



Water Policy Adrift

Water planners in the United States, seeking a new paradigm, could learn some lessons from their friends Down Under.

BY A. DAN TARLOCK

United States water policy is in flux as it moves from the chief paradigm of the 20th century—multiple-purpose development—to one that seeks to use water in more environmentally sustainable ways within the constraints of existing allocations. As a result, the institutions that have managed and allocated this country's water resources are becoming strained and less able to perform their historic function of mediating competing demands for water. Water institutions, including legal institutions, must continue to perform many of their traditional functions and at the same time adapt to new demands such as environmental protection, ecosystem restoration, and social equity.

Throughout the country, the

great era of dam building is over, although the pork mill for navigation-improvement projects grinds on. Indeed, the end of the dam-building era heightens rather than lessens competing demands for water. Today, growing cities compete with proponents of aquatic ecosystem restoration, who compete with traditional users such as agricultural irrigators. All parties compete among themselves for stressed supplies.

In the rapidly growing arid and semi-arid western United States, we have moved from the reclamation era—characterized by large, federally subsidized, regional water projects—to the era of reallocation, conservation, and aquatic ecosystem restoration. The new paradigm seeks to support the traditional consumptive uses such as irrigation, and nonconsumptive

uses such as recreation, fisheries maintenance, and ecosystem restoration, through more efficient use and better management of demand. It also seeks to promote reallocation so that existing unregulated rivers and their ecosystems can be preserved, and degraded ones can be restored. The humid East also faces increased risks of water shortages in some rapidly growing areas, and it must deal with many of the same problems of restoring aquatic ecosystems that the West faces.

Stormy Weather

Shifts in policy have sparked a contentious debate about how the risks of shortages should be shared among competing users. Moreover, disagreements abound over how the benefits of alternative schemes should be distributed. These problems have taken on an added complexity in the debate over global climate change.

The hydrological, economic, and political consequences of global climate change in a given watershed or river basin are uncertain.¹ Some predict that global climate change may alter precipitation and runoff patterns throughout the world. The rub is that both the amount and timing of rainfall may change but the geographic and temporal scale of the change is uncertain. Some regions, such as sub-Saharan Africa, may experience decreased precipitation and more-extended droughts. Others will see increased precipitation and more-frequent and more-severe floods.

Increased precipitation, however, may not translate into more-available water supplies in all regions. In water-short areas with historically variable rainfall pat-

terns, increased precipitation may actually exacerbate efforts to provide reliable water supplies. Warmer average temperatures may cause spring runoffs to come earlier and evaporate faster, snowpacks may melt earlier, and more precipitation may fall as winter rain rather than snow.

Increased, but out-of-cycle, rainfall is the projected pattern for parts of the western United States. Wetter, warmer weather could strain existing storage systems that currently provide reliable regional water supplies.² Existing reservoirs may not be able to capture the increased winter runoff, causing serious shortages in the summer.³ In addition, states and regions may have to adapt to a series of ecosystem changes due to plant and animal population shifts caused by changing climatic patterns. All these new uncertainties must be factored into any adaptation strategy.

Policy Adrift

New demand and greater uncertainty about available supplies mean today's water users and managers face difficult choices. These difficulties are exacerbated by increasingly thin institutional buffers between groups with diametrically opposed points of view. No single group, such as irrigated agriculture or municipal water supply, controls the agenda and the water resource agencies. The diffusion of power among old and new stakeholders means that agencies have increasingly less power to resolve conflicts by imposing a solution.

In addition, the two major institutional frameworks—state water law and federal water resources development—are under great

stress. State water law has traditionally determined the allocation of water among competing residential, industrial, and agricultural users and hydroelectric power generators. But increasingly the market, rather than state water administrators, controls the allocation of water.

While the federal role remains important, it is changing and diminishing. John Volkman, a longtime student of the Columbia River—which has been primarily dedicated to hydroelectric power generation, navigation, and irrigation to the detriment of ecosystem services—has characterized the conflicts among interests in that basin as a contest between a working river and a river that works. Change is difficult on developed rivers because most users, especially established consumptive and nonconsumptive ones, view the allocation of water among competing users as a zero sum game.

In the past, when water policy meant developing national water resources, the federal government was able to solve most conflicts by simply providing more usable water by funding a large project. But modern water policy is no longer an important national political issue, and the federal government is now more of a regulator than a supplier. The new water era is therefore much more diffuse and decentralized.

