

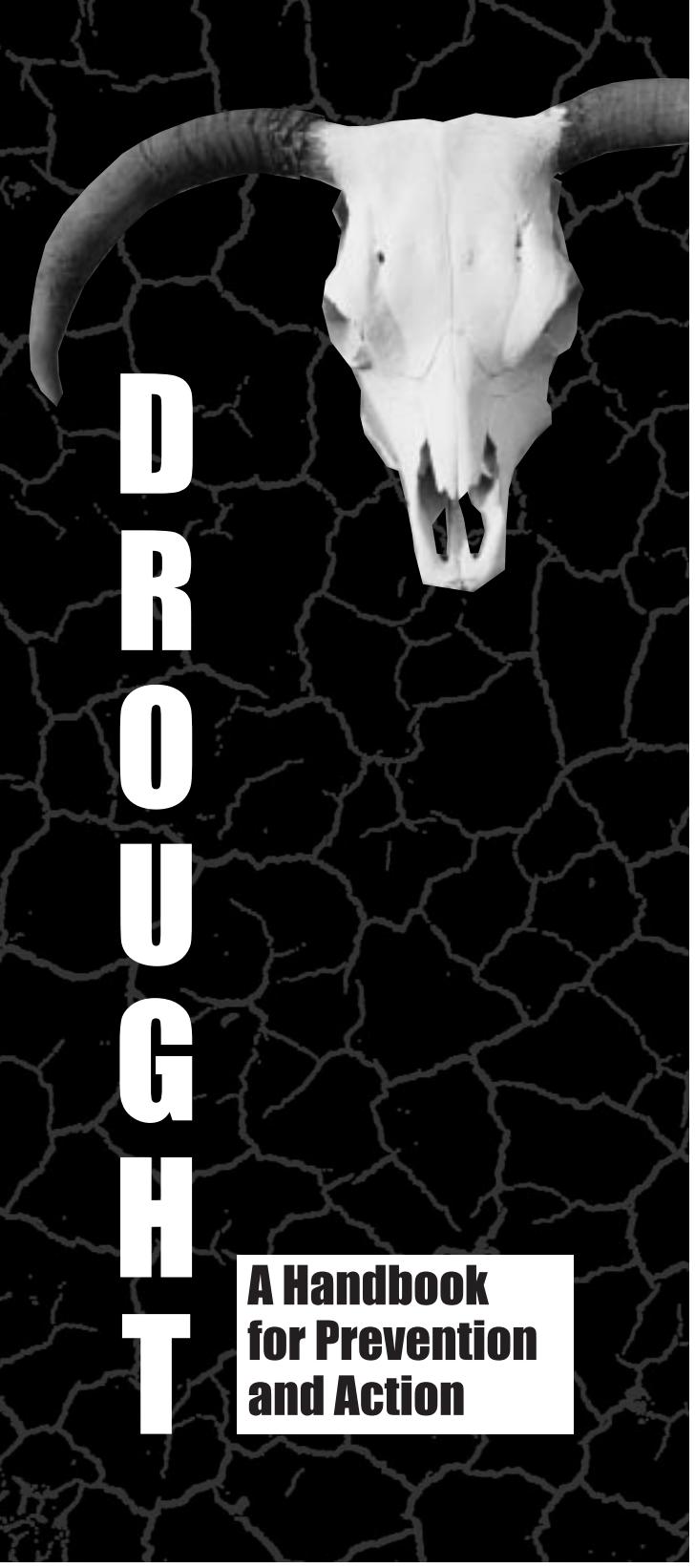
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# D R O U G H T

