

## A Giant Step Backward

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In the rush to reinvent, downsize or eliminate government agencies and programs, management of water resources in the United States has taken a giant step backwards. Arrangements for water management in the 1990s have unraveled to the point that they share many similarities to those of the 1940s and even earlier. Two inherently linked management tasks -- wise use of resources and protection of water quality -- are poorly linked by contemporary water policy and existing management organizations. Interrelationships among multiple uses of the resource are frequently being ignored, leaving the courts to resolve conflicts and foreclosing opportunities to capture economies of multiple purpose projects. Planning for use of the resource is proceeding on a piecemeal basis, frequently lacking in regional or basinwide perspectives. Information about the state of water and related land resources has become outdated. Development of analytical techniques for analysis and evaluation of programs to protect or restore environmental resources have been stymied by lack of organization.

Water management in the United States has never fully satisfied some of the most basic principles that have guided the field, so a critical examination of the present state of affairs must do more than take a wistful look at the past. Among the most basic of tenets of good water management and planning is that it be comprehensive in the sense that all uses (and nonuses) and related quality be considered in plan formulation. One of the most important shortcomings of American water management in that context is the failure to integrate plans for its use with plans to protect or restore its quality. That failure was made clear by the National Water Commission in 1972, and it remains true today.

Planning for both quantity and quality has declined sharply over the past two decades, in large part because of declines in federal expenditures for construction programs to which planning has been inexorably linked. National water resource planning as we know it began after the private sector began to develop the nation's waterways for hydroelectric power. Following passage of the Federal Power Act to regulate that activity, Congress directed the United States Army Corps of Engineers

(USACE) to assist the Federal Power Commission by preparing a series of basinwide plans to guide permitting of hydropower facilities in those basins where such developments were feasible. After the list of basins was published in 1927 in House Document 308, over 200 plans were prepared. A principle that guided preparation of those plans was that facilities should be designed and permits conditioned to promote multiple purposes. With passage of the Boulder Canyon Project Act in 1922, creation of the Tennessee Valley Authority in 1933, and the Flood Control Act of 1936, the federal government became the majority player in large resource development activities. To cope with the complexities of planning for multiple uses that transcended the expertise and authority of any one agency, a variety of coordinating mechanisms evolved, beginning with those of New Deal agencies in the 1930's, the Federal Inter-Agency River Basin Committee in 1939, and the Federal Inter-Agency Committee on Water Resources, given statutory recognition in 1958 (Schad, 1979).

Rapid increases in the number of development projects during the 1950's created a Congressional concern for even greater coordination among federal agencies and between state and federal interests. That concern led to passage of the Water Resources Planning Act of 1965, putting into place a national planning system administered by the Water Resources Council (WRC). Despite certain shortcomings discussed by Caulfield (1984) and others, the Act accomplished several important objectives, including:

- \* establishment of regional planning mechanisms through the creation of river basin commissions;
- \* enhancement of state planning capabilities and participation in the federal process; and
- \* development of principles, standards and procedures for multiple objective plan evaluation.

Unfortunately, the WRC's planning system was reaching maturity just as the construction program began to plummet. Capital outlays for federal water resource projects peaked in 1965 (Moreau, 1996), and by 1985, they were less than 50% of their peak value. About 275 new large dams were completed in the 5-year period

1961-65; in the period 1976-1980 that number dropped to about 150, and in 1986-1990 it dropped to less than 20.

Many reasons have been offered to explain that decline -- environmental concerns and passage of the National Environmental Policy Act, distrust of the executive branch of government following Watergate, disagreement over who should pay for projects, and application of WRC's Principles and Standards. As Congress and the Executive branch decreased construction budgets, opposition to the Water Resources Council increased, in part because of the elevated position to which President Carter sought to push it, and, in part, because it was simply one of many federal agencies that President Reagan sought to eliminate. In fact, Reagan virtually eliminated the WRC by withdrawing its funding in 1983.

With elimination of the WRC, planning arrangements reverted to the single agency model that had characterized federal planning for water resource development in the 1920s. Several noteworthy exceptions to this trend are mentioned later, but, when the cost-sharing debate was resolved with passage of the Water Resources Development Act of 1986, a new era was ushered in. New projects, in which local sponsors are required to shoulder a much larger share of the cost, are smaller, much more limited in scope, and are primarily responsive to local rather than regional or national interests. A recent analysis reported that the Corps of Engineers had initiated feasibility studies on 163 projects from 1986 through 1996. About half of those were primarily for flood damage prevention on relatively small watersheds. Another 17% were for improvements to local port and related navigation improvements. Very few of these projects cover entire river basins and very few are multiple purpose in nature. Only a small percentage are primarily for public water supply or recreation (Moreau, 1997).

