Oklahoma
Drought Management
Plan

Prepared by
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Drought Management Team

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FORWARD

In retrospect, it appears that the 1995-96 Oklahoma drought, which spurred development of this plan, was one of the most severe on record. The drought, beginning around October 1995 and persisting through at least the first half of 1996, initially impacted western Oklahoma where the greatest impacts were experienced between February -- when state-averaged rainfall was the lowest ever recorded and five climate divisions received less than 10 percent of their monthly average -- and April. From October 1995 through May 1996, the state-averaged precipitation total was only 52 percent of normal, the driest for that period this century. Three climate divisions -- the West Central (34 percent of normal), North Central (37 percent) and Southwest (40 percent) -- experienced their driest period on record. The three Panhandle counties, which normally averaged from five to eight inches of rainfall from January through May, received only about .50 to two inches of precipitation, and some areas none, during that period. Countries in southwest Oklahoma, which normally average at least nine to 10 inches of precipitation during the period, received an inch or less. Due to unusually heavy and persistent rainfall received throughout much of June and July, moisture deficits rebound significantly in western Oklahoma and several other regions of the state.

Fortunately, it would likely require several years of continuing, severe drought conditions for Oklahoma to again experience such monumentally damaging climate conditions as those that occurred during the Dust Bowl years of 1933 through 1937. The tragic event -- resulting from years of drought in the region and exacerbated by the stock market crash, crop failures, extremely low grain prices and mechanized farming -- led to the out-mitigation of some 59,000 Oklahoma citizens during the 1930s. Reminded of this tragic episode as effects of the 1996 drought rippled through the state's economy and society, and recognizing the deficiency of serious drought planning work in Oklahoma, state emergency officials and water resource planners recommended to Governor Keating that the state develop this comprehensive drought plan.

This document, which has been prepared as part of Oklahoma's Emergency Preparedness Planning effort, is intended to delineate appropriate response actions for districts, cities, counties, state agencies and the federal government should a serous drought occur in Oklahoma. The report describes and suggests primary lines of authority and responsibility, and points out request procedures for state or federal assistance. It is recommended that this plan be utilized in conjunction with the State Emergency Operations Plan.

For more information on Oklahoma's general emergency/drought programs and actions, contact the Oklahoma Department of Emergency Management P.O. Box 53365, Oklahoma City, OK 73152. Specific information about the Oklahoma Drought Contingency Plan may be obtained from the ODEM Chief of Operations at (405) 521-2481.

BACKGROUND

History of State Drought Response Activities

Crisis management, both on the state and local level, best describes the previous efforts of Oklahoma leaders to deal with episodes of drought. Typically, the state has taken a reactive, rather than a proactive, approach to drought management, as demonstrated throughout recent history by the annual formation and subsequent disbandment (as conditions "improved") of drought/heat task forces and related ad hoc groups. However, it has become increasingly apparent that stop-gap measures are largely ineffective in mitigating both the short- and long-term impacts of drought in Oklahoma.

The most recent state-driven drought response attempt of note occurred as a result of Governor Henry Bellmon's formation of the Oklahoma Drought Action Coordinating Council in June 1988. The Drought council delineated the designated drought-related duties and responsibilities of appropriate entities and recommended that the Governor appoint a State Drought Coordinator to supervise development of a long-term, statewide drought contingency plan to mitigate the effects of drought in Oklahoma. From 1987 through 1989, Oklahoma (through the OWRB) participated with the States of Pennsylvania, South Carolina, Kentucky, Montana, Colorado and Oregon to develop a model drought contingency plan for state governments. The goal of this effort, directed by the University of Nebraska's International Drought Information Center, was to improve state drought mitigation efforts through more timely and effective monitoring, assessment and response activities.

The resulting plan, Planning for Drought: A Process for State Government," includes a 10-step framework (frequently referred to during development of this plan) to mitigate state drought episodes, including development, implementation and continuous evaluation of a drought plan.

During meetings concerning development of a model plan, one factor dominated the states' discussion -- the need to establish a continuing commitment within each state to the response planning process in order to assure "institutional memory" between extreme drought events. Also, it was generally agreed that the drought planning process must be guided by a group with sufficient authority and technical expertise to coordinate multi-agency involvement and perform (or authorize the performance of) appropriate monitoring, response and evaluation tasks.

The 1995 update of the 1980 *Oklahoma Comprehensive Water Plan* recommends appointment by the Governor of a state drought coordinator to direct federal, state and local drought response efforts in Oklahoma as well as development of a comprehensive drought preparedness plan for mitigating the effects of drought episodes. Such an effort, according to the OCWP, should include the investigation of a monitoring/early warning system, including

development of drought indices; techniques to assess the probable impacts of prospective drought episodes; approaches to coordinating governmental activities; assistance programs and implementation criteria; financial/research resources needed to implement drought assessment and response activities; and educational programs designed to promote drought mitigation/preparedness among the economic sectors most impacted by drought.

This recommendation(s) appears to offer options consistent with experiences garnered from past drought planning-related efforts in Oklahoma as well as in neighboring states. Creation of a state drought coordinating body to guide development of a comprehensive and effective state drought plan and its necessary components, as formally authorized last year by Gov. Keating through creation of the Drought Management Team, will undoubtedly help alleviate impacts of both current and future drought episodes in Oklahoma.

Authorization, Purpose & General Structure of the Oklahoma Drought Management Team

From a statewide perspective, the Oklahoma drought of 1995-96 was one of the most severe on record. Six-plus months of below average precipitation caused the situation to reach near critical proportions. While state agencies and organizations responded appropriately, within their respective jurisdictional capacities, to the numerous drought impacts inflicting Oklahoma, it became apparent that there was substantial room for improvement in the state's ability to mitigate drought episodes.

In August 1996, Governor Keating signed Executive Order 96-24 creating the Oklahoma Drought Management Team, a group of agencies and organizations charged with developing a coordinated, long-term plan to deal with current and future drought problems in the state. Tom Feuerborn, Director of the State Department of Emergency Management, was appointed by the Governor to coordinate the effort. Members include representatives of appropriate state agencies and organizations. Providing various assistance to the Team are representatives of relevant federal agencies. The Governor's swift authorization for development of the Drought Team and subsequent creation of this state drought plan should provide valuable and measurable results upon its implementation in future years.

According to Executive Order 96-24 (Appendix), the Oklahoma Drought Management Team will:

- Provide an organizational structure that assures information flow and defines the duties and responsibilities of all agencies during time of drought-related emergencies.

- Provide the probable impacts associated with periods of water shortage on the primary economic and environmental sectors of the state.

- Develop and recommend state drought response, recovery and mitigation initiatives for conditions determined to be detrimental to the state economy and public health.

- Identify drought management areas [areas of concern or impacted regions] in the state.

- Provide coordination and communication among federal, state and local entities as deemed appropriate for drought assistance programs, education and information.

- Perform such other drought-related assessments and response functions as deemed necessary.

Development of the Oklahoma Drought Contingency Plan

During the first formal meeting of the Oklahoma Drought Management Team in September 1996, members agreed to formation of two committees to coordinate future state drought response activities. The Water Availability and Outlook Committee was charged with developing and maintaining a systematic and efficient mechanism to monitor the approach and onset of drought events, primarily from a hydrologic and weather-related point of view. The Impact Assessment and Response Committee was charged with the continuous oversight of drought impacts upon various economic, environmental and social sectors in the state as well as the policy-related aspects of drought response.

Subsequent meetings of the two committees initially focused on the current drought-related capabilities of respective members. Individually, WAOC meetings were primarily dominated by discussion related to the development of a drought index or indices to trigger specific government drought response actions or activities; IARC members sought to identify the primary impacted sectors in Oklahoma so that monitoring and response efforts can be focused on these areas before, during and after drought episodes. Members of both committees stressed that the drought plan must be a dynamic "living" document that easily adapts to varying political conditions and multiple approaches to state drought response.

According to "Planning for Drought: A Process for State Government," a drought plan should have three primary components: monitoring, assessment of impact and response. Specific objectives of a drought plan, as suggested in the document and subsequently utilized by the Drought Management Team during formulation of the Oklahoma plan, include:

- Provide timely and systematic data collection, analysis and dissemination of drought-related information.

- Establish proper criteria to identify and designate drought-affected areas of the state and to trigger the phasing-in and -out of various assessment and response activities by government agencies during drought emergencies.

- Provide an organizational structure that assures information flow between and within levels of government and defines the duties and responsibilities of all agencies with respect to drought; also, ensure adequate coordination between the federal and state governments through integration with any applicable national drought policies.

- Maintain a current inventory of state and federal programs used in assessing and responding to drought emergencies and provide a set of appropriate action recommendations.

- Provide a mechanism to improve the timely and accurate assessment of drought impact on agriculture, industry, municipalities, wildlife and health of the natural resource base.

- Provide accurate and timely information to the media to keep the public informed of current conditions.

- Establish and pursue a strategy to remove obstacles to the equitable allocation of water during shortages and to provide incentives to encourage water conservation.

- Establish a set of procedures to evaluate and revise the plan on a continuous basis in order to keep the plan responsive to state needs.

Finally, the Oklahoma Drought Contingency Plan was developed utilizing the varied drought planning and response experiences of other U.S. states. Following this research and significant formal and informal discussion between Team members, especially the WAOC, it was decided that Oklahoma's drought response effort should follow a phased approach as water conditions deteriorate and more stringent actions are required (i.e., "advisory - alert - warning - emergency"). As a result, thresholds were established such that, when exceeded, certain predefined actions will be triggered within appropriate agencies and organizations. The Team determined that Oklahoma's plan should use a combination of indices (including the Palmer Drought Severity Index, Crop Moisture Index, Reclamation Drought Index and Keetch-Byram Fire Danger Index) and related factors (major and minor reservoir storage, water well levels, public water supply and facility conditions, major streamflows, daily and extended temperature and precipitation forecasts, relevant crop planting and harvesting considerations, and current and projected economic impacts) to trigger specific and timely drought actions by government. In Pennsylvania, similar criteria (precipitation, groundwater levels, reservoir storage, streamflow and the Palmer Index) are used to trigger the Delaware River Basin plan.

