

**STATE OF NEVADA**  
**DROUGHT PLAN**

Revised March 2012

## Executive Summary

This State Drought Plan establishes an administrative coordinating and reporting system between agencies to appropriately respond and provide assistance to address drought and mitigate drought impacts. After outlining the significance of drought and types of drought encountered, this Plan identifies a system used in monitoring the magnitude, severity and extent of drought within the state on a county-by-county basis. It establishes a framework of actions based on three stages of drought response: Drought Watch (Stage #1), Drought Alert (Stage #2) and Drought Emergency (Stage #3).

The Drought Response Committee, comprised of representatives from the State Climate Office, Division of Water Resources and Division of Emergency Management, is involved throughout each of these stages and is responsible for monitoring drought conditions, collecting data associated with drought, overseeing intergovernmental coordination, disseminating information, reporting to the Governor and working with the State Emergency Operation Center on drought response (if applicable). The Drought Response Committee may establish *ad hoc* Task Force(s). Members of Task Force(s) will serve as experts in the drought affected region, serve as liaisons to local or federal government and collect needed information about the actual and/or projected impacts of the drought. If a drought reaches Stage #3 Drought Emergency, upon the decision of the Governor, the Division of Emergency Management may activate the State Emergency Operations Center. This Center will be advised by the Drought Response Committee, making drought response policy recommendations as needed, supporting local drought emergency response efforts and carrying out the Governor's policies.

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# **1. Drought**

Drought is a complex physical and social phenomenon of widespread significance. Drought is not usually a statewide phenomenon; differing situations in the state make drought local or regional in focus. Despite all the problems droughts have caused, drought has proven difficult to define. There is no universally accepted definition because drought, unlike flood, is not a distinct event and drought is often the result of many complex factors acting on and interacting within the environment. Complicating the problem of a drought definition is the fact that drought often has neither a distinct beginning nor end. It is recognizable only after a period of time and, because a drought may be interrupted by short spells of one or more wet months, its termination is difficult to recognize. The most commonly used drought definitions are based on: 1) meteorological and/or climatological conditions, 2) agricultural problems, 3) hydrological conditions, 4) economic considerations and 5) induced drought problems. Each type of drought will vary in severity, but all are closely related and caused by lack of precipitation.

## **1.1 Meteorological Drought**

Meteorological drought is often defined by a period of well-below-normal precipitation. The commonly used definition of meteorological drought is an interval of time, generally of the order of months or years, during which the actual moisture supply at a given place consistently falls short of climatically appropriate moisture supply.

## **1.2 Agricultural Drought**

Agricultural drought is typically defined as a period when soil moisture is inadequate to meet evapotranspirative demands so as to initiate and sustain crop growth. Another facet of agricultural drought is deficiency of water for livestock or other farming activities.

## **1.3 Hydrologic Drought**

Hydrologic drought refers to periods of below-normal streamflow and/or depleted reservoir storage.

## **1.4 Economic Drought**

Economic drought is a result of physical processes but concerns the areas of human activity affected by drought (e.g., municipal water supply shortages). The human effects,

including the losses and benefits in the local and regional economy, are often a part of this definition.

### **1.5 Induced Drought**

Induced drought is a condition of shortage which results from over-drafting of the normal water supply. The condition is aggravated by negative precipitation experience and below normal streamflow or aquifer recharge. An induced drought is brought about by introducing agricultural, recreational, industrial or residential consumptions into an area which cannot naturally support them.

## 2. Drought Monitoring System

While lower than normal precipitation is usually the cause of specific problems creating a drought situation, a drought condition is not simply a lack of rainfall or snow accumulation but can also be related to deficiencies in soil moisture and ground-water; lack of surface water in streams and rivers; and/or reduction of surface water stored in lakes and reservoirs. A number of factors are involved in determining if a drought exists and its severity for a given region: precipitation, snowpack, soil moisture, streamflow, surface water storage, and groundwater levels.