At the federal level, the two major historic water agencies—the Bureau of Reclamation and the U.S. Army Corps of Engineers—face shrinking budgets. They must also share their authority with such agencies as the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and the U.S. Environmental Protection Agency, which

are not water managers per se but do have considerable authority to influence specific management decisions—especially decisions that could alter habitats and aquatic ecosystems—and are becoming major players in water policy.

While the Corps and the Bureau of Reclamation still have a political constituency, they lack much of the autocratic power that they once had. Much of the old planning infrastructure has been dismantled, and the Corps and the Bureau are caught between their old constituencies and efforts to expand their mission to include environmental management and conservation. The Bureau of Reclamation's draft strategic plan for 2000 through 2005, for instance, grandly proclaims that the Bureau's mission includes "managing, developing and protecting water and related resources to meet the needs of current and future generations."

Hands Off

The institutional context of the new era differs markedly from past regimes. For a variety of reasons, it lacks the clear, coherent vision and focus on multiple use.

First, the new policy is still largely a negative reaction to the social and environmental costs of multiple-purpose development—especially large dams—and it will take time for a clear vision to evolve. Powerful new ideas are emerging, such as the goal of the "normative river," which seeks to restore dammed and channeled rivers to a state closer to the original. These ideas are complemented by new management theories that consider ecological processes as continually evolving rather than reaching a permanent, natural equilibrium. These new approaches have great

relevance for water management. But ecologists rather than engineers are the intellectual force behind the new vision, and their influence is still marginal.

Second, in contrast to multiple-purpose development, the new policy lacks legislative and executive guidance. Initiatives are more likely to come from the bottom up—from local agencies and non-governmental organizations—than from the top down, and the effectiveness of these initiatives is very much in doubt.⁴

Modern water policy is a victim of post-Reagan minimalist government, which seeks to reduce the federal role in setting policy and increase the role of the states and local agencies. Today, there are no George Norrises, Robert Kerrs, Clinton Andersons, or Henry Jacksons—strong legislators who helped frame landmark natural resource-development projects and environmental policies, such as the Tennessee Valley Authority, the Arkansas River Navigation Project, and the National Environmental Policy Act—to articulate and implement visionary national and regional programs.

Instead of providing leadership, Congress is more likely to intervene in specific disputes to benefit a narrow but powerful local constituency, as it did when it recently forbade the Corps of Engineers from changing the Missouri River Master Manual, the federal guidelines that govern the river's management. One proposed change would have regulated the river's flow to improve habitat for endangered species such as the pallid sturgeon. The navigation industry and farmers, however, opposed any revision of the manual as it threatened to hurt them eco-

nomically. President Clinton vetoed this meddling, and Congress was unable to override the veto. While this was a minor victory for river restoration, the process also illustrates how minimalist government will often lead to policy gridlock.

Third, the traditional mandate to allow for multiple uses of water resources had a firm legal foundation, unlike the new vision. The new paradigm—which attempts to balance environmental and economic interests—is contested by many traditional water users, and thus efforts to reform water policy can be blocked by powerful legislators beholden to them.

End of an Era

The current minimalist federal water policy is apparent in two recent federal water-commission studies. Federal water commissions have historically played an important role in setting the national water agenda. In 1968, Congress created a National Water Commission to provide guidance for the expected continued large-scale regional water projects such as transbasin diversions, which were becoming increasingly controversial for both economic and environmental reasons. The commission's bold report examined all aspects of water policy, focusing on the use of markets to test the efficiency of alternative allocations. It also legitimized incorporating environmental values in water allocation and inadvertently provided a blueprint for the end of the reclamation era.

In 1992, in a similar attempt to review the complex mix of local, state, and federal water policy that no longer provided a clear vision of how to manage western water resources, Congress autho-

rized the Western Water Policy Review Advisory Commission, appointed by President George Bush. This commission turned out to be a political orphan, however, after its sponsor, Senator Mark Hatfield of Oregon, retired from the Senate. The new Clinton administration tried to kill the commission, but Congress intervened to save it.