Primary Drought Impacts and Areas of Concern

Drought impacts Oklahoma in a number of ways, spanning all regions of the state and many sectors of its society, economy and environment. In general, they include:

- reduced crop, rangeland, and forest productivity;
- increased livestock and wildlife mortality rates;
- reduced income for farmers and agribusiness;
- increased fire hazard;
- reduced water supplies for municipal/industrial, agricultural and power uses;
- damage to fish and wildlife habitat;
- increased consumer prices for food and timber;
- reduced tourism and recreational activities;
- unemployment;
- reduced tax revenues because of reduced expenditures; and
- foreclosures on bank loans to farmers and businesses.

While drought impacts in Oklahoma are numerous and far-reaching -- and are often so dependent upon the timing and length of individual drought episodes -- the greatest impacts of drought are usually experienced in the agricultural community. In addition to the obvious direct losses of both crop and livestock production due to a lack of surface and subsurface water, drought is frequently associated with increases in insect infestations, plant disease, and wind erosion.

Perhaps the most vulnerable agricultural commodity in the state is wheat, Oklahoma's second largest cash crop ($500 million in annual cash receipts). Because drought conditions persisted in all major wheat-producing counties of Oklahoma (primarily in the west) from October 1995, when wheat was planted, through much of the spring of 1996, the 1996 wheat crop was barely one-half the normal (160 million bushels) and the smallest in 25 years.

In those areas with little or no wheat to harvest and with cattle prices at their lowest in 20 years, bankruptcies and foreclosures increased substantially. At the height of last years drought, the Oklahoma Department of Agriculture predicted that about 10 percent of producers in Oklahoma would go bankrupt or quit farming and, despite the availability of federal drought assistance funds, losses due to the drought would cost the state between $1 and $1.2 billion (although mid-summer rains lessened the anticipated impact to the state's overall agricultural economy). Wheat producers were also impacted by a significant reduction in wheat pasture and a resulting increase in hay expenses. Normally, about 50 percent of the acres planted in wheat are grazed; last year, the state averaged only about 17 percent, or 2.3 million acres not grazed.

The ripple effect of reduced farming income also extends to retailers and others who provide goods and services to farmers, leading to unemployment, increased credit risk for

financial institutions, capital shortfalls and loss of tax revenue for local, state, and federal government.

Soil/wind erosion resulting from drought also plague state farmers and ranchers, destroying crops and vegetative cover. The 1995-96 drought damaged some 700,000 acres in Oklahoma's 30 western counties, compared to just 42,000 acres the previous year.

Drought-induced wildfires and forest fires, the first prevalent impact of last year's prolonged moisture deficiency, typically result in significant economic losses through widespread destruction of grazing pastures, range land, woodlands and forests in Oklahoma. Last year, the loss of grazing pastures and range land along (420,000 acres) was estimated at $10 million. In addition, at least 2,000 miles of fence were burned, causing an estimated $6 million in damage. Another $3.2 million was estimated for lost hay, corrals and other farm structures not covered by insurance. Forest and woodland fires burned some 280,000 acres during the drought period, causing an estimated $122 million in damages. During a three-month period, wildfire suppression costs were estimated at $6.5 million, including $2.5 million for labor and equipment. Droughts also bring increased problems with insects and diseases to forests, further retarding the economic value of that commodity and reducing valuable wildlife habitat.

Of course, one of the most significant potential impacts of drought in Oklahoma relates to public water supply. Because approximately 75 percent of that water is derived from Oklahoma's major federal reservoirs and their smaller municipal lake counterparts, significantly reduced flow in rivers and streams can have a significant effect on municipal use for drinking and domestic purposes in and around the home. Hot weather during the summer increases demand and subsequent use of supplies, as well as evaporation. In turn, increased water demand can stress many smaller and/or antiquated delivery and treatment facilities to the point of collapse.

Generally, storage in relatively large reservoirs, such as those constructed and/or operated by the Corps of Engineers and Bureau of Reclamation, is impacted by drought when the duration of the drought episode is sufficiently long to where more water is lost from the impoundment (through releases, pumping or evaporation) than flows into the lake. In Oklahoma, the flows of most large rivers are regulated by these reservoirs and, if sufficient storage exists in them, operators can adjust releases to meet the water requirements of downstream users. Drought, especially prolonged drought, has a much greater impact upon smaller municipal lakes, which usually rely on relatively small watersheds and thus experience significant fluctuations during dry and/or hot months. Rural communities are especially vulnerable during such periods.

Groundwater supplies are the last water resource to be significantly affected by a particular drought episode. However, extended drought can lead to hardship by cities, farms and other users who are reliant upon aquifers for groundwater supply.

Drought also impacts the state's recreation and tourism industry. Prices for food, energy, and other products increase as supplies are reduced. Reduced water supply may impair

navigability of the McClellan-Kerr Arkansas River Navigation System, resulting in increased transportation costs because products must be transported by rail, truck or other more expensive alternatives. Hydropower production may also be significantly curtailed.

Environmental impacts of drought, in addition to those related to impacts discussed previously (i.e., forest/range fires and soil erosion), include direct damage to plant and animal species, loss of wildlife habitat (wetlands, lakes, and vegetation) and biodiversity, and reduced air an water quality (i.e., through reduced flows). Social impacts typically involve public safety, health, conflicts between water users, reduced quality of life, and inequities in the distribution of impacts and disaster relief.

STATE DROUGHT ACTION PLAN

General Response Mechanism

Drought response, like response to other natural disasters and emergencies, normally progresses from the individual to the closest level of government -- i.e., from local to state and, ultimately, to the federal government level. Typically, only when the response capability of each level has been exhausted or exceeded should the next level of response be pursued. During drought emergencies, parallel lines of communication are established between individuals and local governmental and other drought response entities through:

- county and state U.S. Department of Agriculture emergency boards to the USDA;
- state agencies and their district, local or field offices; and
- local emergency management organizations and the State Department of Emergency Management.

The first two lines of communication may be the value in obtaining drought situation or drought impact information or for serving as alternatives to the primary emergency services channel. The third line of communication will normally act as the primary emergency request channel.

Lateral assistance and exchange of information occurs at the individual/city/district, county and/or state level. At the state level, emergency information and response is normally coordinated by the Governor through the State Department of Emergency Management. However, in a drought, because of its slowly occurring nature, the coordinating functions are shared by the newly-formed Oklahoma Drought Management Team.

The mechanism through which the Drought Management Team and Oklahoma Drought Action Plan serves the state before, during and after drought episodes is described in this section. Also included is a description of the overall drought-related programs and responsibilities of Oklahoma's local, state and federal organizations.

Tasks & Responsibilities of the Oklahoma Drought Management Team

State Drought Coordinator

According to Gov. Keating's Executive Order 96-24, the post of State Drought Coordinator (leader of the Oklahoma Drought Management Team) is assumed by the director of the State Department of Emergency Management. The Drought Coordinator, through information and recommendations provided by the Water Availability and Outlook Committee (WAOC), Impact Assessment and Response Committee (IARC) and Interagency Coordinating

Committee (ICC), makes the official determination in activating a specified drought state (Advisory, Alert, Warning or Emergency; delineated in Table 1) in a particular climate division, or region (Figure 1). During drought episodes, the Drought Coordinator will brief the Governor on the situation and, if warranted, request specific actions requiring authorization of the state's executive branch of government. The Drought Coordinator may request the convening of the Drought Team or any of its three committees as often as necessary. He may also request individual meetings with the chairmen or individual members of those committees to discuss specific aspects of the state's drought planning and response activities. A sub-group of the WAOC, consisting of (at a minimum) 7 representatives of the OWRB, Department of Agriculture and Oklahoma Climatological Survey, will keep the D.C. continuously apprized of water/moisture contingency conditions before and after drought episodes.

During "normal" conditions in all regions, the Drought Coordinator will review available information for deteriorating moisture conditions and the likelihood for drought emergence. During the "Advisory" Phase (in any climate division), he will request informal assistance and advice from individual weather, climate and water resource representatives of the Drought Team. Once it is determined that at least one climate division of the state is in a drought "Alert" Phase, the Drought Coordinator will immediately activate the WAOC. At the onset of the "Warning" Phase, he will meet chairpersons of the WAOC and newly-activated IARC to outline Warning stage activities. He will also forward reports prepared by and in conjunction with those committees to the Governor, other appropriate state leaders, media and public.

During the "Emergency" Phase, the most severe drought stage, the Drought Coordinator's main function is to direct and coordinate activities of the Interagency Coordinating Committee, especially as contact for securement of required federal assistance. The ICC is a smaller, centralized group of WAOC and IARC representatives which assumes the overall drought response role during the Emergency Phase. During this stage, the Drought Coordinator will consider a request to the Governor that the state pursue formal drought mitigation assistance (such as general fund reallocation or federal assistance) or other extraordinary powers and/or options allowed through a state of emergency declaration, if it is proclaimed. As the drought recedes back through the various drought phases, the Drought Coordinator will continue appropriate coordination of potential assistance and other state drought contingency planning activities.