The US Drought Monitor is an independent and scientific approach that synthesizes multiple indices and impacts and is updated weekly. It integrates various types of drought, with a particular emphasis on meteorological, agricultural, and hydrological drought. The US Drought Monitor is coordinated through the National Drought Mitigation Center at the University of Nebraska, Lincoln, with input and support from a number of federal, state, and local partners nationwide. To identify the initial stages of drought, the US Drought Monitor will be applied to counties in the State of Nevada. There are five drought intensity categories identified in the US Drought Monitor:

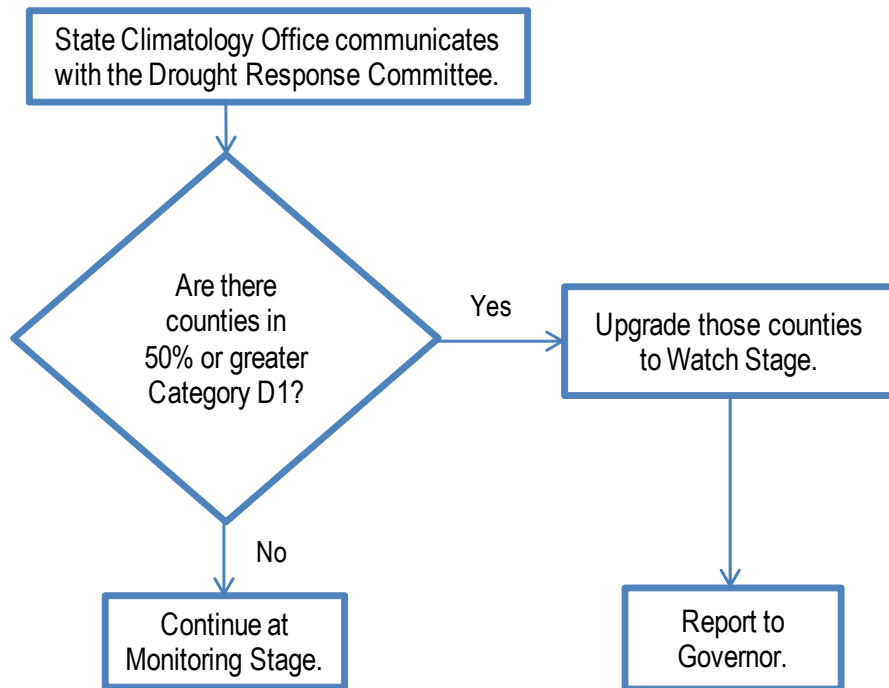
- D0 Abnormally Dry
- D1 Drought – Moderate
- D2 Drought – Severe
- D3 Drought – Extreme
- D4 Drought – Exceptional

Issues posed by economic drought and induced drought will also be taken into account when moving into the third drought stage outlined in the following sections.

### 3. Measures Initiating Action

The Drought Response Committee is comprised of a representative from the Office of the State Climatologist, the Division of Water Resources, and the Division of Emergency Management. Drought Response Committee members remain in contact and, if it is determined that a Watch Stage exists for any counties, then the Nevada State Climatologist will call a meeting of the Drought Response Committee. Reports to the Governor are generated by the Drought Response Committee whenever there is a change in drought stage and throughout Drought Alert and Drought Emergencies stages.

