

# DRY HOT SPOTS

## Living in Deserts



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**What are deserts?**

**Why do people live there?**

**How do they get their fresh water?**

**Is there enough fresh water for everyone living in the desert?**

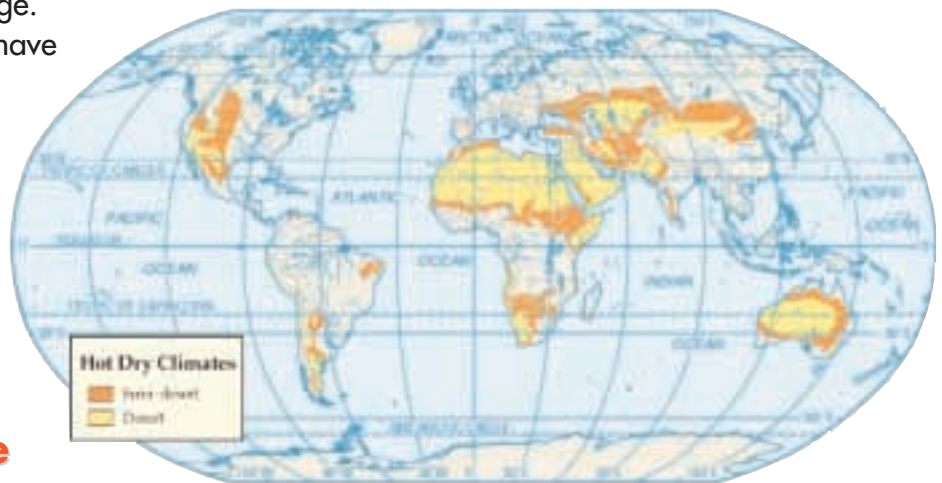
**What can be done to increase the availability of fresh water?**

**What are the problems?**

### What are deserts?

Deserts, also known as arid regions, are areas that usually receive less than 10 inches of rainfall a year. Semi-deserts typically receive between 10 and 20 inches of rain annually. In hot deserts, temperatures often climb well into the 100°F range. Most hot deserts and semi-deserts have limited sources of fresh water.

Given the extreme conditions of the desert environment, are you surprised to learn that more and more people are moving to the desert? Why do people live in the desert?



[Click to enlarge](#)

### Why do people live in deserts?

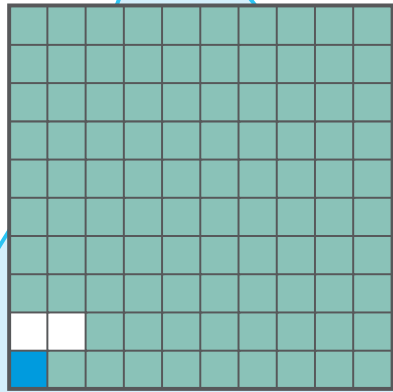
Although there are groups of people who have traditionally lived in hot, dry climates, the population of most deserts remains sparse. However, there are desert regions where population is rapidly growing. Some of the reasons for the population growth in these seemingly uninhabitable locations include:

- ☉ The land is undeveloped.
- ☉ The climate is warmer.
- ☉ Medical conditions such as allergies and respiratory ailments are relieved.
- ☉ The job market is less competitive.
- ☉ Housing costs are lower.
- ☉ An urban metropolis is nowhere in sight.
- ☉ The scenery is desolate and beautiful.

Without water, living in deserts would be impossible. Is there enough fresh water in the world to supply desert populations?

CONTINUE

# How much fresh water is available?



Only 1 percent of the earth's natural water can be used by humans and animals for drinking and irrigation.

## The Earth's Water Supply

- 97% ■ salty/undrinkable water
- 2% □ frozen
- 1% ■ available fresh water

## Interesting fact:

A human can survive for about a month without food, but can only stay alive for about a week without water.

