

POLICY BRIEF: Drought as Disaster

Drought Response, Risk Reduction, Preparedness, Mitigation, & Climate Change Adaptation

Date: February 29, 2016
To: Joshua Barnes, Director of Preparedness Policy, National Security Council
From: Ryan Alaniz, Gil Harootunian, and Laura Olson
Re: **5-year Plan – Taking Steps towards a Drought-Resilient Future**
Attachments: Table with Examples of Adaptation & Mitigation Measures
FEMA Drought Declarations 1963-Present
Bibliography of Relevant Literature

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Drought as Disaster: Weather and Climate Extremes Shape Disaster Trends in 2015

2015 was the hottest year on record. An annual analysis of global disasters (CRED 2015) shows that **drought** dominated the year with 32 major droughts affecting 50.5 million people. This incidence of drought is more than double the average for the last decade and well above the 10-year average number of people affected by drought, encompassing more than half the people affected by disasters in 2015.

Table 1: Drought Data in 2015 and in the Last Decade (UNISDR 2016)

Number of major droughts (2015)	Average number of major droughts (2005-2015)	Number of people affected by drought in 2015	Total number of people affected by natural disasters in 2015	Average number of people affected by drought (2005-2015)
32	15	50.5 million	98.6 million	35.4 million

When Americans think of multibillion-dollar disasters, drought is rarely among the list of risks that come to mind, but droughts are among the costliest events we are unprepared to withstand and increasingly likely to face in the years ahead. NOAA compiles an annual list of weather and climate disaster events with losses exceeding \$1 billion each across the U.S. In the past 3 decades, multi-billion-dollar drought events have grown in cost, scale, and intensity, and from 1980–2014, twenty droughts crossed the billion-dollar threshold, resulting in \$213.2 billion cumulative Consumer Price Index adjusted losses. The cost of drought is second only to tropical cyclones, and the frequency is third among the set of disasters most prevalent in the U.S. (NOAA 2015).

Table 2: U.S. Weather and Climate Disasters with Losses exceeding \$1 billion each (1980 – 2014)

Disaster Type	CPI Adjusted Losses (Billions of Dollars)	Percent of Total Losses	Average Event Cost (Billions of Dollars)	Number of Events	Percentage Frequency
Tropical Cyclone	\$544.5	49.8%	\$16.0	34	19.1%
Drought	\$213.2	19.5%	\$9.7	22	12.4%
Severe Storm	\$156.3	14.3%	\$2.2	70	39.3%
Flooding	\$89.2	8.2%	\$4.5	20	11.2%
Winter Storm	\$37.7	3.4%	\$2.9	13	7.3%
Wildfire	\$27.8	2.5%	\$2.3	12	6.7%
Freeze	\$25.1	2.3%	\$3.6	7	3.9%

The IPCC 5th Assessment Report states that increases are likely in the intensity and/or duration of drought in the Southwest U.S. in the later 21st century due to projected decreases in regional soil moisture, increasing temperatures, and changes in atmospheric circulation which scientists have high confidence will lead to surface drying. ***These projections for the future combined with data on the present represent a call to action.*** A move to treat drought as a major disaster in the U.S. requires policy action and improvements in national preparedness and the mitigation of serious future threats due to drought. An Executive Order would do much to catalyze this process.

The President’s Climate Action Plan of June 2013 ushered in a new era of recognition of the challenges that climate change poses in the U.S., including a focus on managing drought through the creation of a National Drought Resilience Partnership and support for communities as they prepare for climate impacts. U.S. participation in the Paris Agreement¹ represents another step on this path, encouraging investment in adaptation measures that prominently feature climate-resilient

development and adaptation as a way to reduce disaster risk and confront the threat of future droughts.

With the growing risks related to drought clearly stated, what can be done? The purpose of this brief is to identify policy issues and recommend changes that could be implemented at the federal level. These changes would improve relief measures, preparedness, and mitigation of drought conditions, protect our water resources, and enable us to anticipate challenges now so that affected states do not have to engage in reactive measures. The goal is to be prepared for future multi-year droughts in 2021 and beyond.

