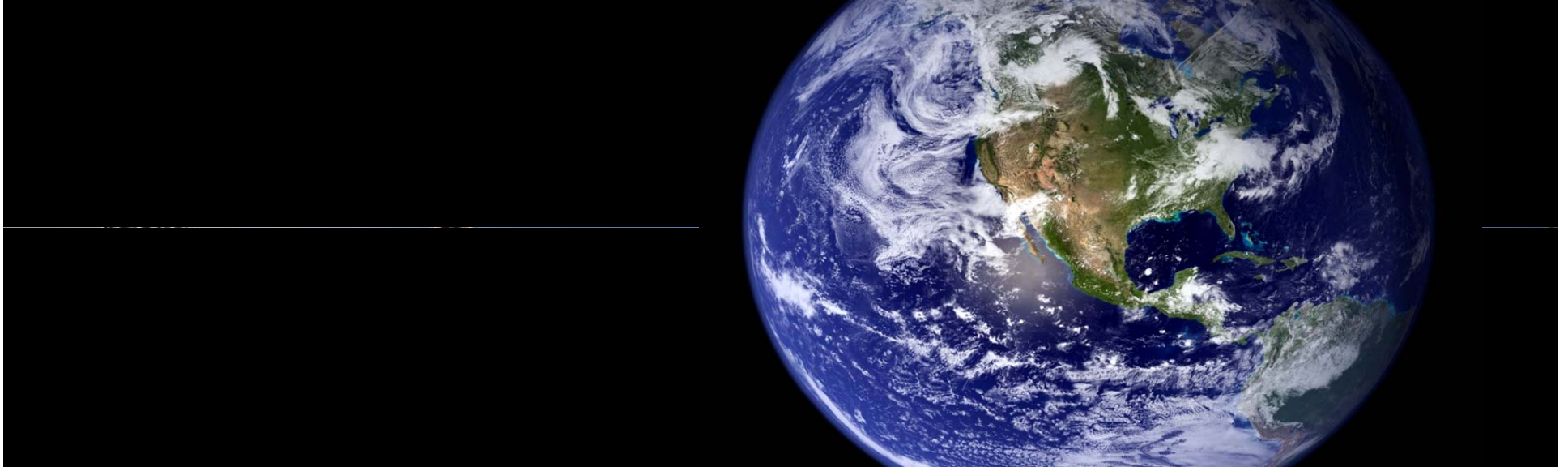


New Alternatives for Water



BEFESA

ABENGOA



Innovative solutions for sustainability



Summary



- Communities will have to **diversify** their water supply sources.
- **Private financing** will be required to help develop the needed infrastructure.

