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Revisiting Drought Relief and Management Efforts in the West: *Have We Learned from the Past?*

Donald A. Willhite and Deborah A. Wood

NOWHERE is drought a more common feature of the American landscape than in the West. Droughts are well documented in the region's climatic record, and extended drought periods are indicated in tree rings and other surrogates of climate. When settlers headed west in the middle of the 19th century, the high cost of those droughts began to be recorded as well. Coupled with drought occurrence have been repeated attempts to relieve the suffering and devastation caused by the most severe drought episodes.

The history of drought relief in the West, and ultimately the entire United States, began with the private sector and gradually moved to the government, especially the federal government. It is a history characterized by short-term, crisis-oriented approaches rather than by planning and proactive measures. Drought relief typically has been viewed as something to be dispensed after the event, and only to ameliorate drought's impacts. It was not until the mid-1930s that the idea of reducing vulnerability to drought was even voiced, and the concept has made uneven progress since then.

Severe drought events since the mid-to-late-1980s, particularly in the western United States, have raised awareness of this continuing vulnerability. The West experienced a devastating series of drought years from 1986 to 1992, with California and Nevada experiencing seven and six consecutive years of drought, respectively. Drought returned to much of the West in 1994 and has repeated each year in at least a portion of the region. In 1996, large sections of the Southwest, Great Basin, and central and southern Great Plains were affected. Widespread drought returned to the region in 1998, 1999, and 2000, once again resulting in serious economic, social, and environmental consequences. The escalating costs and heightened awareness of these drought impacts emphasize that we have not yet made the transition to proactive drought management with a focus on preparedness and mitigation.

If we are to make progress in preparing for and mitigating the effects of future drought, we must develop a better understanding of its characteristics (*i.e.*, frequency, severity, and patterns). It is equally important to develop a better understanding of who and what is most at risk and what actions can be taken to reduce the risk from future drought events. In the West, increasing and

shifting population is placing greater pressure on water and other natural resources, but government policies do not always promote wise management of those resources. One fact is clear: continuing to address drought impacts through government-sponsored emergency assistance programs will not decrease the vulnerability of the West or other portions of the United States to future drought events. Reducing the risk of drought for future generations requires greater investments in preparedness and mitigation.

In discussing the history of drought and relief efforts in the West during the settlement and post-settlement periods, as well as current trends in drought management, emphasis will be given to the West. However, resolution of drought management planning and policy issues must also be addressed at the national, state, and local levels. Drought's impacts are distinctly regional in nature, but drought affects virtually all areas of the nation. Improving drought management will require a coordinated effort among local, state, federal, and tribal governments.

Drought Relief in the 19th and 20th Centuries

The settlers who populated the Great Plains and other parts of the West after 1850 had little prior knowledge of the area's climate. Several expeditions had explored the region, but the information they gathered was primarily for the government, not the general public,¹ and "boosters" of the region provided glowing but inaccurate accounts of the Great Plains' agricultural potential. Most settlers had little money and few possessions, and their farming experience was acquired in the more humid East, so the crops and cultivation practices they chose were not necessarily compatible with the Great Plains environment. Because the earliest settlements occurred during a wet cycle, however, these shortcomings were not immediately apparent. When the inevitable droughts and harsh winters occurred, economic hardship and human suffering immediately followed. Just as quickly, it seemed, the early settlers forgot the lessons learned once the rains returned. Although adverse conditions forced many settlers to return to the Eastern United States, many more continued to push west, and the idea that the climate of the Great Plains was changing, particularly in response to human settlement, was popularly accepted.

It was not until the last years of the 19th century that this idea was abandoned and more realistic agricultural options were explored.² In the interim, repeated droughts tested the settlers and the ingenuity of local and state governments that were struggling to survive.