A Handbook  
for Prevention  
and Action



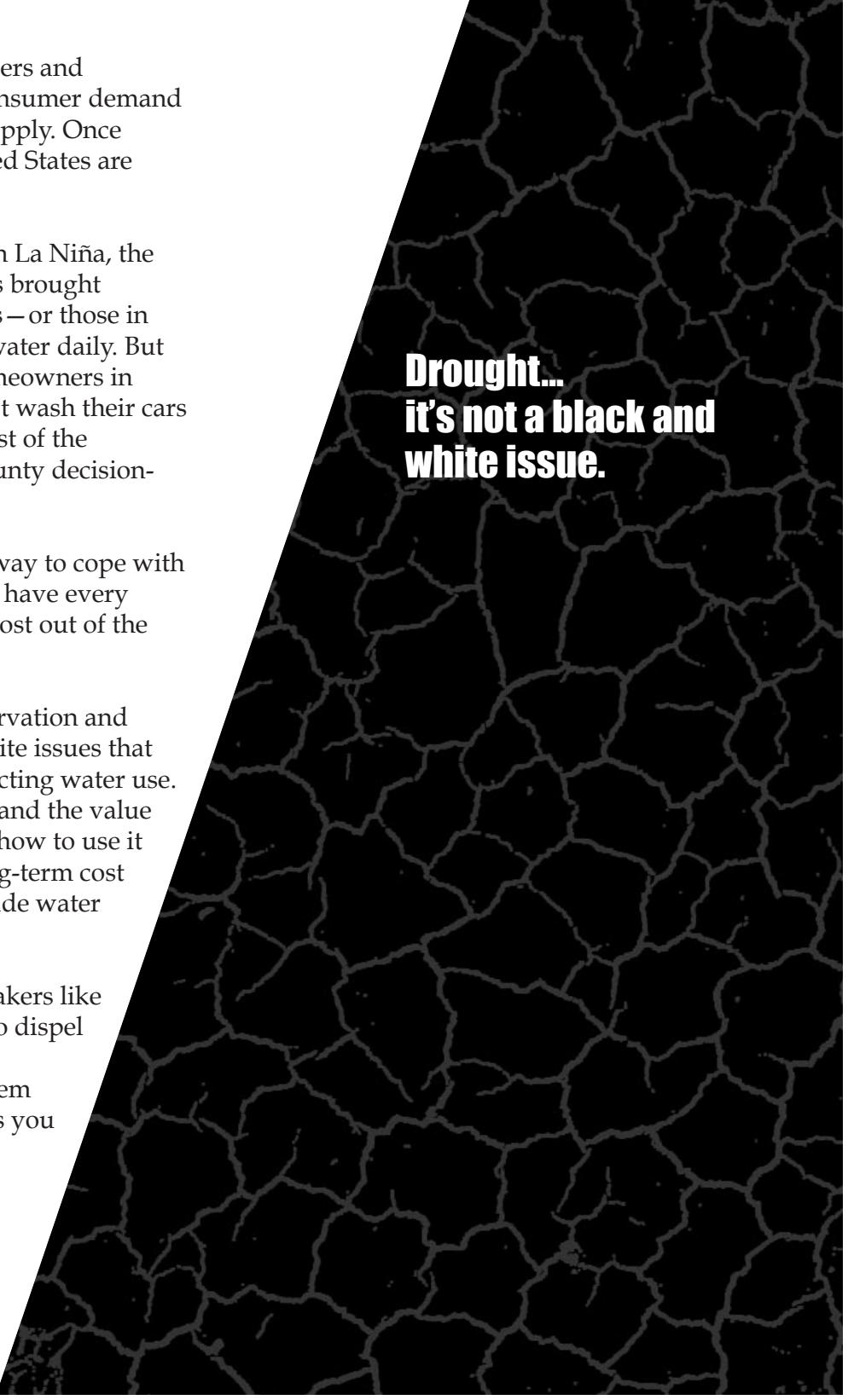
Another hot, dry summer. Rivers and reservoirs are already low. Consumer demand for water is sure to outstrip supply. Once again, many parts of the United States are facing drought.

You can blame the situation on La Niña, the weather phenomenon that has brought drought for the past two years—or those in your community who waste water daily. But when it comes time to tell homeowners in residential areas that they can't wash their cars or water their lawns for the rest of the summer, it will be city and county decision-makers who take the heat.

The fact is, the most painless way to cope with drought is to be proactive—to have every citizen take steps to get the most out of the water he or she uses.

In our complex society, conservation and drought are not black-and-white issues that can be settled merely by restricting water use. Communities need to understand the value of water and begin to discuss how to use it differently—including the long-term cost and benefits of community-wide water recycling.

