BUREAU OF RECLAMATION

WaterSMART Drought Response Program Framework

U.S. Department of the Interior

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Mission Statements

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, Native Hawaiians, and affiliated Island Communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Acronyms and Abbreviations

ARC	Application Review Committee
CMIP	Coupled Model Intercomparison Project
Commissioner	Reclamation's Commissioner
DCHP	Downscaled Climate and Hydrology Projections
Drought Act	Reclamation States Emergency Drought Relief Act of 1991
FEMA	Federal Emergency Management Agency
FY	fiscal year
Framework	Drought Response Program Framework
GO	Grants Officer
GOTR	Grant Officer Technical Representative
NOFO	Notice of Funding Opportunity
NRCS	Natural Resources Conservation Service
NDMC	National Drought Mitigation Center
OMB	Office of Management and Budget
Policy	Policy and Administration
P.L.	Public Law
Reclamation	Bureau of Reclamation
SCADA	Supervisory Control and Data Acquisition
SECURE	Science and Engineering to Comprehensively Understand and Responsibly Enhance Water Act
SECURE Water Act	Section 9504(a), Subtitle F, P.L. 111-11
SNOWTEL	Natural Resources Conservation Snow Telemetry Network
Task Force	Drought Planning Task Force
U.S.	United States
USC	United States Code
USGS	U.S. Geological Survey
WaterSMART	Sustain and Manage America's Resources for Tomorrow

Contents

Executive Summary

Many areas in the west recently experienced unprecedented drought conditions. In the Colorado River Basin, the years 2000 to 2014 represent the worst multi-year drought in approximately 100 years of our measured record, dating back to 1906. On April 22, 2014, the western United States (U.S.) Drought Monitor's weekly report marked the first time in its history that the entire State of California experienced moderate to exceptional drought. While droughts are common in the western U.S. there is growing evidence that we are experiencing longer and more frequent droughts in some areas.[1] As the Nation's largest wholesale water supplier, Bureau of Reclamation (Reclamation) must support our customers, stakeholders, and partners in building resiliency to drought.

Drought directly impacts Reclamation's ability to deliver water and power to contractors, central to Reclamation's mission. During droughts, reservoir supplies are depleted earlier than usual, which can result in shortages to irrigators later in the season, restrictions on residential water users, and reduced supplies for ecological resources. Drought also impacts water quality due to higher water temperatures and an increased risk of wildfires.

Reclamation's Drought Response Program supports a proactive approach to drought. The Drought Response Program provides assistance to water users to conduct drought contingency planning, including consideration of risks and uncertainties related to changing hydrologic conditions, and to take actions that will build long-term resiliency to drought.

This document, the Drought Response Program Framework (Framework), describes the program implementation and includes resources for the development of drought contingency plans. Through the Drought Response Program, funding is allocated through competitive processes for the following activities:

- **Drought Contingency Planning. –** Reclamation provides financial assistance, in the form of cooperative agreements, through a Notice of Funding Opportunity (NOFO), on a 50/50 cost-share basis to develop or update drought contingency plans. Plans must include input and participation by multiple stakeholders. Plans will also consider risks and uncertainties related to changing hydrologic conditions and identify potential drought mitigation and response actions to build resilience to drought. Actions identified in the plans may be eligible for funding as "drought resiliency projects" (see below), so long as they meet program requirements.

[1] The Fifth National Climate Assessment, published by the U.S. Global Change Research Program in 2023. https://toolkit.climate.gov/NCA5.

- **Drought Resiliency Projects. –** Reclamation provides financial assistance through a NOFO on a 50/50 cost-share basis to implement projects that build long-term resiliency to drought. Proposed drought resiliency projects that are supported by an existing drought contingency plan will be prioritized for program funding. Projects that are eligible for funding should address at least one of the following goals:

  - Increasing the reliability of water supplies
  - Improving water management
  - Providing benefits for fish and wildlife and the environment

  In general, projects funded under this NOFO should be completed within three years of award.

- **Emergency Response Actions. –** Reclamation continues to fund some emergency drought response actions, contingent on available funding, to address ongoing drought emergencies as authorized under Title I of the Reclamation States Emergency Drought Relief Act of 1991 (Drought Act). To be eligible, a state governor or tribal leader must request assistance in writing for the proposed emergency response action or have a drought plan on file with Congress. Emergency response actions are typically crisis-driven actions in response to unanticipated emergencies. Eligible projects include temporary construction activities (e.g., temporary pipes and pumps, among other installations) and other actions authorized under Title I of the Drought Act (e.g., water purchases and use of Reclamation facilities to convey and store water) that can be completed within a year. Consistent with the Drought Act, emergency response actions will be conducted by Reclamation or through a contract with Reclamation, not through the provision of financial assistance.

Purpose of this Document

This Framework guides Reclamation's implementation of the Drought Response Program, complementing the Reclamation Directives and Standards for the Drought Response Program, WTR 10-01. The Framework is used by Reclamation staff as they interact with stakeholders in explaining the administration of the program. In addition, several of the appendices provide guidance to program participants developing drought contingency plans (e.g., Appendix A – Drought Contingency Planning Process and Appendix B – Incorporating Climate Change Information into Drought Contingency Plans).

