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# Economic Impacts of Severe Droughts

June 14, 2022

Between population growth and increasingly extreme weather, Texas faces the potential for worsening droughts and a flood of negative economic impacts. In the third report in the *Investing in Texas* series, the Center for Public Finance at Rice University's Baker Institute for Public Policy, supported by Texas 2036, examines the costs to Texas of a future with rising water demand and a dwindling supply of water.

## Texas State Water Plan

Every five years, Texas produces the State Water Plan to provide an overview of water use trends and to identify critical water supplies to address projected water needs. The 2022 plan focuses on 2020–2070. Based on 16 regional plans, the statewide plan projects that Texas will face increased demands and decreased supplies and includes recommended water supply projects and strategies to meet growing needs.

PROJECTED WATER DEMAND	PROJECTED SUPPLY DECREASE	RECOMMENDATIONS	
<p><b>9% Increase</b> 17.7M acre-feet to 19.2M acre-feet*</p>	<p><b>18% Decrease</b> 16.8M acre-feet to 13.8M acre-feet</p>	<p><b>5,800 Water Management Strategies</b> Per year water supply ↑ 2020: 1.7M acre-feet 2070: 7.7M acre-feet**</p>	<p><b>2,400 Water Management Strategy Projects</b> Water supply ↑ through new infrastructure = est. cost: \$80 billion</p>

\*One acre-foot equals about 326,000 gallons, or enough water to cover an acre of land, about the size of a football field, one foot deep.

\*\*For the lists of recommended water management strategies and projects, visit [www.twdb.texas.gov/waterplanning/swp/2022](http://www.twdb.texas.gov/waterplanning/swp/2022).

## A Brief Timeline of Statewide Water Planning

1950s	1957	1961	1997	2010-2014
<p>A 7-year dry spell left all but one Texas county classified as a disaster area. This <b>Drought of Record</b> is the current benchmark for future disaster planning.</p>	<p>The state legislature created the <b>Texas Water Development Board</b> to ensure water-related financial and logistical assistance.</p>	<p>The board began publishing the <b>State Water Plan</b>, Texas' most comprehensive water supply planning tool.</p>	<p>After another severe drought, a regional water planning process began, shifting from a centralized model to the local level.</p>	<p>2011: The worst one-year drought in Texas' history hits, costing the state's agriculture sector \$7.6 billion, according to the State Comptroller.</p>

To download a copy of the report, visit [www.texas2036.org/investing-in-texas](http://www.texas2036.org/investing-in-texas).

## Economic Impacts: Statewide

According to a recent Texas State Climatologist report, extreme weather patterns may reduce water availability and increase the intensity of future droughts.

Statewide water needs will jump by more than 80% between 2020 and 2050, from 3.1 million acre-feet to 5.7 million acre-feet. This shift in water availability will negatively impact existing businesses and future economic development.

The following charts forecast the impacts of severe drought on the state's economy if the State Water Plan recommendations are not implemented and if Texas were to experience a dry spell that matches or surpasses the Drought of Record. The potential losses reflect any one given year within that decade.

NEGATIVE IMPACTS	2020-29	2030-39	2040-49	2050-59
Gross domestic product loss	\$98.2B	\$111.1B	\$111.1B	\$117.6B
Tax revenue loss on production & imports	\$9.9B	\$10.5B	\$9.7B	\$9.5B
Job loss	598,210	756,637	850,470	988,056

*Due to data and methodological limitations, the actual economic impacts are likely significantly larger.*

## Economic Impacts: Industry

Throughout Texas Water Development Board's [16 regions](#), the economic impacts vary depending on the area's primary industry sector. Collectively, current projections show that manufacturing, energy and agriculture are especially at risk for the potential of financial downturns due to severe droughts. This data reflects the regions where each industry is most influential to its economy.

### MANUFACTURING

TOP 5 REGIONS TOTAL IMPACT	2020-29	2030-39	2040-49	2050-59
<b>Income loss</b> (state total: 82% ~\$258B)	\$6.4B	\$12.9B	\$16.6B	\$21.6B
<b>Job loss</b> (state total: 77% ~1.5M+)	46,727	93,733	116,585	149,067

### ENERGY

TOP 5 REGIONS TOTAL IMPACT	2020-29	2030-39	2040-49	2050-59
<b>Income loss</b> (state total: 81% ~\$137B)	\$49.7B	\$50.1B	\$42.2B	\$34.3B
<b>Job loss</b> (state total: 75% ~396K)	241,831	240,697	198,535	157,638

### AGRICULTURE

TOP 5 REGIONS TOTAL IMPACT	2020-29	2030-39	2040-49	2050-59
<b>Income loss</b> (state total: 54% ~\$5.4B)	\$2.8B	\$3.4B	\$3.6B	\$3.9B
<b>Job loss</b> (state total: 45% ~150K)	52,693	60,389	63,332	67,807

## A Closer Look: Semiconductor Manufacturing

According to the State Comptroller, global semiconductors trade equaled nearly \$2 trillion in 2020, making these "chips"—the brains behind devices—the fourth-most highly traded product in the world. With more than 200 semiconductor facilities in Texas, the state is well positioned to be an industry leader.

In 2020, Texas led the nation in chip exports and was the No. 2 employer in the U.S. It also contributed \$15.3 billion to the state's GDP. To attract more semiconductor investment, including two key future federal institutes, the state launched the National Semiconductor Centers Texas Task Force in Oct. 2021.

If a Drought of Record occurs this decade, the semiconductor industry is expected to lose \$2.7 billion in any given year, with losses expected to exceed \$6.1 billion by the middle of the century. To continue Texas' ascent in the industry, planning and mitigating the potential for future severe drought must be prioritized.