In the short term, decision-makers like you will find that being able to dispel misconceptions about water conservation and replacing them with facts is a powerful tool as you go about persuading your community to adopt sensible approaches to drought.



**Drought...  
it's not a black and  
white issue.**

## **Misconceptions.**

**Drought is the result of lack of rainfall.**

**Watering your lawn lightly will save water and keep landscaping alive.**

**One good rainfall is sufficient to restore the water supply during a hot, dry summer.**

**Water is a limited resource.**

**Restricting the water supply is the best way to conserve water in times of drought.**

Drought is better described as a supply and demand issue. When the demand for water in a growing urban community outstrips the resources, drought is a result. That's why sensible proactive policies and smarter use—and reuse—of water are keys to preventing drought.

Light watering actually wastes water because it discourages roots from growing deeply, where the ground remains moist longer. As a rule, infrequent and deep watering is preferable.

The average rainfall produces an inch of water—equivalent to the amount of water that evaporates in three days. It usually takes three months of concentrated rainfall to erase the effects of drought.

Yes and no. A community can certainly run out of water, but water also is a renewable resource—and one that can be recycled. If homeowners and communities use water efficiently and take advantage of recycling technology that exists today, water emergencies would evaporate.

Curtailing water use can lead to an immediate short-term drop in consumption, but it comes with a price—in higher temperatures and lower property values in residential areas, and in potentially causing homeowners economic harm. Educating the community about wise water management is a better long-term solution.



## Facts.

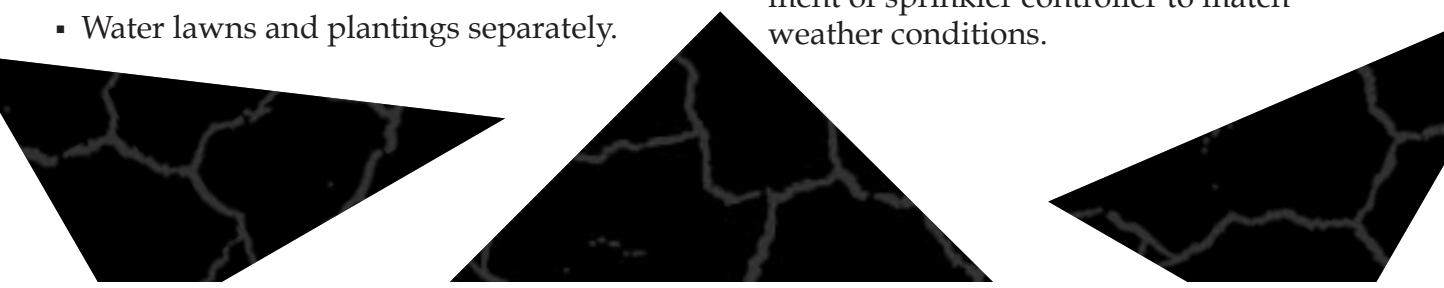
- ! Drought causes annual economic losses of \$6-8 billion, more than the losses caused by floods (\$2.41 billion) or hurricanes (\$1.2-4.8 billion). (National Oceanic & Atmospheric Administration)
- ! A garden hose is inefficient, because it spreads water unevenly. Watering in the heat of the day or in windy conditions wastes water, because it may evaporate or blow away.
- ! Most established lawns, if allowed to go dormant during hot, dry weather, will rebound when rains return.
- ! Using recycled water (treated to almost drinkable standards) on landscaping would save the U.S. enough fresh water in a year for everyone in New York City to take a 10-minute shower every day for 4 1/2 years.
- ! A timed sprinkler system uses water efficiently, because it can be set to run overnight, when temperatures are coolest and the evaporation rate is lowest.
- ! On a hot day, lawns will be 30 degrees cooler than nearby pavement, producing a moderating effect on the environment.
- ! Landscaping can increase residential property values by 7 percent and add as much as 15 percent to the selling price of a home. (Gelman & Grey Research and Planning Services; Gallup Organization)
- ! Water use—and waste—is determined more by people than by type of landscaping. A recent study found there was no appreciable difference between two similar-sized lawns, even though one homeowner used nearly 10 times more water than his neighbor.