This Framework contains the following sections addressing each component of the Drought Response Program:

- Drought Contingency Planning
- Drought Resiliency Projects
- Emergency Response Actions

Section I: Drought Response Program Overview

Reclamation has been providing emergency drought assistance to states and tribes under the Drought Act since 1991. However, Reclamation believes that program funding can be used more effectively by focusing on mitigation and planning to increase resiliency to drought in advance of a crisis. In order to maximize program benefits, Reclamation's Drought Response Program will build on the existing Drought Program to make funding available for activities that will help states, tribes, and local governments *prepare for* and respond to drought. Reclamation will continue to rely on the Drought Act to fund drought contingency plans. In addition, Reclamation will use Section 9504(a), Subtitle F, Public Law (P.L.) 111-11 of the Science and Engineering to Comprehensively Understand and Responsibly Enhance (SECURE) Water Act to fund drought resiliency projects. Using this authority, Reclamation will provide financial assistance through grants and cooperative agreements to eligible entities to implement water management projects that will build long-term resiliency to drought. Reclamation will also retain the ability to utilize Title I of the Drought Act to fund emergency response actions.

I.A Incentivizing Planning and Preparedness

To incentivize planning and preparedness rather than crisis response, the majority of Drought Response Program funding will be allocated for contingency planning and drought resiliency projects. A smaller amount of funding will be reserved for emergency drought response actions each year to address drought related disasters and crises. This approach is supported by the National Drought Mitigation Center (NDMC), which emphasizes the benefits of preparedness planning and drought mitigation to decrease the cost and impacts of responding to drought emergencies:

> One frequently cited estimate from FEMA[2] is that "mitigation" – taking steps ahead of time to prevent known impacts from a natural disaster – saves $4 for every $1 expended. Planning ahead is generally seen as more efficient and more effective than measures taken in crisis mode.
>
> Drought researchers have found that after-the-fact assistance to farmers, for example, is expensive and doesn't necessarily reach the right people.[3]

It is expected that providing support for contingency planning and projects to build drought resiliency may also reduce the need for some emergency response actions.

[2] Federal Emergency Management Agency (FEMA)
[3] National Drought Mitigation Center (NDMC)

I.B Comprehensive Approach to Drought

The elements of the Drought Response Program are complementary and structured to encourage a collaborative, proactive, and comprehensive approach to drought. For example, drought contingency plans funded under the program are required to include participation by multiple stakeholders to encourage more comprehensive plans that address issues important to different sectors (e.g., agricultural, municipal, industrial, and environmental). Participation by multiple stakeholders will also broaden support for mitigation and response actions identified in contingency plans. As a complementary measure, the Drought Resiliency Projects NOFO will incentivize planning by prioritizing projects that are supported by an existing drought plan. This requirement is also expected to improve the quality of drought resiliency projects funded. Similarly, the drought contingency planning process includes the development of an operational and administrative framework for responding to a drought emergency, which will lead to more efficient implementation of emergency response actions during a crisis.

Section II: Drought Contingency Planning

The following section describes the program requirements and procedures for conducting or updating a drought contingency plan under this program.

II.A Drought Contingency Planning Overview

Reclamation provides financial assistance on a competitive basis for an applicant to develop a drought contingency plan, or to update an existing plan to meet the required plan elements described in this Framework. Applicants may also request technical assistance from Reclamation to help develop the plan. The following sections of this Framework describe the requirements and procedures applicable to drought contingency planning. Guidance regarding the planning process is also provided in Appendix A – Drought Contingency Planning Process.

"Drought planning" is defined by the NDMC as "actions taken by individual citizens, industry, government, and others before drought occurs to reduce or mitigate impacts and conflicts arising from drought."[4] There are many proven approaches to drought planning. For example, the 10-Step Drought Planning Process developed by the NDMC has been applied by states, tribes, and countries around the world.[5] FEMA's four-step mitigation planning process is also frequently applied and was recently used by the State of Colorado in developing their Drought Mitigation and Response Plan, www.fema.gov/hazard-mitigation-planning-overview. While the specific steps may vary, most drought contingency planning processes are structured to address the three following questions:[6]

- **How will we recognize the next drought in the early stages?** Planning for and managing drought require monitoring of a variety of water availability and climate factors in order to identify the onset of drought and to assess its severity. Most drought plans include a monitoring plan and early warning system to collect the appropriate water availability and other relevant data. Most drought plans also use drought indices to

[4] NDMC website at https://drought.unl.edu/archive/Documents/NDMC/Planning/10StepProcess.pdf

[5] The 10-Step Drought Planning Process was published by NDMC founding director Dr. Donald Wilhite in 1990 and recently updated in 2005 as "Drought Preparedness Planning: Building Institutional Capacity," by Wilhite, Michael J. Hayes, and Cody Knutson, published as a chapter in *Drought and Water Crises: Science, Technology, and Management Issues*, edited by Wilhite (CRC Press, 2005).

[6] See NDMC website at https://drought.unl.edu/planning/planningprocesses.aspx for a discussion of these questions central to drought planning. See also, Planning and Drought, American Planning Association, Planning Advisory Service, report Number 574, October 2013, at 31.

establish metrics or "triggers" to indicate the onset and different stages/levels of drought. These metrics and triggers can be used to help administrators determine when to initiate specific response or mitigation actions.

- **How will drought affect us?** A "vulnerability assessment" is typically conducted as part of the drought planning process to evaluate the risks to various resources and sectors within the planning area from drought and the factors driving those risks.[7] Assessing the level of risk requires a review of past drought impacts, an analysis of historical water supply and water use trends, and how those trends may change over time. Other factors, such as changes in land use and population growth, are also considered as part of this analysis. More recently, vulnerability assessments also include consideration of how risks and uncertainties related to changing hydrologic conditions may influence future water supply and demand trends. Information from the vulnerability assessment – i.e., understanding the risks to various resources and the factors contributing to those vulnerabilities – is critical to identifying appropriate mitigation and response actions. This information can also be used to inform the metrics and triggers for initiating mitigation or response actions.

