com/docs/1003910/World-Bank-policy-paper-on-Water-Resources-Management>.

21. MIGUEL SOLANES & FERNANDO GONZALEZ-VILLARREAL, *THE DUBLIN PRINCIPLES FOR WATER AS REFLECTED IN A COMPARATIVE ASSESSMENT OF INSTITUTIONAL AND LEGAL ARRANGEMENTS FOR INTEGRATED WATER RESOURCES MANAGEMENT* 29 (1999), available at <http://www.gwpforum.org/gwp/library/Tac3.pdf>.

22. *Id.*

23. *New Jersey v. New York*, 283 U.S. 336, 342 (1931).

24. Tarlock, *supra* note 16, at 72. Tarlock’s argument extends beyond water. “The law has gradually eroded the connection between humans and an actual physical space by making property a universal abstraction rather than a situation-dependent entitlement.” *Id.*

for its use (and “non-use”).²⁵ The hydrologic cycle keeps water constantly on the move with the consequence of multiple uses of the same water and negative impacts of some uses on others. Precipitation on the earth ranges from over 450 inches per year to as little as zero, yet natural and manmade waterways move water for hundreds and thousands of miles giving some arid regions abundant water so long as the flow continues. Of course the water supply is not limited to precipitation captured in rivers and lakes. Immense quantities of water are stored by nature underground, and these supplies are usually, but not always, linked to surface waters in sometimes complicated ways. Thus, supply is unevenly distributed and highly variable, while demand relates to almost every human endeavor. Whether viewed from the perspective of politics or economics, the allocation of scarce water resources presents enormous challenges.

But there are even greater difficulties facing the would-be water policymaker and the allocation of water among competing uses affects more than the water supply; it influences the use of other resources, just as the use of other resources affects the supply and quality of water. These complex interrelationships, along with the physical and geographical realities of the water resource, have led many water policy experts to discount private markets in favor of comprehensive and integrated water management.²⁶ Although the history of water allocation in the United States has always been dominated by the riparian and appropriation systems of private rights, water policy experts have long sought to increase the role of both the federal and state governments in water allocation and management. As indicated above, river basins have been

25. The Columbia-Snake River system encompassing most of three states and significant portions of a fourth state and a Canadian province illustrates the challenge. The rivers provide well over half of the electrical power consumed in the region, 500 miles of inland commercial navigation, habitat for one of the world's largest anadromous fisheries, numerous aesthetic and recreational opportunities, and they irrigate eight million acres of land, all while passing through several large urban areas and over 50 dams. See Philip R. Wandschneider, *Managing River Systems: Centralization Versus Decentralization*, 24 NAT. RESOURCES J. 1043, 1044 (1984).

26. World Bank researchers Donna Lee and Ariel Dinar conclude that “[w]ater resources have several characteristics that make the role of the public sector in their development and management more essential than in other goods that can be handled efficiently in a market framework. For example, some water services have a public good nature that may lead to under-investment, other services are characterized by economies of scale, leading to monopolistic power and socially inefficient allocation.” They also suggest that many water projects require investment beyond private capacity. DONNA J. LEE & ARIEL DINAR, REVIEW OF INTEGRATED APPROACHES TO RIVER BASIN PLANNING, DEVELOPMENT, AND MANAGEMENT 1 (1995), available at <http://www.worldbank.org/html/dec/Publications/Workpapers/wps1446-abstract.html>.

viewed as a natural and logical framework for such centralized water governance.²⁷ While the reality of deeply rooted private rights regimes within a federal system—in which states have played the dominant role with respect to water—has restrained efforts to centralize water governance in the United States, Europe and other regions of the world have taken the lead in integrated river basin management.

In a paper for the Global Water Partnership, Miguel Solanes and Fernando Gonzalez-Villarreal contend that “[t]he development of water resources is no longer amenable to isolated action. Water legislation is rapidly evolving towards integrated water planning to satisfy environmental objectives, economic requirements and social concerns.”²⁸ Although the assertion better describes developments in Europe than in the United States, it certainly reflects the thinking of many in the water policy and planning professions.²⁹ The concepts of integrated and comprehensive water management have a long history, and the enthusiasm for a centralized approach to the allocation of water and related resources has only gained momentum with the growth of concern for environmental protection and sustainability. The persistent interest in integrated or comprehensive river basin management reflects two physical realities; first, the hydrological link of all waters within a basin³⁰ and, second, the inseparable connections between water and land use.³¹ Present-day interest in protecting the natural environment has underscored the importance of these relationships. In the words of Hans Wessel, “[i]ntegrated river basin management is engaged with all spatial and intertemporal interdependencies in a basin.”³²

27. “If sustainable integrated development is a goal, it is more likely to be achieved working with coherent regions such as river basins.” Barrow, *supra* note 12, at 171.

28. SOLANES & GONZALEZ-VILLARREAL, *supra* note 21, at 14.

29. Peter Rogers and Alan Hall assert in a paper for the Global Water Partnership that “[t]here is a general agreement in the water community that [Integrated Water Resource Management] provides the only viable way forward for sustainable water use and management.” PETER ROGERS & ALAN HALL, EFFECTIVE WATER GOVERNANCE 30 (2003), available at <http://www.gwpforum.org/gwp/library/TEC%207.pdf>.

30. Not only have we come to understand that ground and surface waters are generally linked, but also that the hydrological cycle carries water through various uses affecting its quality and temperature—what Jasper Dalhuisen and Peter Nijkamp call the “water chain.” ENHANCING EFFICIENCY OF WATER PROVISION: THEORY AND PRACTICE OF INTEGRATED WATER MANAGEMENT PRINCIPLES, Tinbergen Institute Discussion Paper No. TI 2002-071/3, at 5 (2002).

31. J. Lundquist, U. Lohm & M. Falkenmark, STRATEGIES FOR RIVER BASIN MANAGEMENT: ENVIRONMENTAL INTEGRATION OF LAND AND WATER IN A RIVER BASIN 5 (1985) (noting “the general tendency . . . to treat land and water as separate issues,” when making a case for integrated river basin management).

32. Hans Wessel, *Managing the River Rhine and its Basin*, in ENVIRONMENTAL LAW AND POLICY IN THE EUROPEAN UNION AND THE UNITED STATES 219, 220 (Randall Baker ed., 1997).

IV. RIVER BASIN GOVERNANCE IN EUROPE AND BEYOND

Numerous international agreements and declarations seek to implement this integrated and comprehensive approach to river basin management. As early as 1966, the International Law Association and the International Law Commission developed the Helsinki Rules on the Use of International Rivers—although the objective was primarily to assure equitable sharing rather than coordinate management.³³ By the late 1980s there were 48 international river basin agreements in Europe alone.³⁴ The 1992 International Conference on Water and the Environment proclaimed what have come to be called the Dublin Principles and urged “comprehensive management of resources, using the river basin as the focus.”³⁵ Later that year the Dublin Principles and a comprehensive river basin management approach were endorsed by the United Nations Conference on Environment and Development.³⁶ Also in 1992, the United Nations Economic Commission for Europe (UNECE) adopted the Convention on the Protection and Use of Transboundary Watercourses and International Lakes.³⁷ The comprehensive planning approach was further promoted by the 1997 United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses³⁸ and the 2000 report of the World Commission on Dams.³⁹ The 2000 World Water Forum’s Global Water Partnership issued a Framework for Action making water governance a high priority,⁴⁰ as did the Bonn 2001 Freshwater Conference.⁴¹ Also in 2000, the European Union issued its Water Framework Directive (E.U. Directive) requiring member states to identify river basin districts and assign a competent authority responsible for the implementation of the E.U. Directive within each of the districts.⁴² A river

33. Barrow, *supra* note 12, at 177.

34. *Id.*

35. *Id.* at 171. See discussion *infra* accompanying note 96.