The Drought Coordinator will apportion membership of the Oklahoma Drought Management Team among its three working groups -- the WAOC, IARC and ICC. The Drought Team and its various committee will include, but not be limited to, representatives of the following state entities:

- Oklahoma Water Resources Board (chair, Water Availability and Outlook Committee)
- Department of Agriculture (chair, Impact Assessment and Response Committee)
- Department of Emergency Management

- Oklahoma Climatological Survey
- Forestry Services (Department of Agriculture)
- Agricultural Statistics Service
- Department of Wildlife Conservation
- Department of Environmental Quality
- Oklahoma Conservation Commission
- Oklahoma State Department of Health
- Oklahoma State University (Extension Service)
- Oklahoma Municipal League
- Oklahoma Rural Water Association
- Association of County Commissioners of Oklahoma

In addition, through informal standing agreements with the federal government, the Oklahoma Drought Management Team will also call upon the drought-related services of the following federal agencies:

- U.S. Geological Survey
- U.S. Army Corps of Engineers (Tulsa District)
- National Weather Service
- Natural Resources Conservation Service
- Bureau of Reclamation
- U.S. Department of Agriculture

Water Availability & Outlook Committee

The Water Availability and Outlook Committee (WAOC), chaired by the Oklahoma Water Resources Board, will monitor current water availability and moisture conditions and provide estimates of near-future water supply for agriculture, municipal, industrial and power uses. To effectively accomplish this task, the WAOC has been established as a permanent working group whose primary responsibility is continual development and evolution of a monitoring system to phase in and out various levels of state drought response. This system will utilize current precipitation and temperature data and forecasts; soil moisture data; streamflow and water well measurement information; reservoir storage levels; public water supply and facility conditions; crop planting and harvesting considerations; current ad projected impacts to the state's most important and vulnerable economic sectors (as determined by the IARC); and various drought-related indices (including the Crop Moisture Index, Keetch-Byram Fire Danger Index, Palmer Drought Severity Index and Reclamation Drought Index).

The WAOC will correspond via teleconference, E-Mail or other informal communications each month throughout the year to keep abreast of water and moisture-related conditions and/or problems. The primary form of delivery for this information and data, especially to the media and public, will be the *Oklahoma Water Resources Bulletin*, issued through the Oklahoma Water Resources Board. The *Bulletin* -- which was initiated during the drought of 1995-96 to keep the

Governor's Office, media, State Legislature and other state and federal agencies apprized of water- and weather-related conditions -- utilizes data collected from the Oklahoma Climatological Survey, National Drought Mitigation Center, U.S. Geological Survey, U.S. Army Corps of Engineers (Tulsa District), National Weather Service, River Forecasting Center, Oklahoma Department of Environmental Quality, Oklahoma Department of Agriculture, Oklahoma Agricultural Statistics Service and other sources. Its is published seasonally (during winter) or monthly during normal conditions in all climate divisions, every two weeks during Advisory or Alert Phases and every week during Warning or Emergency Phases, as determined by the Drought Coordinator and Drought Management Team. In addition, a WAOC sub-group, consisting of (at a minimum) 7 representatives of the OWRB, Department of Agriculture and Oklahoma Climatological Survey, will keep the D.C. apprized of conditions before and after state drought episodes.

The WAOC will hold informal meetings each month throughout the year to keep abreast of water- and moisture-related conditions and/or problems. Each spring, the WAOC will conduct an evaluation of the status or outlook prior to the summer/peak water demand months. During the Alert Phase, the WAOC will convene regular formal meetings (at least monthly) to assess drought trends sand projections. During the Warning Phase, the WAOC will prepare for the Governor's signature the"Memorandum of Potential Drought Emergency," which activates the IARC.

Following each meeting of the WAOC, a report of state drought-related conditions will be submitted to the Drought Coordinator and other Drought Team members; relevant information will also be disseminated to the media.

Impact Assessment & Response Committee (IARC)

The Impact Assessment and Response Committee (IARC), which is activated by the Governor upon recommendation of the State Drought Coordinator and WAOC members during the Warning Phase, is chaired by the Oklahoma Department of Agriculture. Its primary duty is to monitor and assess the current and potential impacts of impending or ongoing drought upon the state's economy, environment and natural resources. It is also the IARC's responsibility to initiate any and all appropriate drought response within the capabilities of Drought Management Team members. The IARC will also assess and identify specific unmet needs that cannot be addressed through existing state channels. An ongoing task of the IARC is defining drought impacts -- including identification of economic, social and environmental sectors most vulnerable to drought and/or most impacted by drought -- and refining the state's ability to respond to those impacts.

During the Emergency Phase, the IARC will prepare for the Governor's signature the state "Drought Emergency Proclamation," which activates the Interagency Coordinating Committee. At this point, the IARC transfers the new extended drought response and

coordination role of the Drought Management Team to the ICC. The IARC continues the drought impact and monitoring duties it initiated during the Warning Phase.

Following each meeting of the IARC, held as often as needed, the group will submit a report of the state's current drought impact situation and associated recommendations to the Drought Coordinator and other Drought Team members.

Interagency Coordinating Committee (ICC)

The Interagency Coordinating Committee (ICC) is the third and final group formed by the Drought Management Team to directly respond to drought in the state. The ICC, a team selected and chaired by the State Drought Coordinator, consists of the senior managers of lead drought response agencies in state government, many of which may already be members of either the WAOC and/or IARC. The ICC is activated by the Governor's Drought Emergency Proclamation, upon recommendation of the IARC at the onset of the Emergency Phase, and assumes the state's lead drought response role as it relates to intergovernmental (state and federal) coordination and media relations throughout that phase.

The primary responsibility of the ICC is to determine which drought-related needs of the state can be met by reallocation of existing resources. The group will then make appropriate recommendations, such as requests for funding and/or legislation, to the Drought Coordinator and Governor. Upon the Governor's decision to request proclamation of a presidential drought/disaster declaration, the ICC will assemble all required supporting data to facilitate the request. As the drought recedes and conditions improve to the point where the event is no longer a legitimate threat to the overall economy and welfare of Oklahoma, the ICC prepares for the Governor's signature the "End to the Drought Emergency Proclamation". The group then prepares a final report of its emergency Phase activities and disbands.

Table 1

Sequence of State Drought Response Actions

DROUGHT RESPONSE STAGE	STATE DROUGHT COORDINATOR	WATER AVAILABILITY & OUTLOOK COMMITTEE (WAOC)	IMPACT ASSESSMENT & RESPONSE COMMITTEE (IARC)	INTERAGENCY COORDINATING COMMITTEE (ICC)
NORMAL NORMAL CONDITIONS (ALL CLIMATE DIVISIONS)	Review available information (provided monthly during normal conditions) for deteriorating conditions/drought emergence	Stand-down drought monitoring/reporting activities (publish OK Water Resources Bulletin on a seasonal basis)	Stand-down drought monitoring/reporting activities.	
I - ADVISORY APPROACHING OR EXPERIENCING INCIPIENT DROUGHT (ONE OR MORE CLIMATE DIVISIONS)	Request assistance from individual weather/climate representatives and other relevant members of WAOC in evaluating drought trends.	Stand-down drought monitoring/reporting activities (publish OK Water Resources Bulletin on a bi-weekly basis).	Stand-down drought monitoring/reporting activities	
II -- ALERT MILD DROUGHT (ONE OR MORE CLIMATE DIVISIONS)	Activate **Water Availability and Outlook Committee**	Monitor trends and provide relevant information on drought status to Drought Coordinator, the public and media. Publish *OK Water Resources Bulletin* on a bi-weekly basis.	Stand-down drought monitoring/reporting activities.	
III -- WARNING MODERATE DROUGHT (ONE OR MORE CLIMATE DIVISIONS)	Meet with WAOC/IARC chairpersons to outline Warning stage activities. Forward reports on drought status and related activities to Governor, other state leaders, media and public.	Prepare for Governor's signature "Memorandum of Potential Drought Emergency," activating **Impact Assessment and response Committee.** Publish *OK Water Resources Bulletin* on a weekly basis.	Assess current and potential impacts on the state's economy, environment and natural resources. Initiate appropriate response within capabilities of participating state agencies; determine unmet needs that cannot be handled through normal state channels	

Table 1

Sequence of State Drought Response Actions

DROUGHT RESPONSE STAGE	STATE DROUGHT COORDINATOR	WATER AVAILABILITY & OUTLOOK COMMITTEE (WAOC)	IMPACT ASSESSMENT & RESPONSE COMMITTEE (IARC)	INTERAGENCY COORDINATING COMMITTEE (ICC)
IV -- EMERGENCY SEVERE TO EXTREME DROUGHT (ONE OR MORE CLIMATE DIVISIONS) **AND/OR** WHEN IARC DETERMINES THERE ARE SIGNIFICANT NEEDS THAT CANNOT BE MET BY EXISTING STATE RESOURCES	Direct ICC activities. Consider request to Governor for drought mitigation assistance (such as general fund reallocation or federal assistance) or other extraordinary powers/options allowed under state of emergency declaration and/or recommended by ICC.	Continue monitoring, assessment, response and reporting activities. Publish *OK Water Resources Bulletin* on a weekly basis.	Prepare for Governor's signature "Drought Emergency Proclamation," activating the **Interagency Coordinating Committee**, consisting of senior managers of lead drought response state agencies and chaired by Drought Coordinator. Continue monitoring, assessment, response and reporting activities.	Assume response role (intergovernmental coordination and media relations). Determine which needs can be met by reallocation of existing resources; forward recommendations (including requests for funding and legislation) to Governor. Assemble data necessary to support Governor's request for a presidential disaster/drought declaration which establishes Drought Coordinator as contact to secure needed federal assistance.
IV -- EMERGENCY (DROUGHT RECEDING) CONDITIONS IMPROVING (ICC DETERMINES THAT ALL REQUIREMENTS FOR ASSISTANCE ARE NOW BEING MET)	Continue pursuit of potential drought mitigation assistance and general coordination of state drought contingency planing activities.	Continue monitoring, assessment, response and reporting activities (publish *OK Water Resources Bulletin* on a weekly basis).	Continue monitoring, assessment, response and reporting activities.	Prepare for Governor's signature "End to the Drought Emergency Proclamation." Prepare final report and terminate activity.
III -- WARNING (DROUGHT RECEDING) CONDITIONS IMPROVING	Continue general coordination of state drought contingency planning activities.	Continue monitoring, assessment, response and reporting activities (publish *OK Water Resources Bulletin* on a bi-weekly basis).	Re-assume drought response/coordination role.	