- **How can we protect ourselves from the next drought?** Once potential impacts from drought have been identified, planners can identify mitigation and response actions to address those impacts. Mitigation actions refer to actions taken in advance of a drought that reduce potential drought-related impacts when the event occurs. For example, a mitigation action could include construction of water management improvements to increase flexibility in times of drought, or passing an ordinance to encourage xeriscaping. Drought response actions are those actions taken in response to emerging and ongoing drought, such as curtailing lawn watering. Some drought plans may also identify a process for approving "emergency" drought response measures to respond to an unanticipated crisis that is not already addressed in triggered response actions. For example, installing a temporary pipe or hauling water when a community runs out of water. The NDMC recommends that drought plans identify both mitigation and response actions.

The planning process that is described in this Framework is structured to help planners answer these three key questions and to encourage an open and inclusive planning effort that employs a proactive approach to build long-term resiliency to drought. Reclamation does not intend to reinvent proven approaches to drought

[7] As described in Colorado's recent drought plan: "Vulnerability from the perspective of drought planning means assessing the threat from potential drought hazards to various sectors across social, economic, environmental, and political fields. "Colorado Drought Mitigation and Response Plan," Annex B, August 2013, at B.1, www.fema.gov/hazard-mitigation-planning-overview.

contingency planning, when implementing this program. Instead, the Framework builds on the 10-step process by adding a process to incorporate risks and uncertainties related to changing hydrologic conditions. This Framework also supports the use of existing information where appropriate, including from the U.S. Department of the Interior's WaterSMART (*Sustain and Manage America's Resources for Tomorrow*) Basin Studies or Baseline Assessments, and other non-Reclamation sources, to develop drought contingency plans.

II.B Authority to Develop Drought Contingency Plans

Financial assistance for drought contingency planning will be implemented under Title I of the Drought Act (P.L. 102-250, 43 U.S. Code [USC] Section 2201, et seq.), as amended. Otherwise, the drought contingency planning component of the program relies on Title II of the Drought Act.

II.C Planning Requirements

The following sub-sections describe requirements applicable to the development of a drought contingency plan or plan update under this program.

II.C.1 Eligible Applicants

Applicants eligible to apply for funding under this NOFO include: states, tribes, irrigation districts, water districts, or other organizations with water or power delivery authority located in the following states: Arizona, California, Colorado, Hawaii, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, and Wyoming.

II.C.2 Roles and Responsibilities

The non-Federal entity identified to receive funding through the proposal selection process will be referred to as the planning lead. The planning lead and Reclamation will establish a management structure for the planning process. The planning lead may request Reclamation to contribute to the technical aspects of developing the plan, including development of alternatives or hydrologic analyses, for example. A detailed work plan will be developed by the planning lead, and reviewed by Reclamation, at the beginning of the planning process and will further define specific roles and responsibilities (see Section II.C.5 – Required Steps for Conducting a Drought Contingency Plan, below).

II.C.3 Collaboration with Interested Stakeholders

Drought contingency plans will be developed through a collaborative process that is inclusive of interested stakeholders within the planning area. Collaboration with multiple stakeholders representing diverse interests in water resources is

required. Anticipating that stakeholders will seek different levels of involvement, this Framework describes two different opportunities for involvement, including: (1) Participation on the Drought Planning Task Force (Task Force) (Section II.C.5 – Required Steps for Conducting a Drought Contingency Plan) by stakeholders who want to actively participate in developing the drought contingency plan or plan update; and (2) opportunities to provide input and seek information by stakeholders who do not seek an active role on the Task Force. The planning lead will develop an outreach and communication plan (Section II.C.5 – Required Steps for Conducting a Drought Contingency Plan), to be attached to the detailed work plan, to provide all interested stakeholders opportunities for input at key stages of the planning process and to keep them informed of progress as the plan is developed.

II.C.4 Required Elements of a Drought Contingency Plan

Drought contingency plans and plan updates must be developed in a manner consistent with this Framework. Drought contingency plans must address each of the six elements described immediately below. Updates to an existing plan may focus on only those elements that have not yet been developed in the existing plan, or which require updating; however, completed plan updates must address each of the six elements. Reclamation does not prescribe any one approach to developing and addressing these elements in a plan or plan update.
However, further explanation and guidance to support the development of each element is provided in Appendix A – Drought Contingency Planning Process to this document. The six required elements of a drought contingency plan are as follows:

1. **Drought Monitoring.** – The plan must establish a process for monitoring near and long-term water availability, and a framework for predicting the probability of future droughts or confirming an existing drought. This includes a process for the collection, analysis, and dissemination of water availability and other drought-related data (e.g., precipitation, temperature, and streamflow levels, among other indicators). The plan must also explain how this data will be used to predict or confirm droughts, including identifying metrics and triggers (e.g., reservoir level reached at a specific reservoir and use of specific drought indices) that may be used to define stages of drought, to trigger mitigation or response actions, and to define the different stages or levels of severity of drought.

2. **Vulnerability Assessment.** – The plan must include a vulnerability assessment evaluating the risks and impacts of drought. A vulnerability assessment is an assessment of the risks to critical resources within the planning area and the factors contributing to those risks. Assessments will drive the development of potential mitigation and response actions. The assessment must be based on a range of future conditions, including

uncertainties related to changing hydrologic conditions. Discretionary guidance on incorporating hydrologic risks and uncertainties into drought contingency plans is provided as Appendix B to this Framework.

3. **Mitigation Actions.** – The plan must identify, evaluate, and prioritize mitigation actions and activities that will build long-term resiliency to drought and that will mitigate the risks posed by drought. Mitigation measures are actions, programs, and strategies implemented before drought to address potential risks and impacts. These actions are outside of regular water management activities and are intended to decrease sector vulnerabilities and reduce the need for response actions.