Analyses of U.S. Federal government drought policy & programs

- National Drought Policy Act of 1998
- National Drought Policy Commission in 2000
- National Drought Forum in 2012
- Congressional Research Service and GAO
- Subject matter experts from government, academia, and non-governmental organizations.ⁱⁱ

Common to these many analyses is the recognition that:

- An overarching Federal drought policy does not exist.
- A coordinated national drought policy framework needs to be developed using an inclusive multi-stakeholder and intergovernmental process that draws on external expertise.
- Drought management in the U.S. is crisis-based, reactive, and primarily relief-oriented.
- Federal drought programs are uncoordinated; run by different departments and agencies.
- The delivery of drought relief is plagued by gaps in service, eligibility criteria and cost-sharing requirements that can restrict participation, a lack of expediency and effectiveness, lack of spending authorization and funding levels to meet the needs of drought-stricken communities.
- No Lead Federal Agency (LFA) is in charge of coordinating drought relief, which means that state, local, and tribal governments must deal with each agency providing assistance separately.
- In the National Drought Policy Act of 1998, Congress found “at the Federal level...drought is addressed mainly through special legislation and ad hoc action rather than through a systematic and permanent process as occurs with other natural disasters.” Despite repeated calls to revise the system, fragmented programs and funding continue, causing patchy and inconsistent relief.
- Droughts must begin to be treated as major disaster events (not ‘emergencies’). These slow-onset events are treated as outside the traditional sphere of our emergency management system, despite evidence that their economic, environmental, and social consequences rival quick-onset disasters. Efforts to prepare for, mitigate, respond, and recover from droughts have not been resourced in a manner that is commensurate with the challenge these disasters represent.

Drought Declaration Process, Stafford Act, and U.S. System of Emergency Management

Disaster Declaration Process

- The declaration process for drought departs from the norm. A state governor whose resources have been overwhelmed must request a drought emergency declaration from the U.S. Secretary of Agriculture, who can make different forms of drought disaster assistance available.ⁱⁱⁱ
- USDA has several programs that provide financial relief to farmers for drought-related losses.^{iv} These and the drought relief programs of other agencies require Congressional action and are largely dependent on emergency supplemental appropriations or special funding

authorizations. Absent these, they are subject to funding caps and cost shares and are often under-resourced in terms of providing comprehensive drought relief coverage.

Stafford Act and Emergency Management of Drought

- While it is common practice for the drought emergency process to go through the Secretary of Agriculture, drought is expressly included in the Stafford Act definition of natural catastrophes that constitute major disasters, and thus, there is no legal barrier^v to a Presidentially-declared drought emergency or major disaster under normal Stafford Act procedure.
- Major Disaster Declarations under the Stafford Act trigger federal disaster relief programs beyond the programs available when the Secretary of Agriculture declares a drought emergency. Emergency declarations authorize less assistance than disasters.
- Stafford Act disaster declarations trigger a structured response using the National Response Framework (NRF) and National Disaster Recovery Framework (NDRF). The emergency management system for non-drought disasters is an effective model for organizing and providing disaster assistance.
- In its '*Overview of Stafford Act Assistance and Drought*,' FEMA states, "The Stafford Act has rarely been used to respond to drought-caused incidents because other Federal agencies have specific programs to address drought-related affects, such affects rarely overwhelm State or local governments, and the Stafford Act programs do not readily address the damage or unmet needs that are generally the result of severe drought conditions. Stafford Act declarations for prolonged drought are generally disfavored because most damage caused by drought is not eligible for Stafford Act assistance" (OCC 2012).
- While FEMA ostensibly has an "all hazards" system of emergency management, drought quite aptly proves this is not the case.
- Funding for Stafford Act disaster assistance for non-drought emergencies and disasters derives from appropriations made to the Disaster Relief Fund (DRF). Whereas the argument within FEMA that many of its disaster assistance programs are not tailored for use in drought scenarios is correct, some of the existing programs could be beneficial.^{vi}
- Additionally, if FEMA calls on another federal agency to assist during a disaster using its mission assignment authority, these agencies are reimbursed for their activities through the Disaster Relief Fund. There are a number of pre-existing disaster financial assistance programs not administered by DHS or FEMA that can might be able to be used in a drought disaster.^{vii}
- The Stafford Act has only been used to respond to drought in a few instances since FEMA was created in 1979. Four of these were for U.S. territories (Marshall Islands, Micronesia), with one emergency drought declaration for New Jersey in 1980. Eight drought-related requests for Stafford Act declarations made by states since 1988 have all been denied.