36. UNITED NATIONS DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS, AGENDA 21, at 18.1–18.90 (1992).

37. Alistair S. Rieu-Clarke, *An Overview of Stakeholder Participation—What Current Practice and Future Challenges*, 18 *COLO. J. INT’L ENVTL. L. & POL’Y* 611, 620 (2007).

38. UNITED NATIONS GENERAL ASSEMBLY, CONVENTION ON THE LAW OF THE NON-NAVIGATIONAL USES OF INTERNATIONAL WATERCOURSES, United Nations Document A/51/869 (1997), available at <http://www.undemocracy.com/A-51-869>.

39. WORLD COMMISSION ON DAMS, DAMS AND DEVELOPMENT: A NEW FRAMEWORK FOR DECISION-MAKING (2000), available at <http://www.dams.org/report/>.

40. ROGERS & HALL, *supra* note 29, at 15.

41. *Id.*

42. THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION, DIRECTIVE 2000/60/EC: ESTABLISHING A FRAMEWORK FOR COMMUNITY ACTION IN THE FIELD OF WATER POLICY, available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2000:327:0001:0072:EN:PDF>.

basin management plan must be developed for each of the river basin districts. In 2002, the objective of integrated river basin management was reaffirmed by World Summit for Sustainable Development.⁴³

Beyond the rhetoric and good intentions of these international declarations, there are several efforts to actually implement integrated river basin management across the globe. Five examples are illustrative of the wide variation in both context and solution:

- The Rhine River Basin encompasses portions of eight countries with a population of 55 million within the basin.⁴⁴ As early as 1816 an international commission on navigation was established for the Rhine.⁴⁵ The International Commission for the Protection of the Rhine against Pollution was established in 1950.⁴⁶ This agreement, followed by several initiatives culminating in the Rhine Action Plan in 1987 and the Ecological Master Plan for the Rhine, aimed to improve salmon habitat, provide drinking water, and reduce sediments by the year 2000.⁴⁷
- In 1994, the 12 nations on the Danube River adopted the Convention on the Protection and Sustainable Use of the Danube.⁴⁸ The resulting International Commission for the Protection of the Danube River has subsequently assumed responsibility for implementing the E.U. Directive.
- River basin planning and macro management has existed in France for more than a quarter century via a system of six river basin committees corresponding to the main river basins of the country. The committees plan for water resource development and water quality improvement, and they have the authority to levy fees based both on water consumption and point source pollution.⁴⁹
- Australia's Murray-Darling Commission, established in 1915, has been described as the "paragon of modern-day river basin management."⁵⁰ Over its first six decades the

43. See UNITED NATIONS REPORT OF THE WORLD SUMMIT ON SUSTAINABLE DEVELOPMENT 21, U.N. Doc. A/CONF.199/20 (2002).

44. Wessel, *supra* note 32, at 222. Rhine Basin countries are Switzerland, Liechtenstein, Austria, Germany, France, Luxembourg, Belgium and the Netherlands.

45. *Id.* at 225.

46. *Id.*

47. *Id.* at 226.

48. Member states include Austria, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Germany, Hungary, Moldova, Romania, Slovakia, Slovenia, Serbia, and Ukraine. Rieu-Clarke, *supra* note 37, at 622.

49. EASTER, *supra* note 20, at 46.

50. Jyothsna Mody, *Achieving Accountability Through Decentralization: Lessons for Integrated River Basin Management*, World Bank Policy Research Working Paper No. 3346 (2004),

Murray-Darling Commission was concerned largely with navigation and augmentation of water supply, but environmental concerns led to the 1992 Murray-Darling Basin Agreement. The purpose of this agreement is “to promote and co-ordinate effective planning and management for the equitable efficient and sustainable use of the water, land and other environmental resources of the Murray-Darling Basin.”⁵¹

- A very different approach has been taken on the Fraser River in British Columbia. The Fraser Basin Council is a non-governmental entity with representatives “drawn from diverse geographical and sectoral communities within the basin, as well as from what are called in Canada the four orders of government—federal, provincial, local/regional, and First Nations.”⁵²

All of these examples have a river basin approach, but each has different objectives and none of them realize the full vision of comprehensive integrated river basin management. Both the Rhine and Danube Commissions function in the context of several other international agreements relating to resource use within their basins, as well as within the national sovereignties of the several basin nations. The growing powers of the European Union, and particularly its focus on water in the E.U. Directive, have helped to break down the obstacles of protectionism and national sovereignty. But consistent with the principle of subsidiarity, these commissions have focused their attention on specific problems like pollution, navigation, and habitat restoration rather than on a general program of resource planning and management.⁵³ The other three examples do not face the challenge of multiple national sovereignties, although both Canada and Australia are federal systems with significant state or provincial autonomy. Because the Fraser Basin is entirely within the province of British Columbia, there is no need for interprovincial agreement, but the interests of “First Nations” can pose similar trans-jurisdictional challenges.⁵⁴ Even without the difficulties posed by multiple national sovereigns, the French, Canadian, and Australian exam-

available at http://econ.worldbank.org/external/default/main?pagePK=64165259&theSitePK=469372&piPK=64165421&menuPK=64166093&entityID=000112742_20040723110731.

51. About MBD Initiative, The Murray-Darling Basin Agreement, http://www.mdbc.gov.au/about/the_mdbc_agreement (last visited July 7, 2009).

52. William Blomquist et al., *Institutional and Policy Analysis of River Basin Management: The Fraser River Basin, Canada* 11 (World Bank Policy Research Working Paper No. 3525, 2005), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=673483.

53. See *infra* note 101 and accompanying text.

54. Pursuant to recommendations of the Royal Commission on Aboriginal Peoples, Canada has recognized significant governmental and territorial autonomy for “First Na-

ples—like the ACF—are evidence that river basin management faces obstacles in addition to jurisdictional boundaries.

V. WATER INSTITUTIONS AND RIVER BASIN GOVERNANCE IN THE UNITED STATES

The United States has tended to go its own way on river basin management, as it has with many other environmental challenges facing nations around the globe. The rhetoric and high ambition of most international declarations calling for collaboration and common cause have generally given way in the United States to deeply rooted legal and political traditions relating to water. But what distinguishes the United States from many other countries is likely neither a disdain for high ambition nor peculiar intransigence of political and legal tradition; rather the United States has fundamentally different political and legal traditions from most countries that have been more enamored of, and receptive to, the possibilities for collaborative management of water and related resources.

Despite the generally different approach in the United States, the Tennessee Valley Authority (TVA) has been a model for much international thinking on water management.⁵⁵ The TVA “pioneered a shift from simple resource exploitation to that integrated, with other aspects of development, and directed at improving human welfare.”⁵⁶ But the reality is that by the mid-1930s the “emphasis [had] shifted to ‘concrete’ development goals, such as power supply, with ‘lower profile’ given to welfare and environment.”⁵⁷ Thus, the vision for the TVA was quite different from the TVA as it has existed for several decades. Some did anticipate that the Bonneville Power Administration (BPA), and other regional entities with authority for particular aspects of river basin management, might take on a comprehensive role like that intended for the TVA. But today the BPA is one of four regional energy marketing entities under the U.S. Department of Energy⁵⁸ without authority for comprehensive and integrated river basin management.

tions,” including with respect to water and other natural resources. ROYAL COMMISSION ON ABORIGINAL PEOPLES, THE REPORT OF THE ROYAL COMMISSION ON ABORIGINAL PEOPLES (1996).