4. **Response Actions.** – The plan must identify, evaluate, and prioritize response actions and activities that can be implemented during a drought to mitigate the impacts. Response actions are different than mitigation measures in that they are specific actions that are triggered during specific stages of drought to manage the limited supply and decrease the severity of immediate impacts. Response actions can be quickly implemented and provide expeditious benefits.

5. **Operational and Administrative Framework.** – An operational and administrative framework must be developed to identify who is responsible for undertaking the actions necessary to implement each element of the plan, including communicating with the public about those actions. At a minimum, the framework should identify roles, responsibilities, and procedures necessary to:

    - Conduct drought monitoring
    - Initiate response actions, including emergency response actions
    - Initiate mitigation actions
    - Update the plan

    The operational and administrative framework may be integrated into each element of the plan, or documented in a specific section of the plan.

6. **Plan Development and Update Process.** – The plan must describe the process that was undertaken to develop the plan, including how stakeholders were engaged and how input was considered. In addition, the plan must also include a process and schedule for monitoring, evaluating, and updating the drought contingency plan.

II.C.5 Required Steps for Conducting a Drought Contingency Plan

Once the applicant has been informed that their proposal to develop or update a drought contingency plan was successful, Reclamation will enter into a financial assistance agreement with the applicant, documenting the requirements and

conditions related to the provision of financial assistance. Following finalization of the financial assistance agreement, the following steps are required before development of the plan or plan update can begin:

- **Establishment of a Drought Planning Task Force.** – At the outset of the planning process, the planning lead will develop the Task Force, made up of interested stakeholders within the planning area that want to actively participate in developing the drought contingency plan (individual members of the Task Force are referred to as Task Force member). This Task Force could include: tribes; Federal, state, local government agencies; representatives from different sectors, including water purveyors and water users; representatives of environment, power, recreation, agriculture, energy, fire protection/prevention; universities; non-governmental entities; any small business owner adversely affected by drought; a trained facilitator; and communications staff. Planning leads are required to develop a Task Force with diverse membership representing multiple interests in the planning area. The planning lead may also establish working groups to support the Task Force in developing different aspects of the plan. Reclamation will review and provide feedback on the inclusiveness of the task force.

- **Development of a Detailed Work Plan.** – The detailed work plan, to be developed by the planning lead in consultation with Reclamation, will build on information in the proposal submitted under the NOFO to describe in detail the various tasks included in developing or updating a plan, along with a detailed budget and project schedule, and the responsibilities of Reclamation (Reclamation will provide input on this element), the planning lead, the Task Force, and other interested stakeholders. The detailed work plan will describe the specific planning tasks and how each task will be completed, including the responsible party and the methodology. The detailed work plan will be the second task completed following a signed financial assistance agreement, following the establishment of the Task Force. The detailed work plan must be submitted to Reclamation for review and acceptance before substantive work on the drought contingency plan begins, and may be updated as conditions warrant. The detailed work plan includes the following four elements:

- **Introduction**
  - Scope and purpose of the drought contingency plan
  - Planning area
  - Background, including a brief description of how the drought contingency plan will build on any existing or ongoing efforts or plans
- **Planning Approach**
  - Detailed budget and schedule for developing the plan. Be sure to account for how the plan's entire funding will be used, including all contracting, consulting, in-kind contributions, etc.
  - Narrative description of the plan for completing each of the six required elements of the plan, including the approach, steps, methodologies, specific tasks, and individuals responsible for conducting those tasks
  - Planning oversight structure
  - Decision making process
  - Roles and responsibilities of the planning lead(s) and Task Force, including individual Task Force members
  - Coordination between the planning lead(s), Task Force, and interested stakeholders
- **Documentation and Reporting.** – *Note, mandatory program reporting requirements will be documented in the financial assistance agreement.* This section of the detailed work plan will identify the specific tasks and milestones to meet those requirements.
  - Identify deliverables and documentation requirements
  - Reporting requirements and individuals responsible for reporting
  - Review process, i.e., how the draft plan or plan update will be reviewed

- **Communication and Outreach Plan.** –
  - Explanation of how stakeholders and the public will be involved in the planning process, including providing input on the drafting of

the drought contingency plan and providing feedback to the Task Force. Participation could occur through public meetings, webinars, public notices, and other forums or approaches.

- Schedule describing when information about the planning process will be communicated with the public and other stakeholders, and when they can provide input and feedback.

All Drought Contingency Plans funded under the Drought Contingency Planning NOFO must be submitted to Reclamation for review and acceptance. Reclamation will review the Drought Contingency Plan to determine that the plan meets Drought Response Program requirements. Reclamation will either accept the plan as submitted or provide comments for the planning lead to address within a given time frame.

Section III: Drought Resiliency Projects

Under this element of the program, Reclamation funds drought resiliency projects. For purposes of the Drought Response Program, "drought resiliency" is defined as the capacity of a community to cope with and respond to drought. The following section provides an overview of applicant eligibility and projects that are eligible for funding.

III.A Statutory Authority to Implement Drought Resiliency Projects

The Drought Resiliency Projects NOFO will be issued under the authority of Section 9504(a) of the SECURE Water Act, Subtitle F of Title IX of the Omnibus Public Land Management Act of 2009, P.L. 111-11 (USC 10364).

III.B Program Requirements for Drought Resiliency Projects

The Drought Resiliency Projects NOFO provides funding for projects that will build long-term resiliency to drought (i.e., projects that will result in long-term benefits that mitigate the impacts of current and future droughts) and help avoid the high cost approach of implementing emergency response actions.