#### Ongoing Monitoring

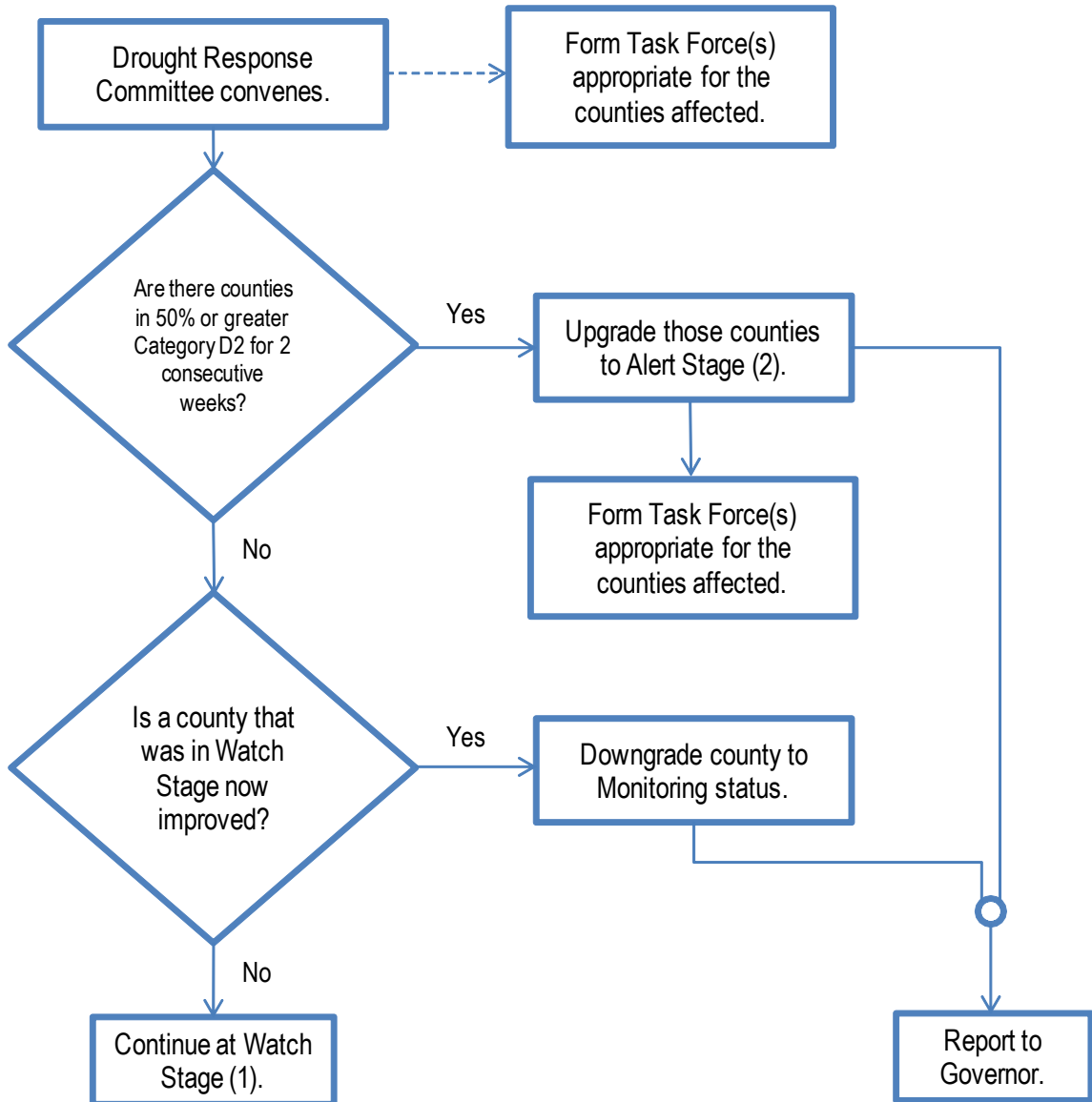


### **3.1 Drought Watch Stage**

The Drought Watch Stage (Stage #1) begins when 50% or more of a county is classified as D1 (drought – moderate) in the Drought Monitor. During the Drought Watch Stage, the Drought Response Committee will assemble to monitor conditions within the area. The Drought Response Committee will monitor trends and serve as sources of technical information for state and local decision-makers, as well as for the public and media. The Drought Response Committee is composed of the directors (or their designees) of the State Climate Office, the Division of Water Resources, and the Division of Emergency Management. The chair of the Drought Response Committee will be the director of the State Climate Office.

Drought Impact Task Forces are *ad hoc* groups formed by the Drought Response Committee to act as experts in the drought affected region, serve as liaisons to local or federal government, and provide information needed for dissemination to decision-makers and stakeholders. Task Forces may be expanded or restricted as needed to suit the needs of the situation. Multiple small Task Forces (coordinated through the Drought Response Committee) may be more effective than a single large Task Force. This formation is optional at the Drought Watch stage, but is likely to be necessary at the Drought Alert Stage.