Table 1

Sequence of State Drought Response Actions

DROUGHT RESPONSE STAGE	STATE DROUGHT COORDINATOR	WATER AVAILABILITY & OUTLOOK COMMITTEE (WAOC)	IMPACT ASSESSMENT & RESPONSE COMMITTEE (IARC)	INTERAGENCY COORDINATING COMMITTEE (ICC)
II -- ALERT (DROUGHT RECEDING) CONDITIONS IMPROVING	Continue general coordination of state drought contingency planning activities.	Continue monitoring, assessment, response and reporting activities (publish *OK Water Resources Bulletin* on a bi-weekly basis).	Terminate formal drought contingency planning activities. Stand-down drought monitoring/reporting activities.	
I -- ADVISORY (DROUGHT RECEDING) CONDITIONS IMPROVING	Solicit assistance from individual weather/climate representatives and relevant members of WAOC in evaluating drought trends.	Terminate formal drought contingency planning activities. Stand-down drought monitoring/reporting activities (publish *OK Water Resources Bulletin* on a monthly basis)	Stand-down drought monitoring/reporting activities.	
NORMAL RETURN TO NORMAL CONDITIONS (ALL CLIMATE DIVISIONS)	Review available information (provided monthly) for deteriorating conditions/drought emergence.	Stand-down drought monitoring/reporting activities (publish *OK Water Resources Bulletin* on a seasonal basis)	Stand-down drought monitoring/reporting activities.	

THE DROUGHT TEAM - IN PARTICULAR, THE WAOC -- UTILIZE THE FOLLOWING INDICES AND FACTORS (AMONG OTHERS) TO DETERMINE PROGRESSIVE DROUGHT STAGES AND AUTHORIZE SPECIFIC STATE RESPONSE TO INDIVIDUAL DROUGHT EPISODES.

PRECIPITATION RECLAMATION DROUGHT INDEX WATER WELL LEVELS DAILY/EXTENDED TEMPERATURE & PRECIPITATION FORECASTS STANDARDIZED PRECIPITATION INDEX	PALMER DROUGHT SEVERITY INDEX KEETCH-BYRAM DROUGHT INDEX PUBLIC WATER SUPPLY AND FACILITY CONDITIONS CROP PLANTING & HARVESTING CONSIDERATIONS	CROP MOISTURE INDEX MAJOR AND MINOR RESERVOIR STORAGE MAJOR STREAMFLOWS CURRENT AND PROJECTED ECONOMIC IMPACTS

Drought Response Indices, Indicators and Related Considerations Utilized by the Oklahoma Drought Management Team

Many U.S. states utilize a wide variety of drought indices and related indicators to determine the approach, onset, severity and cessation of drought episodes. Many are very simple, such as reservoir storage or elevation; others are based upon multiple parameters, such as precipitation, temperature and soil moisture. From a drought planning perspective, the ultimate purpose of a drought index is to trigger stages of appropriate and pre-determined responses which will facilitate more immediate and effective reaction to drought situations.

The Oklahoma Drought Management Team will utilize a number of indices and factors to determine progressive drought stages in Oklahoma and authorize specific state response to individual drought episodes. These tools -- which have been selected for consideration by the Drought Team due to their known ability or promise to measure the current and/or projected magnitude of drought events, as well as their ease in use or rapid availability to Team an committee members -- are briefly described in this section.

Crop Moisture Index

The Crop Moisture Index uses a meteorological approach to monitor crop conditions from week to week. Unlike the Palmer Drought Severity Index, which monitors long-term wet and dry spells, the CMI is designed to evaluate short-term moisture conditions in major crop-producing regions, such as Oklahoma. It is calculated utilizing mean temperature and total precipitation data, as well as previous CMI values, for each week within a climate division. Because it is designed to monitor short-term conditions impacting a developing crop, it is not a good long-term drought monitoring tool and cannot be used to monitor moisture conditions outside the general growing season.

In addition to the CMI, the Drought Team will consider associated crop planting and harvesting factors and related information in recommending state drought response options.

Keetch-Byram Drought Index

The Keetch-Byram Drought Index, is utilized by Oklahoma Forestry Services to trigger the Governor's burning ban during dry seasons in the state to monitor fire danger and severity. It is a soil/duff (fire fuel) index that ranges from 0 (no drought) to 800 (severe drought) and is based upon a soil capacity of 8 inches of water. Factors utilized by Keetch-Byram Drought Index include maximum daily temperature, daily precipitation, antecedent precipitation and annual precipitation.

Major/Minor Reservoir Storage and Public Water Supply

Hundreds of Oklahoma's cities, towns and rural citizens rely on the state's major reservoirs for water supply, irrigation and numerous other purposes which are commonly impacted by severe drought episodes. Information on major reservoir storage in Oklahoma is available primarily from the U.S. Army Corps of Engineers which provide daily updates of lake levels. In some cases, this data may be obtained from local operators.

During water shortages and drought situations, the Oklahoma Department of Environmental Quality issues regular reports on the condition of smaller municipal water supply lakes and related facilities throughout the state which are experiencing drought-related problems. These reports will be of significant value to the Oklahoma Drought Management Team in determining various drought stages and response actions. In addition, estimates of the condition of Oklahoma's numerous farm ponds, often the first water sources to be seriously impacted by drought, is available from the Agricultural Statistics Service, of the Oklahoma Department of Agriculture, through local extension agents.

Palmer Drought Severity Index

Used by forestry in combination with fire occurrence data, currently forecasted weather condition and personal contacts to trigger the Governor's burning ban. One of the most widely used indices to ascertain and evaluate water supply and moisture shortages is the Palmer Drought Severity Index (PDSI). The PDSI uses precipitation, air temperature, soil moisture, evapotranspiration and pervious indices to generate a positive or negative number, with a value of 0 being normal, -4 and below an extremely dry condition, and 4 and above an extremely wet condition. The PDSI is most effective in measuring impacts sensitive to soil moisture conditions, such as agriculture. The PDSI is used by many states in triggering the start or end of drought contingency plans, but has been criticized for responding too quickly to weather changes and not providing a sufficient or timely indication of a trend toward drought, leading to its use by many as a retrospective (rather than operational) indicator. In addition, it has less use in irrigated areas of Oklahoma because it does not account for water supplies other than precipitation and soil moisture.

Precipitation

While indices can be a valuable tool in triggering a drought response system with at least a moderate degree of subjectivity, they should not be blindly accepted. As a result, members of the Oklahoma Drought Management Team utilize their collective knowledge and experience, along with a number of indices and factors, to determine progressive drought stages and authorize specific state response to individual drought episodes.

The percent of normal precipitation is one of the simplest an most useful indicators of drought. It may be calculated over a variety of time periods -- for a single month, a growing

season, or an annual or water year. Forecasts of precipitation, as well as temperature, may also be valuable drought monitoring tools.

Reclamation Drought Index

As part of a cooperative effort between the OWRB and Bureau to formulate a model drought plan for use in Oklahoma, the OWRB asked the Bureau to develop a drought index specifically tailored to the state, that would help identify the onset, severity, duration and end of drought episodes in the state. In response to this request, the bureau adapted its existing Reclamation Drought Index (RDI) to two "test" regions in Oklahoma -- the Southwest and South Central climatic districts.

The RDI was designed to be flexible so that it could accommodate the particular hydrologic and meteorologic conditions of the 17 western states. The RDI was derived from the critical examination of theories, procedures and components involved in the calculation of several existing drought indices. The RDI is a function of supply (including such components as precipitation, streamflow, reservoir storage and groundwater), demand (focusing on temperature due to its cause and effect relationship with water consumption) and duration (allowing individual months, such as those that overlap the growing season, to be "weighted" according to their importance to supply/demand factors).

Because this index contains factors that accurately reflect existing or potential shortages of state water supplies and related agricultural considerations, the RDI could be of significant value to both natural resource and economic planning efforts in Oklahoma.

Standardized Precipitation Index

The Standardized Precipitation Index (SPI) quantifies precipitation deficits for multiple time scales (3-, 6-, 12-, 24- and 48-month periods) and reflect the impact of drought on the availability of water from a variety of sources (i.e., groundwater, reservoir storage, soil moisture, streamflow and snowpack). SPI drought values, between 0 and -2, define the duration and intensity of considerable promise but, although it has been recently used to monitor drought conditions in Colorado, it has yet to be widely applied or tested.

Streamflows

The U.S. Geological Survey, Oklahoma Water Resources Board and local entities throughout the state fund and maintain a substantial network of stream gages which provide measurements of flow in Oklahoma's rivers and streams and could be of value in monitoring the onset of drought and predicting its near-future impact. During the 1995-96 drought, the OWRB and USGS selected six gages from this network to obtain a fairly representative impact of drought upon state streamflows. Daily discharges were compared with average discharges over the period of record, beginning October 1, 1995, the approximate beginning of the drought. The streams

included in the network were selected because they were generally unregulated by upstream reservoirs in Oklahoma and thus more accurately reflected streamflow conditions.

Water Well Levels

The Oklahoma Water Resources Board maintains a network of more than 700 water wells throughout the state that could be of use in monitoring long-term drought impacts. Data provided through the OWRB's annual well measurement program, historical records and related groundwater information available from the U.S. Geological Survey, will be of value in determining long-term trends as well as in keeping abreast of localized groundwater supply problems as they occur.

Other Drought Monitoring and Assessment Tools

Other tools that could be useful to the Drought Management Team in analyzing droughts are computer models of river and reservoir systems. These software packages can be used to quickly access numerous operating and forecasted inflow scenarios, given known initial conditions (reservoir contents, etc.). Hydrologic and reservoir simulation models are commonly used by the Bureau of Reclamation an Corps of Engineers. In addition, the State Departments of Commerce and Agriculture and other agencies can provide various current and projected economic impacts of drought in Oklahoma.

