Adaptation and Accountability: The Role of GAO's Disaster Resilience Framework in System-Wide Action

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Disaster Resilience Framework: Principles for Analyzing Federal Efforts to Facilitate and Promote Resilience to Natural Disasters (GAO-20-100SP, 10/23/19)
Climate Resilience: Opportunities to Improve Federal Planning and Implementation (GAO-22-105688, 3/8/22)
Resilience is the New Sustainability

It has no meaning without context

1. What are you making resilient to what and over what timeframe?
2. What is the federal role?
3. . . . an outcome pursued through actions to reduce risk; that is, to address known hazards (hazard mitigation) and the effects of climate change (climate adaptation).
4. You can make federal programs for any part of the disaster cycle more resilient to changes in the climate: pre-disaster, preparedness, response, and recovery.
5. GAO is trying to help the federal government buy down risk before a disaster strikes instead of the current reactive, fragmented, more expensive approach.

It’s important because . . .

- High Risk, Limiting the Federal Government’s Fiscal Exposure by Better Managing Climate Change Risks
- . . . since 2005, federal funding for disaster assistance has approached half a trillion dollars, most recently for catastrophic hurricanes, flooding, wildfires, and other losses. Investing in disaster resilience can help limit damage and costs in the aftermath of a weather event.
Approaches for Monitoring and Evaluating Federal Climate Resilience Activities

Classic oversight
• Often backward looking
• How efficiently and effectively have FEMA, HUD, SBA, and other agencies administered major disaster recovery programs?
• What controls are in place to reduce waste, fraud and abuse and how well do they work?

Strategic insight and foresight
• Forward looking
• How can we proactively manage federal fiscal exposures from climate change and natural disasters?
• High Risk List: Limiting Federal Fiscal Exposure by Better Managing Climate Change Risks
• Disaster Resilience Framework
Climate Resilience Risk-reduction Approaches

**Mainstreaming**
(Bake it in)

- Flood Risk Management Infrastructure
- Agriculture Programs
- Federally Funded Roads
- Superfund sites
- Water systems
- Defense facilities
- Energy infrastructure

**Strategic**
(Gaps / New Institutions)

- National Climate Information System
- Identify (and fund) high-priority adaptation projects
- Climate migration pilot program

The Disaster Resilience Framework can be used to evaluate federal mainstreaming efforts and gaps in current approaches that may require new institutions.
Disaster Resilience Framework

- Organized around 3 principles—information, integration, and incentives—and a series of questions.

- Principles can help:
  - Officials that manage federal programs consider actions they might take to increase resilience to climate change and natural hazards.
  - Identify gaps in existing federal efforts or analyze any type of existing federal effort.

- Foresight Evaluation
  - No “gotchas”
  - Make the case for the positive effect—use the principles, but don’t recommend something because the “framework says so”

- NOT A CHECKBOX CRITERIA.
  - It should be adapted to the context.
Information

To what extent could federal efforts:

- generate and share additional information that would help decision makers understand their disaster risk?
- reduce the complexity of and translate risk information for nontechnical audiences?
- help leverage and synthesize disaster risk information from other partners across agencies, governments, regional organizations, and sectors?
- help decision makers identify and select among disaster risk-reduction alternatives?
- provide technical assistance to help build capacity of nonfederal partners?
Integration

To what extent could federal efforts:

- help to establish overarching strategies that guide national resilience efforts?

- ensure consistent and complementary policies, procedures, and timing across relevant federal funding mechanisms?

- encourage governance mechanisms that foster coordination and integrated decision making within and across levels of government?

- promote better understanding and awareness of the interactions among infrastructure components and ecosystems in disaster resilience actions?

- facilitate planning across jurisdictions and sectors to avoid or respond to cascading failure?
Incentives

To what extent could federal efforts:

- make risk-reduction measures more viable and attractive?
- incorporate disaster risk-reduction measures in infrastructure and ecosystem management financial assistance?
- require disaster risk-reduction measures for government-owned or -operated infrastructure and for federally-funded projects?
- alleviate unnecessary administrative burden?
- streamline review processes?
- improve program design to motivate risk-reduction actions?
Monitoring & Evaluation Recommendations

• with a high need and finite funding for hazard mitigation, collecting and sharing information on project cost-effectiveness is crucial to help FEMA, state, and local governments make better-informed mitigation investment decisions (GAO-21-140)
  • should develop a plan for conducting future loss avoidance studies to ensure they can include more hazard types
  • ensure that as new methods and metrics to assess the effectiveness of hazard mitigation are developed, FEMA considers opportunities to adopt common methods and metrics across all of its hazard mitigation programs
  • should publicly share pre-calculated benefits studies and state developed records of effectiveness
Objectives.