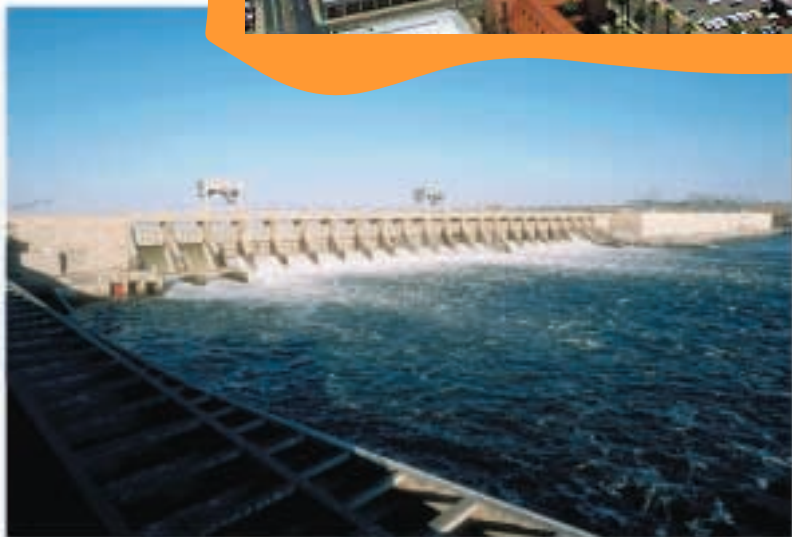
# How do desert dwellers get their water?

Everyone needs fresh (unsalty) water to live. We use fresh water for drinking, cooking, cleaning, irrigating, working, and playing. The most common sources of fresh water are lakes, rivers, and groundwater. But often, especially in the desert, there is not enough water from these natural resources for the entire population.

Because deserts often do not have enough local freshwater sources to sustain their population, people build structures to supplement the water supply. Throughout the world, dams are commonly used to store and control water supply. Dams are built on waterways to slow the flow of water. The water that does not flow beyond the dam is stored behind it in lakes or reservoirs. This stored water is released gradually through different diversion routes that carry water to people and places that need it.



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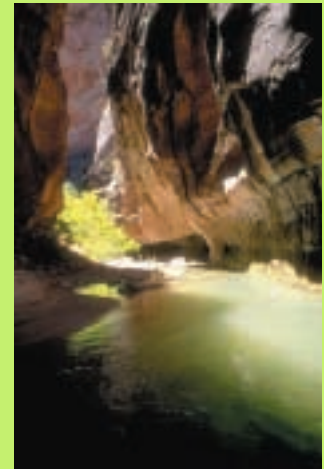
## CASE STUDY

### North America, United States: Hydrating the Southwest

In the United States much of the Southwest is desert or semi-desert. The major source of fresh water in this area is the Colorado River. The Colorado River runs from the Rocky Mountains into the Gulf of California. The source of the water is melted snow from the Rockies.

In 1905 the power of this river proved disastrous when flash floods raged across the Imperial Valley in California. Since then, great attempts have been made to control the flow of water.

Although efforts are being made to provide water to the rapidly growing population of the Southwest, there is worry that the Colorado River will soon be unable to supply enough water to all who need it.



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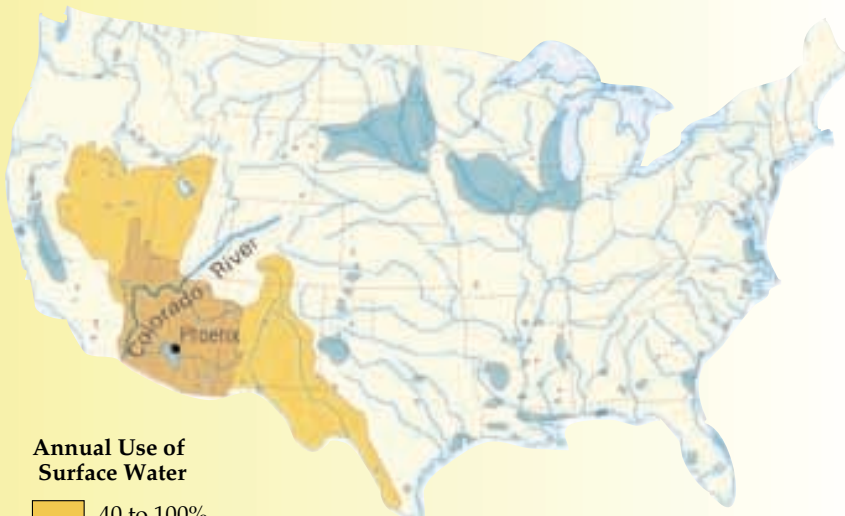
Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming depend on the Colorado River and its tributaries for at least a portion of their water.

