

Improving Drought Preparedness in the West

Findings and Recommendations from the Western Governors' Association and Western States Water Council Workshops

January 2011



Summary

Drought affects communities, economies, and the natural environment throughout the West. For over a decade, the Western Governors have worked to improve drought forecasting and promote drought preparedness in the Western States. This year the Governors directed WGA to convene a series of meetings with end-users of drought information to identify key actions needed regionally and nationally to improve drought preparedness.

This report details findings from the meetings convened. The findings fall into three broad areas:

- Strengthening the National Integrated Drought Information System (NIDIS);
- Improving drought preparedness planning; and
- Identifying the role of states and other stakeholders in shaping climate services.

This report also provides recommendations for advancing these three key issues.

Background

In recent years, several severe and long-term droughts have occurred in the Western United States. Severe drought conditions have created life-threatening situations and financial burdens for government, the private sector, and individuals. Dry conditions have led to forest and rangeland fires, destroying homes, impairing habitat and grazing lands, and affecting water quality and streams. Drought has caused shortages of grain and other agricultural products, resulting in increased prices that are passed on to consumers. Municipal water supplies are threatened by drought, leading to water restrictions and heightened competition with other water users. In short, drought damages social, economic and environmental resources and negatively affects the quality of life of our citizens.

Drought is often called the 'creeping disaster'. Unlike other natural disasters such as floods, tornadoes, and hurricanes, the effects of drought creep up over a period of several years. We often do not know when a drought has started, nor do we know when droughts will end. We often fall into the 'hydro-illogical cycle': we ignore drought until the situation is dire, and then we lament the impacts, call for help and seek emergency funding; but then it will rain, we forget there was ever a problem, and we go back to business as usual. The WGA is working to break this cycle.

Over the past decade, Western Governors consistently advocated for a comprehensive national drought policy. WGA Policy Resolution 08-14 states:

The Western Governors believe that a comprehensive, integrated response to drought emergencies, including mitigation planning, is critical to the social, environmental and economic well-being of the West. Because of the interstate nature of this crisis and its



impacts, the Western Governors believe it is important to work together and cooperate with other affected entities to plan for and implement measures that will provide relief from the current drought and increased prevention and preparedness for future drought emergencies.

The Governors continue to believe that a comprehensive national policy must be enacted which provides for a coordinated and integrated approach to future drought. Such policy should include the following critical elements:

- *Emphasize Preparedness* – The policy must move the country away from the costly, ad-hoc, and response-oriented approach to drought, and toward a more pro-active approach focused on preparation and planning.
- *Improve Delivery of Drought Programs* – The policy should designate a lead federal agency for drought, such as the U.S. Department of Agriculture, and it should delineate the roles and responsibilities for coordinating and integrating federal drought assistance programs to ensure the improved and timely delivery of such programs.
- *Facilitate Drought Preparedness Planning* – The policy should encourage drought preparedness planning at all levels, including watersheds, and as droughts emerge focus federal funding on the implementation of the preparedness plans in order to proactively mitigate the drought’s impacts.
- *Improved Forecasting & Monitoring* - The policy should coordinate and integrate a variety of observations, analysis techniques and forecasting methods in a system that would support drought assessment and decision-making at the lowest geopolitical level possible. The improved characterization of current drought conditions and forecasting of future droughts should provide a better basis to “trigger” the implementation of preparedness plans and federal drought assistance.

Although legislation was introduced in prior Congresses that would have established a national drought policy embodying the key elements advocated by the Western Governors¹, only one element has been enacted thus far – the bill establishing the National Integrated Drought Information System (NIDIS). Although NIDIS is already improving the science and information relevant to drought, it does not by itself constitute a comprehensive approach to drought that will engender prevention and preparedness for future droughts. To achieve this goal, other key elements of effective drought preparedness must be addressed.

Over the last year, the Western Governors’ Association and Western States Water Council convened a series of workshops to engage constituents and users in evaluating our progress in drought preparedness. The workshops brought together end-users of drought information from a variety of sectors, including agriculture, energy, navigation, water supply, cultural resources, and the environment. They included representatives of states, federal agencies, tribes, local governments, non-governmental organizations, and private sector. Workshop participants provided insights on the strengths and weaknesses of NIDIS, identified opportunities to improve drought preparedness planning, and discussed how drought response fit within an emerging suite of ‘climate services.’