55. Teclaff suggests that the United Nations has endorsed the TVA model which has been implemented, for example, in the Niger Basin, the La Plata Basin, and the Amazon. He also notes that it has not been very successful in any of these cases. Teclaff, *supra* note 12, at 367.

56. Barrow, *supra* note 12, at 174.

57. *Id.* at 175.

58. John M. Volkman & Kai N. Lee, *Within the Hundredth Meridian: Western States and Their River Basins in a Time of Transition*, 59 U. COLO. L. REV. 551, 558 (1988).

Apart from these significant but isolated federal initiatives, comprehensive river basin planning has not been a feature of federal water law, notwithstanding the ambitions reflected in the Water Resources Planning Act of 1965.⁵⁹ That Act established the Water Resources Council consisting of the secretaries of the Interior, Agriculture, Army, Transportation, and Health, Education, and Welfare, along with the Chairman of the Federal Power Commission. The Council's mission was to implement a national strategy for water and land resource planning across 21 water regions of the United States. Seven river basin commissions were created to coordinate federal, state, interstate, local, and non-governmental plans for water and related resources development in each basin. The Act was effectively repealed in 1981 when the president terminated the river basin commissions by executive order⁶⁰ and Congress cut off funding for the program.⁶¹ While many advocates of river basin planning were disappointed by the death of the Water Resources Planning Act, there are clear reasons for the failure.

Foremost among those reasons is that the Water Resources Council lacked any mandatory authority under the Act. Section 3 of the Act guaranteed that federal and state jurisdiction, responsibility, or rights would be unaffected by the Act, and that it would also have no effect on existing international agreements, existing federal law, the power of Congress to fund projects, or the authority and responsibility of federal officials.⁶² In other words, the Act had no effect on the existing and deeply rooted system of water allocation and planning. It was founded upon the admirable but naïve idea that dozens, if not hundreds, of self-interested actors would somehow put interest aside and agree to do the right thing for the people and the planet. The same naïveté undergirds most of the international agreements discussed above and, therefore, dooms many of them to failure—notwithstanding the sometimes more receptive cultures within which they exist.

State governments have had the dominant role in water resource allocation for all of American history but the federal role has grown over time—particularly since the New Deal. State law has always determined private rights in water. Pursuant to the riparian doctrine embraced by most states east of the 100th meridian, owners of riparian land possess

59. Pub. L. No. 89-80, 79 Stat. 244 (1965) (codified as amended 42 U.S.C. § 1962). The purpose of the act was “to encourage the conservation, development, and utilization of water and related land resources of the United States on a comprehensive and coordinated basis.” *Id.* at § 2.

60. River Basin Commissions, Exec. Order No. 12319, 46 Fed. Reg. 45591.

61. JOHN E. THORSON, RIVER OF PROMISE, RIVER OF PERIL: THE POLITICS OF MANAGING THE MISSOURI RIVER 103–04 (1994).

62. Pub. L. No. 89-80, § 3, 79 Stat. 244 (1965).

an appurtenant right to the reasonable use of the waters adjacent to their lands. The appropriation doctrine of the western states recognizes private rights in water based on actual beneficial use with earlier users having priority over later appropriators. Because riparian owners are entitled to the natural flow of the stream, watersheds and river basins are relevant to the definition and enforcement of rights in a riparian system. As a general rule, watersheds and river basins have no relevance in an appropriation system. But this does not mean that river basins have been irrelevant in the western United States. Some states have enacted laws limiting or prohibiting inter-basin transfers within the state, and most states have sought to constrain inter-basin transfers to neighboring states. While such laws could generally be preempted by federal law and sometimes pose constitutional problems, the reality of such protectionism is an important factor in most efforts at river basin management.⁶³

State law also defines most public rights to water, except to the extent that federal power in relation to water resources may result in the preemption of state actions taken in the name of public rights. In the modern era of environmental protection, the most prominent public rights are those claimed to be protected by the public trust doctrine. There is little debate that these rights include public access to, and use of, navigable waters for commerce and fishing. But it is also asserted and, occasionally affirmed by state courts, that such public trust rights extend to environmental protection—including non-navigable waterways as well. States also exercise primary authority over land-use and wildlife regulation, both of which are often integrally related to water use and management. These state powers over water allocation, public rights to water, wildlife, and land use regulation make it essential that state governments agreeably participate in any efforts at comprehensive river basin management. Of course, it also means that the individual owners of state recognized private rights either participate voluntarily, are mandated to participate, or at least accept the results of such comprehensive planning and allocation of water and related resources.

The federal government's role in water allocation and management derives largely from the Commerce Clause and to a limited extent from the Property and Compact Clauses of the U.S. Constitution. Since *Gibbons v. Ogden* it has been settled that the commerce power extends to the regulation and enhancement of navigation,⁶⁴ and the Supreme Court's subsequent, expansive, interpretation of the commerce power ef-

63. In *Sporhase v. Nebraska ex rel. Douglas*, 458 U.S. 941 (1982), the Supreme Court invalidated a Nebraska limitation on the export of groundwater as contrary to the Dormant Commerce Clause.

64. 22 U.S. 1 (1824).

fectively extends that power well beyond navigable waters and traditional commercial navigation.⁶⁵ As a result, the federal government has undertaken numerous programs and regulations relating to navigation, hydropower, land reclamation, fish and wildlife habitat, wetlands, and water pollution. Although states have always had authority to allocate waters occurring on federally-owned lands,⁶⁶ the federal government has a property interest in some waters pursuant to the reserved rights doctrine⁶⁷ and an interest in the federal management of public lands and other federal properties that have important impacts on the water resource. In combination, these many activities make federal participation in river basin planning and management essential.

Most of what the state and federal governments do with respect to water is done with little or no regard to river basins. The single exception comes in the form of several river basin agreements among states entered into with congressional approval pursuant to the Compact Clause.⁶⁸ Noah Hall identifies three categories of interstate compacts relating to water resources: (1) those that simply allocate the available supply among the participating states; (2) those that create a central authority with management power over the entire watershed or river basin; and (3) those that leave each state to enforce mutually agreed upon standards—what he labels “cooperative horizontal federalism.”⁶⁹ Hall associates the simple water allocation compacts with western states and the centralized management compacts with eastern states.⁷⁰ However, he prefers the cooperative horizontal federalism approach because it “gives states the flexibility to draft regional solutions but avoids the ‘race to the bottom’ that can undermine environmental protection.”⁷¹

65. See, e.g., *Heart of Atlanta Motel Inc. v. United States*, 379 U.S. 241 (1964) (upholding a federal prohibition of discrimination in public accommodations on the basis of the commerce clause).

66. State authority to allocate water on federal public lands was confirmed in the Desert Lands Act of 1877, ch. 107, § 1, 19 Stat. at 377 (1877) (codified as amended at 43 U.S.C. §§ 321 et. seq).

67. The concept of reserved rights was established in the context of Indian lands in *Winters v. United States*, 207 U.S. 564 (1908), and was extended to federal lands in *Arizona v. California*, 373 U.S. 546, 601 (1963).