The Hoover Dam on the Colorado River is the largest dam in the United States. Lake Mead, which stores the water held back by Hoover Dam, is the largest artificial lake in the U.S.



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Follow the Colorado River on the map below. Which states are faced with the greatest threat of water shortage?



Annual Use of Surface Water

- 40 to 100%
- Over 100%

Groundwater significantly reduced

[Click to enlarge](#)

### Threatened Water Supplies

Rivers and aquifers in the arid regions of the West and Great Plains are being drained to supply water for farm and ranch irrigation, hydroelectric plants, flood-control dams, and industrial and residential needs.

### Interesting fact:

According to a recent statistic reported by the U.S. Census Bureau, Phoenix, Arizona, has had a 21 percent increase in population during the 1990s. It has become the fastest growing large city in the United States. Find it on the map to the left.

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# Are there alternative ways to provide fresh water to people?

Alternatives to fresh surface water supplies include:

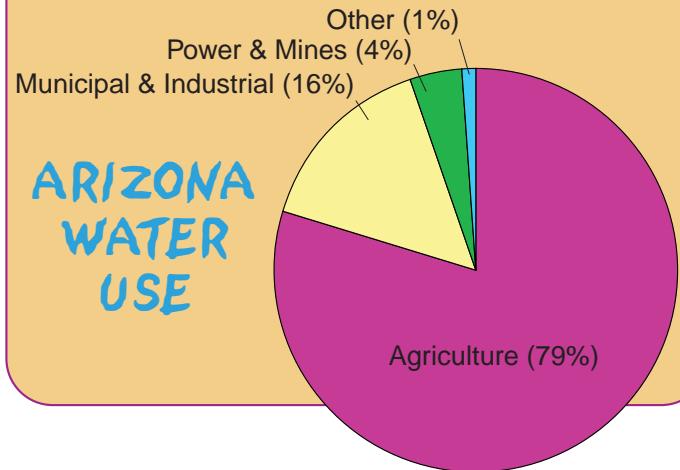
- tapping groundwater aquifers - natural underground reservoirs
- recycling wastewater
- desalinating seawater - a process to remove salt from seawater
- cloud seeding - an experimental method of changing weather and encouraging rainfall
- controlling vegetation - removal of plants along streams or forest management are examples

All these methods are possible means for managing the supply of fresh water, but there are reasons why they might not be feasible. These reasons include:

- limited availability
- excessive costs
- safety concerns
- ecosystem disruption

## Interesting fact:

Nearly 75 percent of fresh water usage is in farming, not in cities. In Arizona, 79 percent is used for agriculture.



## THINK about

### the global impacts of freshwater supplies to desert populations:



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- Where else in the world do people live in deserts? How do they get their water?
- What are the effects of limited freshwater on desert populations?
- What are the effects of growing desert populations on the water supply of other areas?
- Are there deserts in the region you are studying now? How large is the population in this area? How do they get their water? What are the related problems?

#### You and your environment:

- How do you get your water?
- Have you ever experienced a water shortage?
- Do you live in the desert? If not, would you want to live in a desert climate? Why or why not?

## Links

### Surf Your Watershed ([www.epa.gov/students/surf\\_your\\_watershed.htm](http://www.epa.gov/students/surf_your_watershed.htm))

The U.S. Environmental Protection Agency's interactive site helps locate and find information on local watersheds around the country.

### IGC's Seas and Water links ([www.igc.org/igc/gt/EcoNet/Seas-Waters/](http://www.igc.org/igc/gt/EcoNet/Seas-Waters/))

Links to websites with information about water resources.

### Population Action International ([www.populationaction.org](http://www.populationaction.org))

Information on the impact of growing populations on the economy, the environment, and health and safety.

### Cadillac Desert: A Water World ([www.pbs.org/kteh/cadillacdesert/water.html](http://www.pbs.org/kteh/cadillacdesert/water.html))

Website for a public television series about water supplies, usage, and management.

### Earth Crash ([tigerherbs.com/eclectica/earthcrash/subject/desertification.html](http://tigerherbs.com/eclectica/earthcrash/subject/desertification.html))

Summaries of articles related to desertification, water supplies, and other environmental issues around the world.

### U. S. Geological Survey ([water.usgs.gov](http://water.usgs.gov))

Information and data about water in the United States.