Drought Policy and Program Recommendations

Executive Order

- An Executive Order (EO) should be drafted establishing a risk- and vulnerability-based approach to drought, focused on creating drought-ready, climate change resilient communities. As in the *National Drought Policy Act of 1998*, this would require a strategy shift from ad hoc federal action to a "systematic process similar to those for other natural disasters."
- The EO should affirm a position of the federal government **recognizing water as a human right** and declaring support for UN Resolution 15/9 or 64/292. Power, inequality, and politics are real in the climate change arena. In the U.S., the market is often seen to provide solutions and water is no exception. As the debate rages about water rights which privilege agriculture

over environmental or municipal water use, water pricing strategies are increasingly being seen as an option to change a deeply entrenched dynamic. While these ideas are debated in policy circles, access to water is vanishing in towns such as East Porterville in California's Central Valley where wells ran dry years ago. The town is largely populated by migrant farm laborers, who have high poverty rates, no voice in local politics, and—now—no source of water. While some solutions may come from treating water as a commodity—the vulnerable and poor will pay the price for this policy. It would be politically advantageous for public debate to integrate the idea of water as a human right as a way to re-frame water use, supply, and management strategies based on the notion of water as a property and begin to create a concept of water rights that protect one of our most basic needs.

- The EO would reaffirm the Stafford Act, FEMA, and NRF all-hazard role include drought, and drought is eligible to receive Presidential Disaster Declarations under the Stafford Act, not only non-Stafford Act Emergency Declarations from the Secretary of Agriculture.
- If FEMA is unwilling or unable to confront drought as mandated by the Stafford Act, the role of Lead Federal Agency (LFA) should be formally given to USDA, DOI or NOAA in the case of droughts, much as the U.S. Coast Guard takes on the LFA role for the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). A separate National Drought Contingency Plan should be drafted if necessary.^{viii}
- The EO would mandate a drought needs assessment, based on recent drought events, creating a baseline of drought-related needs in the nation. This would include a review of water use, supply, and management policies. Since Western states experience pushback from powerful lobbies on changes to water policies, a federal mandate would help states to move forward.
- The EO would mandate a full review of all federal drought relief programs and Stafford Act disaster assistance programs assessing their ability to meet drought-related needs and challenges of future climate change scenarios. This review would use the drought needs assessment data to determine whether needs can be met, resources are appropriate, and relief efforts are timely. Programs must also meet criteria in the President's Climate Action Plan for managing drought and helping communities prepare for future climate impacts.
- The EO would mandate the drafting of new drought preparedness, mitigation, and response programs to present to Congress. While not politically feasible now, these programs would be ready in future. New programs would be proactive and plan for future contingencies (climate change, multi-year/mega-droughts, water shortages, and supply issues). All federal agencies, water projects, and facilities would draft long-term drought plans based on these concepts.

Full Review of Federal Drought Relief Programs

- The full review of all federal drought relief programs should aim to eliminate the confusing patchwork of rules and regulations that function as a severe barrier to an efficient response to drought and to public understanding of drought, public policy, and governmental response. It should identify any programs that might function as a disincentive to adaptation (such as irrigation practices related to crop insurance) or that are failing to respond to the situation of vulnerable populations.
- Past efforts to review federal drought relief programs have run into difficulties due to the scope and complexity of this task. The *National Academies of Science* should be tasked to produce a comprehensive report on the federal approach to drought and water management in support of the work being done by the National Drought Resilience Partnership. This will provide evidence-based scientific reviews of needed shifts in water/drought management programs and policy.