III.B.1 Eligible Applicants

Applicants eligible to apply for funding for drought resiliency projects include: states, tribes, irrigation districts, water districts, or other organizations with water or power delivery authority located in the following states and territories: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, Wyoming, American Samoa, Guam, the Northern Mariana Islands, and the Virgin Islands.

III.B.2 Eligible Drought Resiliency Projects

Reclamation will provide funding for projects that build long-term resilience to drought through the Drought Resiliency Projects NOFO. Eligible projects will build resiliency to drought by:

- Increasing the reliability of water supplies
- Improving water management
- Providing benefits for fish and wildlife and the environment

Typically, these types of projects are referred to as "mitigation actions" in a drought contingency plan (i.e., actions taken in advance of a drought to mitigate

the impacts of future droughts). However, some types of "response actions" (i.e., actions that can be implemented during a drought to mitigate current impacts) identified in a drought contingency plan may be eligible, if the project will have long-term benefits.

Resiliency projects are intended to decrease vulnerabilities and costs of drought by giving water managers flexibility in times of low water supply. These types of projects are generally beyond routine water management activities or activities required by State law for conservation and efficiency. Projects that are supported by an existing drought contingency plan will be prioritized for funding. Resiliency projects also help avoid the need for emergency response actions, such as water hauling programs and temporary infrastructure. In order to avoid duplication with the WaterSMART Grants program, projects focused on water conservation, such as canal lining or piping to conserve water, landscape irrigation measures, turf replacement, and rebate programs to promote the installation of high efficiency appliances, are not eligible for funding under the NOFO.

Section IV: Emergency Response Actions

IV.A Emergency Response Actions Overview

Reclamation will continue to undertake emergency response actions under the Drought Response Program to minimize losses and damages resulting from drought, relying on the authorities in Title I of the Drought Act, contingent on available funding. Typically, emergency response actions are crisis driven actions in response to unanticipated circumstances. These are distinguishable from "response" actions, which are identified through the contingency planning process and associated with different stages of drought or "triggers." Eligible emergency response actions are limited to temporary construction activities and other actions authorized under Title I that do not involve construction of permanent facilities. Proposals requesting funding to drill wells, which are permanent facilities, will be considered only under the Drought Resiliency Projects NOFO.

IV.B Statutory Authority to Implement Emergency Response Actions

The Emergency Response component of the Drought Response Program will be implemented under the Drought Act, as amended.

IV.C Program Requirements for Emergency Response Actions

In general, "emergency assistance" involves the implementation of actions during a drought disaster to meet the life preservation and basic subsistence needs of those people affected. Under this component of the program, funding will be limited to addressing true emergencies requiring immediate action.

IV.C.1 Eligible Applicants

Entities eligible for emergency drought assistance include states and tribes located in the Reclamation States and Hawaii, as identified in the Drought Act, as amended.

IV.C.2 Eligible Emergency Response Actions

Applicants may request assistance to implement emergency response actions to minimize or mitigate the impacts of drought. Construction activities undertaken under this component of the program are limited to temporary facilities and must be able to be completed within a year.

Examples of the types of projects that are eligible for assistance include:

- **Temporary Construction, Management, and Conservation Activities. –** Reclamation may undertake temporary construction activities (e.g., temporary pipes and pumps) that minimize losses and damages resulting from drought conditions. The design of temporary facilities is limited to those standards necessary to address drought impacts.

- **Water Acquisitions and Conveyances. –** Reclamation may provide nonfinancial assistance to willing buyers in their purchase of available water supplies from willing sellers. Reclamation may purchase water from willing sellers or utilize Reclamation facilities for the storage and conveyance of project and non-project water, purchased or leased, to mitigate drought impacts or losses.

- **Purchasing, Storing, or Conveying Water for Fish. –** Reclamation may make project and non-project water (purchased, stored, conveyed, or delivered) available on a non-reimbursable basis for the purpose of protecting or restoring fish and wildlife habitat.

IV.C.3 Ineligible Emergency Response Actions

Permanent construction activities are not eligible for assistance under this component of the program, including the development of wells. Proposals to fund a well should be submitted under the Drought Resiliency Projects NOFO. The Emergency Response component of the program is only intended to fund small scale, temporary projects that can be completed quickly.

IV.D Process for Allocating Assistance

Funding for emergency response actions will either be used by Reclamation to implement the action(s) selected for funding, or to contract with another entity to implement the selected action(s). Reclamation's normal contracting requirements will apply. However, contracts for emergency response actions will be considered a high priority and will be processed as quickly as possible.

Requests for emergency drought assistance will be evaluated using a competitive process, based on established prioritization criteria and requirements.

Evaluation Criteria. – The prioritization criteria for emergency response actions will remain the same as those criteria implemented under the existing Drought Program, with minor clarifications (e.g., requiring a more detailed budget and project schedule than we have in the past). These criteria were developed consistent with Title I of the Drought Act, and vary between each NOFO to accommodate changes to Departmental and Administrative priorities.

Appendix A: Drought Contingency Planning Process

Many excellent resources are available to guide the development of a drought contingency plan (e.g., the NDMC 10-Step Process is one example, among many others). In addition, Reclamation recognizes that the needs and issues to be addressed, geographic scope, and level of existing planning efforts will vary for each drought contingency plan. Accordingly, Reclamation does not prescribe a singular approach to address each of the six required elements of a drought plan. The following information is intended to provide guidance and further explanation of each of the six required elements, rather than a prescribed approach.

Survey Existing Drought Information and Tools

Surveying existing drought information will establish a starting point to identify the appropriate tools to use in formulating a plan.

- Review past drought plans, document lessons from past droughts and past drought plans. Consult with other entities in the region that may have recently developed a drought plan.