1. What efforts has FHWA made to enhance the climate resilience of federally funded roads during the past 10 years?

2. What are the strengths and limitations of options to further enhance the climate resilience of federally funded roads, according to knowledgeable stakeholders and relevant literature?

2(a) We also provide information on how we used GAO’s Disaster Resilience Framework to evaluate the extent to which each of the options identified in this report could enhance the climate resilience of federally funded roads.
Climate Resilience: Options to Enhance the Resilience of Federally Funded Roads and Reduce Fiscal Exposure (GAO-21-436, 9/22/21)
Climate Resilience: Options to Enhance the Resilience of Federally Funded Roads and Reduce Fiscal Exposure (GAO-21-436, 9/22/21)

<table>
<thead>
<tr>
<th>Option to improve the climate resilience of federally funded roads</th>
<th>Federal Highway Administration’s (FHWA) climate resilience effort(s)</th>
<th>Question for Consideration: To what extent could the additional option reduce the complexity of and translate risk information for non-technical audiences?</th>
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<tr>
<td>Option 2: Update design standards.</td>
<td>Providing technical assistance</td>
<td>To some extent, FHWA has developed some design guidance to reduce the complexity of risk information. Working with standards-setting organizations to update design standards to account for climate change and resilience best practices could further reduce the complexity of risk information. However, GAO has reported that this is a government-wide problem.</td>
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<td>Option 3: Provide climate information.</td>
<td>Providing technical assistance and funding resilience research</td>
<td>To some extent, FHWA has provided technical assistance and funded resilience research to reduce the complexity of risk information. Providing authoritative climate information on topics that stakeholders said could help them make resilience decisions, such as how to select among climate change scenarios, could further reduce the complexity of risk information. However, this issue is larger than FHWA, as GAO previously recommended that the federal government provide authoritative climate information at a government-wide scale.</td>
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Sources: GAO’s Disaster Resilience framework (GAO-2010GP) and GAO analysis of FHWA documents, relevant literature, and interviews with knowledgeable stakeholders. | GAO-21-436


What is Possible, *HOW* Can Agencies Enhance Climate Resilience?

**Matter for Congressional Consideration**

As Congress considers reauthorizing legislation for the federal-aid highway program, it should consider providing direction or authority to the Federal Highway Administration to implement one or more of the options to enhance the climate resilience of federally funded roads identified in this report. (Matter 1)

**Recommendation for Executive Action**

The Secretary of the U.S. Department of Transportation should consider how the Federal Highway Administration (FHWA) plans to implement options to enhance the climate resilience of federally funded roads, such as the options identified in this report, when prioritizing actions on climate change in policy-making, as called for in Executive Order 14008. (Recommendation 1)
Selected Current Events

• Infrastructure Investment and Jobs Act

• Executive orders 14008, 14030, and 14057
  • Agency Climate Adaptation and Resilience Plans, etc.

• March 8 GAO testimony before the House Committee on Science, Space and Technology
  • Federal Climate Adaptation and Resilience for the 21st Century
  • Climate Resilience: Opportunities to Improve Federal Planning and Implementation (GAO-22-105688, 3/8/22)

• GAO has 11 climate resilience engagements underway
  • Almost all of them apply the Disaster Resilience Framework in some way.
  • Specifically, two engagements on climate resilient agriculture and climate resilient Army Corps flood risk management infrastructure.
Resources


• Climate Resilience: Opportunities to Improve Federal Planning and Implementation (GAO-22-105688, 3/8/22)

• WatchBlog Post: **Our New Disaster Resilience Framework**
Questions?

Contact Kathryn Godfrey (godfreyk@gao.gov) or Joe Thompson (thompsonjd@gao.gov) with plaudits, comments, and questions.