

WATERSHED PLANNING AND MANAGEMENT
Safeguarding The Quality Of The Water Resources Of The United States
A Review: 1938-1996

Professor Leonard B Dworsky and Professor David J Allee

Abstract:

This review touches on a part of watershed history that has been forgotten. The time is the period from 1938 until 1972 with some attention to the 1912 to 1938 period. The six decades of experiment and trial and error by the engineers, scientists and medical personnel of the United States Public Health Service should not be forgotten. It reviews as well the renewal of the watershed concept by EPA, the transference of watershed planning from the programs prior to 1972 to Areawide (208) watershed planning and, within the last half decade, to the current EPA watershed program development. The watershed concept is not simple, and the critique of elements of that program contained in this review are fully intended to support that program, but with some realism.

A wider review, beyond the space allowed for this paper, would have included the outstanding work of the Forest and Soil Conservation Service and of the Bureau of Land Management as well as other water agencies of state and federal governments to name a few, and the schools of forestry and natural resources that have played important roles in both water quality and water quantity management. Our host school is one of the latter.

Key Terms: History, Water Policy/Regulation/Decision Making, Water Quality, Water Resources Planning, Watershed Management.

STATEMENT OF PROFESSOR DAVID J ALLEE, CORNELL
UNIVERSITY, ITHACA, NEW YORK ON S 1228, THE WESTERN
WATER POLICY REVIEW ACT OF 1991 PROPOSED BY SENATOR
MARK HATFIELD, OREGON.

Before The
COMMITTEE ON ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE

The Chair and members of the committee

My name is David J Allee. I am Professor of Resource Economics at Cornell University, Ithaca, New York. I am joined in this testimony by Leonard B. Dworsky, Professor (Emeritus) of Civil and Environmental Engineering at Cornell University and Ronald M. North; Professor of Resource Economics and Director of the Natural Resources Institute at the University of Georgia, Athens Georgia.

We are pleased to have this opportunity, long awaited, to testify on the need for a national updating of the water and related land and environmental resource policies and posture of the nation. We are more than pleased to tell you that while we support Senate Bill 1228, the Western Water Policy Review Act of 1991, and knowing full well the importance of water and its related resources to Western United States, we would strongly support an appropriate extension of the bill to apply to the entire United States. We acknowledge and welcome your written statement to the effect that you, too, believe the need for a national review is timely. We will express to our Congressional delegation our views on this matter and will look forward to their support of a Bill encompassing such a broadened approach.

Mr. Chairman, it is important that we recognize that this nation has not, since the discontinuance of the Federal Water Resources Council in 1981, established a routine way to assess its water and related resource base as it has with its population or economic base. The population census is taken every ten years under our laws. The Employment Act of 1946 authorized an Economic Report by the President, supported by his Council of Economic Advisors. This is now reviewed by the Congressional Joint Committee on the Economic Report. For many, but not all, aspects of the nation's environment, the Annual Report of the Council on Environmental Quality is routinely available.

Water and its related resources had always been dealt with on a "when called for" intermittent basis until the enactment of the Water Resources Planning Act of 1965. Thus, in the last half-century the Congress and the Executive Branch, either jointly or otherwise, updated the nation's knowledge about these resources by special, ad hoc action through President Truman's Water Resources Policy Commission in 1950;

through the Senate Select Committee on National Water Resources in 1960; and through the National Water Commission in President Nixon's administration in 1973. In addition, under the Water Resources Planning Act, the Congress and the Executive Branch did finally agree to provide a comprehensive assessment of the Nation's water and related resources. Two such assessments were carried out by the Council; in 1968 and in 1978. No comparable assessment has been undertaken for the past thirteen years.

Much has transpired in these years.. The nation has experienced major drought both east and west, north and south. New laws and the courts have changed markedly water allocation processes. The national and international concern for environmental matters ranging from energy to endangered species has confronted the American people with new problems

and issues. Population growth and mobility, and the restructuring of the United States industrial base have all played a role in the development of new arrangements within the United States Federal System and the specific responsibilities of the Federal government, the states and local governments.