Drought Planning

- Drought Preparedness and Planning must be improved and plans implemented. Existing state drought plans (and related resource management plans) should undergo revision and provide proof of implementation. Where drought plans do not exist, federal agencies should provide model plans, water-related data, and technical guidance. Incentives for drafting, updating, and implementing plans, such as lowering cost shares for drought assistance, are motivators.
- Drought plans should address contingencies and response at local, regional, state, and national levels. They should address monitoring, early warning/information systems; impact and vulnerability assessments; climate change adaptation strategies; and appropriate mitigation and response measures (following National Drought Mitigation Center’s model drought planning process). Plans should include drought-related hazard prevention (flood, landslide, wildfire).
- Drought plans should include definitions of drought that consider diverse water users and needs, be flexible enough to include a variety of drought situations, and specific enough to distinguish between true drought emergency situations and normal cyclical conditions.
- Drought plans must contain robust indicators for assessment purposes and geographically-specific triggers for different levels of response (drought has different characteristics in different locations and no one-size-fits-all set of triggers for action). Triggers should stipulate when local response thresholds are met, what relief and mitigation initiatives should be activated, and secondary and tertiary effect triggers that are vulnerability-based (e.g., effects on livelihoods, vulnerable populations).

Funding Drought Relief in an Expedient Manner

- In its 2000 report, the National Drought Policy Commission stated, “Commitment is required to achieve the goals of national drought policy. That commitment must include resolve by the federal government to provide dependable, long-term funding for the required work and the personnel to carry out the work.” Using Stafford Act declarations for drought would allow the use of FEMA’s Disaster Relief Fund to finance relief efforts, a process which has supported expedience in quick-onset disaster responses for decades.

Drought Resource Matrix and Toolbox

- The National Drought Resilience Partnership has been engaged in efforts to better coordinate drought relief since November 2013. It has produced a Drought Resource Matrix, which provides an overview of 220 federal drought-related resources, programs, funding, authorities, and forms of technical assistance. In terms of being a ‘Directory of Federal Government Drought Programs,’ the matrix is a step forward, but is not user-friendly, contains initiatives often without funding, and overwhelms state and local stakeholders. It also demonstrates the lack of coordination between different federal government programs. Further work making drought programs understandable and easily accessible for impacted communities should continue with goal of matrix becoming a state of the art tool.^{ix}
- The U.S. Drought Portal represents a publically-available, single portal Drought Toolbox established by USDA, NOAA and UNL’s National Drought Mitigation Center. Its resources include the U.S. Drought Monitor, NIDIS, publications, maps, and more that help users understand drought forecasts and impacts in their region. Expansion of the website’s tools and visibility is needed. New tools should include public dashboards, mini graphic novels, infographics, posters, curriculum units and educational games, suggested field trips as part of K-12 education, and so on. Tools from other federal agencies should be added, such as USGS educational units on groundwater/land subsidence, CDC surveys of local health impacts of drought, and Ready.Gov’s preparation guide for drought. The federal government can delegate

the creation of tools on successful drought mitigation strategies, adaptation case studies, best practices for drought/water management, model drought management plans and ordinances, and lessons learned from relevant agencies.

Education

- The federal government in concert with drought-prone states should launch a major, Madison Avenue-quality education campaign to improve water use and conservation and change the tone of future public debates about water rights. Such campaigns have met with success in the past, for issues such as recycling or diminishing litter (“Keep America Beautiful”).

Water Agreements

- Federal water matters require a deliberate and timely response, e.g., approval of sharing agreements for reservoirs involving tribal rights, treaties with foreign governments, agreements on shared environmental issues, interstate commerce as impacted by water supply, and setting policy and precedents on such issues as need or opportunity arises.

Invest in Science and Research

- Drought-prone states share concerns about population growth straining water supplies, lack of information on water availability, and usage trends. The U.S. drought portal does not provide information on water use and supply, while the Open Water Data Initiative of DOI represents a promising start. A *National Water Information Repository and Data Research Center* would give the media, community groups, politicians, and other stakeholders—from farmers to individual citizens—unfettered access to timely, authoritative, evidence-based water data. The federal government can broker communication among agencies on water issues and support a partnership with universities and philanthropic partners.^x
- The limit of drought forecasting abilities, which is 1-2 seasons (~ 3 months into the future), hinders the ability to plan longer-term. Investments in monitoring, prediction/early warning, forecasting, drought/water management research, resource stewardship, and preparedness planning should continue. Research is needed on anthropogenic elements of drought (e.g., climate change; population growth; unsustainable development, water and land use practices; biodiversity issues), as well as factors influencing drought such as severity and duration. Little is known about the most effective drought mitigation and drought/water management techniques. Social science research should assess socio-economic/environmental impacts across time and spatial scales and improve understanding of risks and vulnerabilities. Drought-related research should be the foundation of new/improved drought programs, innovations, and technology.