For a variety of reasons, drought relief came primarily from private organizations in the 19th century, and it was not universally accepted. Government, particularly federal, and those who stood to gain financially from settlement of the Great Plains were generally opposed to relief efforts. Many people had much at stake in the newly settled Great Plains and were afraid that reports of drought distress would filter back East and discourage immigration. Because of this, news about famine was often suppressed, and it was private interests that provided some of the earliest drought relief, via an organization known as the Territorial Relief Committee in Kansas in the early 1860s.³ The federal government, despite its negative view of providing aid, did have some direct involvement in drought relief. In 1875, the newly formed Nebraska State Relief and Aid Society received congressional approval to distribute Army surplus clothing and food to more than 100,000 persons in Minnesota, Dakota, Iowa, Nebraska, Kansas, and Colorado.⁴ In general, however, the federal government did not regard drought relief as a federal responsibility; this was made clear when President Grover Cleveland vetoed a con-

gressional appropriation for seed for drought-stricken Texas in 1887 on the grounds that the government had neither the power nor the duty to provide relief and that to do so would weaken character.⁵

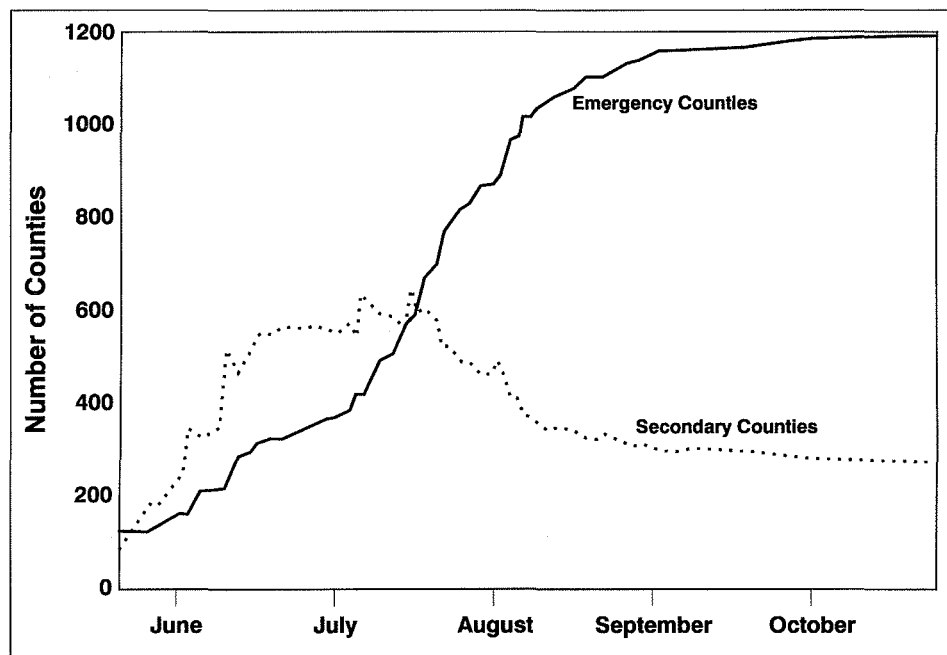
Territorial, state, and local governments found themselves in a difficult situation. They had a great stake in attracting more settlers, because a greater number of people meant economic resources and the ability to exploit the natural wealth of the region.⁶ Although state and territorial Legislatures often rejected direct relief measures, they could not escape providing aid altogether — usually in the form of funds for either seed grains or for payment of freight charges for bringing items collected through private relief. But it was clear that private charity was still a major component of relief efforts toward the end of the 19th century. In Nebraska and Colorado, many settlers received privately donated supplies worth thousands of dollars, and Nebraska's State Relief Commission collected cash donations of about \$29,000 in 1895.⁷

The federal government made its first drought disaster loans during the Wilson, Harding, and Coolidge administrations, beginning with a 1918 measure providing \$5 million to farmers for seed loans.⁸ When the severe droughts of the 1930s struck, President Herbert Hoover's administration also authorized federal expenditures, but Hoover's initial approach essentially



Hungry Horse Reservoir, Montana, May 1988, with water levels showing the effects of the dry 1987-1988 winter.