Planning for water quality improvements also declined as federal construction funds declined. When Congress put together the Federal Water Pollution Control Act Amendments of 1972 (FWPCA), in which it authorized construction grants at the rate of \$6 billion a year, it also established a hierarchical planning structure that operated under the administrative leadership of the United States Environmental Protection Agency (USEPA). States were given grants to support continuing planning for program management (Section 106) and development of basinwide plans under Section 303. Metropolitan areas were given grants for areawide planning (Section 208), and local governments were given grants to plan, design and construct wastewater treatment facilities (Section 201). Another part of FWPCA authorized funds to complete WRC's comprehensive basinwide water resource plans,

but no funds were ever appropriated for that purpose.

USEPA, buoyed by the growing environmental movement in the 1970's, had little interest in comprehensive planning. Although it was a member of WRC, USEPA seldom sent representatives to the meetings. The agency had a single-purpose directive to improve water quality, largely through the construction of wastewater treatment facilities to serve industries and municipalities. Planning guidance developed by USEPA tended to follow the single purpose model previously developed by state water quality agencies. For the most part, plans were developed to implement technology-based effluent limits and to achieve water quality standards applicable to existing uses. Those uses were taken as a given with little consideration of alternative uses to which both the water and related land resources could be or might be put in the not too distant future.

Despite these and other criticisms of planning related to the Clean Water Act, the Act did establish a national system for water quality planning. Metropolitan-level, and later state-level planning under Section 208 brought considerable public attention to the magnitude and consequences of nonpoint sources of pollution. In many metropolitan areas, 208 planning at least elevated the discussion of possibilities for regional cooperation in wastewater treatment. State capabilities in basinwide planning were also enhanced through these processes.

As funding for construction grants declined, however, so did funding for planning activities. Over the period 1972-1992, funding for construction grants exceeded \$90 billion in constant 1992 dollars, but those grants peaked in 1977. After having been targeted for complete elimination several times, they declined sharply after 1977, and, beginning in 1987, funding has been redirected to capitalize state revolving funds. Federal financial support for water quality planning has been virtually eliminated. Only modest funding continues to flow to the states under Section 106, Section 319, and a few other small programs.

## **PLANNING AND MANAGEMENT CONSEQUENCES**

Reductions and eliminations of some of these planning programs have resulted in significant losses of several activities and delayed progress toward implementation of others. Four are highlighted in this discussion. First, monitoring and assessment of the current state of the nation's water and related land and ecological resources is no longer available. Second, progress toward achievement of comprehensive or integrated planning has

been reversed. Third, basinwide and regional perspectives, within which individual projects contribute to national and regional economic and environmental objectives, are not being formulated. Fourth, no systematic mechanism is in place to formulate plans for improving resource management and setting national and regional priorities.

Timely information and critical analysis from monitoring and assessment are essential elements of any planning and management activity, both to evaluate accomplishment of prior initiatives and to identify current and future needs. Large volumes of data relevant to the nation's water and related resources are available, but no systematic national assessment of them has been undertaken in the past 20 years. The last broad policy review of national water resources that drew widespread interest was the report of the National Water Commission in 1972. The Water Resources Council produced two national assessments during its existence, but those voluminous documents failed to capture a broad audience and had few policy consequences. In the mid-1980's the United States Geological Survey (USGS) began issuing the *National Water Summary* on an annual basis, a useful topical publication, but one that did not address policy issues. USEPA initiated its Environmental Monitoring and Assessment Program, but it collapsed under the weight of its complexity and expense. Congress has generously supported the National Water Quality Assessment (NAWQA) program, but that program is a long way from producing a national assessment. That effort holds the promise of enhancing the scientific basis for water quality policy, but an assessment of needs and policy options is not within the scope of NAWQA.

The single agency model toward which management programs have devolved in recent years has pushed the nation further from the principle of comprehensive, basinwide, integrated planning. Except for a few high-profile projects, there is little incentive for interagency cooperation. USEPA has pushed its new Watershed Approach since 1991, but without a mandate, funding, or guidelines for that program, it is largely voluntary and lacking in specifics as to what constitutes holistic, integrated planning. State water quality plans included under that broad framework tend to be focused only on quality of the resource with little attention to uses of the resource other than those that now exist. As pointed out earlier, a large portion of post-1986 Corps of Engineers' projects are limited in scope and not very amenable to multiple purposes. Prior experience with many large-scale, broadly encompassing planning activities can be used as examples of government programs going nowhere, but the absence of some framework for identifying basinwide strategies and hydrologic and

ecologic interactions within basins is prima facie evidence of inefficiency in management.