Infrastructure

- Investments in municipal, industrial, environmental water infrastructure, water conservation and efficiency improvements, green technology and innovation, need public funding and could spur solutions/adaptation measures for future drought scenarios across the globe.

Federal Interactions with State/Local governments

- *Request Presidential Disaster Declarations for drought:* Governors should request Presidential Disaster Declarations through DHS/FEMA for catastrophic droughts (D3/D4). Drought warrants all the structure, organization, resources, staff, and programs the federal government can provide.
- *Induce states to conduct a long-term, reliable assessment of their sustainable water supply:* States need federal incentives to begin this process and incorporate results into all relevant state plans. This work must address the false separation of ground/surface/atmospheric water resources, aquifer/reservoir recharge, and land subsidence issues.

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ⁱ The Paris Agreement—a result of the 2015 United Nations Climate Change Conference (COP 21)—hammered out consensus among 196 nations on reducing greenhouse gases emissions and the risk of impacts of climate change, holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and investing in adaptation measures and climate-resilient development.

ⁱⁱ The National Drought Resilience Partnership (NDRP) was formed in November 2013 in response to the President’s Climate Action Plan. Led by the U.S. Department of Agriculture (USDA) and the National Oceanic and Atmospheric Administration (NOAA), the NDRP was put in place to coordinate the delivery of Federal Government policies, programs, information, and tools designed to help communities plan for and respond to drought. Other agencies that are part of this effort are the Department of the Interior, the Assistant Secretary of the Army for Civil Works, the Federal Emergency Management Agency, the Environmental Protection Agency, and the U.S. Department of Energy. While we are sure the NDRP has conducted their own analysis of Federal policy and programs in line with this mandate, the conclusions of this work are not published anywhere and we are unable to comment on the results of this process.

ⁱⁱⁱ Under a new Farm Services Agency (FSA) streamlined process, any portion of a county experiencing severe drought according to the U.S. Drought Monitor for eight consecutive weeks can receive a “nearly” automatic USDA disaster declaration. Further, any county for which a portion is identified in the U.S. Drought Monitor as undergoing severe drought (or worse) may also be declared a disaster area.

^{iv} The Emergency Conservation Program, Emergency Watershed Program, Non-insured Crop Disaster Assistance Program, Federal Crop Insurance Program.

^v The barrier appears to be common practice and FEMA’s aversion to becoming involved in slow-onset disasters.

^{vi} These include Community Disaster Loans to local governments that lose revenue needed for government services; Disaster Unemployment Assistance directly related to the event (administered by the Department of Labor); Disaster Supplemental Nutrition Assistance Program which provides food coupons/distribution for low-income households unable to purchase nutritious food; and Hazard Mitigation Grant Program funds, allocated to states when a major disaster is declared.

^{vii} The Small Business Administration Disaster Loans and the Department of Housing and Urban Development Community Development Block Grant Program funds can be used to meet a wide range of disaster needs, but the program typically requires a supplemental appropriation to accommodate the high cost of disaster relief.

^{viii} These agencies are well-positioned to take the lead in responding to drought emergencies and disasters through well-tested structures laid out in the NRF/NDRF and NIMS to organize and expedite the swift delivery of necessary disaster assistance to drought-stricken states and counties.

^{ix} Currently there is no single source for comprehensive information published by federal, state, local agencies, water districts, environmental and civil institutions, universities, and the private sector from grower associations to engineering firms. However, the federal government can build on pilot efforts, a good example being California State University, Fresno that has partnered with the California Water Institute to create a water information research service to provide such a service hub for the collection, dissemination and data mining of authoritative and scientific information related to all aspects of water in the West.