Photo by Donald Wilhite



Cumulative emergency and secondary drought county designations, 1934 (adapted from P. G. Murphy, *The Drought of 1934: The Federal Government's Assistance to Agriculture. Report to the President's Drought Committee*, July 15, 1935, Washington, D.C., National Agricultural Library, Beltsville, MD). Two types of county designations for drought relief were made during 1934: secondary and emergency. The designations were made to address the drought-related problems facing the livestock industry, including severe feed shortages. Counties receiving emergency designations were eligible for additional assistance through a cattle purchase program. The first designations were made in May 1934, consisting of 121 emergency and 91 secondary counties. By October 1934, the time of the final designation, 1,187 counties had received emergency designation.

emphasized the 19th-century tradition of nongovernment relief and voluntary contributions. In December 1930, Hoover persuaded the Red Cross to direct drought relief measures, although its involvement was not on the large scale that the President had envisioned.⁹ The severity of the drought, however, finally forced the federal government into the relief picture, and the President eventually supported bills providing funds for crop production loans as well as feed and seed loans.¹⁰ The Hoover administration marked the end of the "self-help" approach to drought.

The early years of the Roosevelt administration represented a major turning point in federal drought-relief efforts. Federal involvement increased dramatically: more than \$500 million was appropriated for drought relief in 1934,¹¹ and the federal government assumed complete authority for drought relief. A more comprehensive federal drought-relief organization was developed to deal with problems of distress; this included the development of procedures for drought disaster-area designation and numerous drought response/planning activities. Numerous long-term measures, such as the consolidation of soil programs under a single agency (the Soil Conservation Service) and the Shelterbelt Project, also were implemented during the Roosevelt administration to reduce the vulnerability of the Great Plains to future droughts.

Drought once again plagued the Great Plains in the 1950s. The Eisenhower administration reluctantly became involved in a drought-relief program;¹² the President's advisors suggested that he follow the precedent set by Grover Cleveland in 1887, when Cleveland vetoed the congressional appropriation for drought relief in Texas. But the precedent set by Roosevelt was too strong for Eisenhower to ignore completely. Instead, the

Eisenhower administration emphasized that states should share the cost of relief measures and that local and state government should assume a greater role in relieving hardships created by drought. Federal participation would occur only as a supplement to local resources, and the President stressed the importance of research and long-range programs to stabilize the economy of areas frequently affected by severe drought. By the end of the 1950s drought, federal expenditures for emergency and short-term measures totaled an estimated \$1 to \$1.5 billion; the government had also begun long-term programs like the Great Plains Conservation Program (authorized in 1958), various economic assistance programs, industrial development (to diversify the drought region's economy), and water resources planning.¹³

Although the drought of the 1974-1977 period in the United States was widespread and severe, it was not comparable to the 1930s or the 1950s droughts in intensity, duration, or spatial extent for most of the nation. Its most serious impacts were experienced in the Far West and Upper Midwest states. During the Ford administration, no new programs were developed and no coordinated effort was initiated to respond to deteriorating conditions. In January 1977, as the Carter administration took office, states began to form regional alliances to put political pressure on Washington for action. Governors of Western states met with Interior Secretary Cecil Andrus to discuss needs and federal actions to mitigate drought impact; it was the first joint discussion of mitigation alternatives by state and federal officials.

In response, the Carter administration created a presidential drought package that provided \$844 million in loans and grants to farmers, ranchers, communities, and

President Jimmy Carter's Proposed Drought Program, March 23, 1977*

| Title | Purpose/Description | Amount |
|--|--|--|
| Emergency Loans Program (Farmers Home Administration) | 5% loans to cover prospective losses to farmers and ranchers | \$100,000,000 |
| Community Program Loans (Farmers Home Administration) | \$150 million in 5% loans and \$75 million in grants to communities of less than 10,000 for emergency water supplies | \$225,000,000 |
| Emergency Conservation Measures Program (Agricultural Stabilization and Conservation Service) | Soil conservation cost-sharing grants | \$100,000,000 |
| FCIC Insurance (Federal Crop Insurance Corporation) | Increase FCIC capital stock | \$100,000,000 |
| Drought Emergency Program (Bureau of Reclamation) | Creation of water bank, protection of fish and wildlife, grants to states, 5% for water supply and conservation measures | \$100,000,000 |
| Emergency Fund (Bureau of Reclamation) | Emergency irrigation loans | \$30,000,000 |
| Emergency Power (Southwest Power Administration) | Purchase of emergency power supply | \$14,000,000 |
| Community Emergency Drought-Relief Program (Economic Development Administration) | \$150 million in 5% loans and \$75 million in grants to communities of more than 10,000 for emergency water supply | \$225,000,000** |
| Physical Loss and Economic Injury Loans (Small Business Administration) | Low-interest loans for small businessmen (including farmers) | \$50,000,000*** |
| TOTAL | Amount Requested Amount Appropriated | \$944,000,000 \$844,000,000 |