Local, State & Federal Drought-Related Capabilities

Local Programs and Responsibilities

County Governments

Counties, through their emergency management organizations, are typically the first line of organized emergency response, including securement of emergency water supplies for cities, water districts and individual users. When water supplies are insufficient to meet human and livestock needs, the affected parties may request assistance from the local emergency management organization. Local governments, in accordance with emergency operations plans and emergency powers granted by Oklahoma Statute 63 (disaster relief programs to political subdivisions), should then initiate and conduct emergency water supply operations to the full extent of their capabilities. Where local resources are insufficient to cope with the situation, additional emergency water supply assistance may be obtained from the state, in accordance with this plan. If both state and local resources are inadequate to cope with the emergency, the Governor will request additional assistance from the federal government.

The Governor, under the emergency powers granted by O.S. 63, will direct and control distribution of water supplies under drought emergency conditions. The Director of the

Oklahoma Department of Emergency Management is responsible for coordination of the emergency water supply operations of state departments and agencies, and for coordination of emergency water supply assistance from federal or private sources not otherwise addressed in local emergency plans. Local governments requiring emergency water supply assistance from state or major private resources may direct their requests to the ODEM at 1 (800) 800-2481. Under provisions of this plan, departments and agencies of state government having the capability of providing emergency water supply assistance will provide that assistance when directed by the Governor or his authorized representative(s). Due to the limited availability off state water transportation and distribution equipment, requests for State assistance may also be referred to private industry or volunteer groups.

The following state agencies possess water transportation capabilities and are assigned responsibility for transportation capabilities and are assigned responsibility for transportation of emergency water supplies:

- Department of Agriculture;
- Department of Wildlife Conservation;
- Department of Agriculture/Forestry Division (non-potable; secondary role);
- Department of Transportation;
- Military Department; and
- Corporation Commission (liaison for commercial truck transport and railroad tank car availability).

Emergency water storage is the responsibility of the requesting local government or political subdivision; maximum use should be made of existing storage facilities. Again, information regarding the availability of commercial water storage resources may be obtained from the ODEM.

Treatment of emergency water supplies to ensure suitability for human consumption is the responsibility of the requesting local government or political subdivisions. The Environmental Health Division of the Health Department is responsible for certification of bottled water quality for human consumption. Treatment of emergency water supplies to ensure suitability for livestock use is the responsibility of the requesting livestock producer. The Department of Agriculture provides assistance in certifying theat emergency water supplies are suitable for livestock use.

Local governments or political subdivisions requesting emergency water supplies for human use designate suitable arrival/distribution points where the requested water may be delivered and provide security for water transportation equipment/water supply. The local water resources department is responsible for designation of “water points” where emergency water supplies may be obtained for further distribution to requesting local governments or political subdivisions.

Livestock producers should submit requests for emergency water supplies for livestock use to the appropriate county emergency board and county emergency management organization. Those organizations should then initiate an area-wide request for livestock water resources; designate suitable delivery and distribution points where the requested water supply may be delivered; and coordinate security for water transportation equipment and/or supply. Equitable distribution of available livestock water supplies from delivery points to individual producers is the responsibility of the county USDA emergency board with assistance from the county emergency management organization. The local water resources department is responsible for designation of water points where emergency supplies for livestock use may be obtained.

In addition to obtaining emergency water supplies, the county emergency management organization may also respond to a wide range of drought-related emergencies, such as:

- receiving requests from cities, districts and individual water users for assistance in obtaining, transporting or distributing emergency water supplies;
- providing emergency water services through use of county equipment or resources; and
- obtaining equipment, supplies or services when not available from the county through private individuals, commercial or industrial firms, or volunteer emergency organizations; the state (through the Oklahoma Department of Emergency Management); or the federal government (through the Oklahoma Department of Emergency Management).

Counties, through their emergency management organization, should assess ongoing drought conditions throughout the country. This assessment, which should focus on the water supply situation, may be accomplished through contact with water users, district representatives of state agencies and county USDA emergency boards. An analysis of the future impact of drought upon water supplies and systems should be provided to the Oklahoma Department of Environmental Quality, Water Resources Board, Corps of Engineers, Department of Emergency Management or other relevant state and federal organizations. This drought impact analysis should be updated frequently and provided to the ODEM and Drought Management Team to enable them to better coordinate the application of available emergency resources to emergency situations as they arise.

Efforts to obtain a county drought emergency declaration -- which provides the basis for state executive branch requests to the Federal Emergency Management Agency, U.S. Secretary of Agriculture and other government agencies (such as the Corps of Engineers and Military Department, etc.) -- are initiated by the county commissioners who request, by letter, that the Governor declare a “drought emergency” in their county “due to severe and continuing drought” conditions. This letter should also ask the Governor for some specific action, such as a Secretary of Agriculture emergency request or support for voluntary conservation measures.

Vital to this effort is a complete and accurate characterization of the county's drought situation. As a result, the County Commissioners should gather as much supporting data as possible from a variety of sources, including county USDA Emergency Boards (through the Farm Service Agency, Agricultural Extension Service, Natural Resources Conservation Service and Rural Development), local emergency managers, municipal governments, irrigation district managers, water districts, local chambers of commerce and area business leaders. State agency sources include the Department of Emergency Management, Department of Environmental Quality, Water Resources Board, Department of Commerce, Department of Agriculture and Climatological Survey.

Copies of county drought emergency declaration requests should be forwarded to the Drought Management Team and Department of Agriculture for recommendations and action. Recommendations will be submitted to the Governor's Office via the Water Availability and Outlook Committee which will, in turn, recommend proposed actions to the Governor. If approved, the Governor will issue a declaration of continuing severe drought conditions.

The process for a county disaster declaration from the U.S. Secretary of Agriculture is initiated when county officials petition the governor's office to forward their request for disaster declaration to the Secretary of Agriculture for consideration. An initial part of this effort is a request by the governor to the state and county Food and Agriculture Councils (FAC) to fill out a Damage Assessment Report (DAR). The DAR provides a better understanding of the drought disaster's total impact to both the Office of the Governor and Secretary of Agriculture. The DAR process is initiated by the state executive director (SED) of the Farm Service Agency (FSA) who also serves as the USDA emergency representative of the state FAC. The SED then immediately contacts the county emergency representative (the county executive director of the FAC) to begin preparation of the DAR.

Once the DAR is obtained from the county, the state FAC will scrutinize the information, then forward copies to the Offices of the Governor and U.S. Secretary of Agriculture (through the FSA and Rural Development).

Individuals and Private Industry

Much of the state's water supply is used by private individuals and firms who obtain water from districts, cities or other private corporations. These individuals and firms also have perhaps the greatest capability to provide emergency water supplies to other water users during drought or other times of water shortage. Many state corporations and businesses possess equipment and/or services which may be provided through lease, sale or other compensation, although they may be partially or fully donated as a public service at the discretion of the individual firm. These resources include:

- equipment, such as pipes, pumping plants, emergency generating systems, water purification systems, and various sizes and types of emergency water containers;

- equipment or vehicles for transporting potable water supplies, including tank trucks, tank trailers, and railroad tank cars; and
- specialized expertise or skills, including engineering design and construction, well location and drilling, agricultural technical assistance and advice on availability of various consumer services.

Normally, the responsibility for locating, obtaining and reimbursing private firms for this equipment and/or services rests with the individual. However, local governing bodies, through local emergency management organizations or the Governor's authorized representative from the Oklahoma Emergency Management Office, may obtain such services when a major public need is involved. Individuals and firms should request assistance through their respective city, district or local emergency management organization.

Irrigation Districts

The primary responsibility of the state's irrigation districts is to provide irrigation water to its members. During a drought, irrigation districts will first attempt to maximize use of available supplies consistent with the current allocated water rights of individual members. In an emergency, the governing body of a district may supply water to non-members and encourage or enforce agricultural water conservation practices within the district. If emergency water is needed by the district, it is the responsibility of these districts to request such water, through the local watermaster's office, on behalf of its members. Irrigation districts are encouraged to develop drought plans, including procedures to be followed to alleviate future drought situations, and forward these plans to the appropriate local emergency management organization and USDA county emergency board.

Rural Fire Protection Departments

Oklahoma's rural fire protection districts are responsible for providing fire protection for members. Due to their primary responsibility related to fire protection, these organizations possess equipment which, during a drought, can be utilized for transporting emergency water, normally on the condition that the equipment is not kept from its primary function for a prolonged period. Water transported in this manner may be used by citizens of the district or, in some cases, may be made available for non-district emergency water needs. Normally, requests for this assistance should be made available for non-district emergency water needs. Normally, requests for this assistance should be made through the local emergency management organization. Rural fire protection districts should also estimate the impact that a drought and associated decreases in water available for fire suppression may have on its fire protection capabilities and provide this information to the local USDA county emergency board.

Rural Water Districts and Municipalities

Water districts and municipalities in Oklahoma provide water for domestic and municipal use to members or residents. During a drought, assistance will generally consist of allocation of existing water supplies in a manner that maximizes the benefit to all users. Cities and water districts may encourage or enforce water conservation practices or restrict or curtail certain "secondary" uses of water in an emergency. When available or anticipated water supplies are inadequate, for cities and districts may seek various measures to augment existing supplies, including condemnation of water sources of other water users (with just compensation). Cities may provide and distribute emergency water supplies to their users through city fire service or other available equipment.

The governing body of a city or water district may authorize provision of emergency water to other cities or districts or to water users outside of the city or water district and may charge those users for additional associated costs in providing such emergency water. Requests for additional water rights required in connection with such assistance should be made through the local watermaster's office.