- Choose an acceptable plan development approach, e.g., the 10-Step Process.

- Identify existing resources and tools (e.g., climate change and hydrology information from the National Integrated Drought Information System, Climate Assessment for the southwest, existing studies, Baseline Impact Assessments, Basin Studies, climate projections, U.S. Geological Survey (USGS) tools for surface/groundwater interaction, groundwater levels, Natural Resources Conservation Service (NRCS) forage availability information, range conditions, etc.

Development of Drought Monitoring Process

Drought monitoring includes the analysis of data to monitor near and long term water availability, and a framework to predict the probability of drought or to characterize the severity of an existing drought. Monitoring is achieved through the collection and analysis of water availability and other types of data (e.g., precipitation, temperature, and streamflow levels, among other indicators related to different types of resources), and the use of drought indices, thresholds, and stages of drought to characterize drought conditions. To develop an effective monitoring process, an entity needs to identify and integrate the use of indices, indicators, and triggers to define drought stages.

- Indicators are specific measures that can be used to assess drought conditions. Indicators are dependent on local climate and data availability.

Example indicators may include precipitation quantities, streamflows, reservoir levels, groundwater levels, snow pack, temperature, vegetation health, and soil moisture. Indicators are used for the establishment of triggers.

- A trigger is an indicator threshold value or range that can be used to define the drought stage, or to trigger a specific response or mitigation action. Example triggers include specific reservoir levels on certain dates, streamflows falling below certain levels, etc.

- Indices effectively integrate drought variables into a single index number. At a minimum, a primary index should be chosen or developed for drought monitoring. However, the trend is to rely on multiple drought indices to trigger mitigation and response actions, which are calibrated to various intensities of drought. Commonly used indices include the U.S. Standardized Precipitation Index, the U.S. Drought Monitor, Crop Moisture Index, Surface Water Supply Index, and Palmer Indices.

- Drought stages represent the severity of drought and are classified in several ways (e.g., moderate, severe, extreme, Stages 1-4, watch, warning, or emergency). Defining drought stages is a crucial step to later implementing drought response actions.

Conducting the Vulnerability Assessment

A vulnerability assessment is an assessment of the risks to critical resources within the planning area and the factors contributing to those risks. For purposes of a drought contingency plan, risk should be viewed as a combination of the frequency of occurrence, magnitude and severity, and consequences. The outcome of this assessment will result in a "baseline" assessment of risk, which should then be used to inform the design and development of mitigation measures and response actions. Steps that may be taken in conducting a vulnerability assessment are as follows:

- Catalog assets and resources in the planning area and across sectors. Sectors may include agricultural, energy, environmental, municipal and industrial, recreational, and socio-economic.

- Identify the "critical resources" that, in terms of consequences, magnitude, and severity, are highly important to protect. Approaches may include, but are not limited to, assigning quantifiable value or least rank order to the catalog of resources.

- Assess, either qualitatively, quantitatively, or both, the potential for future drought conditions and the risk to critical resources from such conditions. A range of potential future drought conditions should be considered

including the incorporation of climate change information. This assessment should include both a historical perspective of climate, water supply, and water use trends, and potential future changes to those trends.

- Assess the underlying cause of critical resource vulnerabilities. The purpose of assessing the underlying causes is to identify the factors or combination of factors that drive vulnerability. These factors should inform the development of mitigation and response actions. These factors may include specific drought characteristics (e.g., drought duration and severity, seasonal characteristics, or changes to temperatures and snowpack), which may also inform the selection of mitigation and response action triggers to be identified as part of the drought monitoring process. Other underlying causes may include social, economic, and environmental considerations.

Wherever possible, the vulnerability assessment should utilize existing resources such as previously conducted Basin Studies or Baseline Assessments. A suggested resource for climate change information is the Downscaled Climate Projections and Hydrology[8] archive. This archive and the supporting technical memorandums, offer a useful starting point for incorporating climate change information.

Development of Mitigation Measures

Mitigation measures are actions, programs, and strategies implemented before drought to address potential risks and impacts. These actions are outside of regular water management activities and are intended to decrease sector vulnerabilities and reduce the need for response actions. Steps that may be taken in developing mitigation measures are as follows:

- Assess the existing ability and current capacity to reduce and mitigate the risk to critical resources. This assessment should include a listing of the existing programs, policies, operational criteria, etc., and their current capacity for mitigating the risk to critical resources. This assessment will inform the development of additional mitigation measures.

- Identify mitigation goals and priorities; i.e., decreasing consumptive use, developing supply augmentation, prevention of economic loss, etc., Common mitigation actions may include, but are not limited to:

    - Increasing the use of recycled water
    - Rehabilitating old infrastructure prone to breaks and spills

[8] "Downscaled CMIP3 and CMIP5 Climate and Hydrology Projections" at gdo-dcp.ucllnl.org/downscaled_cmip_projections/dcpInterface.html. (Coupled Model Intercomparison Project ([CMIP])

- Building new facilities to enhance or improve diversions or storage
- Installing SCADA systems
- Incentivizing the installation water efficient appliances and irrigation systems
- Lowering outlets to minimize dead pool
- Water transfer programs

Identify a strategy to prioritize measures for implementation. This strategy should include technical feasibility, costs, benefits, and third party impacts.

Development of Response Actions

Response actions are different than mitigation measures in that they are triggered by specific stages of drought to manage the limited supply and decrease the severity of immediate impacts. Response actions are planned actions that are implemented based on specific triggers, and are not intended to be emergency/crisis driven.[9] These actions can be quickly implemented and provide expeditious benefits. The steps that may be taken in developing response actions are as follows:

- Develop goals for each stage of drought. For example, a goal for Stage 1 drought could be municipal water users implementing voluntary conservation measures to reduce consumption by 10 percent.