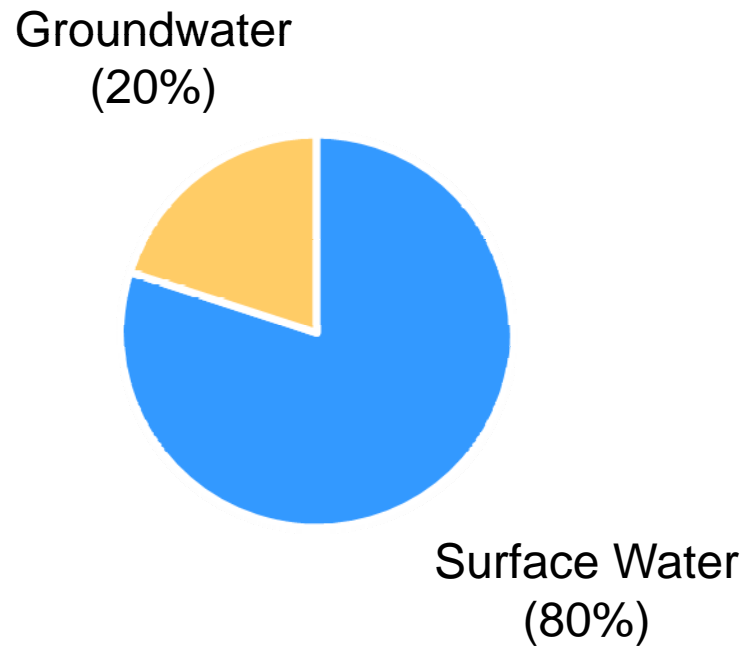


Historical Lessons

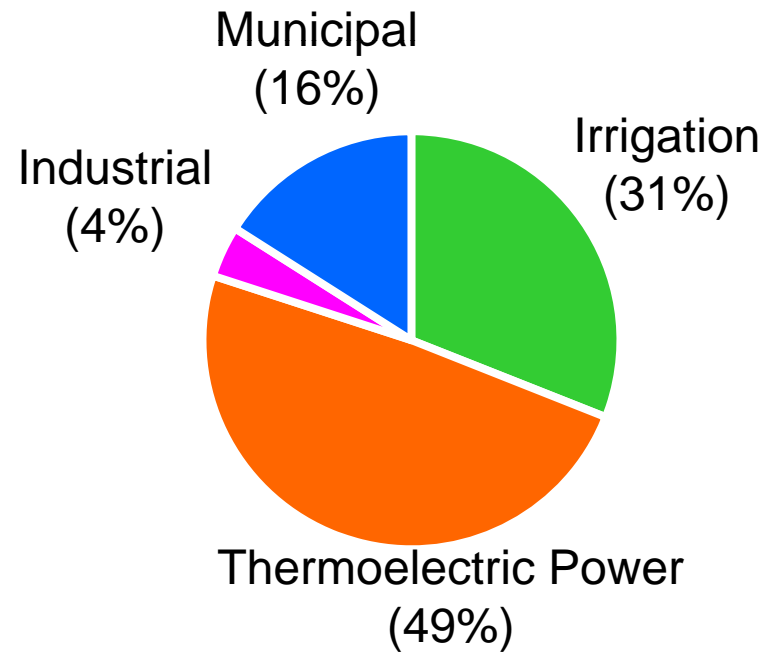
Part 1: Water Supply

U.S. Water 101

Sources

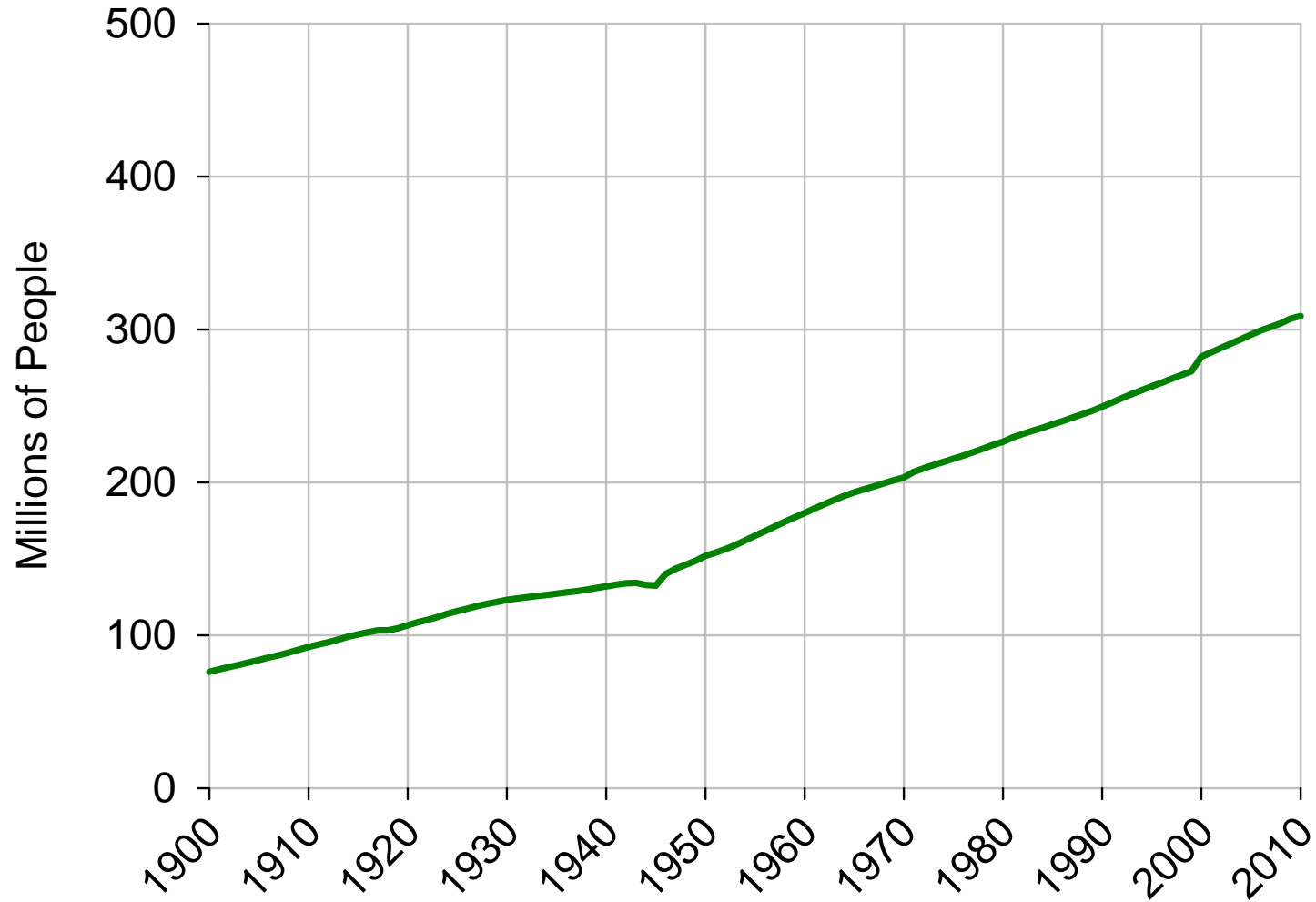


Uses



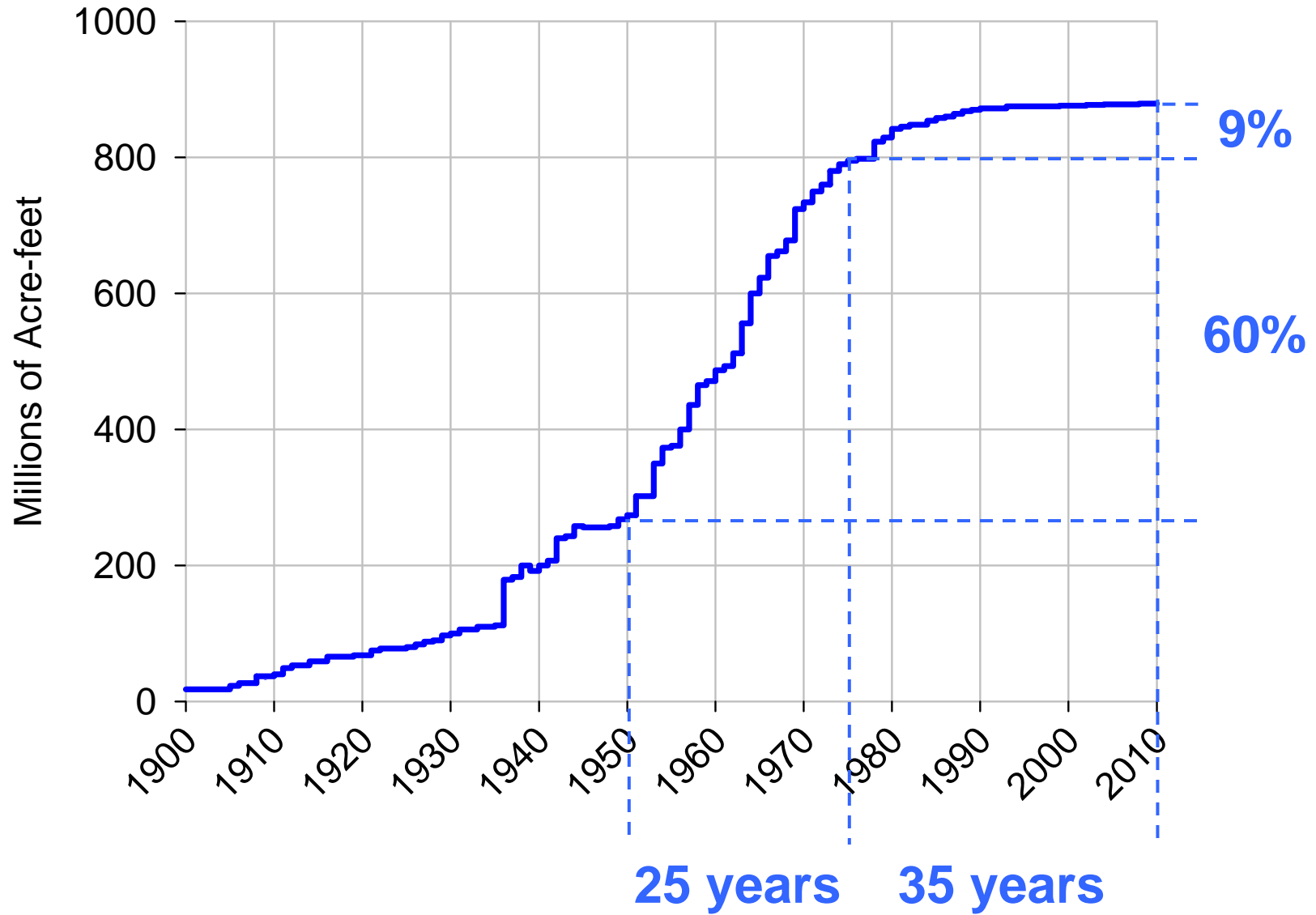
Source: EPA and USGS

Total U.S. Population



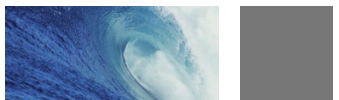
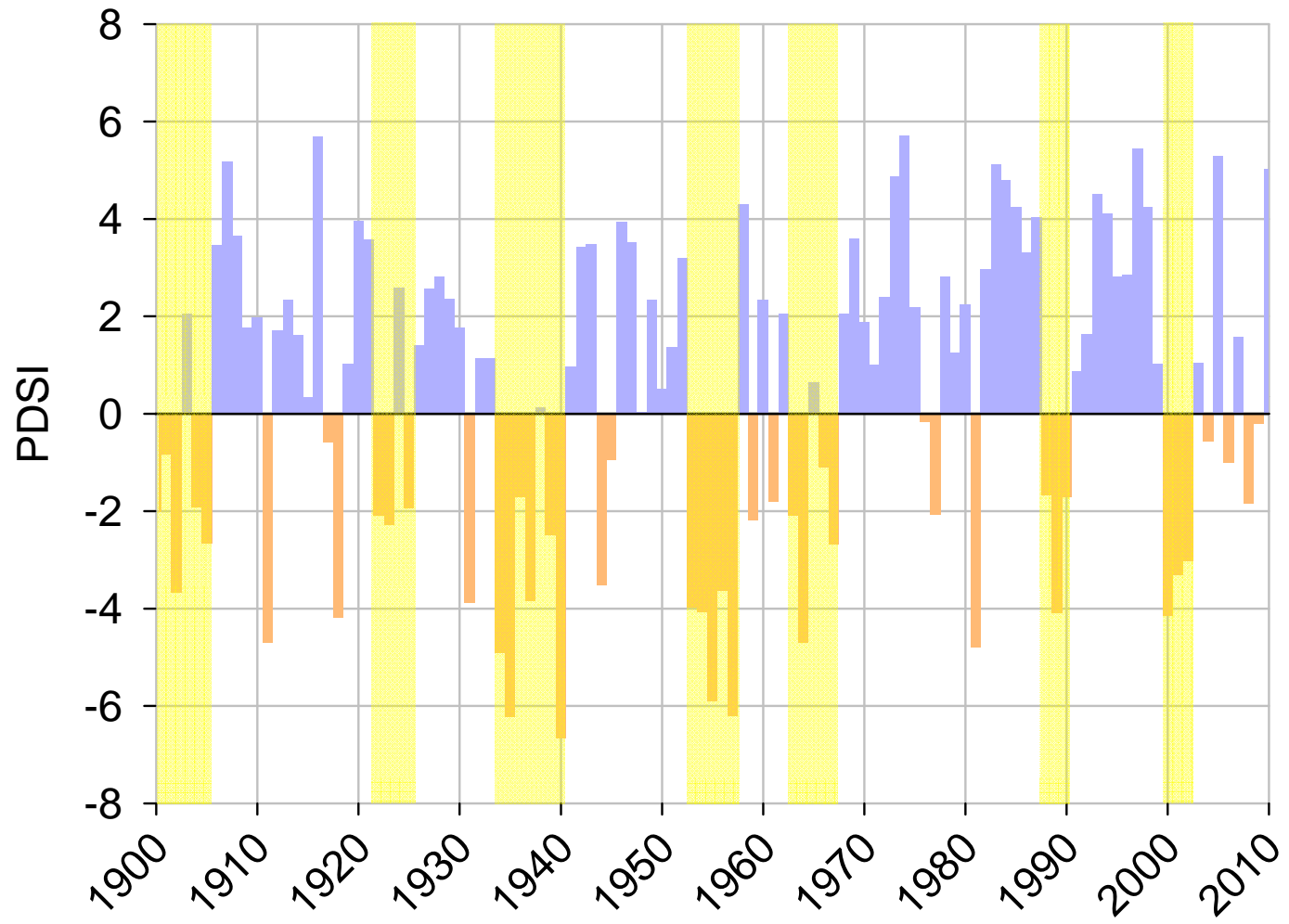
Source: U.S. Census Bureau