It is a primary responsibility of cities or water districts to request assistance in providing emergency water on behalf of their residents or members. Such requests should be made through the county emergency management organizations, except when the district lies within a city; in those cases, requests should be submitted to or through that city's emergency management office. Cities or districts should develop contingency plans to address future supply problems and provide that information to their county emergency management organization. Assistance with water curtailment plans and water conservation practices may be obtained through the Oklahoma Department of Environmental Quality and Water Resources Board.

USDA Emergency Boards (County)

Most counties in Oklahoma possess county U.S. Department of Agriculture emergency boards (CEBs) which are responsible for the coordination of programs of the Farm Service Agency, Extension Service, Natural Resource Conservation Service (NRCS), and Rural Development (RD); CEBs consist of representatives of those agencies. Representatives of local government are usually invited to attend meetings of the boards. CEBs are responsible for developing Natural Disaster Damage Assessment Reports, which provide estimates of agricultural damages (including crop and livestock losses and damages to facilities and agriculture), and reports on drought conditions which threaten to develop into significant disaster situations (including estimates of anticipated agriculture impact). These reports are submitted to the State Emergency Board.

County emergency boards also act as a liaison with county government and keep them well-informed of ongoing activities. CEB Chairman also invite representatives of the county governing body, its local emergency management staff and other appropriate local officials to

CEB meetings. Requests for county board services or reports may be made by the Governor or his authorized representative through the State USDA Emergency Board.

Volunteer Relief Organizations

Several volunteer relief organizations are active statewide in Oklahoma. There are also numerous local relief organizations and service clubs which, though not normally "relief" oriented, may be available to assist relief efforts. These organizations can provide a wide range of assistance to individuals and families adversely affected by droughts including:

- personnel to distribute emergency drinking water supplies to the aged, handicapped and others who may be unable to transport water from a distribution point;
- mass feeding of drought victims when drought conditions prohibit or restrict normal individual preparation and/or delivery of food;
- personnel to serve at distribution points of emergency water supplies;
- shelter of drought victims evacuated from drought-stricken areas; and
- referral service through which individuals seeking or in need of drought assistance, such as emergency drinking water, can be referred to an appropriate governmental agency.

Normally, such assistance may be requested through local emergency management organizations or, at the state level, through the Oklahoma Department of Emergency Management working in conjunction with Voluntary Agencies Active in Disasters, a volunteer coordinating council (who would serve as the point of contact).

State Programs and Responsibilities

Many state agencies and organizations can supply assistance during drought episodes through normal agency duties and programs. If major state agency involvement is anticipated, or it appears that federal assistance could be warranted, the Governor will declare a state "Emergency". Such a declaration provides state agencies with more fiscal flexibility and sets the stage for various federal disaster declarations, if required. Requests for state assistance may be made directly to the appropriate state agency or, in an "Emergency", through the Oklahoma Department of Emergency Management.

The drought-related programs and activities of Oklahoma's state agencies, including assistance available during drought/disaster emergencies, are listed below.

Department of Agriculture

The Oklahoma Department of Agriculture works closely with the state's agricultural community in assessing and responding to associated drought impacts, including those involving

forestry and wildfire problems. The agency may also assist the Oklahoma State University Agricultural Extension Service in providing estimates of the impact of the drought upon agriculture. The department's **Agricultural Statistics Service** provides valuable regular data particularly concerning the effects of drought upon Oklahoma's farming and ranching industries, including limited information on farm pond levels (primarily for livestock watering and potential fire suppression purposes).

DOA also provides estimates of the impact of the drought on state forest lands; such estimates may take into account the effect of the drought upon fire hazard and suppression. If conditions warrant, the agency may develop and implement plans to limit forest land access. The DOA will also work closely with the Oklahoma Department of Emergency Management to obtain federal agricultural-related assistance, if conditions are severe enough. The Department may also provide information on the availability of equipment through the private sector (such as milk tank trucks) which is capable of tank trucks, trailers or other vehicles capable of transporting or storing emergency water supplies.

The DOA also chairs the Impact Assessment and Response Committee of the Oklahoma Drought Management Team.

Department of Central Services

During emergencies, including severe drought episodes, the State Department of Central Services can authorize state agencies to make purchases without following competitive bidding procedures. The agency may also purchase emergency supplies or equipment on behalf of state agencies and provide information on emergency water supply equipment available through the private sector.

Climatological Survey

The Oklahoma Climatological Survey, under the direction of the University of Oklahoma, is responsible for the accumulation and dissemination of climatological data collected throughout the state and determines state policy regarding climate-related issues. The agency also serves as the data collection and dissemination center for the Oklahoma Mesonetwork. Approximately one-half of MESONET's current network of more than 100 real-time weather recording stations will soon be equipped with soil moisture measurement capabilities which will be of significant value in monitoring drought conditions in Oklahoma.

The OCS also routinely provides historical rainfall data, responds to weather-related media/public inquiries, and maintains an archive of precipitation and temperature data collected statewide by the National Weather Service cooperative observer network. The agency also maintains the Oklahoma Fire Danger Model.

Department of Commerce

The Oklahoma Department of Commerce promotes economic development in the state and administers federal funds for planning assistance to state agencies, substate planning districts and local communities. The ODOC may provide, in conjunction with the Employment Security Commission, estimates on the projected loss of jobs due to drought. In addition, during a Presidential "Emergency" or "Major Disaster", or an agricultural disaster, the Department can provide information to business and industry on federal loan programs which may become available. The agency also provides information to businesses and industries on water conservation.

Conservation Commission

The Oklahoma Conservation Commission develops and administers programs to control and prevent floodwater and sediment damage; reduce nonpoint source pollution; protect wetlands; and generally promote the conservation, development and utilization of the state's renewable resources. The OCC is made up of 88 conservation districts spread throughout the state which can provide feedback on drought conditions, as they occur. Also during drought episodes, the agency monitors the water supply pool conditions of upstream flood control projects under its jurisdiction.

Corporation Commission

The Oklahoma Corporation Commission regulates oil/gas activities in the state as well as public utilities, transportation and transmission companies, motor carriers and pipeline safety. As part of this charge, the OCC provides estimates of the impact of ongoing drought upon the generation of electric power and advises the Governor on needed reductions in the allocation of the state's electric power which may be required due to insufficient generating capabilities. The Corporation Commission may also provide information on the availability of private sector equipment (such as tank trucks, railroad tank cars or other vehicles) which is capable of transporting or storing emergency water supplies.

Department of Emergency Management

The Oklahoma Department of Emergency Management implements and coordinates the development of programs and plans to minimize the effects of disasters and emergency situations, including drought, upon the citizens of Oklahoma. The ODEM coordinates estimates of drought impact, handles requests from local governments and districts for emergency water assistance and may coordinate direct emergency assistance from state agencies relative to emergency treatment, pipelines and pumping of water. They also provide information on emergency water supply equipment available through the private sector.

The ODEM provides administrative and coordination services related to a federal major disaster or emergency and advises the governor, in conjunction with other state agencies, of the need for federal assistance or federal disaster declarations. Specifically, the agency advises the Governor on the need for a Governor's declaration of a state/regional (drought) emergency and drafts the governor's requests for Presidential "Emergency" or "Major Disaster" declarations. The agency also provides assistance to state and local agencies on financial record-keeping during emergency situations.

Department of Environmental Quality

The Oklahoma Department of Environmental Quality supervises the majority of the state's environmental protection and management programs. During drought episodes, DEQ will monitor the situation and provide estimates of the impact of the drought upon water quality. Through engineers in local DEQ offices, the agency maintains direct interaction with public/community water systems. DEQ also issues regular water system/supply status reports during drought episodes and maintains fact sheets and news releases on water conservation and related programs.

Department of Health

The Oklahoma State Department of Health administers programs to promote health and prevent disease in the state. Through the Department and its 69 county health facilities, OSDH staff can provide lists of bottled water facilities to support public water supplies if inadequate supplies occur, release medical warnings regarding the health effects associated with drought conditions, and provide list of ice manufacturers when requested.

Military Department

The State Military Department can provide emergency water treatment and transportation of that water through tank trucks, trailers or other vehicles capable of transporting or storing lost or depleted supplies.

Oklahoma State University Cooperative Extension Service

The Agriculture and Natural Resources branch of the OSU Cooperative Extension Service, through the U.S. Department of Agriculture Emergency Board, prepares information on agricultural drought management practices as well as agricultural and domestic water conservation practices. Such information may be supplied to drought victims through various sources, including the news media. The Extension Service also may provide, through the USDA Emergency Board and in conjunction with the US Department of Agriculture, estimates of drought impact on state agriculture as well as information on federal assistance available to Oklahoma's agricultural drought victims.

Department of Tourism and Recreation

The Oklahoma Department of Tourism and Recreation promotes tourism and recreation in the state and develops, operates and maintains state parks recreation areas and lodges. The Department may provide valuable information on the economic an social impacts of drought, including the effects of state-mandated burning bans, on these facilities.

USDA Emergency Board (State)

The U.S. Department of Agriculture has established a State USDA Emergency Board in Oklahoma to coordinate the disaster activities and programs of various USDA agencies, specifically, the Farm Service Agency, Animal and Plant Health Inspection Service, Farmers Home Administration, Forest Service, Soil Conservation Service, and Statistical Reporting Service. Each agency has a representative on the Board. The Emergency Board is also responsible for the following:

- Requesting Natural Disaster Assessment Reports from the County Emergency Boards, followed by the editing and distribution of these reports.
- Reporting, based on County Emergency Board drought condition reports, on drought conditions and anticipated agricultural impacts.

The State USDA Emergency Board is also responsible for maintaining liaison with state government by informing the Governor, Oklahoma Department of Emergency Management, Department of Agriculture, Drought Management Team and others of the State Emergency Board's activities and reports. The State Emergency Board Chairman will invite representatives of the State Department of Agriculture, Oklahoma Department of Emergency Management, Governor's Office and other appropriate state officials to the Emergency Board meetings. The services of the State Board may be requested by the Governor or his authorized representatives.

