

# Availability of Water

by Sophia



## WHAT'S COVERED

In this lesson, we will discuss the availability of water. We will discuss water supply and demand and the factors contributing to the issue of demand out-distancing supply. We will cover the issue of water shortages and their causes, as well as different ways to address water supply problems. Specifically, this lesson will cover the following:

## 1. Water Supply and Demand

Water supply on Earth is finite, and its growing demand is out-distancing supply, creating water conflict.

The demand for water is increasing because of three reasons:

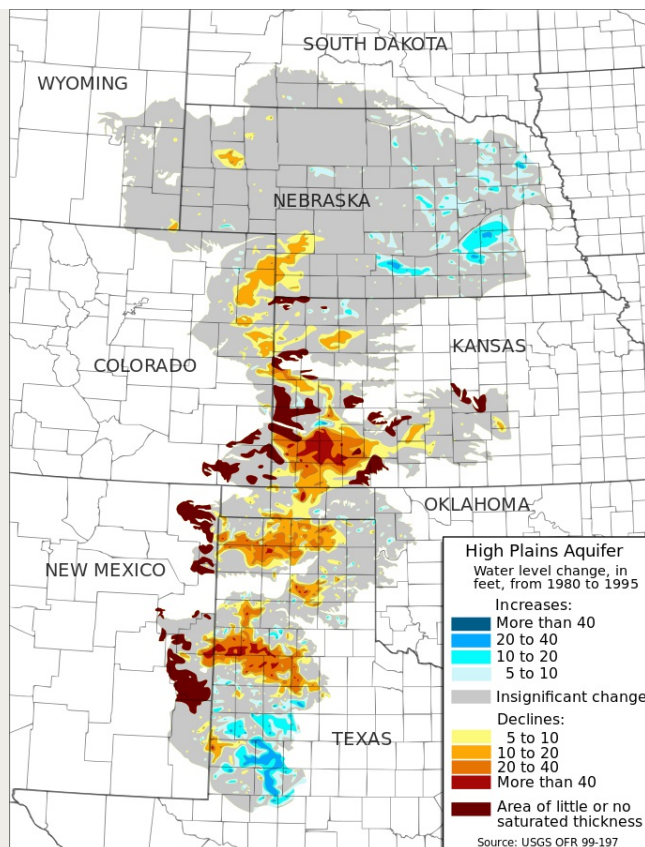
1. Population growth
2. Increasing use of water for industrial purposes
3. Increasing water-wasting behaviors and practices

As mentioned before, the amount of water available for our use is finite. Although it can be recycled through the hydrological cycle, we are using it up faster than it can replenish itself. In addition, the amount of freshwater available for us is decreasing with pollution, biological contaminants, and receding glaciers, which are producing less and less freshwater as they melt into the ocean.

Population growth is also increasing the demand for water. However, it isn't proportional. Currently, human water use is increasing at double the rate of our population growth. Many major aquifers, from where we get much of our freshwater, are dramatically shrinking.

### IN CONTEXT

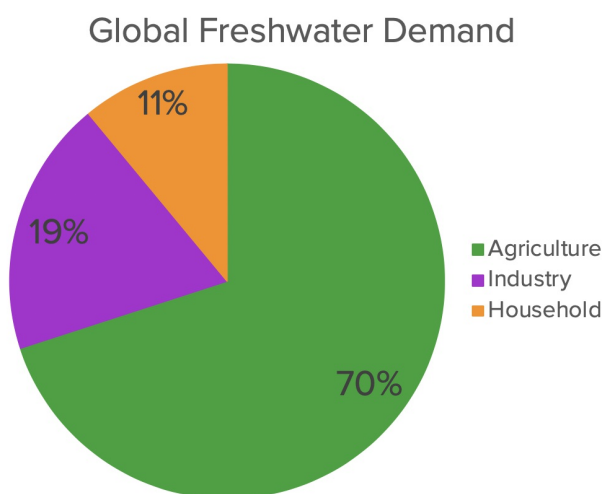
Consider the Ogallala Aquifer in the midwestern United States. Water is being used much faster than it can be recharged. The map below shows that the darker red, yellow, and orange patches indicate where the aquifer has been decreasing.



Ogallala supports almost 5.5 million hectares of agricultural land, or about one third of the groundwater used for irrigation in the United States, while also providing drinking water to at least 2.3 million people. Since 1940, the water table in that area has declined around 300 feet.

## 2. Water Shortages

The chart below breaks down the demand of water into its various uses. Globally, agriculture accounts for 70% of freshwater taken from streams and rivers. Industry utilizes 19% of all freshwater available, and households use the remaining 11%.



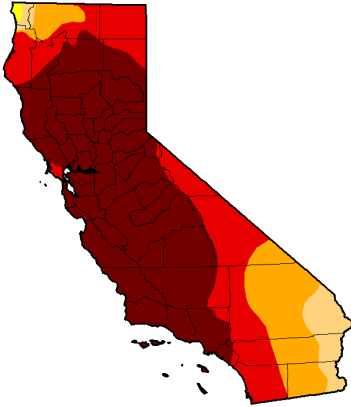
Around the world, many people cannot afford or even access clean drinking water. At least one billion people

don't have access to it. At least one fifth of the world's population lives in locations with physical scarcity of safe drinking water.

Like food shortages, water shortages are often a result of distribution problems. Other causes can generally be a dry climate, periodic drought, or overpopulation exceeding local water supply.

➞ **EXAMPLE** In 2014, California had the worst drought in 1,200 years, putting numerous towns and cities into water shortages. Many farmers lost large portions of their crops, which impacted the rest of the United States because California provides a large portion of the country's food.

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➞ **EXAMPLE** Another water shortage is occurring in India's capital, New Delhi. New Delhi's per capita availability of fresh water is greater than that of Paris, yet New Delhi cannot always provide reliable freshwater. This is primarily a distribution issue, as New Delhi's poor distribution network results in a lot of water that is unaccounted for.

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## 3. Water Supply Solutions

There are strategies to improve water supply and demand issues. These solutions include:

- Policies that restrict aquifer depletion can improve supply by conserving it.
- Improving water quality and preserving the health of aquatic ecosystems can protect the supply we do have from further contamination.
- Broad watershed management can conservatively and fairly distribute water across various sectors to provide adequate water, while preserving enough for future use by making agreements between groups and regions on how best to share water resources.
- Decreasing government subsidies on water will increase its cost and lead to decreased consumption.
- Educational campaigns for water conservation can reduce overall demand.



### SUMMARY

In this lesson, we learned about **water supply and demand**, as well as the factors that contribute to the issue of demand out-distancing supply. We learned about **water shortages** and what causes them. Lastly, we explored **solutions to water supply** issues.

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## ATTRIBUTIONS

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- [California drought map](#) | **Author:** NCDC\NOAA | **License:** Public Domain