## 1. Drought Watch Stage



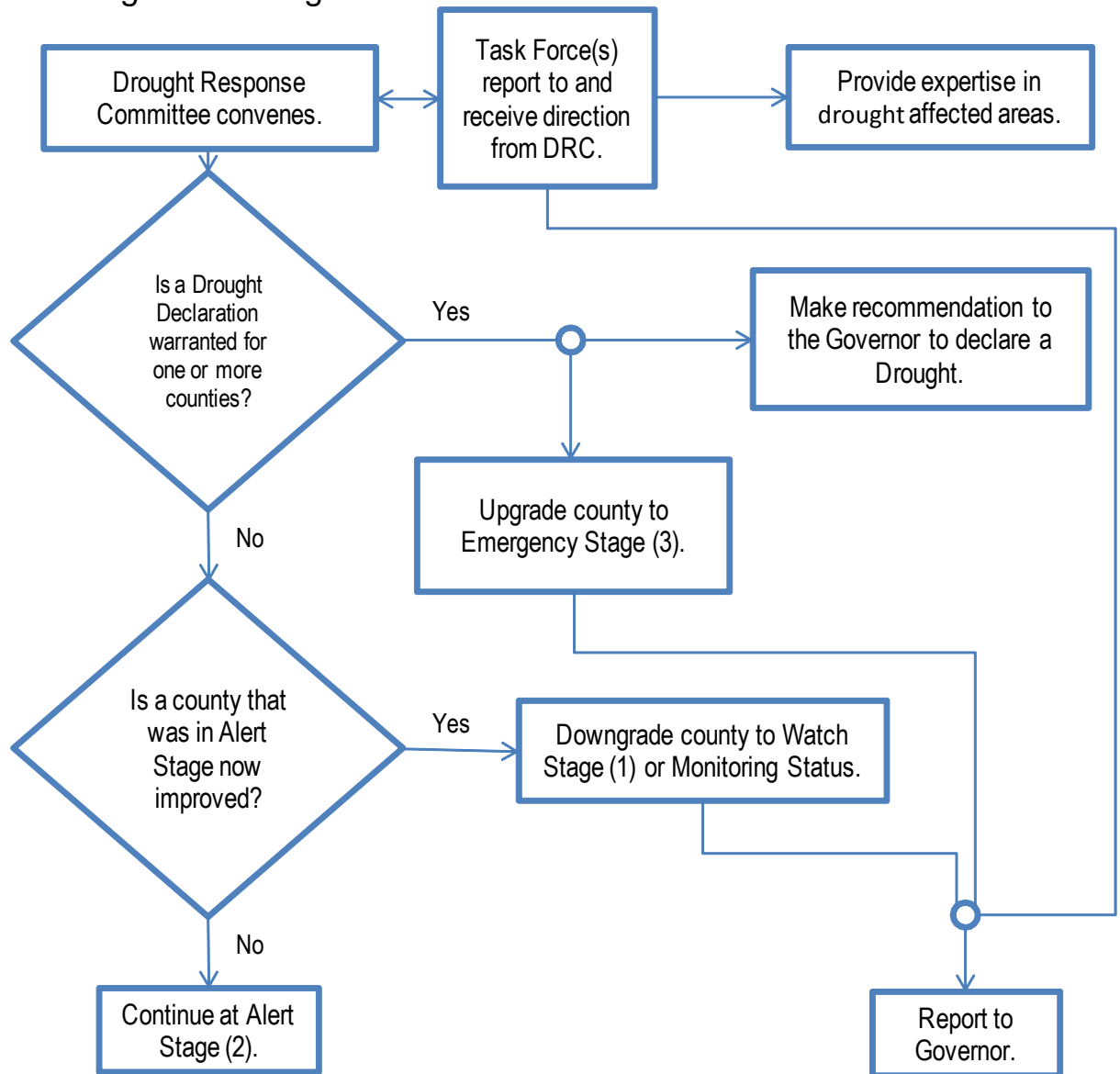


### **3.2 Drought Alert Stage**

The Drought Alert Stage (Stage #2) occurs when 50% or more of a county is classified as D2 (drought – severe) or higher in the Drought Monitor for a minimum of two weeks. The Drought Response Committee will appoint the appropriate task force(s), on an *ad hoc* basis, in this stage. Task force members must be able to speak for their agencies or organizations and have authority to make reasonable commitments toward effective cooperation and coordination. A Task Force(s) may assess actual and projected impacts on the state’s economy, agriculture, and/or fish and wildlife resources in the area impacted by the drought. The chair of a Task Force will report regularly to the Drought Response Committee with details concerning the drought extent, magnitude, and impacts and will provide information about drought mitigation measures being taken by public agencies or private individuals or organizations.

The Drought Response Committee will monitor the progress of Task Forces, and evaluate the adequacy of data collection, procedures, and reports. Further, the Drought Response Committee will collate information from individual Task Forces in order to develop its own assessments, projections, and trends. The Drought Response Committee will oversee intergovernmental coordination, including federal agency actions, and make timely reports on the status of the drought and response activities to the Governor, other state leaders, the media, and the public.