- Identify corresponding actions appropriate for each drought stage. Each stage should have recommended and/or mandatory actions that will assist in achieving the stage goal for multiple sectors, including, but not limited to, public water suppliers, residents, industry, and government entities. Response actions include things such as:
  - Public drought campaigns
  - Demand reduction
  - Water use restrictions, curtailment, or drought surcharges
  - Water waste ordinances
  - System reoperation to reallocate supplies amongst users

  Following is an example matrix of drought stages, triggers, goals, and response actions:

[9] Response actions are characterized based on the severity of drought and taken pursuant to specific triggers. In contrast, emergency response actions are crisis driven actions in response to unanticipated circumstances. There are no defined triggers associated with emergency response actions.

Drought Stage	Trigger Points Reservoir Storage as of March 1	Goal/Objective	Response Actions
Moderate	Less than 65% of Average	Educate public on water shortage and encourage conservation	Implement public awareness campaign. Customers shall be asked to voluntary conserve water mainly through reductions in outdoor water use.
Severe	Less than 55% of Average	Reduce water use by 20%	Customers are mandated to implement conservation measures. Watering landscape shall be limited to 2 times per week, car washing permitted only with use of water saving nozzle and automatic shut off. Any runoff onto sidewalks will result in fines. Restaurants shall only serve water upon request.
Extreme	Less than 45% of Average	Reduce water use by 50%, water use is limited to public health and safety	Ban on all outdoor irrigation/watering. No water shall be used to wash sidewalks, driveways, or structures. Car washing prohibited unless done at a facility that uses recycled water.

- Decide on incentives for compliance, monitoring, and enforcement (if necessary) of proposed actions.
- Develop guidelines and protocols for implementing response actions

Development of an Operational and Administrative Framework

An operational and administrative framework must be developed to identify who is responsible for undertaking the actions necessary to implement each element of the drought contingency plan, and related procedures and resources. The operational and administrative framework is also imperative to responding to drought crises, such as a community running out of potable water. Without a proper framework in place, emergency responses can be slow and inefficient.

There are many appropriate ways to document the operational and administrative framework, including tables identifying the roles and responsibilities of entities with drought related responsibilities, flow charts identifying how information will flow between the responsible entities, and who is responsible for decision-making. The operational and administrative framework may be developed as a stand-alone section of a drought contingency plan, or in the alternative, a description of the roles, responsibilities, procedures, and available resources may be integrated into each section of the drought plan.

- **Content of the Administrative and Operational Framework. –** The following are examples of the types of information that can be included in the operational and administrative framework. This is intended as guidance and is not comprehensive:

  - **Responsibilities. –** Types of "responsibilities" identified in the operational and administrative framework may include, but are not limited to:

    - Drought monitoring, warning, and information sharing
    - Declaration of drought
    - Activation of any Task Forces or standing work groups
    - Initiation of drought response actions, including emergency response actions
    - Initiation of mitigation actions
    - Procurement and resource tracking
    - Development of public information messages and otherwise communicating with the public and water users regarding drought
    - Requests for assistance under State and Federal assistance programs
    - Request for a Presidential Disaster Declaration (if applicable)
    - Update of drought contingency plan

- **Roles. –** Identification of "roles" (i.e., assigning the above-listed responsibilities to appropriate entities/agencies), including, for example:

  - Flow chart identifying the flow of information between appropriate entities, e.g., from the Governor to State agencies, or from State agencies to city officials, and identifying any Task Forces or working groups with ongoing drought-related responsibilities
  - Table of State/local agency responsibilities
  - Identification of the role of each Task Force or work group and the duties assigned to specific members (i.e., chair, vice-chair, data collector, etc.)

- **Procedures. –** Document processes and procedures, including, for example:
    - Drought declaration process
    - Process for initiating a Task Force or working group
    - Process for requesting State or Federal assistance
- **Resources. –** Available Resources, including, for example:
    - A description of Federal, State, and local drought relief and mitigation programs and drought resources.
    - Tools for communities/citizens/businesses to aid and support drought actions and decisions. This could include user friendly references for: water rights/allocations, water use facts, flow charts for drought responsibilities and jurisdictions, and any other resources available.
- **Example Matrix for Administrative and Operational Framework. –** The following table illustrates the type of information that could be included in a section of the administrative and operational framework related to monitoring responsibilities:

	Responsibilities	Roles	Procedures	Resources
Monitoring	Monitor drought forecasts and climate conditions	Assign responsibility to an appropriate entity, e.g., Water Availability Task Force	Explain how Task Force is initiated, how often it meets, and deliverables	U.S. Drought Monitor Monthly Climate Report
	Report on indicators and outlooks (e.g., for precipitation, snowpack, streamflow, reservoir levels, etc.)	Identify the duties assigned to specific individuals (e.g., Task Force Chair, scientists, experts in climatology and weather forecasting, etc.).	Process for review, finalization and transmittal of reports to appropriate entities	NRCS Snow Telemetry Network (SNOWTEL) sites Streamflow data
	Share information with other entities	Flow chart showing flow of information to entities, agencies and the public.	Report findings in Drought Situation Report, or prepare media talking points	Identify websites, list servers, scheduled meetings, media contacts, etc.

Development of Plan Update Process

The final step in the planning process is to create a detailed set of procedures for periodic evaluation and updates of the plan.