A systematic assessment of basinwide or regional needs is essential to the establishment of national priorities. Whether it be public water supplies in the Northeast, flooding in the Upper Mississippi Basin, ports along the South Atlantic, protection of endangered aquatic species and generation of hydroelectric power in the Northwest, or restoration of the Everglades, the nation needs expertise to conduct large-scale regional planning and to assemble expertise from a range of disciplines as needed. Expertise is needed to analyze large hydrologic and ecologic systems, formulate and evaluate alternative management strategies, and support a process for setting regional and national priorities.

Two current projects are noteworthy examples. One is the restudy of the Central and Southern Florida Project to determine the feasibility of structural and operational modifications necessary for restoration of the Everglades. Congress directed USACE to undertake this study, but the project is directed by the South Florida Ecosystem Task Force, a statutory organization representing 6 federal cabinet agencies, USEPA, 2 tribes, the State of Florida, the South Florida Water Management District, and local governments. As an effort to restore an ecosystem of truly national significance, the project demands a broad range of expertise and viewpoints. A second project, the Upper Mississippi River-Illinois Waterway System Navigation Study, is also regional in scale but much narrower in scope. Environmental aspects of that project are important, but the first question to be answered is whether improvements to the navigation system are economically justified.

## **WHERE DO WE GO FROM HERE?**

At least two current realities constrain our choice of future directions. Expansion of the federal bureaucracy in the prevailing climate of government downsizing appears to be most unlikely. Creation of new or expanded programs to address natural resource planning and management is equally unlikely. A more feasible option is to better coordinate or streamline existing federal programs with no new resources, a strategy that is probably long overdue.

Three issues, and perhaps others, are on the table for discussion as we look to the future of water resources planning. First, a reexamination of the federal organizational structure for planning and managing water and related land and ecological resources is in order. Such a structure should lead to better integration of planning and management of the resource, its quality,

ecosystems that interact with it, and land uses that both affect it and are affected by it. Rogers (1993) suggested creation of a President's Water Council within the Executive Office of the President. That seems to be a more likely possibility than reactivation of the cabinet level Water Resources Council as recommended by the Interagency Floodplain Management Review Committee in its 1994 report delineating the major causes and consequences of flooding in the Midwest in 1993. Yet another option is reorganization of resource-related functions of federal agencies in a new Department of Natural Resources, a proposal that has been on the table for at least 30 years. Bringing about a reorganization of that magnitude would require considerable executive and legislative leadership, a path to which few appear to be presently committed.

Second, among the first items on the agenda of whichever organizational structure is adopted is revision and update of *Principles and Guidelines* to reflect new programs, emerging purposes, advances in methods of economic and environmental analysis, and other relevant changes. Since 1983 when P&G was last revised, the nation has gained considerable experience with models for water quality and aquatic ecosystems analysis, economic analysis of environmental effects of projects, and risk and uncertainty. During that time an entirely new purpose of environmental restoration has emerged, the nature of federal projects has been substantially altered, and roles for cost-sharing partners have been greatly elevated.

Third, some process is needed to review the status and trends of water and related land and ecological resources of national significance. This is a complex task, but not so overly complex that a broad national assessment sufficient to identify critical issues is either impossible or

outrageously expensive. Outputs of these assessments should identify problems and opportunities in particular basins and regions, and priorities for further action should be assigned to them.

## REFERENCES

- Caulfield, Henry P., Jr., 1984. "Fulfilling the Promises of the Water Resources Planning Act", 25th Annual Meeting of the Interstate Conference on Water Problems, Pittsburgh, Pa.
- Moreau, David H., 1966. "Principles of Planning and Financing for Water Resources in the United States", Chapter 4 in Larry W. Mays (ed), *Water Resources Handbook*, McGraw-Hill, New York.
- Moreau, David H., 1997. Memorandum to Committee to Review Planning by the United States Army Corps of Engineers, Water Science and Technology Board, Washington, DC.
- Interagency Floodplain Management Review Committee, 1994. *Sharing the Challenge: Floodplain Management in the 21st Century*, U.S. Government Printing Office, Washington, DC.
- Rogers, Peter. 1993. *America's Water*, MIT Press, Cambridge, Mass.
- Schad, Theodore M., 1979. "Water Resources Planning - Historical Development", *Journal of the Water Resources Planning and Management Division, Proceedings of the American Society of Civil Engineers*, v.105, WR1, March, pp 9-25.