68. For a summary of interstate water compacts, see UTTON TRANSBOUNDARY RESOURCES CENTER, UTTON CENTER MODEL COMPACTS PROJECT: COMPACT REVIEW SUMMARIES (2005), available at http://uttoncenter.unm.edu/model_compacts.html.

69. Noah D. Hall, *Toward a New Horizontal Federalism: Interstate Water Management in the Great Lakes Region*, 77 U. COLO. L. REV. 405, 407 (2006).

70. *Id.* at 412.

71. *Id.* at 409. There is no consensus on the race to the bottom thesis. See, e.g., Richard L. Revesz, *Rehabilitating Interstate Competition: Rethinking the Race-to-the-Bottom*” *Rationale for Federal Environmental Regulation*, 67 N.Y.U. L. REV. 1210 (1992).

Generally, the federal role in these interstate compacts consists less of participating in the substance of the agreement and more of providing the authorization necessary under the Constitution. In fact, there are two other constitutional methods by which the federal government can influence the allocation of waters among the several states in a river basin. The Supreme Court, pursuant to its original jurisdiction, can equitably apportion waters in the context of a suit brought by a state against another state and Congress can allocate the waters pursuant to its authority to regulate commerce. The Supreme Court has resolved barely a handful of equitable apportionment cases between states,⁷² while making clear that it strongly favors mutual agreement among affected states via interstate compact,⁷³ and Congress has exercised its allocational authority on only two occasions.⁷⁴

In the case of river basins entirely within the boundaries of a single state, states are free to create their own management regimes subject to the powers of Congress under the Commerce Clause.⁷⁵ In the case of interstate basins, it is theoretically possible for states to agree to a management regime without any federal participation⁷⁶ but, generally, the federal government will have a significant role in the management of interstate river basins and will always have a role with respect to international river basins. A few examples will be helpful in assessing what the federal role in river basin management should be and how various approaches have worked.

- The Colorado River is the classic case of a large river basin in an arid climate with the result of high demand on limited

72. *Colorado v. New Mexico*, 459 U.S. 176 (1982); *Nebraska v. Wyoming*, 325 U.S. 589 (1945); *Connecticut v. Massachusetts*, 282 U.S. 660 (1931); *New Jersey v. New York*, 283 U.S. 336, 342–43 (1931); *Wyoming v. Colorado*, 259 U.S. 419 (1922); *Kansas v. Colorado*, 206 U.S. 46 (1907).

73. “[R]esort to the judicial remedy is never essential to the adjustment of interstate controversies. The difficulties incident to litigation have led States to resort, with frequency, to adjustment of their controversies by compact.” *Hinderlider v. La Plata River & Cherry Creek Ditch Co.*, 304 U.S. 92 (1938).

74. Congress allocated the waters of the Colorado River between the upper basin and lower basin states. 43 U.S.C. §§ 617–617(v) (1928). Congress also allocated the waters of the Truckee and Carson Rivers and Lake Tahoe, but on the basis of the terms of a long agreed to interstate compact that Congress had failed to approve in deference to the Pyramid Lake Paiute Indian Tribe. Pub. L. No. 101-618, § 204, 104 Stat. 3289, 3295–3304 (1990).

75. The federal government may also have property interests, including reserved water rights, that give it a role similar to that of other proprietors in the basin.

76. Federal approval of interstate agreements is only required where state power will be enhanced relative to the federal government. *New Hampshire v. Maine*, 426 U.S. 363, 369 (1976). It will be the rare interstate water agreement that does not impact on federal powers to regulate navigation and commerce.

supplies. The Colorado Basin covers 244,000 square miles of territory and has an average annual flow of 15 million acre-feet. The river provides municipal and industrial water to a population of 25 million people, irrigation water for three million acres, 11.5 billion kilowatts of hydroelectric power, and has 60 million acre-feet of storage capacity.⁷⁷ Pursuant to the Boulder Canyon Act of 1928, half of the annual flow is allocated to the upper basin states (Wyoming, Utah, Colorado, and New Mexico) and the other half to Arizona (2.8 million acre-feet per year), California (4.4 million acre-feet per year), and Nevada (300,000 acre-feet per year).⁷⁸ Pursuant to a treaty with Mexico, the United States also has a responsibility to deliver 1.5 million acre-feet to Mexico in an average flow year.⁷⁹ The “law of the river,” as it is called, has developed over a century of legislation and litigation, but there is little in that history providing for what anyone would consider comprehensive river basin management.⁸⁰ Collaboration among the states and with the federal government has been directed to water development and, more recently, to resolving specific environmental problems like species protection and salinity management.

- The Columbia River Basin extends over roughly the same area in square miles as the Colorado Basin, but has an average annual flow 10 times that of the Colorado. The basin supports 14 main-stem dams and over 150 hydro projects overall. The Columbia Basin Project alone provides irrigation water to a half million acres of land, while the river serves as a major channel of commercial navigation in the Northwest, supports a threatened anadromous fishery, and provides recreation for people in several large urban areas. Despite many years of negotiation, Washington, Oregon, Idaho, and Montana have failed to agree to an interstate

77. DALE PONTIUS, COLORADO RIVER BASIN STUDY: FINAL REPORT 2, 8 (Report to the Western Water Policy Review Advisory Commission) (1997), available at http://www.colorado.edu/colorado_river/docs/pontius%20colorado.pdf.

78. 43 U.S.C. § 617 (1928). Congress’s intent to apportion the river is not explicit in the Act, however, the Supreme Court held that Congress did effectively apportion the waters of the Colorado. *Arizona v. California*, 373 U.S. 546 (1963). An earlier attempt to create a Colorado River Compact was stymied by Arizona’s refusal to agree to the proposed terms.

79. Treaty between the United States of America and Mexico Respecting Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, U.S.-Mex., art. 10, Feb. 3, 1944, 59 Stat. 1219.

80. The upper basin states agreed to the Upper Colorado River Basin Compact in 1948, but that agreement merely allocated the upper basin share among the upper basin states. The compact certainly facilitated each state’s management of its share of the river and was, in any event, a necessary prerequisite to congressional approval of federal funding for major water development projects in the upper basin.

compact either for allocation or management of the Columbia River.⁸¹ The United States and Canada agreed to the Columbia River Treaty in 1964,⁸² but it deals almost exclusively with dam construction and hydropower distribution in the two countries. To the extent that the American portion of the river is managed, it is done by the Northwest Power Planning Council that has planning responsibilities with respect to energy production and fish and wildlife habitat protection in the basin. The council consists of representatives of the governors of Washington, Oregon, Idaho, and Montana and has authority over federal agencies including the BPA, which is the marketing authority for Columbia Basin power, and the Bureau of Reclamation and the Army Corps of Engineers, both of which operate numerous facilities in the basin. At the same time, state laws govern the allocation of water to competing uses and land use regulation—except on the extensive federal lands in all four Columbia Basin states.