* Cited in *Managing Resource Scarcity: Lessons from the Mid-Seventies Drought*, Western Governors' Policy Office, Denver, CO.

** Only \$175 million of this amount was finally appropriated.

*** Action on this proposal resulted in the lowering of interest rates for Physical Loss and Economic Injury Loans (both ongoing, funded programs), but none of the additional appropriation originally requested was granted.

businesses stricken by drought. Yet this package was only a small portion of the total drought assistance program. The Departments of Agriculture, Commerce, and Interior and the Small Business Administration administered more than \$5 billion in drought-relief programs to water users during 1976-1977.¹⁴

The processes for distributing these funds proved complex and confusing. The General Accounting Office, in a study of the 1976-1977 federal drought response effort, identified several of the problems: programs enacted too late to lessen the effects of drought; inconsistent, inequitable, and confusing program requirements; and inadequate coordination among agencies, which led to program overlap and nonuniform standards. The GAO report recommended that a national

drought plan be developed to provide assistance in a more timely, consistent, and equitable manner.

The 1987-1989 drought period was costly, incurring total losses during 1988 of \$39 billion, according to the Interagency Drought Policy Committee.¹⁵ By 1988, drought was widespread across most of the West, northern Great Plains, Midwest, and Southeast. Once again government agencies responded through a reactive crisis management approach. In 1988, many of the agencies responsible for monitoring climate-sensitive resources apparently were not prepared and did not recognize the serious nature of the drought early enough.¹⁶ Most agencies did not begin to respond to the drought until mid-summer, and it was not until late June or early July 1988 that the federal government began a response effort.

Existing U.S. Department of Agriculture (USDA) disaster assistance programs were modified and elaborated, and an emergency feed program was implemented. By August, the need for additional assistance, beyond those programs already in existence, led Congress to pass the Disaster Assistance Act of 1988; the cost of this legislation, which provided further assistance to livestock producers, was estimated at \$3.9 billion.¹⁷

This response effort did address the worst of the drought's impacts, but its activities were reactionary in nature, and the general lack of coordination and planning caused problems. In their study of the impacts of the 1987-1989 drought, W. E. Riebsame, *et al.*,¹⁸ suggested the development of a better drought watch system, an evaluation of drought indices, the development and application of climate-impact models in a coordinated fashion, and new contingency plans for critical resource systems as means of improving drought-response efforts.

Since 1994, drought has been a common feature of the Western landscape. The period from 1995 to 2000, in particular, has been characterized by dramatic and complex economic, social, and environmental impacts throughout the nation.¹⁹ In 1995, a severe drought developed in portions of western Texas and New Mexico, carrying over into 1996 in these states and expanding into Arizona, central and eastern Texas, and parts of California, Nevada, Utah, Colorado, Oklahoma, and Kansas. Impacts included range fires, with Colorado alone experiencing nearly 68,000 fires over more than 2 million acres;²⁰ depleted groundwater supplies, resulting in water-use restrictions in cities across the region; agricultural losses, estimated at \$5 billion in Texas alone;²¹ and decreased ski resort revenues. Food prices in turn responded to the lower production levels for milk, meat, produce, and other foodstuffs;²² the price of fruit, for example, increased more than 22 percent in June. Environmental damages also began to emerge as endangered species were affected and landscapes were eroded.²³

There are no official estimates of the total losses and damages from the 1996 drought, but given the \$5 billion in impacts that occurred in Texas, total regional impacts could be safely estimated in the \$10 to \$15 billion range, although this figure does not include social and environmental impacts, which are difficult to quantify. What was remarkable was the significant level of regional vulnerability, the diversity of impacts, and the lack of preparedness to respond to these impacts. Many of the states in this region have now initiated longer-term planning efforts directed at improving mitigation and preparedness efforts: New Mexico and Oklahoma developed drought plans, Texas and Arizona initiated planning efforts, and Utah revised an existing drought plan.