The strange mix of members on the commission—including private citizens, cabinet secretaries, and members of Congress—ensured that it was gridlocked from the start. Congressional republicans, for example, immediately took off the table the two most important issues: reorganization of congressional jurisdiction over water resources and the idea of executive integration of water resources activities. A final report—*Water in the West: Challenge for the Next Century*—was published after a majority of the commission reached a compromise with two members, each with a single idea. One wanted a watershed governance structure that would give states and local users more freedom to decide how to comply with federal environmental mandates, and the other wanted increased coordination of agency water resources budgets. The resulting report is like Richard Strauss' opera *Ariadne auf Naxos*, which overlays an Italian buffo opera over a Greek tragedy.

The report endorses a controversial experimental watershed-management program that has the potential to displace federal standards with local ones. It also contains a full discussion of the transition from reclamation to reallocation, justifies a need for a new vision of river systems and water-

sheds, and examines the institutional implications of the end of the reclamation era. The report, however, seems to have suffered the fate of many similar reports and modern operas; they receive initial praise and interest and then disappear into the archives.

As students of international relations would predict, the federal government's diminished role has set off intense competition among water claimants for supplies to meet the demands of urban growth and environmental restoration. In general, state governments have not taken up the slack and assumed the federal government's traditional mediating role. These developments place new stresses on water management and allocation law.

Environmental laws grant federal agencies considerable leverage to influence decisions about water allocation, but the regulatory agencies can neither make the necessary allocation decisions nor project operation changes. In addition, the regulatory power is often so drastic that the political costs of full enforcement are too high. Thus, the federal government increasingly functions more as a facilitator of regional stakeholder settlements than as a regional development bank or traditional regulator, although the threat of federal regulation is always in the background.⁵

Conflict of Interest

Water law has two basic, related functions: to create correlative private property rights in scarce resources and to impose limitations on private use, in the public interest. There is inevitable tension between these two functions. Correlative property rights recognize

the rights of individuals to use a portion of a common supply while simultaneously protecting the interests of other users. Limitations on private use promote broader public values.

In general, states set the basic allocation rules, except for federal interests such as Indian Tribes and public lands. States also have the discretion to define the public interest, although they have not historically exercised this discretion to significantly limit private water use.

State law continues to perform these functions, but it has remained relatively static. There are both virtues and vices in this stasis. The states have not been interested in taking up the slack of the ever-shrinking federal government. They primarily continue to administer the laws of allocation. On one level, this facilitates changes through water markets, which have emerged as a major reallocation policy instrument. Water rights have always been inalienable, but the prevailing assumption was that water would be used on the land where the right was initially applied. This assumption held more or less true when the principal form of conservation was supply augmentation, but this is no longer the case. Growing cities, power generators, and environmental interests are increasingly relying on the purchase of existing irrigation rights to meet the demand for new supplies.

The legal system's emphasis is shifting from setting the ground rules for the acquisition of rights and their enjoyment to lowering the transaction costs of transfers. Aside from specific commitments to environmental protection and restoration, there are few limits on the transport of water from water-

sheds to cities outside the watersheds or on the power of cities to decide how much they need. But this limited role prevents the states from exercising control over the pace of reallocation or adjusting to new demands. For example, the insistence by many westerners that land and water are exclusive individual property rights with no community dimension undermines new community efforts to control their destiny. Land and water are alienable property rights, and individual rights holders are generally free to respond to market pressures without regard to the impact of their decision to break up a parcel of land or transfer a water right to the surrounding community.

Goldrush Era

A recent decision by the California Supreme Court shows the danger of refusing to temper the protection of vested rights with accommodation of new demands.⁶ In 1996, a trial judge imposed a negotiated settlement on all groundwater users in the Mojave River Watershed. The decision did not strictly follow California groundwater law, but the state supreme court had a long tradition of approving allocation regimes that balanced groundwater conservation with equal access among all users. The court's decision that courts must determine the prior rights of all pumpers is, of course, a classic example of the rule of law, but it also illustrates the difficulties of adjusting, rather than eliminating, historic entitlements to respond to current conditions.

In an editorial, the *Sacramento Bee* characterized the opinion, somewhat inaccurately, as a "Gold Rush Era" decision, but the result

shows that holdouts—those who refused to accept the negotiated settlement—can use law to raise the costs of systemwide allocation adjustments that balance resource conservation and use.