Perhaps as profound as any have been the changes in federalism - the relationships between the national government, the states and the local governments. This devolution of responsibility down the hierarchy needs to be examined for its implications for water management. New roles for the federal agencies and changes in the way old roles are carried out will be suggested by the studies proposed. Only a few examples can be cited here. More information about these is available from recent research. Interbasin transfers are a recurring topic for speculation and dramatic proposals, but how well are we equipped as a nation to deal with the risks and benefits they imply? As the recent actions on diversions from the Great

Lakes by the Governors and Premiers suggests, this is not just a Western issue. Developing a market for water is being debated in most Western states, and important questions are being asked about the proper role for the federal agencies and federal projects. As the recent proposals by the Delaware River Basin Commission suggest, bringing the advantages

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and disadvantages of the market to water management are not just a Western concern. Finally, what should be the local, state and federal roles in the protection and development of habitat systems such as the wetlands that support the North American flyways? Again this set of issues may be taking the nation to a new approach to regional environmental management with major consequences for water management in all parts of the nation.

Mr. Chairman, this proposal is most timely. The nation must know where it stands with regard to its water resources, the lands and services that depend on water, and the environmental relationships, both positive and negative, that result from using this most treasured and life giving resource.

The agenda for a review of the kind you contemplate will come from many sources. We would like to offer a few thoughts along this line to illustrate some of the fundamental questions that need to be addressed when your Bill is implemented. *

The acquisition of information is critical to decision-making at all levels of government and the private sector. Today, when conflict seems to be the best descriptor of how the nation goes about its business, respect for the importance of our water resources would find the country unanimous in its concern for its safety and competent management.. If this is true, and we certainly believe it to be, how is it that an assessment of its condition-amount, distribution, use, quality, future needs, policies, institutions, intergovernmental and international relations and finances has not been carried out by the Federal government on a coordinated basis since 1978. That assessment was completed by the United States Water Resources Council under the Water Resources Planning Act of 1965, established in response to the 1960 recommendations and specifications of the

Senate Select Committee on National Water Resources. With your permission, Mr. Chairman, we request that the record of this hearing include attachment 1 (INFORMATION: LONGER TERM STRATEGIC NEEDS; SHORTER TERM TACTICAL NEEDS) to our statement describing briefly one approach to a national assessment process to gather the information needed by the nation to plot its future water resources course.

Coordination and cooperation among the partners of the United States Federal System needs periodic review to insure that policies and programs shared in the planning and management of the nation's water and related land and environmental resources are formulated and executed to achieve the objectives sought by the American people. We have prepared

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some brief notes suggesting new or strengthened roles for the Federal, state and local governments to improve these relationships. With your permission, we request that attachment 2 (THE FEDERAL GOVERNMENT; THE STATE GOVERNMENTS; THE LOCAL GOVERNMENTS; INSTITUTIONS IN THE FEDERAL SYSTEM)to our statement be included in the record of this hearing.

Federal water and related resources research provides the bulk of the new knowledge needed by the nation to meet its future water needs. Federal research, supplemented by the Water Resources Research Institutes at the Land Grant Institutions of the States established by the Water Resources Research Act of 1965, another outgrowth of the Senate Select Committee on National Water Resources findings in 1960, are in need of renewed and reinvigorated coordination of policies and programs. From 1965 until the mid-1970's a Federal Committee on Water Resources Research, under the umbrella of the Federal Council For Science And Technology in the Executive Office Of The President, played a major, and only, role in advancing the desired coordination. As a result of reorganization of the Office Of The President, and with no reference to the work of the Committee, coordination of Water Resources Research at the federal level came to an end. One of the major tasks of the Committee when operating was to provide an annual Federal Water

Resources Research Budget to the Congress for their information. Today, from the information we receive, the Congress has not had, and does not now have, available coordinated research information to plan for the future. With your permission, finally, Mr. Chairman we request that the brief notes we have prepared for your information on this matter be included in the record of these hearings as attachment 3 (RESEARCH) to our statement.