Total U.S. Reservoir Storage Capacity



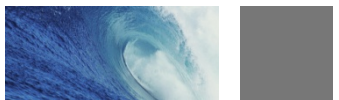
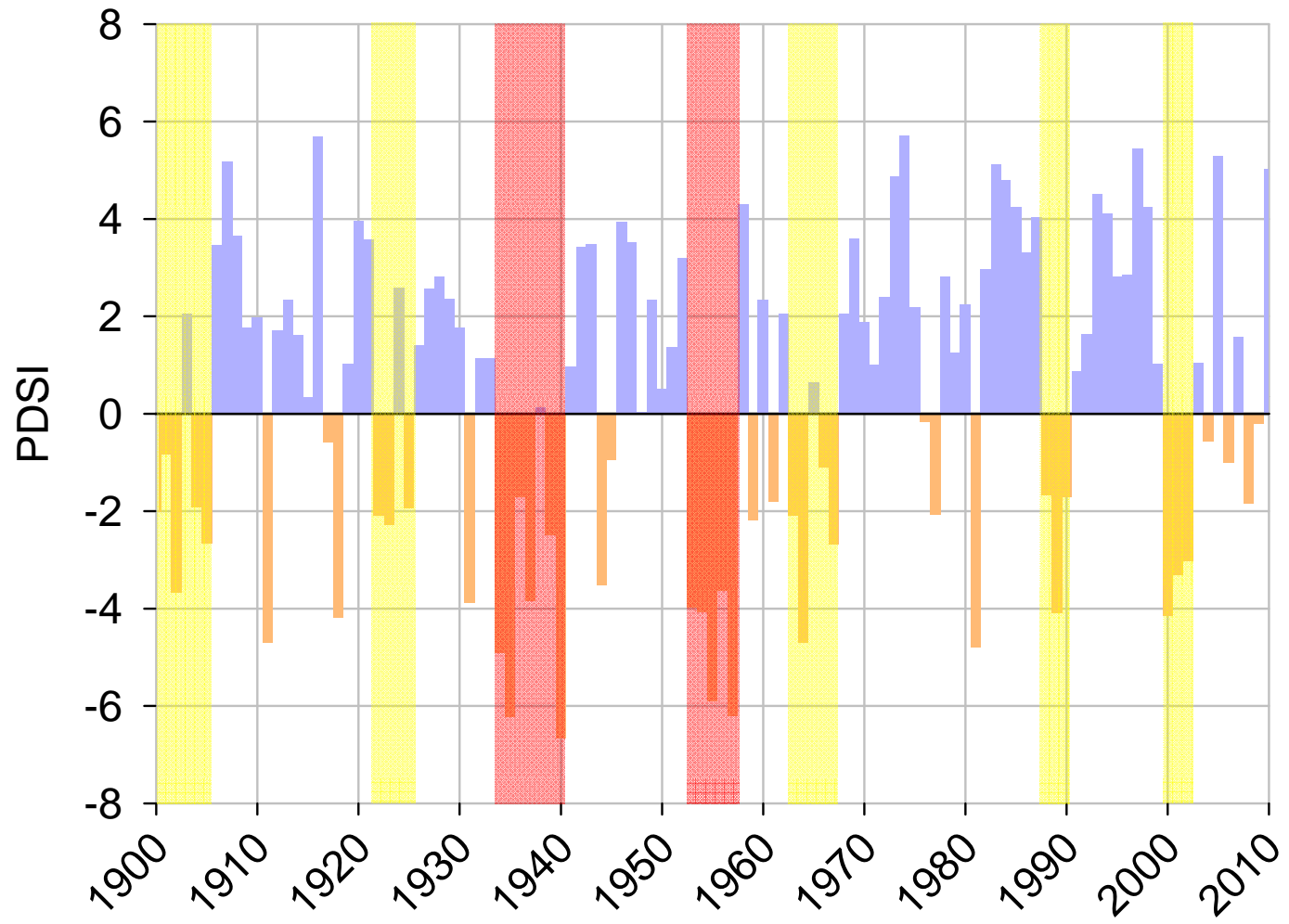
Source: USACE

Palmer Drought Severity Index (U.S.)



Source: NOAA

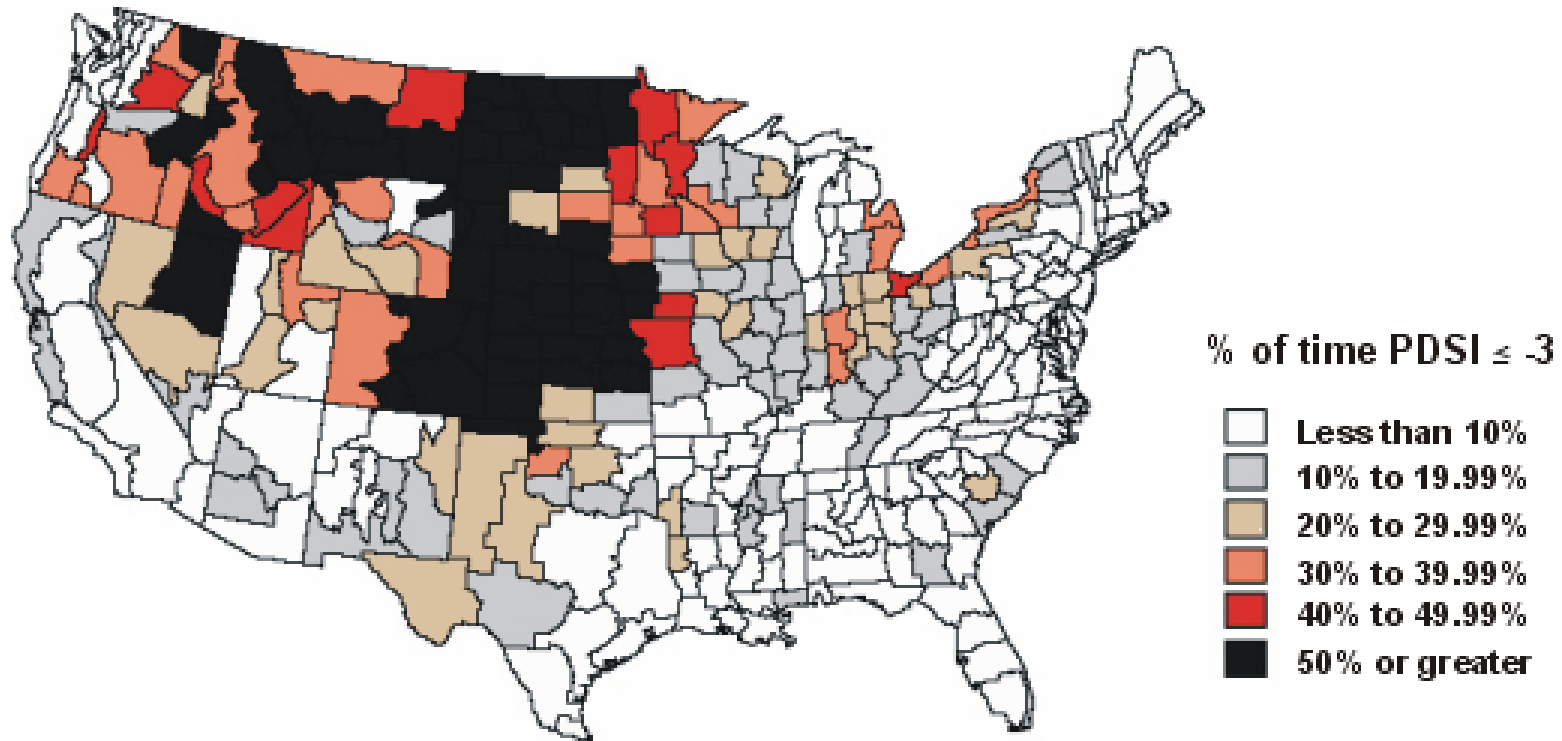
Palmer Drought Severity Index (U.S.)



