

# Weathering the Storm: Management of Resilience in Civil Infrastructure Systems



Recent extreme hardships and unexpected situations have highlighted the importance of resilience in civil infrastructure systems

- Natural disasters
- Social unrest
- Climate crises
- Political instability
- Epidemics/Pandemics

But civil infrastructure systems are multifaceted by nature, and resilience management issues sit at the interface of built and technological systems with social and economic ones

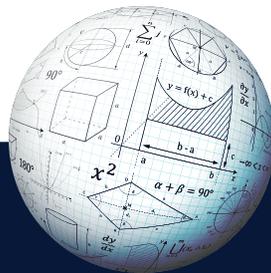
**Solving these issues requires interdisciplinary collaboration and integrative approaches**

## ASCE Special Collection focused on resilience management



### Social dimensions

- Policy vs. Implementation
- Social capital and networks
- Emergency preparedness
- Coordination and management
- Economic resilience and its link to transportation infrastructure



### Assessment of infrastructure planning and management

- Mathematical frameworks
- Event simulation models
- Network analysis
- System dynamics modeling for seismic resilience
- New quantitative metrics



### Pre- and postdisaster decision-making tools

- Postdisaster resource allocation
- Identification of vulnerabilities
- Analysis of factors affecting recovery time
- Optimization of evacuation-related decisions



### Multiple perspectives

- Social, economic, and environmental factors in energy resilience
- Small interventions shown to affect stakeholder decision-making



### Regional case studies

- River restoration projects
- Water supply networks

**These studies provide new solutions to tackling global civil engineering challenges, such as**

- Policy implementation
- Methods to enhance component resilience
- Mathematical tools to predict resilience
- Economic resilience measures
- Ways to achieve sustainable construction
- Processes after disasters and during emergencies
- Decision-making techniques
- Ways of engaging various stakeholders



**This collection of broad perspectives from diverse fields creates the theoretical and conceptual foundation required to face global grand challenges**