¹ Most recent was S.802 in the 109th Congress, sponsored by Senator Domenici and cited as the “National Drought Preparedness Act of 2005.”



This report summarizes those workshops and provides recommendations for moving forward with drought preparedness. The report is organized around three key themes:

1. Strengthening the National Integrated Drought Information System (NIDIS);
2. Advancing drought preparedness planning; and,
3. Describing the role of states and other stakeholders in shaping 'Climate Services.'

Strengthening the National Integrated Drought Information System

The development and establishment of the National Integrated Drought Information System (NIDIS) provides a leading example of how federal agencies can work together and with states to design a program to deliver climate-related services to end-users of information. The exceptionally dry years of 2000-2004 in the Colorado Basin and an extended drought since 1999 led the Western Governors to develop the pivotal report, "Creating a Drought Early Warning System for the United States (2004)." This report helped spur the establishment of NIDIS through the National Integrated Drought Information System Act of 2006. While NIDIS was developed in partnership with the Western states, it is national in scope. The goal, as stated in the NIDIS Act, is to "[e]nable the Nation to move from a reactive to a more proactive approach to managing drought risks and impacts." To meet this goal, the Act prescribes an interagency and multi-state approach led by NOAA. Several features of NIDIS stand out, including:

- Engaging users, such as Western states, in development of drought services;
- Maintaining a single internet portal (www.drought.gov) where information from a range of agencies is coordinated and is accessible to users;
- Leveraging existing capacity, system infrastructure, data and decision-support tools; and
- Implementing drought early warning systems to provide information services at specific regional and local scales.

NIDIS demonstrates key elements of how federal agencies could work together and with states and other partners to deliver actionable information to the public and decision-makers. However, NIDIS is still evolving and implementation needs to be strengthened, particularly with respect to the on-the-ground applications of NIDIS. During the course of the workshops, several key themes emerged where we can continue to strengthen NIDIS:

- **State Partnerships:** States are on the front lines of drought planning and response. NOAA must renew its commitment to working with states and should invest directly in state partnerships as a foundation for effective implementation of NIDIS.
- **Full-Funding for Basic Data Collection:** Basic data form the core of drought planning and response. We need to ensure continued investment in the collection of basic data, particularly USGS streamgages and NRCS snowpack monitoring. Data collection can be focused in key drought sensitive areas and should be coordinated across agencies that may be collecting drought information. For example, NIDIS recently led a successful assessment of data gaps for the Upper Colorado River, where local water managers participated in the identification of priority data needs. As a general matter, two types of drought-related information are of critical importance:



1. Socio-economic data to better understand and quantify the impacts of drought and to inform cost-effective preparedness and response strategies.
2. Ecosystem data to better understand the impacts of drought to aquatic, riparian, and groundwater dependent ecosystems and species and the loss of ecosystem services.

In addition, NIDIS must work to improve the drought monitor and other drought-related products. As NIDIS matures, products displayed on the NIDIS portal (www.drought.gov) receive increased visibility and scrutiny. These products should reflect regional differences and portray local drought and water management challenges. Otherwise, drought products may create confusion for the public and local resource managers.

- **Regional Early Warning Information Systems:** States and stakeholders expressed a clear priority for regional early warning systems. To date, the NIDIS program is developing three regional early warning system pilots: one in the Upper Colorado River Basin, one in the Apalachicola-Chattahoochee-Flint River Basin, and the third, which has just been initiated, in California. These regional systems provide a more targeted and focused assessment of local drought indicators, along with the expertise and resources to interpret and apply them to on-the-ground decision-making. Participants seek support for regional early warning systems that can develop regionally-specific and locally-specific indices for drought to help local communities prepare and adapt.

Participants urged the NIDIS program to conduct a rigorous assessment of existing drought early warning systems (or pilots); the results of this assessment should be used to inform the design and implementation of future systems.

- **Predictive Capability:** One specific aspect of drought early warning that needs to be improved is predictive capability: NIDIS can provide a snapshot of current conditions, but the research community needs to work to improve the ability to project future conditions, including for climate and runoff forecasts. This will include a discussion of the scale and uncertainties of projections.

- **Programmatic Sustainability:** The NIDIS program is authorized for funding through 2012. Drought managers need to see a long-term commitment that the NIDIS program will continue in order to continue to build this partnership. Drought plans typically address a 10-year or longer time horizon; drought planners need to be confident that NIDS will persist in order to build drought plans and partnerships around NIDIS-provided information. The need for programmatic sustainability applies to the full suite of NIDIS services, including data and information, early warning systems, and partnerships and resources.