Source: NOAA

1934 to 1939

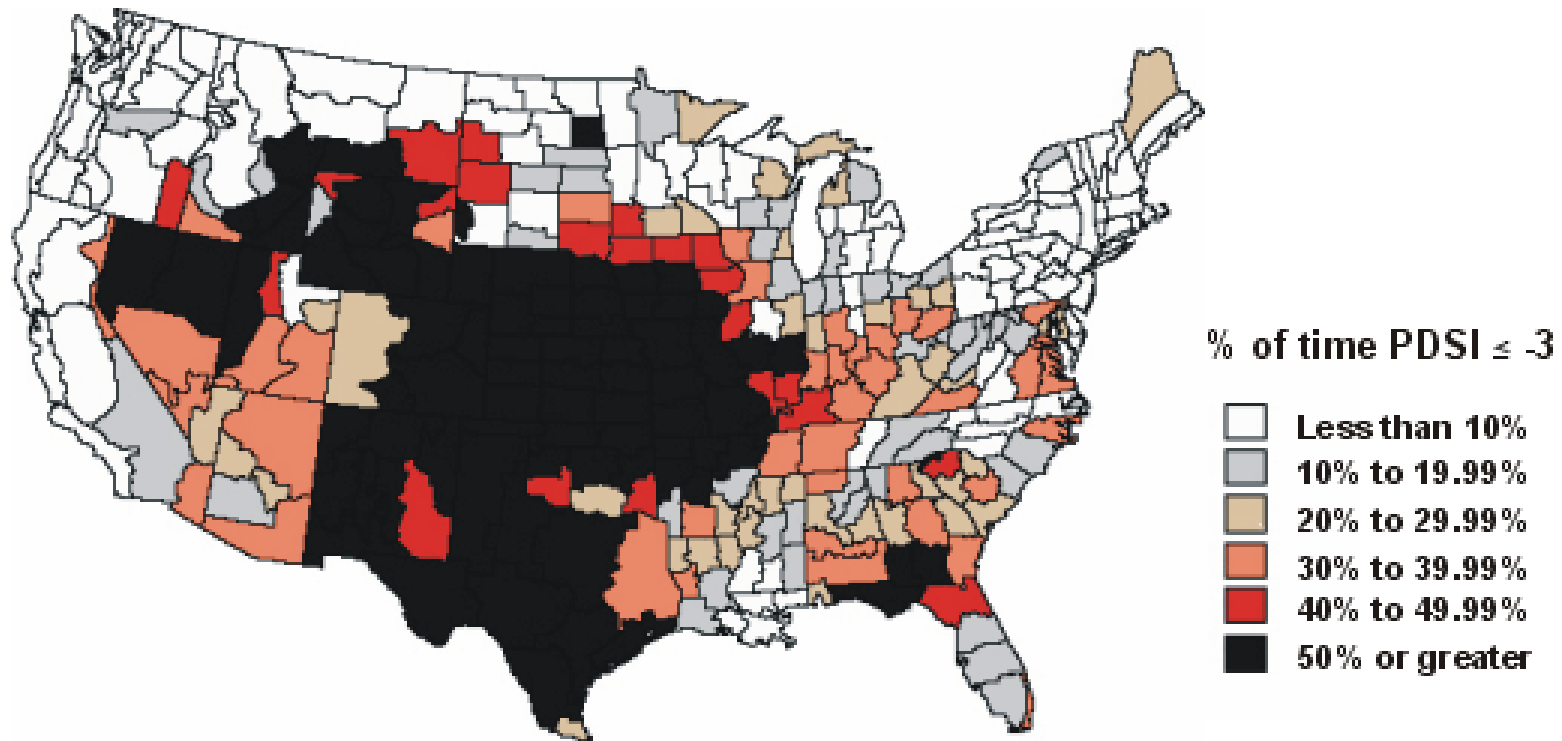
Palmer Drought Severity Index



Source: National Drought Mitigation Center

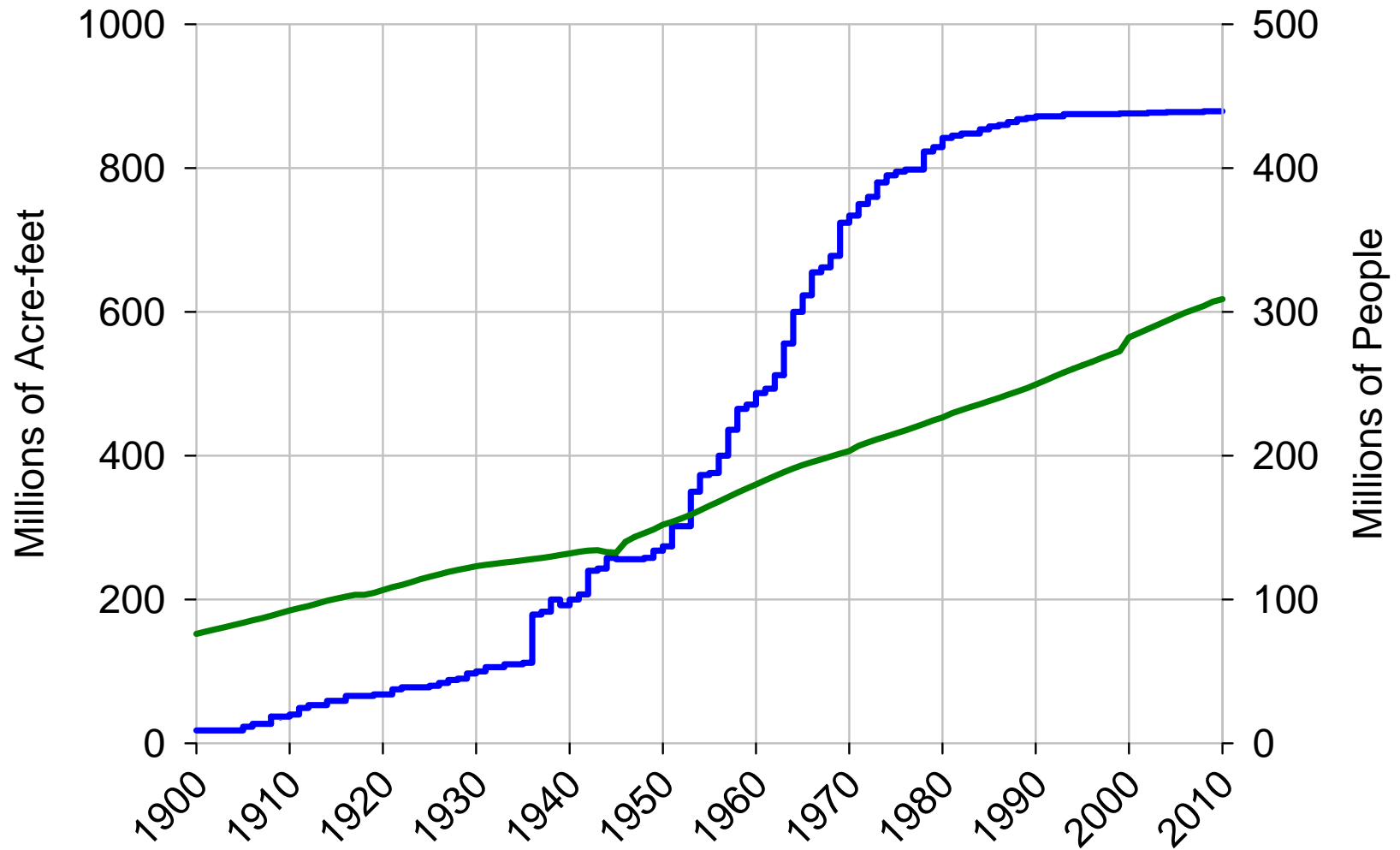
1954 to 1956