- The Delaware River serves a population in excess of 30 million people, but in an area about 1/16th the size of the Colorado Basin. The affected states of Delaware, New Jersey, New York, and Pennsylvania twice looked to the Supreme Court to apportion the waters of the basin.⁸³ However, in 1961, the states agreed to the Delaware River Basin Compact in an effort to overcome the challenges of river basin regulation by 43 state agencies, 14 interstate agencies, and 19 federal agencies.⁸⁴ The Compact created the Delaware River Basin Commission, which has the responsibilities to “develop and effectuate plans, policies and projects relating to the water resources of the basin . . . [to] adopt and promote uniform and coordinated policies for water conservation, control, use and management in the basin . . . [and to] encourage the planning, development and financing of water resources projects according to such plans and policies.”⁸⁵ The Commission membership includes the governor of each state and a federal commissioner appointed by the President.⁸⁶ All have a vote and most decisions are taken by

81. See JOHN M. VOLKMAN, *A RIVER IN COMMON: THE COLUMBIA RIVER, THE SALMON ECOSYSTEM, AND WATER POLICY* 44–47 (1997).

82. Columbia River Basin: Cooperative Development of Water Resources, Jan. 17, 1961, U.S.-Canada, 15 U.S.T. 1555, T.I.A.S. No. 5538 (entered into force Sept. 16, 1964).

83. *New Jersey v. New York*, 347 U.S. 995 (1954); *New Jersey v. New York*, 283 U.S. 336 (1931).

84. Delaware River Basin Compact, Del. Code Ann., tit. 7, § 6501, pt. 1 (1953).

85. *Id.* § 3.1.

86. *Id.* § 2.2.

majority vote⁸⁷—except decisions to reallocate water among the states, which requires a unanimous vote.⁸⁸ The Compact requires the Commission to develop a comprehensive plan for water use in the basin⁸⁹ and requires Commission approval of any project that will have a substantial effect on the basin's water resources.⁹⁰

- The 1987 through 1992 drought in the Sacramento–San Joaquin Delta of northern California led California's Governor Pete Wilson to search for alternatives to the complex of federal and state agencies that had responsibility for water and land use in the delta. The resulting entity, CALFED, originated as a consortium that included the Environmental Protection Agency, the Bureau of Reclamation, the National Marine Fisheries Service, the Fish and Wildlife Service, and the State of California. This led to a federal-state agreement, the Bay-Delta Agreement,⁹¹ that initiated a long-term planning process to improve the delta and increase the reliability of its water supply. In 2000, a memorandum of understanding was executed by 13 participating state and federal agencies (12 more would join later) with four basic objectives for the management of the delta: (1) water supply reliability; (2) water quality; (3) ecosystem restoration; and (4) levee system integrity. In 2002, the California Legislature created the California Bay Delta Authority as the governing body of CALFED⁹² and, in 2004, Congress authorized federal participation.⁹³ Although CALFED has seen some of its objectives accomplished, it operates with little authority and must rely on persuasion and coordination. According to the CALFED website, a recent 10-year action plan “has support and commitment from the 25 state and federal agencies that comprise CALFED and their commitment to working with policymakers, local and regional entities, the state's environmental justice and tribal communities, and other stakeholders to make CALFED a success.”⁹⁴

87. *Id.* § 2.5.

88. *Id.* § 3.3.

89. Delaware River Basin Compact, Del. Code Ann., tit. 7, § 13.1 (1953).

90. *Id.* § 3.8.

91. San Francisco Bay-Delta Agreement: Principles for Agreement on Bay-Delta Standards between the State of California and the Federal Government (Dec. 15, 1994), <http://www.calwater.ca.gov/content/Documents/library/SFBayDeltaAgreement.pdf>.

92. History of CALFED Bay-Delta Program, State of California (2007), *available at* <http://calwater.ca.gov/calfed/about/History/Detailed.html>.

93. CALFED Bay-Delta Authorization Act, S. 1097, 108th Cong. (2003).

94. CALFED History, http://www.calwater.ca.gov/calfed/about/about_history_detailed.html (last visited Apr. 2, 2009).

Although one might conclude from these summary descriptions of a few prominent examples of river basin management in the United States that there have been modest successes; however, the overall picture is one of disjointed decision-making by multiple state and federal authorities. For reasons discussed below, river basin entities—like CALFED—have engaged in extended and expensive talk with very little action. Actual users of water exist somewhere in the background, attempting to assert their interests in the form of either private claims or appeal to public entities. It will be instructive to have a second look at the European and international commitments to integrated and comprehensive planning and management to better understand what they seek to accomplish and why they, too, have been long on process and short on conflict resolution.

VI. WHY CAN'T WE ALL JUST GET ALONG?

In the broadest of terms the integrated, comprehensive, river basin management (ICRBM) approach is rooted in two fundamental propositions: (1) that unregulated, laissez-faire allocation of water suffers from numerous market failures; and (2) that equity and fairness, particularly in the context of a special resource like water, requires a centralized, collaborative approach. Interestingly, from an American perspective, much has been written in Europe and elsewhere to suggest that ICRBM is a move to more decentralized resource management.⁹⁵ In fact, ICRBM is effectively decentralized resource management in countries where the presumptive approach to any resource allocation challenge is national control or, in the case of the European Community, supranational control. This stark contrast in perspectives underscores the point that particular institutional arrangements will likely have differing impacts from one country or region to another. But the fundamental resource allocation challenge is the same everywhere, so it may be useful to look more deeply at the strong commitment to ICRBM in Europe and other parts of the world.

The several international agreements mentioned above have a few themes in common. The Dublin Principles include:

Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment;

95. For example, a World Bank working paper states that “the growing scope of river basin management—to include, for example, ecosystem preservation—led to the call for decentralization to the lowest appropriate level as a means for harnessing local initiatives and creating coalitions for development.” Ariel Dinar et al., *Decentralization of River Basin Management: A Global Analysis* 4 (World Bank, Working Paper No. WPS3637, 2005).

Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels;

Women play a central part in the provision, management and safeguarding of water;

Water has an economic value in all its competing uses and should be recognized as an economic good.⁹⁶

The first, of course, states the obvious. Perhaps it is a point that cannot be made too often, but it does nothing to advance the search for water management solutions other than to suggest that the search must continue with some urgency. The third principle may be seen to advance the cause of women and is consistent with broader concerns for equity that regularly arise in such international declarations, but it also contributes nothing to the particular challenges of water resource management. The second and fourth of the Dublin Principles are relevant to institutional design; the second principle embraces some form of participatory governance and the fourth principle recognizes that water markets will play a role no matter how special water is said to be.

Together, these two principles reflect the challenge of allocating an often scarce resource that is essential to a wide range of private activities on the one hand, while being generally viewed as a peculiarly public resource on the other hand. Markets will play a role in the allocation of any scarce resource, even in a planned economy (in which case they may be black markets). But for a variety of reasons water markets suffer from the failures associated with public goods, external costs, and free riders. While there is disagreement about the extent of these market failures and the degree to which they can be corrected through institutional improvements and/or regulation, the second Dublin Principle reflects the widely held view that the public has interests and rights in water that preclude total reliance on markets even without market failures. The desire for a participatory system of water governance is rooted in the relatively modern idea that the public interest can be determined only through some form of democratic decision-making. In combination, these two Dublin Principles are a recognition that water use will be governed by some mix of private markets and public mandate.