This concludes our statement, Mr. Chairman. I would be pleased to attempt to answer any questions you or members of the Committee may have.

(* The attachments reflect some of the research and studies undertaken by the three of us since 1980. During the early years of the 1980's we proposed , arranged and carried out two symposiums on Unified River Basin Management, and edited and published two volumes of papers and findings under the auspices of the American Water Resources

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Association. We next prepared a special report for the then Chairman of the U.S. Water Resources Council based upon the symposia data and some nineteen visits to water agencies and organizations throughout the country. In 1986 we convened a national conference at New England College, Henniker, New Hampshire on the subject of Water Resources Planning and Management in the United States Federal System, with the cooperation of the Engineering Foundation, the National Science Foundation, and the Universities Council On Water Resources. This report was updated through 1988 and given wide distribution. A version of the report will be published in the forthcoming issue of the University Of New Mexico's School of Law, Natural Resources Journal, under the title of Water Resources Planning And Management In The United States Federal System-Long Term Assessment And Issues For The '90's.. In addition, we also convened a National Conference On Water Resources Research in

Washington D.C. at the 4H Center in 1986 to bring about greater attention to the need for an invigorated national water resources research program.)

General Statement

The United States under its Federal System of Government has for the past ninety years tried to establish a governmental institution that could institute a process to assist in the Systems management of one of its most valued treasures, water. The word assist is intended to mean just that; to assist and not control. For many, but not all, of the proposed processes assistance was to be sought in strengthening cooperation and coordination of water management among federal agencies and between them and state and local governments, later to include the tribal governments. Such process, even those more involved in direct federal actions, while not seeking to control national water management were required to respect and/or operate within the existing framework of eastern riparian law, western prior appropriation doctrine, and state, federal and court defined laws. (Attachment 1)

Since the demise of the Water Resources Planning Act in 1981 we have examined over thirty legislative proposals to replace that Act. Nearly all of these proposals take the form of modifications of that Act. They are for the most part as complex as the Planning Act; are micro-management in design, and are likely to produce the same institutional and competitive difficulties among the Congress, the Presidents Executive Office, and the federal agencies and the states.

An Optional ProposalAs we enter the 21st century the nation is so diverse and its water problems so complex that any attempt to establish any governmental institution that has central management as its orientation would be out of place. What is needed is a process to assist and facilitate a loose, flexible management arrangement, determined in various ways to fit the various needs of the several regions (or water basins) of the country. We repeat, the word assist is intended to mean just that; to assist and not control and not micro-manage. We propose that assistance be sought in strengthening cooperation and coordination of water management among federal agencies and between them and state, local and tribal governments. Any such process would be required to respect and operate within the existing framework of eastern riparian law, western prior appropriation doctrine, and state, federal and court defined laws. A flexible arrangement will depend on state, regional, local and native American interests and their vocal publics taking on the responsibility to determine the management characteristics of water, land and related environmental resources that play direct roles in their lives and in the lives of their future generations. This responsibility is not absolute. It is shared with the people of the United States through the Federal Government (the Congress, the Executive Branch and the Supreme Court). Financial resources, technical competence and

research capacities of the agencies of the Federal Government are provided by the people generally; shared within the general framework and character of the Nation's overall goals as expressed in law and regulation. We offer a guide to help achieve these results. It needs to be re-written to meet today's needs. None-the-less we can lean upon this earlier directive that played an important role for thirty years. (Attachment 2)

Nature and The Environment:

Policies for Planning and Management of the Water and Related Natural and Environmental Resources

We are concerned with the failure of the Nations Water Resources Management Program. We sense the need for a State process with federal assistance to meet this challenge.

We do not know what the next National water policy design(s) will look like. What we do know is that it is unlikely that water policy at all levels of government will remain unchanged as we enter the next century.

Stakeholder interests continue to expand. Owners of water rights, private and public, are vigorously pursuing their inherent values. Native American water rights are in a major changing mode. Irrigated Agriculture is being questioned both economically and culturally. Endangered species, an understanding of biodiversity and the pursuit of sustainability are changing the landscape. There is increasing attention being given to the natural values of water, of waterways, and of their ecosystems

In the last quarter of the Century, the challenge was to water. We pursued its use, allocation and value.