Future Directions for

Drought Management in the United States

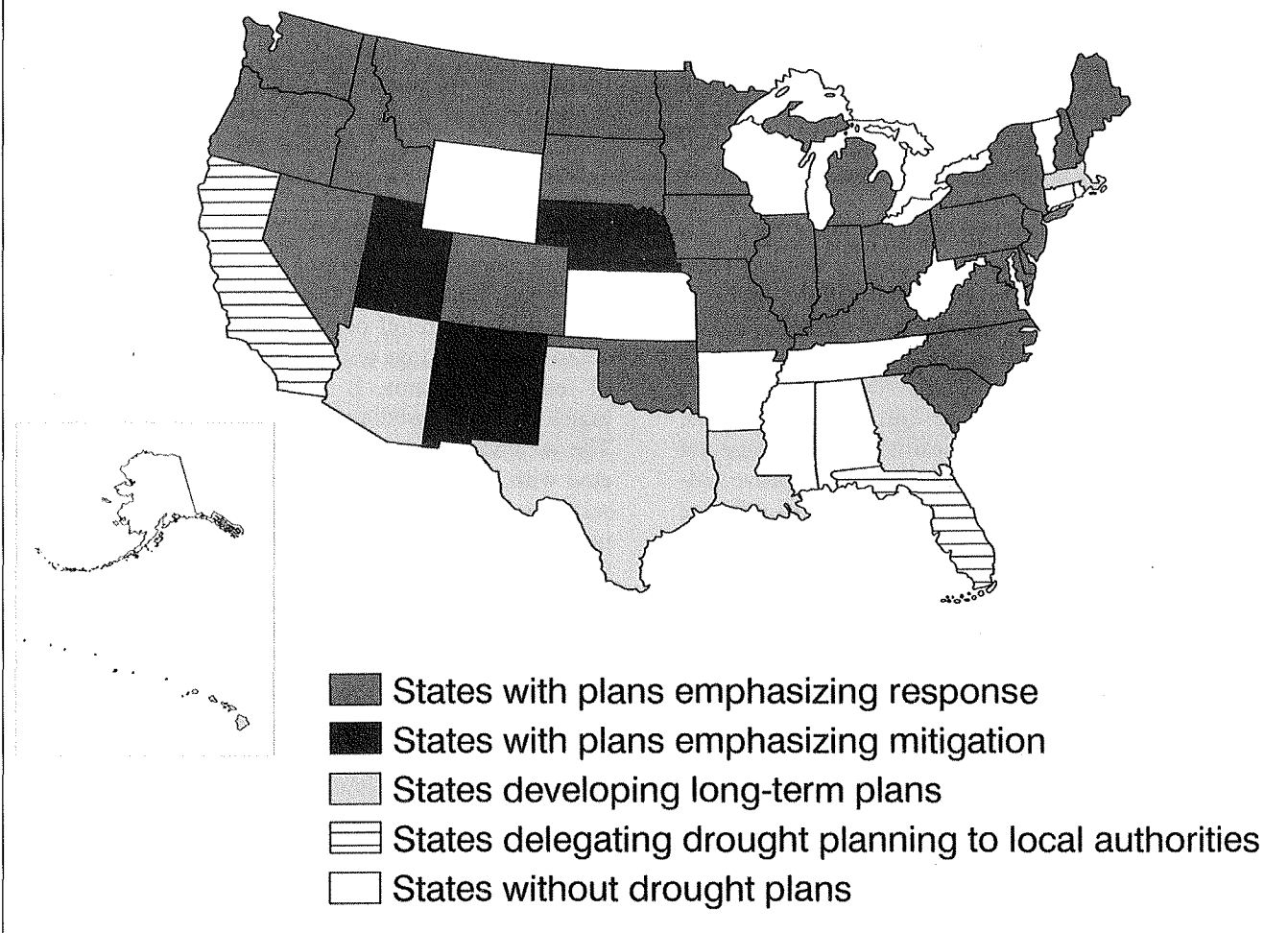
The legacy of the 1996 drought is not likely to be its

impacts but rather the policy initiatives that occurred in the post-drought period. These initiatives appear to be changing the way droughts are viewed, and they may change the way droughts are managed in the United States. The real question at this point is whether these changes will result in permanent and substantive modifications in the way government entities deal with drought.