The California decision is not an anomaly. In general, states have the poorest track record of incorporating environmental protection values into existing and future water-allocation regimes. There are some exceptions, of course. The Hawaii Supreme Court, for example, recently integrated the public trust doctrine, which provides that “public natural resources are held in trust for the benefit of the people,” into its statutory water-allocation regime to impose potentially strict in-stream flow-protection duties on the state. Initially, the law of water rights has little weight to leave water in a stream, but more and more states are trying to maintain minimum stream flows to protect fisheries and other environmental values. In a dispute over the allocation of a ditch that carried water from the windward to the leeward side of Oahu, the Commission on Water Resource Management set interim in-stream flows for windward streams and denied several water-use permit applications. The court held that the commission correctly interpreted the public trust doctrine to give priority to the protection of fresh groundwater and surface-water resources because “the people...have elevated the public trust doctrine to the level of a constitutional mandate.”⁷

Changing Tack

One possible side effect of the resistance of law to change is that courts may block reallocation schemes because they conflict with

vested entitlements. This possibility has encouraged ad hoc solutions to conflicts, thus discouraging stakeholders from claiming their full entitlements. Around the country, all levels of government are trying a number of important ad hoc basin-restoration experiments to solve specific basin problems.

These efforts generally begin as an attempt to deal with a perceived crisis for threatened or endangered species. Once sufficient bipartisan political support has been mustered, however, they have evolved into a broader effort to accommodate both historic and new basin uses. The federal government remains an important participant, but power is shared much more broadly with states and stakeholders than in the past.

The real question is whether these settlements will favor process over substance and in the end fail to reach long-term consensual solutions about how the real costs of reallocation will be shared.

The California-Bay Delta restoration process, for example, has been underway for almost a decade, but the parties have developed neither a clear focus—the restoration of the deteriorating Bay Delta ecosystem—nor a plan to accommodate ecosystem restoration with continued consumption for agriculture and municipal and industrial use. Many promising ideas such as adaptive ecosystem management—which sets ecosystem indicator targets and takes the necessary actions to meet them—have emerged, but the jury is out on their long-term success. The recent election and Supreme Court selection of a new president injects great uncertainty into the process and may encourage many stakeholders, such

as irrigated agriculture, to dig in their heels and refuse to make necessary concessions.

Simulating Nature

The recent federal legislation to fund restoration of the Everglades is an example of an effort to apply new management techniques to save a degraded ecosystem. The current thinking is that the system must be restored through intense management of the existing built system of canals and drains that caused its degradation. This is not a simple return to the status quo prior to development. Rather, it involves the artificial reconstruction of the environment before human intervention, using sophisticated techniques such as computer models of water flow and experimental management strategies that mimic the natural ecosystem.⁸

Agricultural use of fertilizers containing phosphorus have contributed to unhealthy algal blooms in the Everglades. Experts widely agree that more low-phosphorus water must be put back in the system. In addition, diversion of water for agricultural irrigation has disrupted the natural cycle of water flow from north to south. Sheet flows must be more continual for longer periods of time during the wet season to sustain the glades during dry periods.⁹

Experimental releases of water into the glades have taken place, but the results are still uncertain as the experiments are conducted in the absence of scientific certainty about species and system responses to restoration efforts and management strategies. These efforts, therefore, must be constantly evaluated and often revised.

In February 1999, for example, a group of biodiversity experts complained to the secretary of the Interior that the federal government's actions had a high risk of failure because water releases into the park were insufficient to maintain the Everglades.¹⁰ Secretary Babbitt immediately agreed to the creation of a new scientific panel to monitor the experiment.¹¹ In October 2000, the Senate approved a \$1.4 billion-dollar restoration plan as part of a larger federal-state cost-sharing and cooperative strategy.¹²

The Florida example may not be a good model for other restoration projects, however, because the Everglades are a heritage resource whose restoration has been widely accepted. In addition, federal and state governments are dealing with the major stakeholders—such as water-management districts, irrigators, and environmentalists—who will be adversely affected as more water is sent into the park and phosphorus loads must be reduced—in the old fashioned way: throwing money at them.

Doing It Right

While American water managers grapple with an uncertain tangle of legal precedent and environmental manipulation, Australia is conducting an important experiment in flow maintenance and ecosystem restoration management on its largest river system, the Murray-Darling.¹³

The population of the Murray-Darling basin is relatively small, since Australia's population is concentrated along its coast. Still the basin contains 42 percent of Australia's agriculture—which consumes about 78 percent of the country's water supply—most of

the country's major inland cities, and its capital, Canberra.