A focus on river basins in water governance need not imply a commitment to public mandate in preference to private markets. Rather it can reflect the view that, whatever the mix of public and private institutional arrangements, water governance is best pursued in the context

96. SOLANES & GONZALEZ-VILLARREAL, *supra* note 21, at 6 (citing the 1992 Dublin Principles).

of nature's hydrological units.⁹⁷ However, most advocates of river basin management do anticipate a significant role for government, although not necessarily a single entity making all the decisions. To the contrary, there is a wide acceptance of the principle of subsidiarity in governance; the idea "that governance is more effective if the decision-making authority is located where the pertinent knowledge exists and where decision-makers are directly responsible for the outcomes of actions taken to the community they serve."⁹⁸

While stating that there is no evidence that decentralized is always preferable to centralized governance, Peter Rogers and Alan Hall conclude, consistent with the concept of subsidiarity, that there is an "ever-widening gap between those countries that have managed to move toward subsidiarity—or the performance of functions at the lowest effective level—and those that remain centralized and stagnant."⁹⁹ The widespread international endorsement of subsidiarity in water resource governance has long had support in the United States, although seldom under that label.¹⁰⁰ As the foregoing examples illustrate, the call for river basin management has had only limited success in the United States, and where it has been implemented it results more in greater centralization than it does in decentralization. This reflects the fact that the foundational institution of water allocation throughout the United States remains the private rights that are guaranteed and administered by state governments. As the concept of governance is used in the Dublin Principles and other international declarations, it generally implies governmental intervention at some level and not the most decentralized form of

97. The Global Water Partnership takes the widest possible view of governance: "Water governance refers to the range of political, social, economic and administrative systems that are in place to develop and manage water resources, and the delivery of water services, at different levels of society." ROGERS & HALL, *supra* note 29, at 16.

98. Mody, *supra* note 50, at 45. In the context of pollution regulation this has been referred to as the "matching principle." Henry N. Butler & Jonathan R. Macey, *Externalities and the Matching Principle: The Case for Reallocating Environmental Regulatory Authority*, 14 YALE J. ON REG. 23, 25 (1996). See also James L. Huffman, *Making Environmental Regulation More Adaptive Through Decentralization: The Case for Subsidiarity*, 52 KAN. L. REV. 1377 (2004).

99. ROGERS & HALL, *supra* note 29, at 11.

100. The water resources debate has, in fact, been dominated by the idea of comprehensive and coordinated federal river basin development to promote efficiency and social equity. At the height of the Conservation Era, President Theodore Roosevelt appointed an Inland Waterways Commission, which recommended a federal waterways commission to coordinate all river basin development. Tarlock, *supra* note 16, at 73. Tarlock attributes the failure of the Roosevelt effort to a turf battle between the Corps of Engineers and the Bureau of Reclamation, but given the deeply rooted private rights regimes in every state it seems unlikely that a waterways commission would have accomplished any serious governance. *Id.*

governance consistent with the subsidiarity principle—namely the decisions of individuals functioning in a marketplace.¹⁰¹

This neglect of private property rights among the range of institutional arrangements for water governance is unfortunate in light of other principles that guide ICRBM thinking—transparency, inclusivity, accountability, and efficiency.¹⁰² Private rights in water are fully transparent in every state water rights system. They are inclusive in the sense that potential water users may acquire water rights, although both the riparian and appropriation systems do place some limits on both type and place of use. Private rights in water provide accountability except to the extent that costs and benefits cannot be fully internalized. Finally, market exchanges of private rights in water assure efficient allocation of the water resource, again assuming costs and benefits are internalized. I do not mean to minimize the market failure problems that arise from external costs and the public goods nature of some water uses, but it is a mistake to neglect or discount the important role of private rights in any analysis of water governance. An important question in the design and implementation of such private rights systems is how they will most effectively function given the realities of river basin hydrology.

Even with a well functioning private rights system adapted to the hydrological realities, there will be a significant role for government. Of course state governments are essential to the definition and enforcement of private rights but, beyond that, governments at various levels play a role in regulating to correct for market failures and representing public and community interests. It is the latter function that leads ICRBM advocates to a focus on participatory decision-making. The demand for participation in water allocation decisions goes well beyond involvement in political campaigns and voting in democratic elections; it is the expectation that individuals and groups with an interest in water allocation decisions—what have come to be called “stakeholders”—will have a formal role in the decision-making process.

The term stakeholders appears everywhere in the water management literature and in many of the water management agreements discussed above. The term might be understood to signify nothing different than the interest groups that have always participated in democratic decision-making but, in fact, the concept has come to imply, if not actually confer, something resembling legal standing. An individual or an interest group has always had the right to participate in the political process.

101. See Huffman, *supra* note 98, at 1378–79.

102. ROGERS & HALL, *supra* note 29, at 27–29. Rogers and Hall also identify coherent and integrative, equitable and ethical, and responsive and sustainable as principles of effective water governance. *Id.*

Stakeholders have a right to participate in the day-to-day decisions of government—they get a seat at the table, they might get a vote, and they often can sue in court if their stakeholder status is not adequately reflected in the process or the resulting decisions. In the context of virtually every decision affecting an entire river basin, this means that the table must be very large and the demands of many competing interests must somehow be satisfied.¹⁰³

By whatever name, the opportunity to participate in the political process is important. It provides those who are elected or appointed to serve the public interest an indication of the participants' interests. It can be a useful source of information about the problem being addressed and about the likely impacts of alternative solutions being considered. In the case of public facilities, it can "increase[] the likelihood that these will be well maintained and contributes to community cohesion and empowerment in ways that can spread to other development activities."¹⁰⁴

The participation of stakeholders in public processes can provide these same benefits but the term has come to signify a "necessary sense of ownership."¹⁰⁵ "Participation is sometimes described as providing a 'voice' to stakeholders. However, it is more helpful to think of participation as providing *de facto* property rights."¹⁰⁶ The result is that people with *de jure* property rights risk finding that their rights only assure that they, too, get to participate in a public decision affecting them. This means that when everyone sits down at the table, *de jure* property owners understand that other stakeholders' *de facto* property rights might be superior to their *de jure* rights. As Dan Tarlock notes: "The driving force behind a watershed 'deal' is often the fear that the stakeholder's [*de jure*] property claim will not be recognized should it be tested in litigation."¹⁰⁷ Perhaps this risk for property owners has always existed given the public interest balancing prescribed in the Supreme Court's takings jurisprudence. But the effective recognition of *de facto* property rights in interests who previously had to prevail in the political process to have

103. In the case of CALFED, Suzanne Michel suggests that much energy is devoted to defining the scope of particular conflicts with powerful interests looking to limit public participation and weaker interests seeking to have themselves included among the stakeholders participating in the resolution of the conflict. Suzanne M. Michel, *Defining Hydrocommons Governance Along the Border of the Californias: A Case Study of Transbasin Diversions and Water Quality in the Tijuana–San Diego Metropolitan Region*, 40 NAT. RESOURCES J. 931, 959 (2000). This might be seen as politics as usual, except that stakeholders are recognized as having a right to participate outside the ordinary political processes and, as Michel's conclusion indicates, not every interest gets to be a stakeholder.

104. EASTER, *supra* note 20, at 55.

105. *See id.* at 16.

106. Mody, *supra* note 50, at 11.

107. Tarlock, *supra* note 16, at 81.

standing in the balancing of interests dramatically changes the property rights landscape.¹⁰⁸ Property owners have always faced pressures to voluntarily compromise their rights in order to avoid the expense of a takings challenge against the government, which they might lose. Under the stakeholder model of participation, property owners face the additional prospect of potential lawsuits brought by stakeholders who are really other private interests whose rights are what the stakeholder participation process grants them.