In this new-yet old- thought, we provide *1 A Start To A State-National Aid Program*.

A New Start

The problems confronting the United States are increasing. We need to find how to better manage the growing complexity of the flowing interstate waters of the United States and of the adjoining Federal Lands.

In a complex world, how do we manage the institutional (the thousands of institutional forms) that have grown up in the course of State Boundaries through the decades of the Nation? How can we manage the numbers involved?

Can we find a new grouping of States and their Processes; of the programs with which we are concerned that involve:

- Fifty States and their State organizations and individual capacities
- the Federal System
- State nFederal Cooperation
- Administration of EPA and its Ten Administrative Regions
- River Basins of the 18 Regional Watersheds of the United States

We believe the time has come to provide some rationality to the existing complex system by considering the specific roles of the Fifty States and their State Constitutional capacity.

We believe that the time has come to provide a framework within which the thousands of institutional forms can fit. We seek alternatives within each State that provides a reasonable opportunity for law to be managed within bounds.

Are we ready to recognize that management schemes already at hand may be necessary to modernize law and reduce management activity? Management activities are shown in the following 24 examples. We believe we have collected an adequate sampling of EPA's "voices" so that we understand EPA's role in the Nation.

However, EPA's role is not necessarily that of the Federal Agencies.

With a new understanding of the last ten years of the 20th Century, the new proposals for water planning and management that place States first must be understood.

EPA's role is transitional. By this we mean to show that beginning about 1980, EPA said "—watershed planning is to guide the implementation of key elements of the Federal Water Pollution Control Act. But something happened along the way".

We know that the last ten years has produced a veritable revolution in the Environmental role of the EPA. The role of the EPA has been broadened immensely. The EPA has said, "The (watershed) program is not new to EPA, neither is it in broad use".

Reflecting on the early purpose of the U.S. Public Health Service, the 226 Basin Watershed Plans seem to have been forgotten by EPA.

A new strategy has emerged.

The watershed imperative has been overtaken by a new voice; namely the operation and activity of most forms of EPA. The Ten Regions of the EPA Administrative Organization seem appropriate; however there is no consistency or content in each of the Regions.

The new voice we now hear is that of the EPA expressing itself in any part of water quantity and water quality; indeed in any pollution arena it can claim as a participant.

Yet, Ecological processes limit EPA's role and related Agency functional plans.

In initiating these views we will need to involve State-Federal Cooperation; the EPA and its Ten Administrative Regions; and the State-Local Water Resources Planning Act of 2003.

We should be considering President Nixon's National Environmental Policy Act (NEPA) of 1969; the Council For Environmental Quality; the Eighteen Continental Regional Basins of the Second National Water Quality Assessment, and the 226 watershed sub basins of the Eighteen Water Resources Regions

In our search we are looking for new institutional arrangements built around States and/or used by the States themselves. Prior Federal interagency committees had an exemplary record of over 40 years (1940-1980). State Government agency later replaced by State Government options are not yet ready for local designs.

We believe State organizations should have a new role within Interagency Committees. Alternatively, State entities may be within several State Regions. New options can follow either basin or hydro systems that allow water to be used appropriately.

These and other questions of water law and related questions need to be considered.

A Test Mode

We examine a test mode of a specific Water Resources Region as a useful example. It is composed primarily of four States, (Washington, Oregon, Idaho and Montana) plus the adjoining parts of States that fit the Region's Watershed Boundaries. The watersheds in these States comprise eleven sub basins. Collectively the 226 Watershed Basins of the Eighteen National Water Resources Regions of the Nation are part of the 1979 second National Water Assessment.

We describe the emerging Pacific Northwest Regional Center as built around a proposal for new water planning and management entities that put States first.

In the 1965-1989 Act where States had limited voice, our proposal rests on the premise that States and their creations (local, metropolitan, special district and other sub-state governments) are the source of most of the water services used by the American people. Federal level support should be based on State needs.