## 2. Drought Alert Stage



### **3.3 Drought Emergency Stage**

The Drought Emergency Stage (Stage #3) begins after the Drought Alert Stage. This stage begins when the Drought Response Committee makes a recommendation, based on information from the Tasks Force(s) and other sources, that a drought should be formally declared for affected counties. The Drought Response Committee determines whether a critical situation exists or when it becomes obvious that existing state resources and strategies are insufficient to deal with the growing problems and needs. Upon making the recommendation, the Drought Response Committee alerts the Governor that identified portions of the state are experiencing a Drought Emergency.

The issue of whether to formally declare a drought is both controversial and important. The State of Nevada will approach formal declaration with caution. Formal designation may not substantially reduce economic impacts and may cause serious economic impacts on tourism, agriculture, finance, and other industries. Unless a drought situation is expected to be of extreme magnitude, the safest approach is to aid county and local governments in determining their own situations. In many cases existing networks and processes of public agencies, water system managers, and experts are available to assess and address particular needs. The criteria for such a recommendation is not as rigidly defined as it is for earlier stages, since the need is dictated by local and specific conditions and based on reporting and recommendations of the Drought Response Committee and Task Force(s). The declaration of a Drought Emergency signifies that conditions are present that may produce negative impacts in certain counties or regions. The Drought declaration may be a trigger point for federal resources. If the drought conditions persist to an extraordinary level, it may negatively impact a county to the point that it exhausts local resources available to respond to the emergency, the affected county may elect to execute a disaster declaration.

In the Drought Emergency Stage, the Drought Response Committee prepares a press release for the Governor. The Governor then may activate the State Emergency Operations Center (SEOC). The SEOC will be overseen by the director of the Division of Emergency Management (or designee) and will coordinate with directors (or their designees) of the Nevada State Climate Office and the Nevada Division of Water Resources as lead responsible agencies, so that continuity of response efforts is maintained.

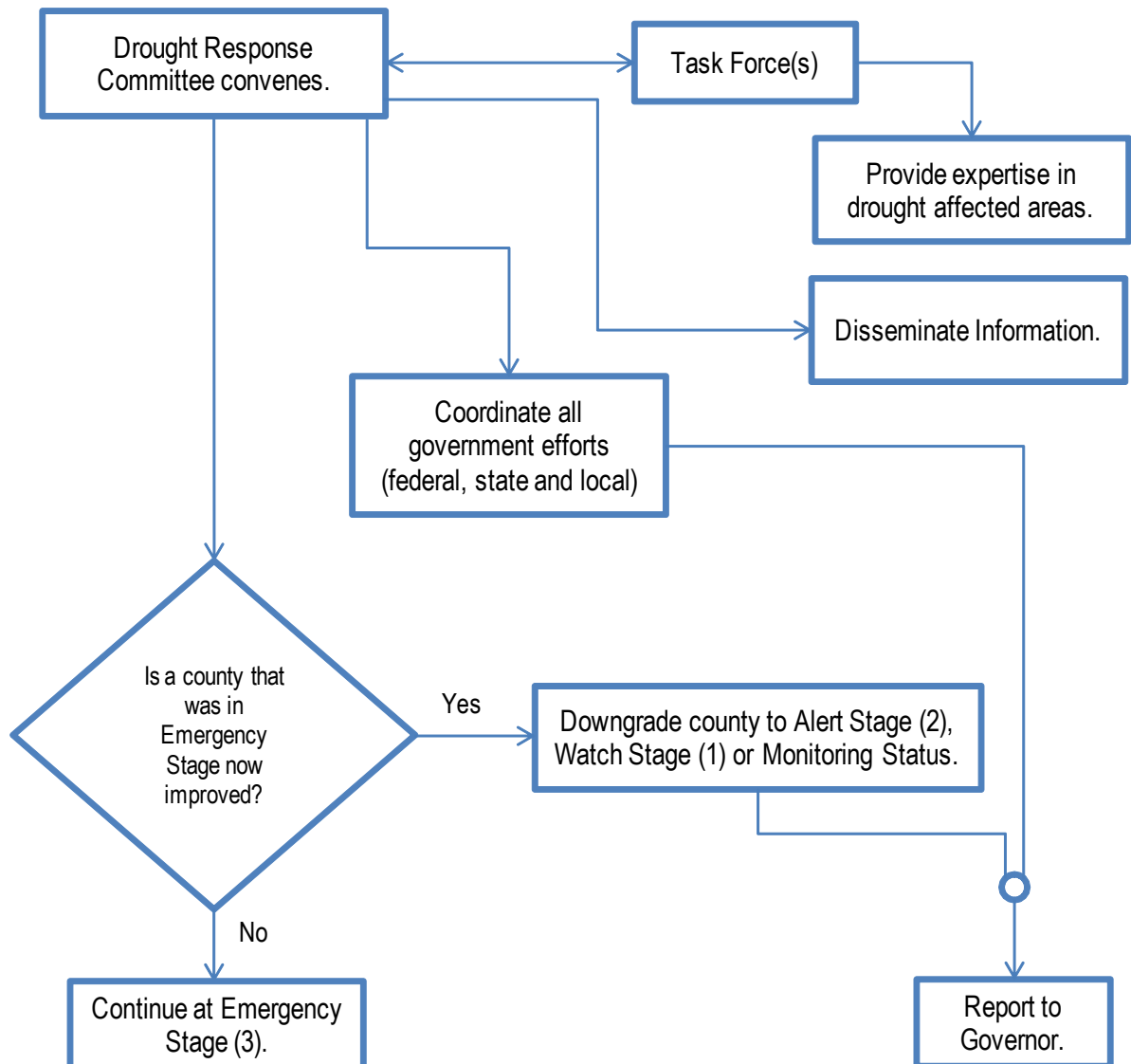
Under a Drought Emergency declaration the Division of Emergency Management, acting in its authority in accordance with Nevada Revised Statute (NRS) 414 and the State Comprehensive Emergency Management Plan (SCEMP), will coordinate state response efforts and make mitigation, response and recovery recommendations to affected counties. The Division of Emergency Management coordinates the state's resources through the State Emergency Operations Center (SEOC) to support local drought emergency response efforts and to carry out the Governor's policies. The Division of Emergency Management may also request support and resources from federal agencies such as the U.S. Department of Agriculture, Bureau of Reclamation and Federal Emergency Management Agency and from non-governmental organizations such as the American Red Cross as needed based on the drought conditions and needs of the local jurisdictions.