While this fundamental transformation of the common law property system has important effects on resource allocation, it also has serious implications for the public institutions of river basin management.¹⁰⁹ If all of the stakeholders are to have equal standing, all must have a vote. Because “there is at least some risk that the process of participation can be hijacked where diverse stakeholders have unequal bargaining power,”¹¹⁰ most efforts at collaborative governance give every stakeholder an equal vote, usually by having a requirement of unanimity for decision.¹¹¹ As demonstrated by the CALFED example and many others, a unanimity rule—even if only implicit—will make decisions on serious questions difficult. But without a unanimity rule, the process risks its credibility as participatory, and stakeholders are likely to take their grievances to court. While acknowledging that critics claim that “CALFED has spent so much time listening to numerous stakeholders and trying to accommodate all stakeholders that a decision will never be made [and] that certain stakeholders who do not agree with the conclusions of the draft EIR/EIS may stall the CALFED process even further by filing a lawsuit,” Suzanne Michel concludes “that CALFED . . . is a success story in terms of advancing democracy in water resources governance in California.”¹¹² If the goal is “enhanc[ed] . . . stakeholder involvement”¹¹³ as measured by equal participation of all interested par-

108. See, e.g., *Penn. Cent. Transp. Co. v. City of New York*, 438 U.S. 104 (1978).

109. A World Bank study on water resource management does urge that “[p]olicies that affect or change water rights should be carefully evaluated, to ensure that they do not harm the poor.” EASTER, *supra* note 20, at 15. This view is consistent with the strong equity theme in the river basin management literature and agreements.

110. Mody, *supra* note 50, at 11.

111. “[C]hoosing between decentralization and centralized systems one is also choosing between unanimity and majority rules and this determines whether all stakeholders benefit or some groups are marginalized.” *Id.* at 10.

112. Michel, *supra* note 103, at 963–64.

113. William Blomquist et al., *Comparison of Institutional Arrangements for River Basin Management in Eight Basins 4* (World Bank, Working Paper No. WPS3636, 2005), available at http://www-wds.worldbank.org/external/default/WDSContentServer/WDS/IB/2005/06/14/000016406_20050614124517/Rendered/PDF/wps3636.pdf. Blomquist et al., identify enhancing stakeholder involvement and integrated water management at the river basin

ties, then perhaps CALFED has been a success. But if the goal is to establish institutional arrangements for the efficient, fair, and environmentally sustainable allocation of resources in the Bay Delta, the jury—at best—is still out.

In a study of the Great Lakes Compact, Mark Squillace observes that in negotiating the Compact, “the parties . . . followed an exemplary process that effectively engaged stakeholders.”¹¹⁴ He concludes, however, that the Compact “is sorely inadequate for achieving the stated goal of the parties of protecting and conserving the water and water-dependent resources in the Basin.”¹¹⁵ Earlier in the study, Squillace states that “the professed and most prominent reason for the effort was a sincere desire to protect the ecological values inherent in the water resources.” He then concludes that the Compact “utterly fails to promote the ecological health of the Basin and its water and water-dependent resources.”¹¹⁶ Given the almost reflexive praise for participatory process that permeates both academic and political pronouncements on resource management in general and water resource management in particular, Squillace’s praise for an apparently failed process is not surprising. But, notwithstanding being blinded by the glare of the stakeholder polestar, Squillace clearly sees the reason for the failure of the Great Lakes Compact process. “Most importantly,” says Squillace, “the ‘command and control’ directive to regulate new water withdrawals pursuant to detailed criteria does not respect state authority.”¹¹⁷ Not only is this certain to be resisted by the states, but it means the states are not “free to adopt any plan that achieves an appropriate level of water conservation.”¹¹⁸ In other words, the Compact fails to respect the principle of subsidiarity. The Compact also fails to allocate the Great Lakes waters among the participating states and provinces. Quoting Holmes’s statement that “[a river] offers a necessity of life that must be rationed among those who have power over it,”¹¹⁹ Squillace argues that “the parties should allocate the water resources of the Great Lakes Basin based upon current levels of use.”¹²⁰ In addition, says Squillace, “the parties will have to cede over-

level as parallel objectives, confirming that process is often an independent goal from the purpose the process is intended to serve. *See generally id.*

114. Mark S. Squillace, *Rethinking the Great Lakes Compact*, 2006 MICH. ST. L. REV. 1347, 1348 (2007).

115. *Id.* at 1374.

116. *Id.* at 1357.

117. *Id.* at 1361.

118. *Id.* at 1362.

119. *New Jersey v. New York*, 283 U.S. 336, 342 (1931).

120. Squillace, *supra* note 114, at 1367.

sight responsibility to a central authority”¹²¹ and “the parties will have to accurately report their water consumption and use to the central authority.”¹²² Once power is ceded to a central authority, reporting and monitoring should pose few challenges—other than technical ones. But authority will almost surely not be ceded until the relative rights of the parties are resolved and resolving these rights is the key to a successful agreement no matter how participatory the process.

VII. CONCLUSION

No doubt there are many lessons to be learned even from this cursory overview of a few foreign and U.S. forays into river basin management, but there are a few messages that stand out. First, the concept of collaborative governance that pervades most thinking about comprehensive river basin management seldom works in practice. The geographic and human scale of a river basin is usually too large, and the effort to manage these basins is seldom undertaken until resources have become sufficiently scarce to animate both the management effort and the competition among claimants that usually makes agreement impossible—given the unanimity principle inherent in the concept of collaborative governance.¹²³

The idea that there exists a public interest greater than and independent from individual or group interests is deeply rooted in U.S. resources law. Because majoritarian democracy has proven prone to capture by particular interests, collaborative processes that engage all stakeholders are urged as a better method of determining the true public interest. A simple majoritarian—or even a super-majoritarian—system treats participants like voters in any democratic process, whereas stakeholders, as I have suggested above, have something resembling legal rights guaranteeing not only participation but a demonstrable influence

121. *Id.*

122. *Id.* at 1368.

123. There are examples that suggest that scarcity is a critical factor. Squillace suggests that there may be a chance that the Great Lakes states and provinces (or at least their respective federal governments) will agree to an external apportionment of their shares because “the Great Lakes Basin has more than enough water to satisfy the current and reasonably foreseeable future needs.” *Id.* at 1373. In the late 1970s the State of Montana undertook to allocate the future use of the Yellowstone River among city, county, and state agencies’ waters (including irrigation districts). The process went smoothly and the government entities participated willingly in large part because the average annual flow of the river exceeded even the most ambitious prognostications of future demand. JAMES L. HUFFMAN ET AL., *THE ALLOCATION OF WATER TO INSTREAM FLOWS: MONTANA WATER RESOURCES MANAGEMENT* (1980).

on the outcome.¹²⁴ But, if the extent of stakeholder rights is a seat at the table and a veto of any unacceptable proposal, serious allocational decisions will be few and far between.