# Drought Management Recommendations.

Cities and individual homeowners can implement the following water conservation strategies.

- Use a properly designed automatic irrigation system that has uniform water distribution.
- Adjust water rates so excessive water users pay for the privilege of using too much water.
- Cities should consider rebates for installing an upgraded outdoor watering system.
- Encourage the use of an automatic rain shut-off device on sprinkler systems.
- Consider using drip or micro irrigation for trees and shrubs.
- Inspect and adjust automatic sprinkler controller bimonthly to correct run times.
- Group plants together that have the same water requirement.
- Use native plant material where appropriate.
- Water lawns and plantings separately.

- Keep grass extra long during the hot summer months. Never remove more than 25 percent of grass height.
- Cut back on watering until lawns and shrubs show some stress to conserve water.
- Mulch flowerbeds and gardens with porous material to retain moisture.
- Make people aware of the Evaporation/Transpiration (ET) rate, which measures the water requirements of plants. ET is much higher during daylight hours on a warm day, and varies with the type of plant used.
- Publicize a suggested amount of time each day to replace ET.
- Audit irrigation systems. Trained individuals can evaluate sprinkler systems for uniformity and make suggestions that will improve performance and operation schedules. The audit will identify these conditions: broken or damaged sprinklers; correct adjustment of sprinklers to prevent watering of sidewalks, driveways, walls and other hardscapes; proper operating pressure (misting caused by high pressure, donut wetting patterns indicating low pressure); sprinkler height adjustment (grass interference with spray patterns); poor uniformity indicated by dry spots/wet spots; adjustment of sprinkler controller to match weather conditions.



## Action Steps.

In case of drought, county and municipal officials may want to take the following steps as a last resort to curtail the use of water.

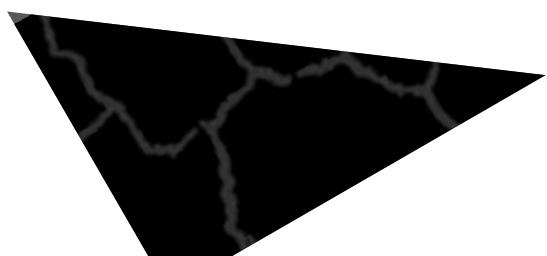
**Stage 1.** Odd/even water days (or similar plans) are made mandatory for all outdoor uses. No restriction on time of day.

**Stage 2.** Stage 1 restrictions, PLUS watering using hand and hose sprinklers only between 5-7 a.m. and 7-10 p.m. Automatic irrigation system operation between 10 p.m.-5 a.m. No filling of swimming pools (although pools may be topped off). Only personal vehicles may be spray washed using an automatic shut-off nozzle.

**Stage 3.** Hand watering of gardens only. No car washing. Automatic irrigation systems may be used only between 12-5 a.m. on scheduled days.

**Stage 4.** Outside watering of gardens only with drip irrigation or saved shower water. New landscapes may be watered by permit only.

**Stage 5.** No outside water use except with saved shower water.



## Drought... it's not a black and white issue.

Drought in urban areas doesn't have to be an emergency. Unlike floods or hurricanes, water supply and demand imbalances can be anticipated and managed—even avoided—through proper planning.

Clearly there are more options for decision-makers than shutting off the spigot for watering lawns and washing cars.

Through education, citizens can learn that water conservation is a year-round effort that can prevent sudden inconvenience and possible economic loss in hot, dry weather.

Using water differently can make a difference, too. Recycling water will take stress off fresh water supplies, while irrigation systems will deliver water more efficiently to lawns and gardens.

Such measures do pay off. In 1995, Albuquerque, New Mexico, launched a public education campaign and conservation incentive program to cut per-capita water use 30 percent within 10 years. Only halfway through the program, water use had dropped 22 percent.

Through commonsense conservation methods and education, you can help see to it that your community enjoys its summer—even if it's a long, hot one.

For more information, click on the website of the Irrigation Association:  
[www.irrigation.org](http://www.irrigation.org).