Palmer Drought Severity Index

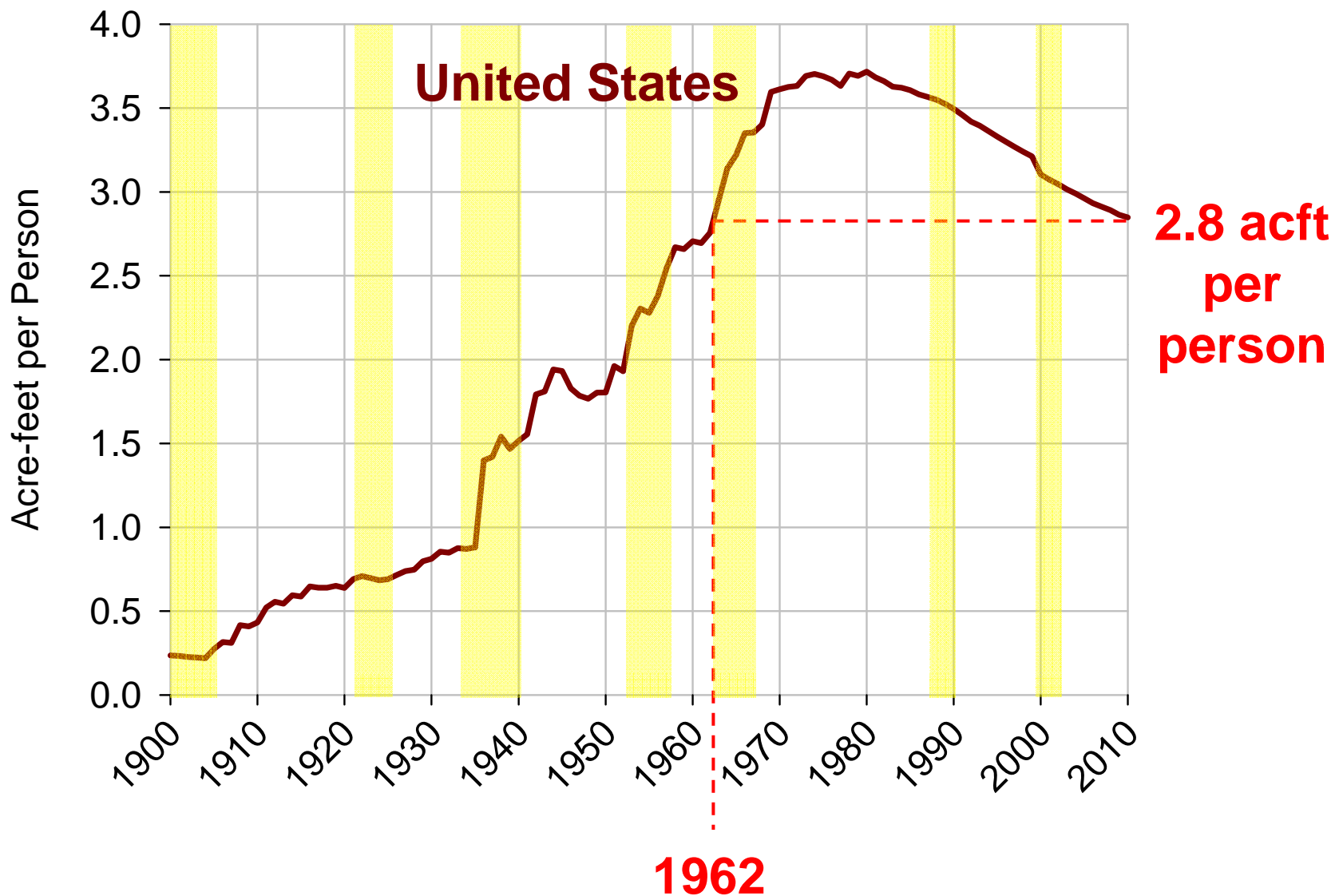


Source: National Drought Mitigation Center

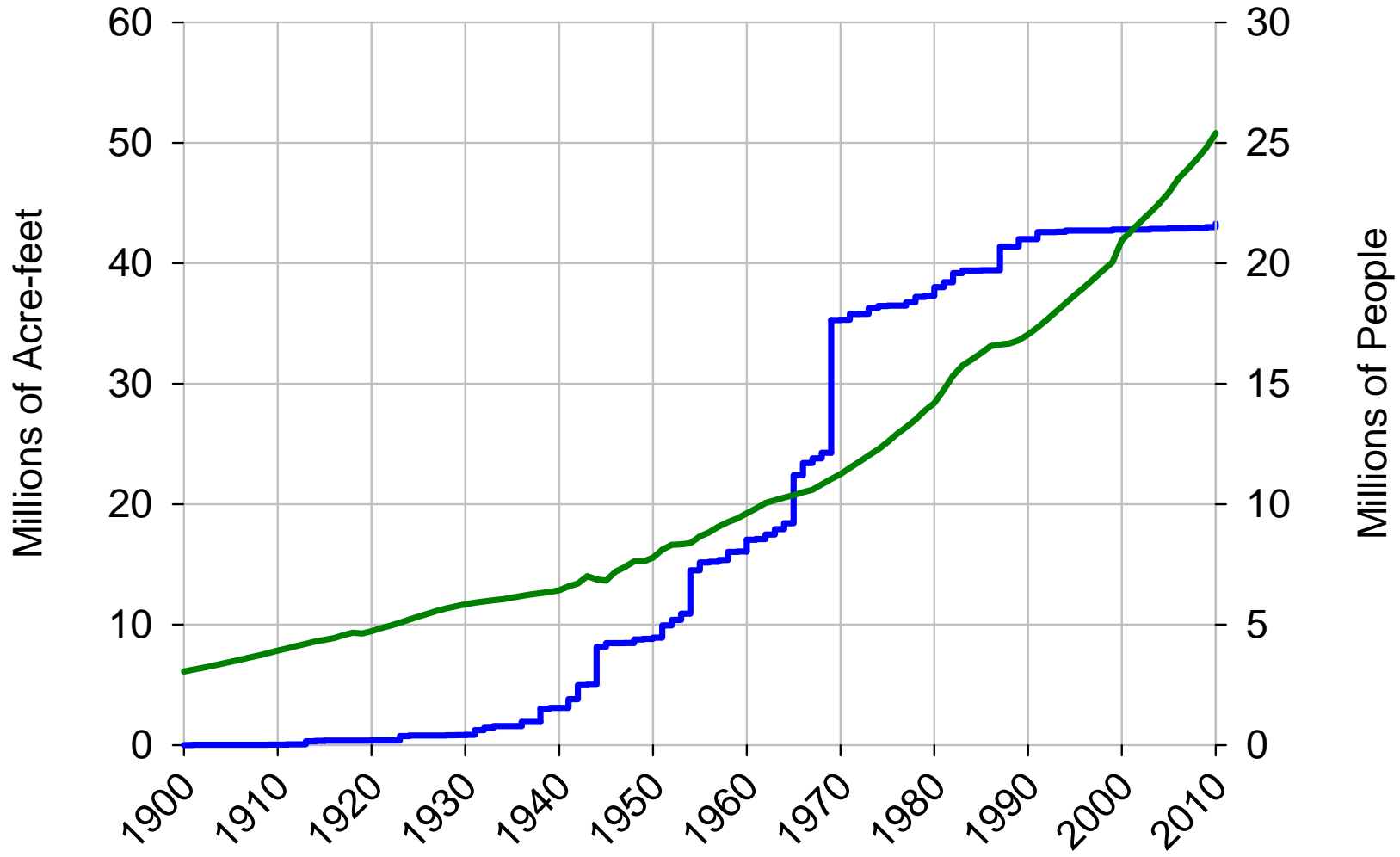
Total U.S. Reservoir Storage Capacity and Population