In June 1996, the Federal Emergency Management Agency (FEMA) was asked to chair a multi-state drought task force to address the drought situation in the Southwest and southern Great Plains states. The purpose of the task force was to coordinate federal response to drought-related problems in the stricken region by identifying needs, applicable programs, and program barriers. The task force was also directed to suggest ways to improve drought management through both short- and long-term national actions. The final report of this task force contained several important long-term recommendations.²⁴ First, the task force called for the development of a national drought policy based on the philosophy of cooperation with state and local stakeholders. This policy should include a national climate/drought monitoring system to provide early warning of the onset and severity of drought to federal, state, and local officials. Second, it was suggested that a regional forum be created to assess regional needs and resources, identify critical areas and interests, provide reliable and timely information, and coordinate state actions. Third, FEMA was asked to include drought as one of the natural hazards addressed in the National Mitigation Strategy;²⁵ given the substantial costs associated with its occurrence and the numerous opportunities available to mitigate its effects. FEMA's 1995 report had estimated annual losses due to drought at \$6 to \$8 billion. Fourth, states strongly requested that a single federal agency be appointed to coordinate drought preparedness and response and that FEMA be given this responsibility. FEMA suggested that the USDA be the agency in charge, given its program responsibilities in agriculture, often the first sector affected.

Another important initiative resulting from the 1996 drought was the development of a drought task force under the leadership of the Western Governors' Association (WGA). This task force was formed in June 1996 as a result of a resolution offered by Governor Gary Johnson of New Mexico that emphasized the importance of a comprehensive, integrated drought response.²⁶ The WGA Drought Task Force's report made several important recommendations. First, a national drought policy or framework should be developed that integrates actions and responsibilities among all levels of government and emphasizes preparedness, response, and mitigation measures. Second, each state should be encouraged to develop a drought contingency plan that includes early warning, triggers, and short- and long-term planning, and mitigation measures. Third, a regional

Status of Drought Planning, January 2001



Status of state drought plans, January 2001. To date, 30 states have drought plans, with another 6 states at various stages of plan development. Of the 30 with plans, most emphasize response; 3 states have plans that emphasize mitigation. (Map based on surveys of state agencies conducted by the National Drought Mitigation Center at the University of Nebraska-Lincoln.)

drought coordinating council should be created to develop sustainable policy, monitor drought conditions, assess state-level responses, identify impacts and issues for resolution, and work in partnership with the federal government to address drought-related needs. Fourth, a federal interagency coordinating group should be established with a designated lead agency for drought coordination with states and regional agencies.

A number of important policy initiatives have resulted from the FEMA and WGA reports. A memorandum of understanding (MOU) was signed in early 1997 between the WGA and the Departments of Agriculture, Interior, and Commerce; FEMA; and the Small Business Administration, calling for a partnership among federal, state, local, and tribal governments to reduce drought impacts in the Western United States. This MOU resulted in the following actions: (1) the Western Drought Coordination Council (WDCC) was formed to address the recommendations of the Western governors;²⁷ (2)

USDA was designated as the lead federal agency for drought to carry out the objectives of the MOU; and (3) USDA established a federal interagency drought coordinating group.

Another initiative of considerable relevance was the reexamination of Western water policy by the Western Water Policy Review Advisory Commission. This Commission was created by the passage of the Western Water Policy Act of 1992 by the U.S. Congress (Public Law 102-575). One of the reports of this Commission summarized recommendations from recent studies on drought management that should be incorporated in future attempts to integrate drought management and water policy in the West.²⁸ The consensus from the reports reviewed in this study emphasized the need to create a national drought policy and plan, develop a national climate-monitoring system, incorporate drought in FEMA's National Drought Mitigation Strategy, conduct post-drought audits of federal/state

response efforts, establish regional drought forums, and encourage development of state drought mitigation plans. Although impacts of drought occur mainly at the local, state, and regional levels, this study concluded that it was imperative for the federal government to provide the leadership necessary to improve the way the nation prepares for and responds to drought.