Like the United States, Australia is a federal system, and the Murray-Darling is an interstate river system. The Murray originates in the Snowy Mountains of New South Wales and Victoria, while the Darling originates in southern Queensland and joins the Murray near Mildura, Victoria.

The system has been severely degraded—especially from increased salinity—due to diversions and dams. In 1992, the federal government and the basin states agreed on the Murray-Darling Initiative to conserve the river's ecosystem. The initiative led to the adoption of the federal-state Murray-Basin Agreement and the creation of a joint federal-state commission overseen by a federal-state ministerial council.¹⁴

Unlike a United States interstate compact or an international treaty, the agreement imposes much more detailed land-use and water-management duties on the parties and is constantly being amended by new agreements. It has bite because it allocates the flow among the basin states,¹⁵ and it vests a commission with the power to control releases from specified upstream storage facilities. The Murray-Darling Commission now runs the river—overseen by a ministerial council, composed of ministers from the participating territory and states—and a stakeholder advisory board composed of state representatives, farmers and other rural interests, environmentalists, and aboriginal representatives.

This experiment is the best available model for incorporating a river into a transboundary water resource managed to meet the needs of its many users. The effort

has the three key elements that many of the current ad hoc United States experiments lack: a formal cooperative institutional structure, a relatively clear management objective, and a plan to limit inconsistent consumptive uses.

The most important precedent with potential international implications is the commission's adoption of a base-flow regime. This establishes the average quantity of water flow necessary to sustain a healthy ecosystem, and it mandates that any management regime should maintain that base flow. The commission's goal is to set base flows for ecosystem restoration, based on information about how flows affect the riverine environment. This regime is imposed by the law of the four basin states—Queensland, New South Wales, Victoria, and South Australia—on existing entitlement holders throughout the basin.

Cap and Trade

The problem with establishing new regimes on developed river basins is that users have acquired, or at least claim to have acquired, vested rights. Yet federal and state governments recognize the need to limit water withdrawals, establish base flows, and stabilize and restore productive agricultural areas, especially those degraded by salinization. To that end, in 1996, the commission announced caps on water use.

The caps—which are the “cornerstone of a number of policies designed to manage water resources for scarcity: water trading, environmental flows and the security of property rights”—impose yearly limits on diversions of water in the four basin states and the Australian Capital Territory.¹⁶ Each

state or territory's cap will vary from year to year according to the supply of water. The caps are administered by each state and will require aggressive management, since agricultural water diversions are increasing in both New South Wales and Queensland. In 1996 and 1997, three major subbasins in New South Wales exceeded the caps.¹⁷ Staying within the limits of the caps will require innovative management strategies, such as augmenting the surface-water supply with withdrawals of groundwater, abandoning the "use it or lose it" administration of water licenses, and implementing an accounting system to balance water use over a period of time.

Rollbacks in existing uses can be fair and efficient and at the same time promote environmental objectives. In major river systems, agricultural water use is almost always wasteful. Agriculture also uses more water than it is legally entitled to, so river managers have some flexibility to experiment with more-efficient use of agricultural water without unduly disrupting the expectations of legitimate users.

The most significant device Australia has used to ensure flexibility is the Pilot Interstate Trading Project in the Mallee Region of South Australia, Victoria, and New South Wales along the lower Murray River. Water prices and agricultural crops are comparable among the three states.

Under the pilot program, individual diverters with high-security water rights such as irrigation licenses may sell water across state lines, provided that the water licensing authorities in each state agree to the transfer.¹⁸

One of the major unresolved is-

ssues in water marketing is how to integrate the benefits of markets with environmental protection objectives. The Murray-Darling Pilot Program does this by establishing exchange values—the amount of water that can actually be transferred—among states. Trades by upstream diverters from New South Wales to Victoria and from Victoria to South Australia have a 1.0 exchange rate, which means that 100 percent of the entitlement can be transferred downstream. But transfers from South Australia to the upstream states of Victoria and New South Wales have an exchange rate of 0.9 so that only 90 percent of the entitlement can be transferred.¹⁹ Thus, the capacity of the lower river to continue to dilute the salinity will be protected. To integrate the program with the basin initiative, all transfers must meet a no-net-detriment-to-the-environment standard and must be consistent with environmental flows set for the Murray.