Upon activation, the SEOC assumes a number of drought related responsibilities, including interagency and intergovernmental coordination and media relations. The SEOC reviews recommendations to address unmet needs from the Drought Response Committee and Task Forces and develops strategies to coordinate the delivery of resources through state mutual aid, state agencies, federal agencies, and non-governmental organizations. During the Drought Emergency stage, the SEOC directs the initiatives of the Drought Response Committee and Task Force(s). The Drought Response Committee will continue assessment activities and will provide advice and support to the SEOC, making drought response policy recommendations as needed through the duration of the drought. During the Drought Emergency stage, Task Force(s) will provide recommendations on possible mitigation solutions along with their assessments of the situation both to the Drought Response Committee and to the SEOC. Drought Response Committee duties take priority over the normal duties assigned to the Division of Water Resources.

The SEOC provides general policy direction and, as appropriate, makes policy recommendations to the Governor for his disposition (such as emergency funding requests and suggested legislative action). The SEOC may advise the Governor on the use of his emergency powers, including any requested data to support the Governor's request, if necessary, for a Secretarial or Presidential Disaster Declaration. The Governor will set the state's priorities, drought mitigation, response and recovery policy and resource allocation direction based on information and recommendations given to the Governor by the Drought Response Committee

and the needs of the affected local jurisdiction, county or tribe. The Governor engages with the state legislature when new authority and funding are necessary. If needs exceed the resources of the State, the Governor may request Federal Disaster Assistance. Federal assistance that does not need state action should be implemented when necessary without going through the Center.

### 3. Drought Emergency Stage



### **3.4 End of Drought**

As the drought subsides and the emergency passes, if continuing assistance requirements can be met within normal state administrative channels, the Center prepares a press release for the Governor to declare the end to the drought emergency. Prior to disbanding, the Center will prepare and issue a final report on its activities to the Governor. When the Center disbands, the Drought Response Committee again assumes primary responsibility for response activities and for interagency and intergovernmental coordination until all counties of the state are out of the drought alert and drought watch stages. Before disbanding, the Drought Response Committee will prepare and issue a final report to the Governor and appropriate agencies.