In addition, funding for NIDIS should be structured to improve and incentivize interagency coordination. Currently, not all federal agencies receive funding to participate in NIDIS activities. While agencies have done a good job collaborating based on existing budgets, a revised funding structure could ensure that agencies are able to fully contribute to NIDIS activities and services.



Promoting Integrated Drought Preparedness Policy

Workshop participants support the goal of comprehensive and integrated drought policy. A comprehensive policy should complement and support state, local, and watershed-based plans, not override or replace them. Given WGA's long history in drought preparedness, we recognize the challenges to passing a comprehensive bill. It may be prudent to pursue a piecemeal approach in order to eventually realize a more comprehensive policy – this approach yielded benefits with the adoption of NIDIS. One key element of comprehensive drought policy that may be ripe for consideration as a stand-alone bill is drought preparedness planning.

To understand the barriers to effective drought preparedness planning and present a vision and road map for drought planning, WGA could convene a process with states, key federal agencies, local and tribal government representatives and stakeholder groups. The process could be similar to the processes managed by WGA that resulted in the WGA reports "Future Management of Drought in the West" and "Creating a Drought Early Warning System for the 21st Century."

The objective of the process would be to develop a report that identifies where broad consensus exists relative to:

- Describing barriers and challenges that currently exist to drought planning;
- Outlining key elements of drought planning, including the development of explicit metrics to evaluate drought preparedness and resiliency; and
- Proposing policy recommendations to achieve drought planning. The report would be forwarded to the WGA Governors for their consideration and possible adoption.



Source: National Drought Mitigation Center

Assuming general consensus is reached among the participants of the process, and assuming that the Governors adopt the report's recommendations, WGA would next build a coalition of groups that participated in development of the report in order to coordinate on and advocate its implementation.

If Congressional authorization is required for implementation of any of the recommendations, one possible legislative vehicle that should be considered is the reauthorization of the 1991 Reclamation States Drought Relief Act.



Engaging users in the Development of National Climate Services

Several federal agencies have capacity and emerging programs to provide information on and prepare for the impacts of climate change. NOAA is developing a NOAA Climate Service, Interior has initiated a climate response strategy that includes Climate Science Centers and Landscape Conservation Cooperatives, and several other federal agencies are integrating climate change into their resource and management planning². Drought and water supply impacts will be among the most immediate and significant impacts of a changing climate³, and the NOAA Climate Service and other new initiatives should be prepared to address them. NIDIS offers the nation a possible prototype for developing a successful federal-state partnership to design and establish a climate service enterprise to serve states and other on-the-ground decision-makers.

Most importantly, states, tribes, and other partners must have a role in developing climate services. These are *the users* of a climate service: the entities that have on-the-ground management responsibilities and will be making decisions that will be informed by climate information. A climate service will be far more effective in serving users if the users are involved in its development. The primary purpose a climate service is to provide information to make management decisions, for example in coastal management, natural resources, water supply and transportation infrastructure, and national security. We support this orientation towards informed decision-making.

Climate services should address information needs across a spectrum of time scales from extremes to the next season to decades and longer. Climate services should provide usable information on climate phenomena and impacts in the near term, such as El Nino-La Nina events and multi-year droughts. It will also provide information on long-term climate trends. Climate services should provide information at the relevant spatial scales for decision-making, such as river basins, urban areas, and wildlife corridors.

Climate services should invest in partnerships with state and local governments and the resource managers who are faced with integrating climate change into decision-making. States will be on the front lines of climate adaptation and have explicit responsibilities for planning and management decisions that should be informed by a climate service. States also collect environmental data and have an interest and expertise in how it is used to understand the current and future state of the climate system. Data collection, interpretation and analysis, and decision-making must intersect in an effective climate service. Federal agencies should make a significant commitment and investment in state partnerships to provide a foundation for an effective climate service.

Further, new and emerging climate services, like the NOAA Climate Service, should clarify their relationship with existing climate service capacity. State climatologists, regional climate centers, Regional Integrated Sciences and Assessments, and the National Weather Service are existing programs that deliver climate-related information to on-the-ground users. New climate services should take advantage of existing capacity and build a seamless partnership with existing climate resources.