EPA's role is limited by Ecological processes and is not necessarily consistent when compared to the functions of the remaining Federal Agencies

The ideas that describe the emerging Pacific Northwest Regional Center are built around a proposal for new water planning and management

While we believe we have collected an adequate sampling of EPA's "voices" so that we understand EPA's role in the Nation the EPA's role is not necessarily the guiding principles of the new entities

The guiding principles of this paper involve a move away from centralized statutory driven programs. These are not consistent with most previous policies, including the Water Resources Planning Act of 1965-1981.

We provide both a Federal entity and a Pacific Northwest Region Center entity designed to enable the four States to better manage their affairs. The basic purposes of the proposed entities are to provide information and advice to the several governments and facilitate communication between governments. Moreover, the entities offer support for implementing plans.

As we enter the 21st century the nation is so diverse and its water problems so complex that any attempt to establish governmental institutions that have central management as its orientation would be out of place.

What is needed is a process to assist and facilitate a loose flexible management arrangement, determined in various ways to fit the various needs of the several regions (or water basins) of the country. The word assist is intended to mean assist, and not control and not micro-manage.

We propose that assistance be sought in strengthening cooperation and coordination of water management among the regional agencies; federal, state, local and tribal governments.

Until the future is more clear, cooperation should be required to respect and operate within the existing framework of eastern riparian law, western prior appropriation doctrine, and state, federal and court defined laws.

It is important to recognize " if future water demands are to be met, there must be reconciliation of the single-objective environmental and regulatory planning used by EPA. EPA is the dominant Federal Water Resources Management Agency. It has the

multi-purpose, multi-objective planning system which evolved over a long period of time to guide federal investment in water management.

(Dworsky, L.B. and Allee, D.J. have written to this point very carefully in the "Western Water Resources Policy Review Advisory Commission: An Opportunity Not To Be Lost," Water Resources Update. Issue No 111, Universities Council On Water Resources, Carbondale, Illinois, Spring, 1998.)

A Constitutional Crises

In the last ten years of the 21st Century a constitutional crisis seems to have occurred. Nothing in these years has affected us as much as the shift in responsibility among the States and the Federal Agencies in executing the National Environmental Policy Act of 1969, or of the Agency programs of the EPA in the same way. The future of the History of the Nation seems to be bound in these events.

The first idea proposed in the last quarter of the Century was the challenge to water. We pursued Water, its use, allocation and value. The second idea we tested provided "A Start To A National Program."

Basic Considerations

The New National Program combined the water related management tasks into a framework appropriate to the River Basin geography.

Principally, we are concerned with each State Government of the Fifty United States of America. We are concerned with the effective use of State Management or Constitutions in relation to specified Regional Basins. What we seek are the best management tasks in contrast to the uncoordinated and unmanaged river basins in use in the Nation.

We are also concerned with Federal-State Cooperation in the Eighteen Regional Basins and of the Administration of EPA and its Ten Administrative Regions.

Commentary

The guiding principles of this paper involve a need to move away from centralized statutory driven programs, This is not consistent with previous policies including the Water Resources Planning Act of 1965.

We provide a Federal entity and a Pacific Northwest Region Center entity designed to enable the four States to better manage their affairs. The basic purposes of the proposed entities are to provide information and advice to the several governments, facilitate communication between governments, and offer support for implementing plans.

As we enter the 21st century the nation is so diverse and its water problems so complex that any attempt to establish governmental institutions that have central management as its orientation would be out of place.

What is needed is a process to facilitate a loose, flexible management arrangement, determined in various ways to fit the various needs of the several regions (or water basins) of the country.

The word assist is intended to assist, and not control and not micro-manage. We propose that assistance be sought in strengthening cooperation and coordination of water management among the regional agencies, federal, state, local and tribal governments.

In a general way until the future is more clear, cooperation should be required to respect and operate within the existing framework of eastern riparian law, western prior appropriation trine, and state, federal and court defined laws.

This Commentary is a an old start to EPA's Water Pollution Problems. I need to bring PL 92-500 to the 1994 period. It is a new start for EPA's Program. Otherwise there can be no Water Resources Program.