Breaking the Gridlock

The current state of disarray in U.S. water-use policy leaves many critical interstate water basins dangling under Solomon's sword. While the Murray-Darling Initiative is still a work in progress, it could serve as a model for a new regime in water management in the United States. Either through presidential leadership or congressional initiative, policymakers need to forge a clear vision for the future, based on a common understanding that long-term environmental goals are also consistent with sustainable economic development. Otherwise, competing interests will drain the life from America's rivers.■

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NOTES

1. The gap between what we know and need to know about the relationships between climate change and human and natural systems is set out in *Global Environmental Change: Research Pathways for the Next Decade*, Committee on Global Climate Change Research, National Research Council (Washington, DC: National Academy Press, 1999).

2. An early study concluded that water deliveries for federal and state water projects that serve California's San Joaquin Valley could be reduced by as much as 25 to 28 percent. Daniel J. Dudek, *Climate Change Impacts on Agriculture & Resources: A Case Study of California* (New York, NY: Environmental Defense Fund, 1989).

3. Sandra Postel, *Pillar of Sand: Can the Irrigation Miracle Last?* (New York, NY: W.W. Norton & Co., 1999), pp. 85-86. There is a significant school that argues that global climate change will be good for the United States and other temperate countries. See Thomas Gale Moore, *Climate of Fear: Why We Shouldn't Worry about Global Warming* (Washington, DC: Cato Institute, 1998). Moore counts increased water supplies among the estimated \$99 billion benefits that the global climate change will produce for the United States.

4. See David Lewis Feldman, "Southeastern Water Conflicts: Can a Stakeholder Forum Enhance Long-term Planning?" *Rivers* 7(3) (2000), pp. 191-204.

5. The ongoing Bay Delta process is an example of partnership federalism. See A. Dan Tarlock, "Federalism without Preemption: A Case Study in Bioregionalism," *27 Pacific Law Journal* (1996), pp. 1629, 1641-1644.

6. *City of Barstow v. Mojave Water Agency*, 5 P.3d 853 (2000).

7. *In the Matter of Water Use Permit Applications*, 2000 Hawaii Lexus 255 (Hawaii 2000).

8. For a brief discussion of the recreation of simulated naturalness as a new management baseline, see *River Resource Management in the Grand Canyon*, National Research Council (Washington, DC: National Academy Press, 1995), pp. 38-49.

9. Carl J. Walters and Lance H. Gunderson, "A Screening of Water Policy Alternatives for Ecological Restoration in the Everglades," in S.M. Davis and J.C. Ogden, eds., *Everglades: The Ecosystem and Its Restoration* (Delray Beach, FL: St. Lucie Press, 1994), chapter 30.

10. Phosphorus inputs remain high and more water flows are needed to reestablish natural habitat patterns. South Florida Water Management District, Executive Summary of the *2000 Everglades Consolidated Report* (2000), p. xli.

11. President Clinton signed the Water Resources Development Act of 2000, which in-

cludes \$7.8 billion for Everglades restoration, on December 21, 2000. Florida's initial commitment is \$200 million.

12. Council on Environmental Quality, "The Florida Everglades" <<http://www.whitehouse.gov/CEQ/990630b.html>>.

13. See Murray-Darling Basin Commission, *Annual Report* (1998-1999) <<http://www.mdbc.gov.au>>.

14. *Ibid.*

15. *Ibid.*, Part X.

16. The ministerial council has commissioned a five-year review of the cap to "identify any impediments and constraints to its full operation." Murray-Darling Basin Commission, *Review of the Operation of the Cap Implementation and Compliance: Component Summary* <http://www.mdbc.gov.au/naturalresources/policies_strategies/projectscreens/caproject.htm>.

17. Murray-Darling Basin Commission, *Water Audit Monitoring Report 1996/97, Report of the Murray-Darling Commission on the Final Year of the Interim Cap in the Murray-Darling Basin* (October 1998) <http://www.mdbc.gov.au/naturalresources/policies_strategies/projectscreens>.

18. The procedure is outlined in Murray-Darling Basin Commission, *The Pilot Interstate Water Trading Project* <http://www.mdbc.gov.au/naturalresources/policies_strategies/project_screens/pilot_watertrade.htm>.

19. *Ibid.* According to *The Pilot Interstate Water Trading Project* report, the reason is that upstream transfers "will reduce the total Cap for the Basin resulting in greater end of the system flows. This will compensate to some extent, for reduced dilution flows in some reaches."