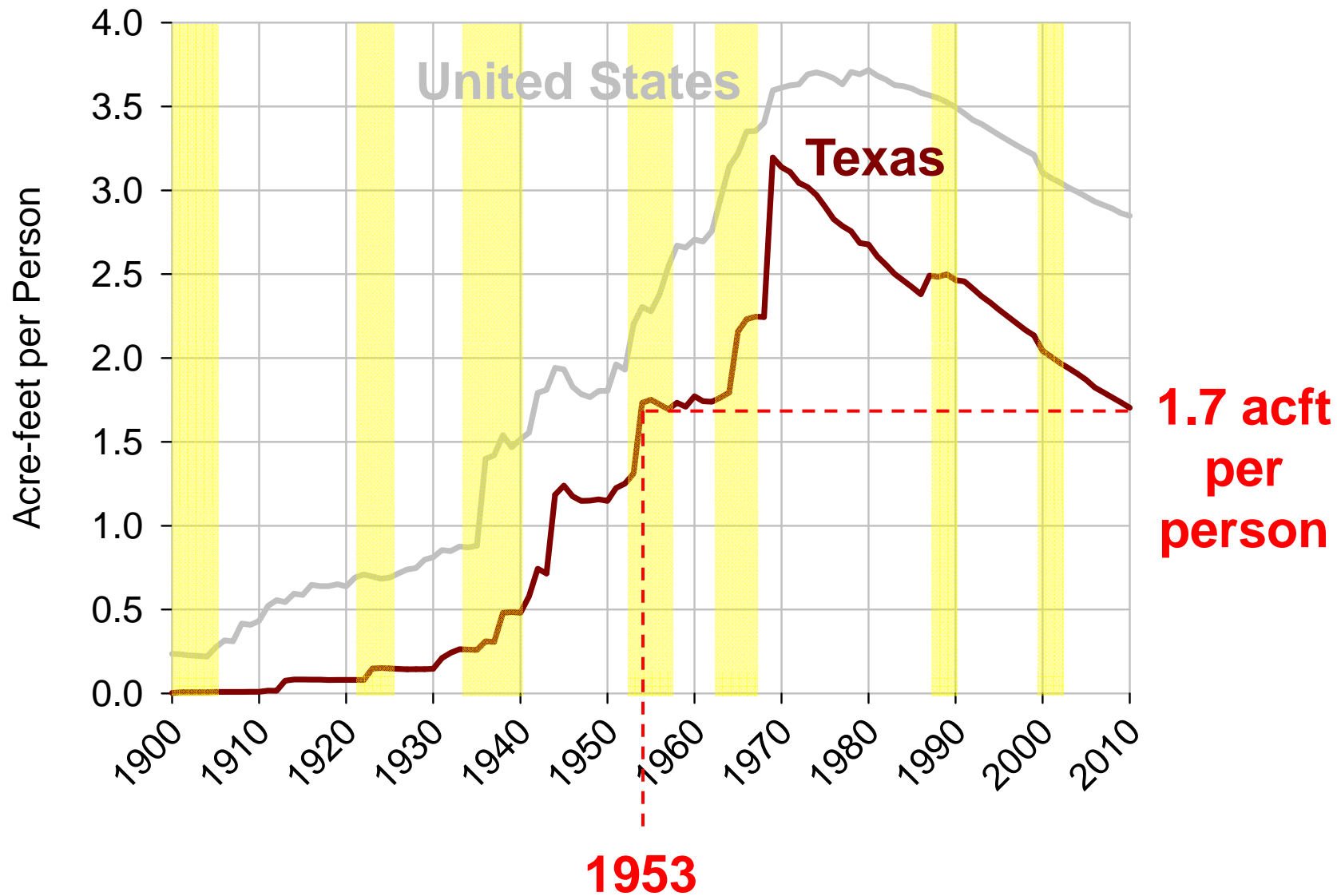
Reservoir Storage Capacity per Capita



Total Texas Reservoir Storage Capacity and Population



Reservoir Storage Capacity per Capita





Historical Lessons

Part II: Water Suppliers

United States

1600

1700

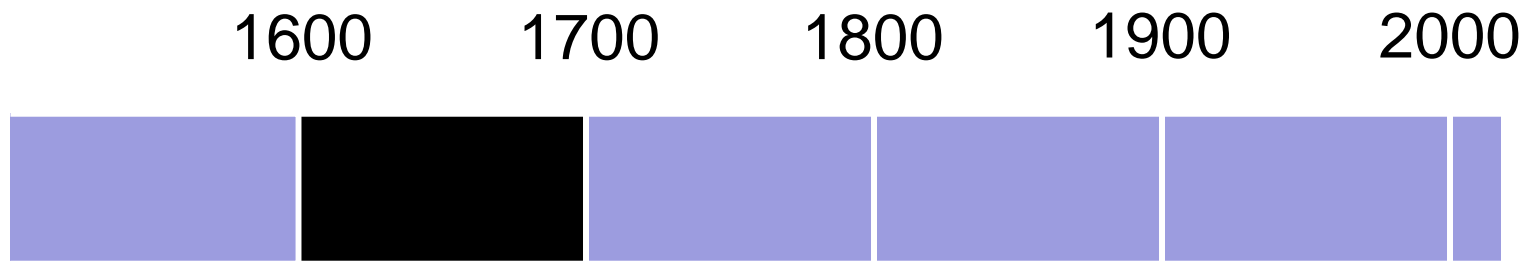
1800

1900

2000



United States



1652

First privately-owned water system; *Water Works Company of Boston* agreed to provide drinking water to local citizens.



United States

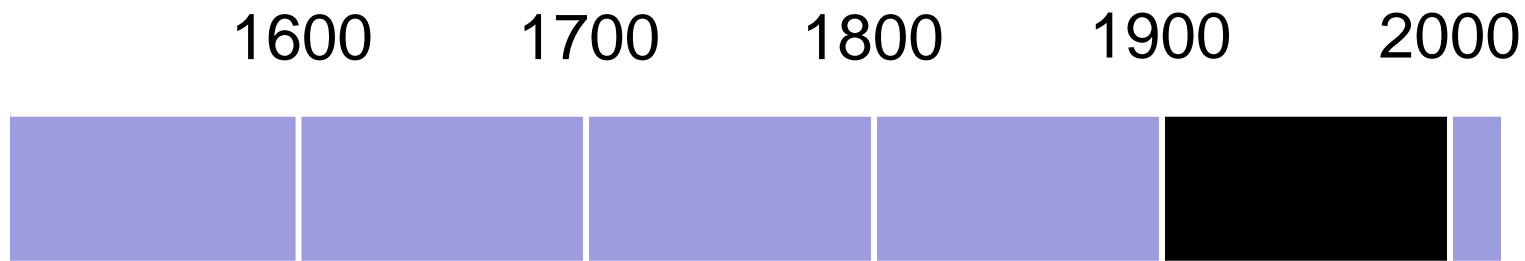


18th and 19th Centuries

Predominantly private water systems (domestic, industrial and agricultural).