START A-NEW. We have lost something along the way ? This is new for Jeri too.

The Last Thirty Years of The 20th Century

Part 2 of this examination of the last thirty years of The 20th Century provides an historical and legal approach to the views of the prior Nixon Administration. Specifically, it concerns the Environmental Policy Act of 1972. It serves primarily as a baseline, making clear the specific proposals that are made in Part 1 of this memorandum. In the absence of this history, the roles of the EPA, the USPHS, and the broader public interest in "the environment" cannot be readily accomodated.

As always, the growth of the National scene involved water, the land, biologic life and humans. At the turn of the 19th Century forests of the West seemed increasigky critical. The Theodore Roosevelt Conservation Period, having started, seemed likely never to stop. For the next 70 years public and private ventures and Nature drew upon the land and its resources.

The first Water Pollution Control Act of 1948, Public Law 485- 80th Congress was interspersed with six statutory learning Congressiomal amendments (assigned the Public Health Service within the Dept. of Health, Eduction and Welfare) . Soon after, the Water Pollution Control Act, P.L. 92-500, called the Clean Water Act, and the newly titled National Environmental Policy Act of the Nixon Administration became themes that forecast the future.

Research andl Planning for rational Water Quality Management was initiated by the United States Public Health Service in, and continued for 75 years through Nixon EPA policies. The specific law concerned the Public Health Service Act of 1912.

Section 3 the Act authorized the preparation of comprehensive water pollution control programs for surface and underground waters in cooperation with other federal agencies, states and local governments and industries and the general public. By 1951 such programs were formulated in 225 basins (watersheds) covering the entire United States. The national Report prepared from these 225 basin reports identified 22,000 places, roughly half cities and half industries, as the important pollution sources in the Nation.

Under the Water Pollution Control Act of 1972 (P.L. 92-500) new policies were established and the Environmental Protection Agency changed the priorities that had been the Public Health Services guides for 24 years.

Under the Act the Federal government assumed responsibility for the quality of the Nation's waters. The Act prohibited the discharge of pollutants to the waters of the Nation and established an interim goal of secondary waste treatment everywhere under the new national permitting authority over pollution discharges.

EPA concentrated on the use of law and the courts to effect pollution control rather

than on basin (watershed) planning to effect a logical technical process. Recognizing the relation of pollution control to water flow, they were concerned with sanitary engineering and the effects of land use on waters.

A New Understanding Of The Last Decades Of The 20th Century

The proposal for water planning and management was new. Watershed planning was to be the guide to the key elements of the Federal Water Pollution Control Act and its implementation.

Beginning about 1980, EPA said, " The (watershed) program is not new to EPA, neither is it in broad use".

Although the Ten Continental Regions of the EPA Administrative Organization emerged during the last years, there is no consistency in program within each of the Regions. The new voice we now hear is that of the EPA expressing itself in every program, in every part of water quantity and water quality,

Yet, EPA's role is limited by Ecological processes and by related Interior, Agriculture and other Agency functional plans. These include Sustaining our Soil and other natural, Legislative Affairs and resources,, and issues confronting the United States are increasingly difficult and to better manage the growing complexity of the 2,000,000 +- miles of flowing Interstate Waters of the United States or of the adjoining Federal Lands.

How do we manage the institutional(the thousands of institutional forms) that have grown up in the course of the decades of the Nation. Can we find a new grouping of States and their Processes; of the programs with which we are concerned that involve; the Fifty States and their State organizations,the Federal System, State-Federal Cooperation; the Administration of EPA and it's Administrative Regions, and the River Basins of the 18 Regional Watersheds of the United States.

In order to understand the scale of the emerging order, EPA has spent the last several years compiling a wide variety of programs for each of the designed Regions of the Nation, the innumerable Watersheds, and a host of water related problems. We believe we have collected an adequate sampling of EPA's "voices" so that we understand EPA's role in the Nation. However, the EPA's role is not necessarily consistent when compared to the functions of the remaining Agencies