- **Plan Evaluation Process. –** The Drought Planning Process, developed by the NDMC, recommends both an "ongoing" evaluation of drought plans and a "post-drought evaluation." The ongoing evaluation involves testing the effectiveness of the plan under simulated drought conditions (i.e., using a "drought exercise") prior to implementation and periodically thereafter. This will also test the effectiveness of the drought plan given changes in technology, new laws, changes to water infrastructure, changes to political leadership, and other changes. The post-drought evaluation is intended to assess the effectiveness of the plan once it has actually been implemented. According to the Planning Process, "post-drought evaluations should include an analysis of the climatic and environmental aspects of the drought; its economic and social consequences; the extent to which pre drought planning was useful in mitigating the impacts, in facilitating relief or assistance to stricken areas, and in post-recovery; and any other weaknesses or problems caused by or not covered by the plan."

- **Measuring Effectiveness of a Plan. –** The evaluation process should include an objective approach to measuring the effectiveness of the drought plan. This should include a documented set of criteria for evaluating the plan, and may include the use of an external entity – such as a nongovernmental organization, university, or research institute – to conduct the evaluation.

- **Timing of Plan Updates. –** The plan should identify regular intervals for plan evaluations and updates. Certain aspects of the plan may benefit from more frequent updates – annually or every two years – whereas updates to the entire plan may be more appropriate every three to five years. For example, as progress is made in implementing mitigation actions, the section of the plan related to mitigation actions may require an update sooner than the rest of the plan.

Appendix B: Incorporating Climate Change Information into Drought Contingency Plans

A critical component in conducting the vulnerability assessment for a Drought Contingency Plan is an understanding of the potential for and characteristics of future droughts. Such information is used to not only inform the risk to critical resources in a plan's vulnerability assessment, but the development of mitigation and response actions, and the selection of action triggers in the drought monitoring process. An understanding of future droughts can be informed by the observed past, but in the incorporation of paleo-climate and projected future climate will provide a broader set of possibilities, contributing to a more robust and effective plan overall.

The purpose of this appendix is to provide general guidance regarding the inclusion of projected climate information in assessing future drought conditions. These future conditions will then be used to assess the future risk to critical resources in a plan's vulnerability assessment. Suggested steps are proposed below:

- **Determine the appropriate level of climate change analysis. –** Many sources of existing information describing the potential impacts of climate change to various resources are available, such as Impact Assessments and Basin Studies, National Climate Assessment, or other studies previously conducted by States, universities, or other Federal and non-Federal entities. Depending on the availability and quality of existing studies and resources, a qualitative or quantitative analysis may be appropriate.

  A *qualitative* analysis should include: a literature review of climate change studies relevant to the planning area, a qualitative analysis of the potential effects of climate change on planning area hydrology and critical resources, and a justification for why a qualitative analysis was sufficient to meet plan objectives.

  If undertaking a *quantitative* analysis, steps 2 through 4, below, apply.

- **Evaluate available climate and streamflow projection information. –** If conducting a quantitative assessment, the first step is to select climate information in which drought-related trends will be assessed, which could include historical information (observations and paleo-climate[10]) and

[10] Reconstructed streamflow from tree-ring can provide a paleoclimate context for past droughts. A suggested data resource for reconstructed streamflow from tree rings is the TreeFlow archive ("TreeFlow - Streamflow Reconstructions from Tree Rings" at toolkit.climate.gov/tool/treeflow-streamflow-reconstructions-tree-rings).

projected future information.[11] Second, evaluate that information for trends in temperature, precipitation, and streamflow that are relevant to the planning area. Because this information is being used to support drought contingency planning, the evaluation should likely focus on assessing dry spell characteristics in the projections, and identifying extreme months or periods of temperature, precipitation, runoff, and soil moisture to characterize drought intensity, duration and frequency.

Third, select drought characteristics to assess within the chosen climate and streamflow projection information. Drought characteristics should be selected based on those features of drought that are most problematic in a given planning area (e.g., extended multi-year or single-year drought). Drought characteristics may include drought duration and severity, seasonal characteristics, or changes to temperatures and snowpack. Planners should consider the range of droughts to be addressed in the Plan, for example ranging from slowly building to rapid onset droughts. Define characteristics to represent this range, and then assess the trends and likelihood of such characteristics in the chosen climate and streamflow information. For example, if the Plan is being developed to address droughts of longer durations (e.g., greater than 10 years) with moderate severity (within the 50th and 75th percentile), describe the features of droughts lasting longer than 10 years in the selected climate and streamflow information and how likely those within the 50th and 75th percentile are to occur.

- **Assess impacts on critical resources. –** The fourth step is to assess how trending climate and drought conditions assessed in step (2) may impact critical resources in the planning area. For example, how might reservoir levels critical to hydropower generation be impacted by specific drought conditions? Other examples might include certain drought types and their influence on the effectiveness of environmental flow constraints on reservoir release operations, and impacts to groundwater resources from additional pumping to meeting municipal and irrigation demands under drought conditions.

  This information gained through the steps in this appendix should be used to inform the development of the mitigation and response actions. For example, if it is found that droughts lasting longer than 10 years are expected to occur 50 percent of the time in the future and are expected to be more severe than existing mitigation and response actions are designed for, mitigation and response actions developed as part of this plan should

[11] A suggested data resource for temperature, precipitation, runoff and soil moisture is the Downscaled Climate and Hydrology Projections (DCHP) archive at gdo-dcp.ucllnl.org/downscaled_cmip_projections/dcpInterface.html. This archive provides both climate and hydrologic projections at a fine spatial resolution over the contiguous U.S. and offers a useful starting point for surveying many climate projections and the spread of future climate possibilities over the planning area.

be adjusted accordingly. If time and resources warrant, an iterative process could be adopted and the impacts to resources could be reassessed with the mitigation and response actions in place to test their effectiveness and subsequently adjusted as appropriate.