The National Drought Policy Act of 1998 was passed by Congress and signed by President Bill Clinton in July 1998 (Public Law 105-199). This bill created the National Drought Policy Commission (NDPC) whose task was to make recommendations to the President and Congress on the development of a national drought policy. The NDPC's report recommended that the United States establish a national drought policy emphasizing preparedness.²⁹ The goals of this policy would be to (1) incorporate planning, proactive mitigation measures, risk management, resource stewardship, environmental considerations, and public education; (2) improve collaboration among scientists and managers to enhance observation networks, monitoring, prediction, information delivery, and applied research and to foster public understanding of and preparedness for drought; (3) incorporate comprehensive insurance and financial strategies into drought preparedness plans; (4) maintain a safety net of emergency relief that emphasizes sound stewardship of natural resources and self-help; and (5) coordinate drought programs and resources. At this writing, the recommendations of the NDPC report are under consideration.

Actions taken since 1996 to improve drought management in the United States have had little effect so far — especially at the federal level, as verified by the federal response to drought conditions in 1999 and 2000. Instead, it has been the states that have been progressive in the past two decades in drought-plan development: 30 states have drought plans and another 6 states are at various stages of plan development. Since 1996, some states have revised or developed drought plans that place more emphasis on mitigation. Federal agencies are now speaking the new language of drought management, and phrases like “improved coordination and cooperation,” “increased emphasis on mitigation and preparedness,” and “building nonfederal/federal partnerships” have become commonplace. However, the existing federal emergency response infrastructure encourages drought management to remain in a reactive crisis management mode, and the mentality of both state and federal government clearly remains response oriented. Whether federal and state policymakers clearly understand the scope of the changes that will be required to invoke the new paradigm of risk management is not apparent at this time. When drought conditions exist, especially in election years, drought relief is one method that members of Congress use to send money home to their constituents. The true test of whether we are making progress will be if Congress and the administration enthusiastically

embrace the recommendations of the NDPC and other groups, provide adequate funding to support the NDPC goals and recommendations, and direct federal agencies to modify existing policies and programs to emphasize mitigation and preparedness, thus effectively shifting funding from crisis to risk management.

Conclusions

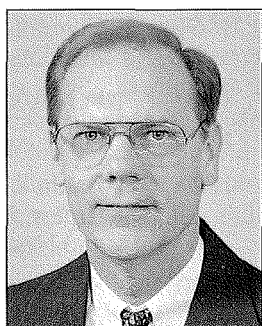
Drought, a normal part of the climate for virtually all regions of the United States, is an even more common menace in the West. Likewise, drought relief has become a common feature of the Western (and national) landscape. Shaped over the course of the past century and a half, this relief occurs primarily under a diverse, complex, confusing, and poorly coordinated ensemble of federal programs. It is reactive and does little to lessen the risks associated with future drought episodes. The wide-ranging and complex web of impacts associated with drought clearly indicate land and agricultural resource management practices that are unsustainable in the long term, especially given the variable climate of the region.

In the past several decades, there have been numerous calls for increased attention to drought planning and a reduced emphasis on government-sponsored emergency assistance programs. The frustration over the complexity of impacts and our inability to respond effectively to recent drought events has only served to fuel these calls for action. The new paradigm — shifting from crisis to risk management — has been received with varying degrees of acceptance by state and federal agencies. Only time will determine the dedication of the nation to this new approach to drought management. A continuation of widespread, severe drought in the next few years would certainly engender greater support for this new paradigm. The political will to change the way we manage drought appears to be genuine, but may evaporate quickly if a series of wet years occurs. Changing the momentum of the past will be a difficult obstacle to overcome, but it is critical for the scientific community and the public to hold policymakers to this commitment.

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