² See the Council on Environmental Quality's Climate Change Adaptation Task Force for more information: <http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation>.

³ USGS Circular 1347, Water—The Nation's Fundamental Climate Issue, 2010.



Ultimately, climate services must be a true partnership, not just a 'service' that is delivered with the hope that it will be embraced by decision makers. States will be among the primary users of climate service information to plan for and respond to climate change on the ground. Thus, federal-state partnerships to develop capacity to mainstream climate information into economic and resource management decisions are essential. States and other resource managers seek data, information, and tools to incorporate climate change into on-going planning efforts for drought, water supply, forest management, agriculture, wildlife, and air quality.

Recommendations

Based upon the findings of the meetings organized by WGA and WSWC, we recommend the Western Governors direct WGA to pursue the following:

Strengthen the National Integrated Drought Information System

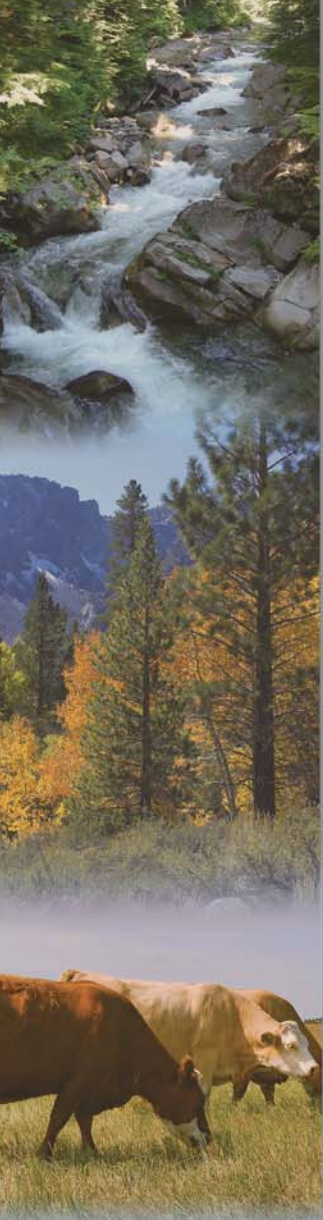
1. Encourage and assist partners to **support full funding of the collection of basic data relating to drought**, especially for USGS streamgaging and NRCS snowpack monitoring.
2. Work with the NIDIS program to **extend regional drought early warning information systems to priority areas**, with the continued goal of eventually building a nation-wide drought information system.
3. Work with the Administration and Congress to **extend the authorization of the NIDIS program and to promote full funding of the NIDIS**, particularly with respect to establishing priority regional drought early warning information systems. WGA will work with Congress to include NIDIS authorization for other agencies with drought-related expertise or responsibilities.

Promote Integrated Drought Preparedness Policy

4. Pursue a process with states, key federal agencies, local and tribal government representatives and stakeholder groups to **present a vision and road map for drought planning**. The process could be similar to the processes managed by WGA that resulted in the WGA reports "Future Management of Drought in the West" and "Creating a Drought Early Warning System for the 21st Century."

Participate in the Development of National Climate Services

5. **Advocate for NIDIS to be incorporated as a key component of a NOAA Climate Service** and to serve as one possible model for climate services development, particularly with respect to the potential partnership between states and federal agencies in the development of climate-related services.
6. **Support climate services being regionalized.** Effective services need to recognize the regional differences in climate impacts, management decisions, and legal regimes, and they should seek to work directly with local or regional stakeholders to understand key issues and provide relevant information. The development of regional climate early warning information systems should be a central activity around which federal, state, and local entities can coordinate to support adaptation strategies.



7. Work to **specify and prioritize the needs of Western states for climate services**, ensuring that new tools and products are truly meeting needs on the ground, particularly with respect to the NOAA Climate Service. WGA should work with the WGA climate adaptation work group, National Governors' Association, NOAA Climate Service and Regional Climate Service Directors, and other stakeholders, to identify state and stakeholder priorities for a climate service and to develop a strategy for state engagement in the implementation of climate services. Implementation will be contingent on partner interest and resource availability.
8. Work with Congress and the Administration to **ensure that any legislation being considered relevant to establishment of a national climate service includes the priorities of the Governors** and addresses the needs of states and other consumers of climate information.

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Note Bene:

The findings and recommendations in this paper were accepted by the governors in December 2010, but do not represent official WGA policy.