Two approaches in federal environmental and resource law illustrate the difference between traditional public participation on the one hand and the ambitions of collaborative governance on the other. The National Environmental Policy Act provides for an elaborate process of public participation requiring impact statements, comments on impact statements, and judicial review to assure compliance with the process. At the end of the day, the fact that a participating interest group's allocational preferences are in no way served by the final agency action provides no basis for objection. Participants have a right to participate and to demand compliance with the process, but they have no claim on the resources being allocated. In contrast, the Multiple Use Sustained Yield Act, under which the National Forest Service is required to manage public forest lands, requires the Forest Service to manage the public lands for an array of specified uses.¹²⁵ Although the Act provides no guidance for allocating forest resources among those uses and, thus, no basis for interest groups to challenge particular allocational decisions, it does require that all designated uses be supplied. Therefore, although they have no legal recourse beyond demanding compliance with process, national forest users gain a sense of entitlement that flows from the common notion that everyone owns the public lands. National forest users are, in other words, stakeholders. The fatal conceit of the Multiple Use Act was that a government agency could divine the appropriate balance among competing stakeholder claims on public land resources. But even in the few instances where the Forest Service has agreed to or been required to agree to stakeholder participation in collaborative governance, agreement is elusive at best.¹²⁶ The point is that collaborative governance is an effort to make multiple-use management work by looking to the multiple users to agree among themselves. Most efforts at river basin governance, even where the objectives are far from comprehensive

124. See *supra* discussion accompanying note 103–05.

125. See Multiple Use Sustained Yield Act, 16 U.S.C. §§ 528–31 (1960).

126. The Quincy Library Group (QLG) is the most often referenced example of collaborative governance on the national forests. Although the plan promulgated by the QLG is viewed by some as evidence of the success of collaborative governance, interests not included in the process object that the plan favors some interests over others. No doubt agreement is more easily achieved when some competing interests do not have the standing of stakeholders. See Robert B. Keiter, *Public Lands and Law Reform: Putting Theory, Policy, and Practice in Perspective*, 2005 UTAH L. REV. 1127, 1179 (2005) (noting environmental organizations' criticisms of the QLG).

management, fail to get past the talking stage unless the participants have entitlements beyond the right to say no.

Where there is no apportionment or allocation of water, agreement on real management in the sense of actual allocation of resources to particular uses is extremely difficult to achieve in a collaborative governance model. The relative success of the Delaware Basin Compact and the total failure of the Apalachicola-Chattahoochee-Flint Compact demonstrate the importance of an apportionment of waters. Without some definition of the relative rights of the participants to a negotiation over the allocation of scarce resources, there is little incentive for any party to compromise if unanimity is the rule of decision. This suggests that a solution is a majoritarian or super-majoritarian rule of decision, but either would undercut the philosophical commitment to collaborative or communitarian governance that underlies most arguments for river basin management.

The reason most existing river basin management regimes have been largely ineffective is not that river basin management is a bad idea, but rather because they lack the essential rights element that is necessary for any successful negotiated agreement. Where all stakeholders have an equal vote—which is the same as a veto if unanimity is the rule of decision—and none have rights that will be recognized as trumps in the event of a negotiated agreement violating such rights, the only real incentive for any party to agree to less than everything they want is the threat of intervention by a higher authority or by a court in the context of a lawsuit.¹²⁷ The aspiration of collaborative governance is seldom able to overcome the harsh reality of interest group politics. The only contexts in which collaborative governance by unanimous agreement works on a reasonably consistent basis are those where the participating community is small and homogenous—with respect to the questions posed for collaborative resolution—and where resources are sufficiently abundant to satisfy all interests.

If I am correct that river basin management cannot work effectively pursuant to a collaborative governance model in which all stakeholders have an equal vote and veto, can it work with a majoritarian or super-majoritarian rule of decision? It might be said that such a system satisfies the need for clearly defined rights in the sense that each participant has an equal right to vote and all have an incentive to bargain for the exchange of votes with others. Such a system will surely work better than most existing river basin management systems by overcoming the

127. If the threat of a lawsuit provides sufficient incentive to compromise one's interests, it will either reflect the anticipated costs of litigation or the possibility that a court will find that rights in particular parties do, in fact, exist.

stalemate of indecision that results from a unanimity rule. But given the choice, many stakeholders will not agree to participate in such a system because it will resemble existing public input processes in which there is no guarantee that some interests will not have more influence than others—which is contrary to the very notion that all interested parties are stakeholders with equal standing. More significantly, ongoing majoritarian decisions to allocate and reallocate the scarce resources of a river basin will severely undercut the incentives for long-term investment in either river basin development or protection. Such a majoritarian regime of river basin management would institutionalize the tragedy of the commons.¹²⁸

This is not to say that democratic processes have no role in river basin management or that participation of interested parties should be discouraged. To the contrary, participation of interested parties is important both as an indication of individual and interest group preferences and as a source of information relating to the costs and benefits of alternative water uses. But this recognition of the benefits of participation does not necessarily lead to the conclusion that a centralized, democratic, river basin authority should make all of the important decisions. The geographic boundaries of a river basin will have important influences on the water resource and will sometimes provide a convenient and useful boundary for political authority, but not every water allocation problem will be suited to a one-size-fits-all commitment to river basin governance. Some problems will require inter-basin solutions, while others require sub-basin solutions. Some problems will be amenable to market solutions, while others will warrant government intervention at an appropriate level.

The first few decades of the modern environmental era reflected a presumption favoring federal regulation and management. This highly centralized approach had several explanations: externalities and public goods problems were said to demonstrate that markets were not working; the states were not doing it and were thought to have counter-incentives to minimize environmental protections; every American was claimed to have a right to a clean and healthy environment; and only the federal government had the resources and expertise to address the problems. Although the federal government was quick to regulate water pollution pursuant to its Commerce Clause powers and has been deeply involved in water development projects, water resources—like land resources—have been mainly within the province of state governments. These jurisdictional constraints will remain for the foreseeable future. At

128. Garrett Hardin, *The Tragedy of the Commons*, 162 *Sci.* 1243, 1243 (1968) (explaining the tragedy of the commons).

the same time the federal government will continue to play an important role in water resource management alongside the states. Together, and in collaboration with Canada and Mexico in the case of international waterways, a handful of principles should guide future federal and state actions:

- There is no one-size-fits-all solution. The principle of subsidiarity—governance at the lowest effective level—should guide our thinking in the determination of the appropriate level of government intervention, as it should recommend reliance on markets where a highly decentralized approach is most appropriate.
- River basins will sometimes, but not always, be the appropriate level of water governance. Some problems will require trans-basin solutions while many problems can be best solved at a sub-basin or purely private level.
- Participation of water users and those affected by water use is critical both as a measure of demand and an indication of the impacts of past and future actions, but a collaborative process that grants each stakeholder an effective veto is destined to fail.
- Clear apportionment of water supplies is essential to effective collaborative governance, whether the participants are sovereign governments or so-called stakeholders. When all the talk of public rights and stakeholder interests is finally ended, water governance *is* the allocation of water to particular uses (and non-uses). If there is no legally enforceable apportionment of water to specific uses and particular users, the water resource will be inefficiently used and the river basin environment will suffer unnecessary and avoidable harm.
- The most constructive federal role will be to encourage acceptance of the foregoing principles and to apportion interstate waters where states are unable to reach agreement.¹²⁹

Comprehensive river basin management is not the solution to water allocation and distribution in the United States or around the globe. It is a noble concept, generally promoted for the best of reasons, but the realities of often intense competition for an increasingly scarce resource assure that good intentions and voluntary cooperation will seldom carry the day. Rights-based institutions scaled to the physical and social circumstances of particular water supplies are far more likely to

129. For a discussion of the challenges and solutions to interstate water allocation, see James L. Huffman, *The Federal Role in Water Resource Management*, 17 N.Y.U. ENVTL. L. J. 669 (2008).

succeed. Securing individual and community rights to water—or to shares of variable supplies of water—will provide the predictability necessary for economic development and environmental protection, as well as the basis on which private and public conflicts over water will be resolved.

