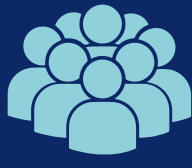


# Making Infrastructure Drought Resilient in a Changing Climate

Climate change is increasing the frequency, severity, and duration of droughts, which directly impacts:



**Economy**



**Society**

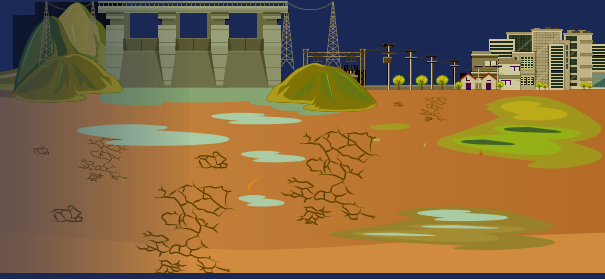


**Health**



**Environment**

- ! Droughts are slow-onset hazards that put persistent pressure on civil infrastructure and the natural resources that support and interact with it
- ! Consequential increases in stresses on natural and infrastructure systems can lead to inequitable impacts on underserved communities



## ASCE's collection on drought management for a changing climate



Droughts affect human health and welfare, crop yields, wildfire risks, water demand, surface and groundwater supply, aquatic ecosystems, hydropower, and inland waterway navigation

### Drought response measures:

Protect sensitive ecosystems and enhance drought-resilient nature-based infrastructure

Develop and implement basin-wide drought contingency plans

Improve strategies for consumption pricing and water-use restrictions (municipal, industrial, irrigation) that minimize risks to vulnerable communities

Improve integrated modeling and decision support for management of drought resilience affected by the food-energy-water nexus

### Challenges highlighted:

Political and historical factors affecting the fair division of and access to resources

Need for flexible framework models to reach water, energy, and ecosystems conservation targets

Droughts' impacts on the incomes, health, and safety of people in underserved communities

Vulnerability of ecosystems and water systems

## Case studies and modeling frameworks suggest the following measures for drought management:

Implementing irrigation water management models using remote sensing for soil moisture accounting

Construction of water storage facilities and soil conservation projects in drought-prone areas

Developing decision assessment tools for water-efficient landscaping

Improving the performance of integrated municipal water systems

Optimizing the design and operation of river basin storage

Development of climate-adaptable crops and crop diversification

Rainwater harvesting, use of recycled water, and diversification of alternate sources

Managing environmental and economic impacts of desalination

**Stakeholders, including government and nongovernment organizations, should provide financial and technical assistance for the management of drought-impacted infrastructure and resources**