United States



20th Century

Broad trend of public acquisition and consolidation of privately-owned water systems as a means of reducing water-borne disease and improved standards.



Benefits of Public Systems

- Dramatic improvements in public health
- Significant increase in public revenues
- Low customer rates
- Excess revenues available to supplement the general fund
- Increase in public sector employment



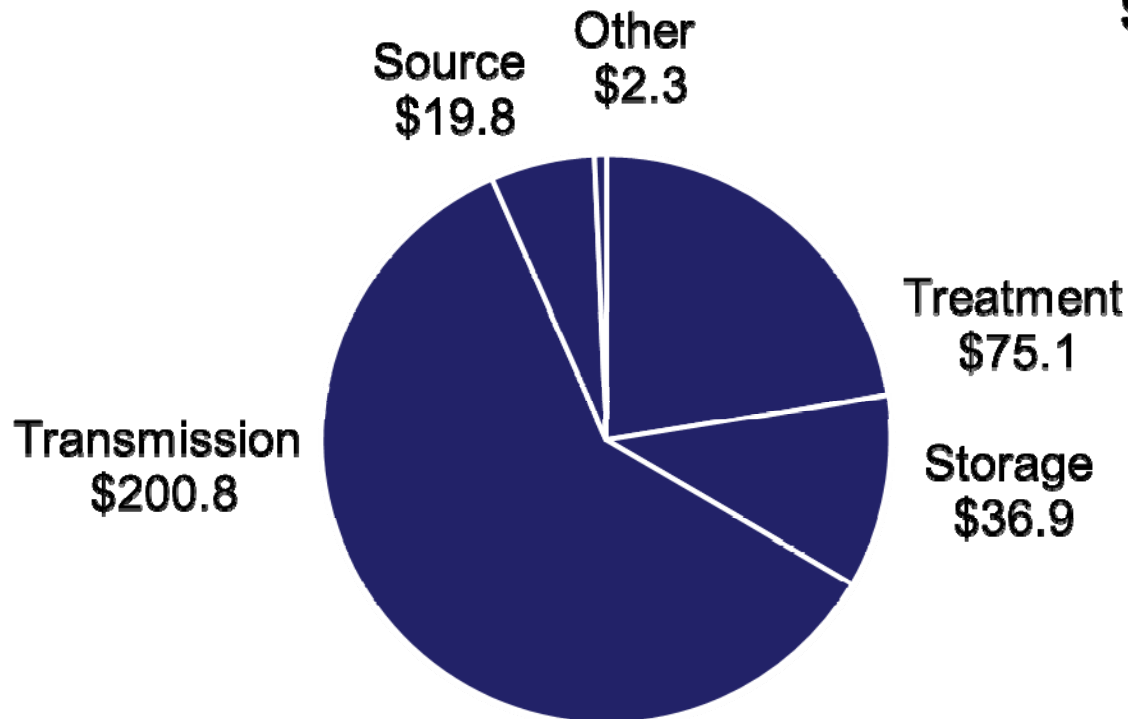
Challenges for Public Systems

- Established an effective public monopoly on water resources and customer bases
- Inherent political pressure to keep rates low (neglect of full-cost pricing)
- Budgetary competition with other public financial obligations
- Low investment in long-range planning and capital replacement programs



Water Infrastructure Needs

Water
Total National Need:
\$334.8 billion
(2007 to 2027)



Source: EPA

Water Infrastructure Funding Gap

Estimated Annual Funding Gap for Water Infrastructure

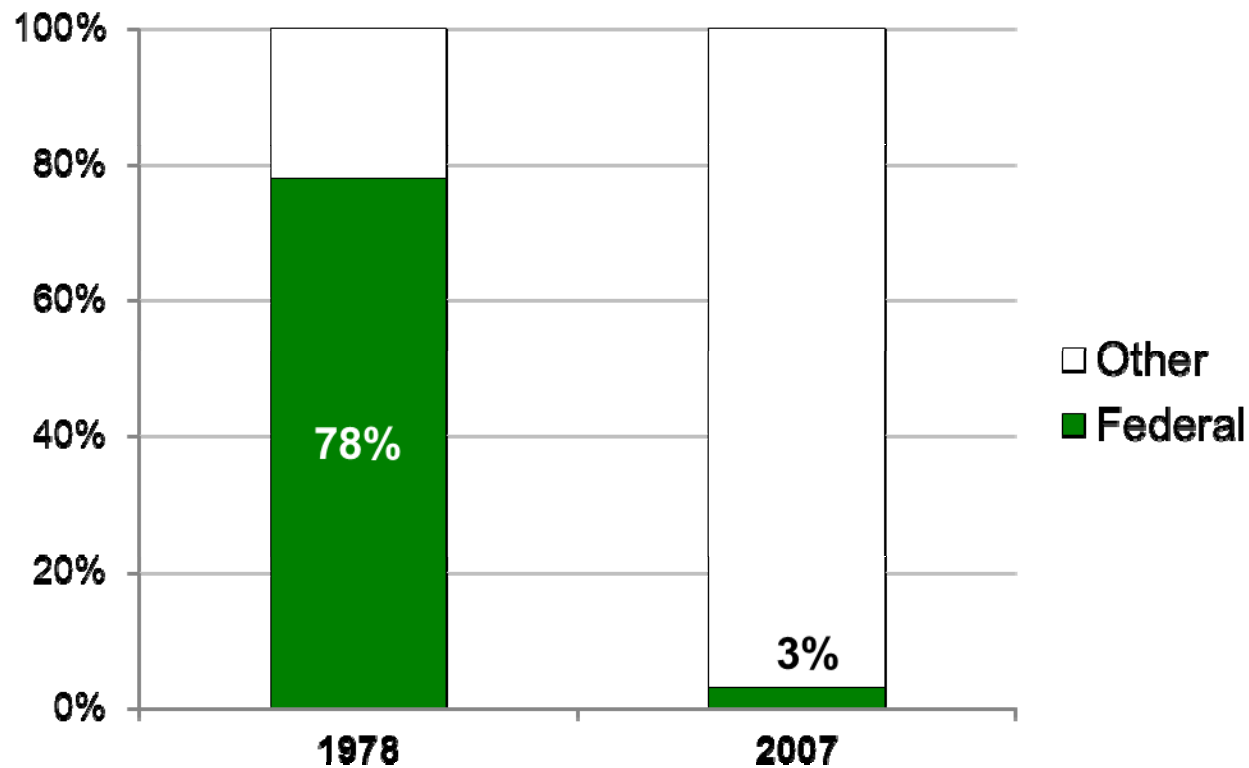
	Drinking Water	Wastewater	Total
Annual Capital Spending	\$12 billion	\$10 billion	\$22 billion
Annual Capital Need	\$12 to \$24 billion	\$15 to \$23 billion	\$27 to \$47 billion
Annual Gap	\$0 to \$12 billion	\$5 to \$13 billion	\$5 to \$25 billion

Source: EPA, CBO, AWWA, WIN and DWNS



Water Infrastructure Funding Gap

Federal Share of
Total U.S. Water and Wastewater Investment



Source: Rural Community Assistance Partnership



New Alternatives

Water Supply

“Dependable supply from conventional sources such as lakes, rivers and wells is already 75 to 80 percent developed...”

- Texas Water Development Board, 2000



Source: TWDB, *The Drought in Perspective: 1996 to 1998*

Water Supply

“Dependable supply from **[fresh]** sources such as lakes, rivers and wells is already 75 to 80 percent developed...”