Water Resources Board

The Oklahoma Water Resources Board administers surface and groundwater rights in the state. Under the surface water appropriation system, water users having prior water rights are given preference over those with junior water rights. In so doing, an attempt is made to adjudicate disputes between water users and to ensure the conservation and greatest possible benefit from existing water supplies. During time of drought or limited water supply, and/or when disputes arise, the OWRB may require junior water rights holders to curtail use to satisfy the needs of senior downstream users. Groundwater is a property right in Oklahoma and, therefore, not subject to priority in use. Also, the OWRB is routinely notified of water shortages by water rights holders.

The OWRB will expedite the issuance of water rights requested for emergency water supply purposes, provided that the emergency nature of the request is justified. The agency

routinely assists individual water users in analyzing their future water supply situation and identifying alternate water sources as well as conservation options. The OWRB may also monitor groundwater (well) levels during drought periods and estimate the effects of the drought on groundwater and related water users. In addition, the agency can provide information on state-licensed water well drillers who may be contacted to establish emergency groundwater supply wells. The OWRB also directs the Oklahoma Weather Modification Program, initiated as a result of the 1996-97 drought, to augment rainfall and reduce state hail damage.

The OWRB also administers the State Financial Assistance Program, which provides loans/grants for water/wastewater facility improvements, and the Oklahoma Leak Detection Program, which provides loans/grants to identify and repair rural water system leaks. Through these programs, the agency identifies water systems suffering from drought problems and/or stressed by water shortages.

The OWRB chairs the Water Availability and Outlook Committee of the Oklahoma Drought Management Team. As part of this duty, the agency supervises publication of the *Oklahoma Water Resources Bulletin*, a periodic report on moisture and water resource-related conditions in the state.

Department of Wildlife Conservation

The Oklahoma Department of Wildlife Conservation maintains more than 270 field personnel who provide feedback on the impacts of ongoing drought episodes, including effects on 16 ODWC lakes across Oklahoma. If required, staff provide estimates of the impact of drought upon fish and wildlife resources and may make recommendations related to maintenance of instream flows for fish protection. The agency may also adjust fishing and hunting regulations, as required, to compensate for varying drought situations and develop and implement alternative procedures for providing food and water for drought-stressed wildlife.

During drought situations, the ODWC may also provide tank trucks, trailers or other vehicles capable of transporting or storing emergency water.

Other State Drought Assistance

In addition to the many state services available during drought episodes, potentially valuable assistance is available through two private organizations, the **Oklahoma Rural Water Association** and **Oklahoma Municipal League**. The ORWA represents the interests of approximately 1,000 small water supply systems in Oklahoma and provides technical assistance related to capacity, treatment and distribution problems of those systems. The organization also cooperates with the Oklahoma Water Resources Board in the Oklahoma Leak Detection Program, which provides loans and grants for small system leak detection and repair. Th OML represents Oklahoma's cities and towns and frequently receives inquiries on drought from

community systems, which they then refer to the appropriate agency or organization. During drought and/or water shortage situations, the League can provide significant information on current primary impacts experienced by Oklahoma's municipalities.

Drought-related public education materials are available from most of the state agencies and organizations (including the Oklahoma Rural Water Association and Oklahoma Musical League) described in this section.

Federal Programs and Responsibilities

Between June 17, 1976 and September 6, 1977, the President declared that emergency situations existed, as a result of drought conditions, on thirty-three occasions throughout the country. Such emergency declarations authorized that disaster assistance (under Public Law 93-288, the Disaster Relief Act of 1974) be provided to alleviate drought impacts. Such assistance included implementation of the Hay Transportation Assistance Program, the Livestock Transportation Assistance Program and the Emergency Livestock Feed Program. More than $103 million was provided from the President's fund for these programs. However, there were widespread allegations of fraud and abuse and the programs were discontinued.

The drought assistance duties of the Federal Emergency Management Agency (FEMA) were effectively removed in 1977 through Congressional legislation enabling the U.S. Department of Agriculture to acquire more program response capabilities to assist drought-impacted farmers.

While primary responsibility in water shortage situations rests with state and local authorities, some additional federal assistance, primarily of an advisory nature, may be available to supplement these efforts in Oklahoma.

Department of Agriculture

The U.S. Department of Agriculture offers numerous programs to respond to drought episodes and assist farmers affected by drought. One such program is the Emergency Feed Program, authorized in 1977 and implemented at the discretion of the Secretary of Agriculture. The program provides for necessary feed, including hay, on a cost-sharing basis after stringent criteria have been met. USDA's publication, "Natural Disaster Assistance Available from the USDA," details the agency's assistance programs and related application requirements.

American Red Cross

The disaster services of the Red Cross during a drought or water shortage are in support of, and in cooperation with, general community-based response efforts initiated to reduce human suffering or meet basic needs (such as food, shelter and basic medical care). Red Cross activities vary with the particular needs of a community, including:

- providing technical consultation and guidance to local and state government agencies or officials when planning for the distribution of water from central sites to community residents;
- establishing and staffing first-aid stations at community sites designated for the distribution of water to residents;
- coordinating voluntary agency activities designed to support local community response efforts; and
- providing voluntary personnel to assist local government response actions.

Red Cross does not provide specific assistance to commercial, industrial or agricultural corporations suffering from drought-related programs.

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers, an arm of the Defense Department, has major responsibilities in flood protection, navigation and the planning and development of multipurpose water resource projects. The COE has developed policy and guidance for the preparation of drought contingency plans as an integral part of the overall water control management system for Corps-operated and maintained projects. Primary technical assistance and guidance on specific water and related land resource problems in Oklahoma is available from the COE's Tulsa District. The District provides information (updated daily) on the 25 major reservoirs under its jurisdiction in Oklahoma.

Under the provision of Public Law 84-99, the Flood Control and Coastal Emergencies Act, the U.S. Army Corps of Engineers can provide water in a limited and temporary manner under drought conditions. This assistance is supplemental to all available local and state efforts, and requires the declaration of a drought emergency by the state. The program will pay for transportation costs (by either pipeline, tanker or other means) of water to be used for human and livestock consumption ONLY. The program will also pay for the installation of water supply wells, BUT the costs associated with the water well installation must ultimately be repaid to the Federal government. For more specific information about this program, please contact the Tulsa District Office of the U.S. Army Corps of Engineers.

Bureau of Indian Affairs

The Bureau of Indian Affairs represents Native American water rights interests throughout U.S. and Oklahoma. The agency's involvement in drought assistance extends to their involvement in coordinating various environmental programs on tribal lands in the state.

Bureau of Reclamation

The Bureau of Reclamation assists in the development and conservation of water, power and related land resources throughout the western U.S., including Oklahoma. Bureau projects are

operated to serve municipal and industrial, irrigation, water quality improvement and flood control purposes. The agency is also involved in various cooperative programs with local and state entities related to water conservation and drought planning. Water level information on the seven major Bureau-constructed lakes in Oklahoma is primarily available through the local operators.

Department of Defense

After all local, non-federal, and federal programs and assistance have been exhausted, the Secretary of the Army, acting through the Chief of Engineers, has authority to transport water or drill wells (for human and livestock consumption only) for political subdivisions in areas determined to be drought distressed. The transportation of water is a temporary activity that will be assumed by recipients as soon as practicable. Federally-owned equipment and laborers will be used to provide assistance.

Federal Emergency Management Agency

The Federal Emergency Management Agency provides assistance to states, local entities and ordinances in response to various natural disasters. In particular, FEMA processes requests by the Governor for Presidential "Emergency" and "Major Disaster" Declarations. Emergency Declarations are grated when specific federal assistance is needed to alleviate drought-induced problems. This declaration does not automatically trigger or include Small Business Administration or U.S. Department of Agriculture disaster declarations or programs, although those programs could be provided separately if requested. Requests for Major Disaster Declarations are granted if it is determined that actions and expenditures utilized by relevant state and local governments to address the drought situation represent a "reasonable" commitment of available resources; and drought damages and problems exceed local and state capabilities to respond to and/or recover from effects of the drought.

Farm Service Agency

The Farm Service Agency (FSA) works closely with the Governor in ties of drought to evaluate whether agricultural producers have suffered a 30 percent loss of an agricultural crop. A Secretarial Disaster Designation may be requested by the Governor due to drought and counties approved for the designation based on Damage Assessment Reports completed by the county FSA offices. An approved Secretarial Disaster Designation for a county or contiguous county allows producers to apply for an emergency loan subject to availability of funds.

The FSA's Emergency Conservation Program may provide cost-sharing funds during a drought emergency to develop water supplies for grazing livestock; it may also assist in preventing wind erosion damage to farmland caused by drought. The FSA County Committee may request authority to implement the Emergency Conservation Program in cases of severe drought.

The Conservation Reserve Program allows producers to enter environmentally sensitive land into a 10 to 15 year contract with FSA by idling the land and placing it in a vegetative cover. Grazing or haying of this acreage is prohibited under terms of the contracts except in periods of time approved by the FSA Deputy administrator. Drought is a condition that the Deputy Administrator recognizes to approve grazing and haying of Conservation Reserve Program acreage. Provisions of grazing and haying are issued by the Deputy Administrator and usually include a percent reduction in the annual rental rate for grazing and haying.

The Noninsured Crop Disaster Assistance Program (NAP) administered by FSA protects growers of many crops for which Federal crop insurance is not available. FSA makes NAP payments to eligible producers when both the expected "area" yield is less than 65 percent of normal, and individual crop losses are in excess of 50 percent of the average yield. If these conditions are met, the Agency pay 60 percent of the expected market price for each unit of production lost above 50 percent. Drought may be an eligible condition to request an approved NAP area.

Details of all FSA programs may be obtained from any county FSA office.