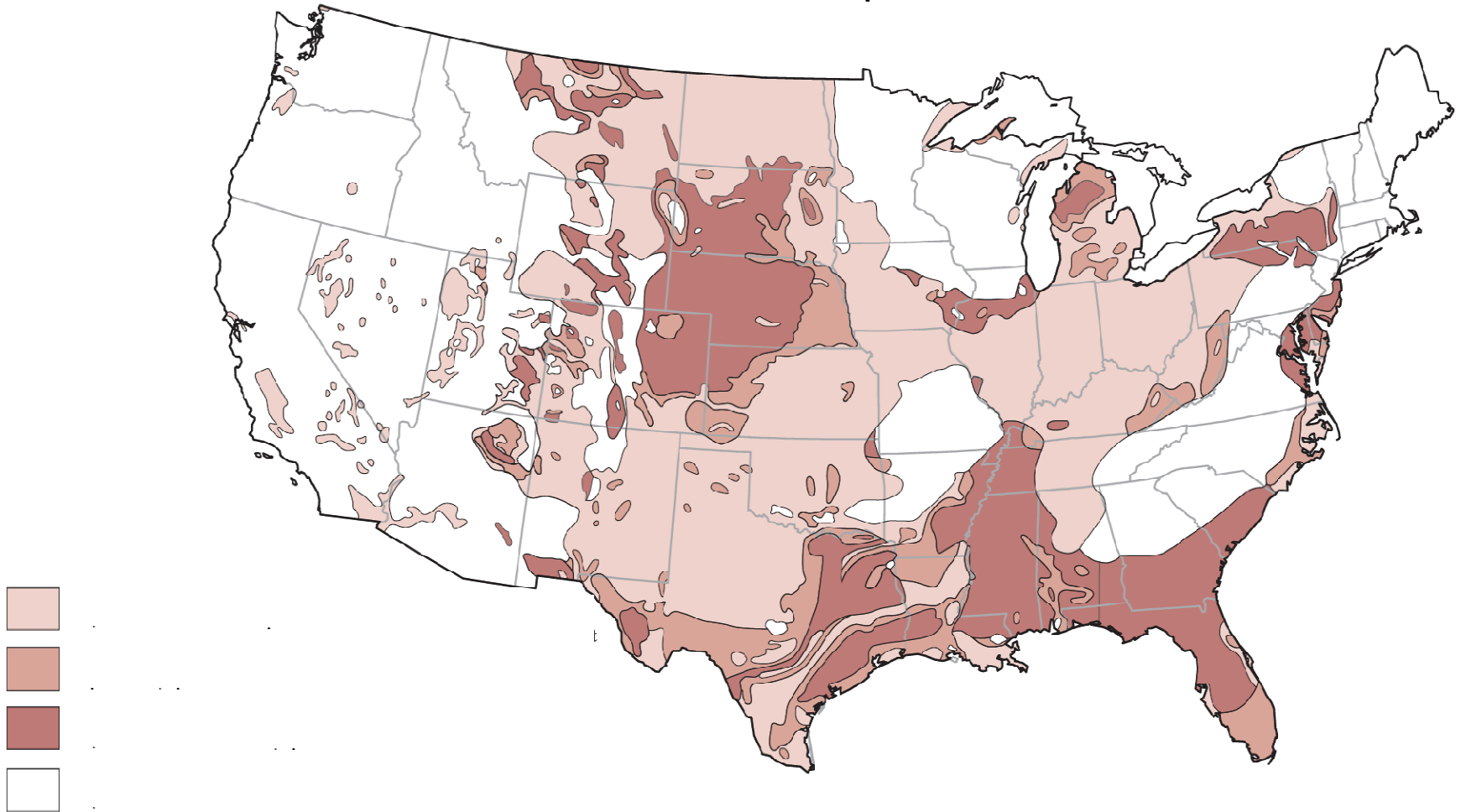
- Texas Water Development Board, 2000



Source: TWDB, *The Drought in Perspective: 1996 to 1998*

Water Supply

Depth to Saline Groundwater



Source: USGS 1965

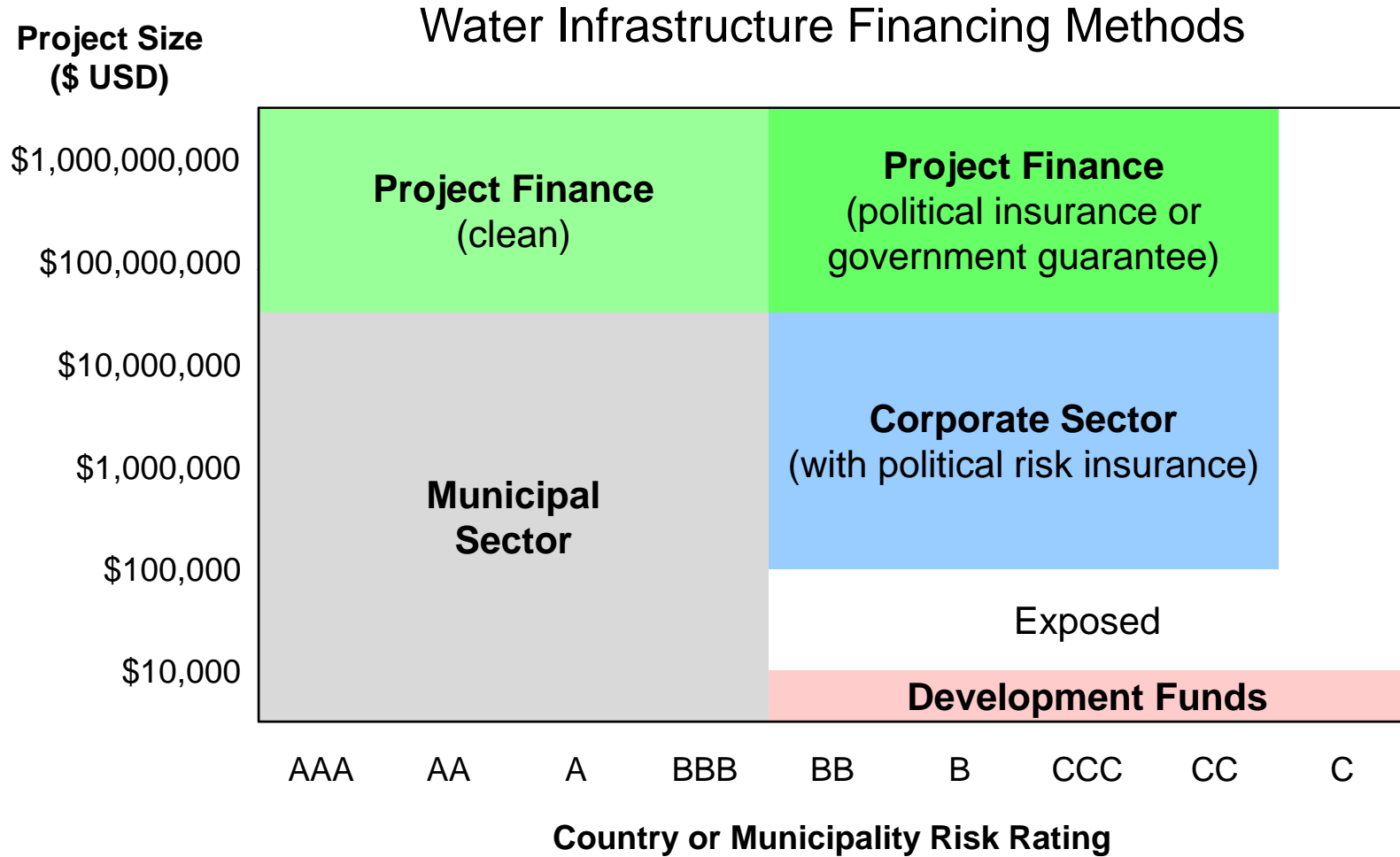
Water Suppliers

Significant new capital investment is needed:

- To develop new water supply sources to meet new demands
- To meet increasingly stringent drinking water standards
- To replace aging infrastructure



Water Suppliers



Summary



- Communities will have to **diversify** their water supply sources.
- **Private financing** will be required to help develop the needed infrastructure.