U.S. Fish and Wildlife Service

The Fish and Wildlife Service assists states in the planning and development of projects to restore and manage fish and wildlife resources. During drought situations, the Service monitors impacts to instream flows, endangered species, waterfowl and/or effects on federal wildlife refuges.

U.S. Geological Survey

The U.S. Geological Survey's Water Resources Division has the principal responsibility within the federal government for providing hydrologic information and appraising the nation's water resources. USGS, which is an arm of the Department of Interior, has neither regulatory nor developmental authority.

A major part of the work of the USGS Water Resources Division is accomplished through cooperation with state and local agencies, the "Federal-State Cooperative Program." These water resources investigations are jointly funded, at least 50 percent of the financial support derived from the cooperating state and/or local agency. The objectives are to provide water information for economic development and best use of water resources, as well as general hydrologic research. The technical information produced in the investigations provides the physical basis for effective planning of programs for development and management of water resources and efficient operation of interrelated projects at federal, state and local levels.

The USGS maintains 155 river stage/discharge and lake stage sites of which 146 have data collection platforms (equipment that uses satellite communications to transmit flow data in real

time). The agency also maintains historic data in a computer database for more than 25,000 sites in Oklahoma and interprets hydrologic data for use by individuals in either the public or private sector, including those involved in water rights decisions and wastewater permit preparations.

Department of Health and Human Services

Public Health Service personnel from the Food and Drug Administration, Center for Disease Control and Health Resources and Services Administration are prepared to assist state health officials and other federal officials with health-related problems experienced as a result of drought. Officials located in regional or state offices of the Department of Health and Human Services can provide advice, guidance and technical engineering assistance related to the assessment of actual or potential health problems as well as the provision of appropriate medical care. Officials with state/district offices of the Social Security Administration also work closely with state agencies in providing various financial assistance and other human services available under existing programs.

The Older American Act authorizes the federal government to assume a portion or all of the costs associated with developing model projects that show promise in relieving older individuals of burdens related to costly utility service, frequently experienced by elderly citizens during hot drought episodes. Special consideration is given to projects under which a business provides utility services to low-income, older individuals at a cost substantially lower than that afforded to other individuals.

Internal Revenue Service

If, due to drought conditions, a farmer or rancher involuntarily sells more animals than normal, the IRS may allow them to include income from the sale of the additional animals as income for the following year instead of the drought year. This regulation is contingent upon four conditions.

1) the principal business is farming
2) the cash method of accounting was used;
3) the sale would not have occurred except for the drought; and
4) the drought resulted in an area being designated as eligible for assistance by the federal government.

Natural Resources Conservation Service

The NRCS provides technical assistance through local conservation districts to farmers, ranchers and local governments under various authorities. In drought-stricken areas, the emphasis on technical assistance is shifted to drought-related activities. Farmers and ranchers in drought-stricken counties may contact local NRCS or conservation offices for information on available NRCS technical and financial assistance available to them. In addition, the Resources inventory

Division of the National Headquarters of NRCS compiles reports on short-duration natural phenomena, including droughts.

Inventory and monitoring objectives of the NRCS provide for the field collection, interpretation and publication of natural and related resource data for use by many governmental agencies, individuals and organizations. They permit users to examine the relations and interactions of natural and related resources to determine how they are used and managed, to define resources problems, and to identify resources potentials.

The agency's Great Plains Conservation Program, under authority of the NRCS, serves to conserve and develop the soil and water of the Great Plains area by providing technical and financial assistance to farmers, ranchers, and others in planning and implementing conservation practices. The objective of the NRCS Soil Survey Program is to provide published soil interpretations for widespread use by interested agencies, organizations and individuals. The Watershed Protection and Flood Prevention Program provides technical and financial assistance to local organizations for planning and implementing small watershed projects for watershed protection, flood prevention, agricultural water management, recreation, municipal and industrial water supply, and fish and wildlife development. Finally, the NRCS's River Basin Surveys and Investigations Program assists state and local agencies in collecting decision-making information and developing plans of action regarding water and related land resources for the general purposes of economic development and environmental quality.

Rural Development

Rural Development (formerly Farmers Home Administration) has several programs which can alleviate drought and water shortage conditions in rural areas. RD's Emergency, Soil and Water, Farm Ownership, Watershed and Operating loan programs award funds for use by eligible state farmers to establish wells. These programs can also be used to help farmers overcome financial difficulties.

RD can make emergency (EM) loans in counties (parishes) where physical property damages and/or severe production losses occur as a result of a natural disaster that substantially affects farming, ranching or aquaculture operations. There are three methods and circumstances through which EM loans are made available:

1) Under a major disaster or emergency declaration by the President, EM loans will be made available to applicants having qualifying severe physical and/or production losses within a county named by FEMA as eligible for federal assistance (i.e., Individual and/or Public Assistance);
2) Under a natural disaster designation by the Secretary of Agriculture, EM loans will be made available to applicants having qualifying severe physical and/or production losses within a county named by the Secretary; and

3) Under a natural disaster designation by the RD Administrator, EM loans will be made available to applicants having qualifying severe physical losses only, prior to action by the President or the Secretary.

The agency's Water and Sewer, Irrigation, Drainage and Soil Conservation; businesses and industry; and Community Facility loan programs may permit groups -- including, in some cases, governmental bodies -- to obtain loans for purposes that could help alleviate water shortages in rural areas. RD provides guidance to applicants regarding compliance requirements associated with the proposed loan, however, the agency provides no technical guidance related to these funding programs.

Small Business Administration

When an area is designated a drought disaster area by the Secretary of Agriculture, the U.S. Small Business Administration (SBA) offers Economic Injury Disaster Loans to small businesses and agriculture cooperatives dependent upon farmers and ranchers adversely affected by the drought. The loans provide working capital to assist small businesses experiencing substantial economic injury caused by farmers' and ranchers' inability to buy goods and services at normal levels due to the drought. The loans are not available to farmers and ranchers and do not address physical damages caused by the drought.

National Weather Service

The National Weather Service provides information on current weather in Oklahoma (through its Norman, Tulsa, and Amarillo, Texas Forecast Offices) and river stages (through the NWS's Arkansas-Red River Basin Forecast Center, in Tulsa). The local Forecast Offices also provides weather forecasts prepared locally through 5 days, and long-term outlook type forecasts from the Climate Prediction Center in Washington, D.C. for the 6 to 10 day, 30 day, 60 day, and 90 day periods.

U.S. Department of Housing and Urban Development

U.S. Department of Housing and Urban Development (HUD) provides Community Development Block Grant (CDBG) funds directly to Entitlement Cities with populations of at least 50,000, and to small communities with populations under 50,000 through the Oklahoma Department of Commerce. CDBG funds may be used for eligible projects including the construction or repair of water lines, new water wells, and other related construction that would meet existing community needs. In an instance of a Presidential declaration of disaster, communities may request waivers of program requirements so that funds may be redirected to emergency situations.

Other Federal Drought Assistance

Drought-related public education and assistance materials are available from most of the federal agencies described in this section.

APPENDIX

THE OKLAHOMA DROUGHT MANAGEMENT TEAM

GOALS

The goals of the Oklahoma Drought Management Team are to implement Oklahoma Executive Order 96-24 which follows:

EXECUTIVE DEPARTMENT

EXECUTIVE ORDER 96-24
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I, Frank Keating, Governor of the State of Oklahoma, pursuant to the powers vested in me by Article VI, Section 2 of the Oklahoma Constitution have caused the formation of the Oklahoma Drought Management Team that will develop a coordinated plan to address emergency drought problems within the State designed to preserve lives and protect the health, property, environment, and safety of the people of Oklahoma.

When drought occurs, the State is impacted by a variety of complex problems, which, if identified and evaluated, can be dealt with in a well organized and cost-efficient manner in cooperation with the federal government and through coordination of State and local entities. During periods of drought the State's water resources must be carefully and closely monitored, conserved and managed in the best interests of all Oklahomans.

The Oklahoma Drought Management Team is hereby established effective this data and be comprised of two groups: the Management Group and the Advisory Group.

1. The Management Group shall be comprised of representatives from the following State agencies: Department of Emergency Management which will serve as the Lead Agency, Department of Agriculture, Water Resources Board, Department of Health, Department of Environmental Quality, Conservation Commission, Department of Wildlife Conservation, Climatological Survey, and Military Department.

2. The Advisory Group shall be comprised of representatives of the following State associations and agencies: Association of County Commissioners, Rural Water District Association, Inc., Oklahoma Municipal League and the resources of all remaining State departments and agencies available to provide advice and assistance to the Team, including the Oklahoma Board of Regents for Higher Education.

The lead agency will formally coordinate with the following federal agencies to request their advice and assistance: Federal Emergency Management Agency (FEMA), Tulsa District, US Army Corps of Engineers, Forestry Services, Geological Survey, Bureau of Reclamation, Farm Service Agency, National Weather Service, Fish and Wildlife Service, Small Business Administration, Bureau of Indian Affairs.

Housing & Urban Development, Environmental Protection Agency, and any other federal agency available to provide advice and assistance.

The Oklahoma Drought Management Team will be responsible to:

1. Provide an organizational structure that assures information flow and defines the duties and responsibilities of all agencies during time of drought related emergencies.

2. Provide the probable impacts associated with periods of water shortage on the primary economic and environmental sectors of the State.

3. Develop and recommend State drought response, recovery and mitigation initiatives for conditions determined to be detrimental to the State economy and public health.

4. Identify drought management areas in the State.

5. Provide coordination and communication among federal, state, and local entities as deemed appropriate for drought assistance programs, education, and information.

6. Perform such other drought related assessments and response functions as deemed necessary.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Great Seal of the State of Oklahoma to be affixed this (6th day of August, 1996).

THE GOVERNOR OF THE STATE OF OKLAHOMA

signed: Frank Keating

ATTEST:

Signed: Pamela Warren
Secretary of State, Assistant

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