



Auditing climate change adaptation:

How to use strategic foresight in a backward-looking profession.

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Source: GAO file photo. | www.gao.gov



Source: GAO file photo. | www.gao.gov

GAO's Mission and Role

Defining Climate Resilience

- Can be synonymous with climate change adaptation
- Meaning varies by context
- “the ability to prepare, plan, absorb, recover, and adapt to adverse events” – (U.S. National Academies of Science, Engineering, and Medicine)



- What are you making resilient to what and over what timeframe?

Climate Change is a High-Risk Area

**LIMITING THE FEDERAL
GOVERNMENT'S FISCAL
EXPOSURE BY BETTER
MANAGING CLIMATE
CHANGE RISKS**

Source: Leonard Zhukovsky/stock.adobe.com. | GAO-23-106203



GAO's *Disaster Resilience Framework*



Source: GAO-21-275SP | GAO-22-105688

Applying GAO's *Disaster Resilience Framework*

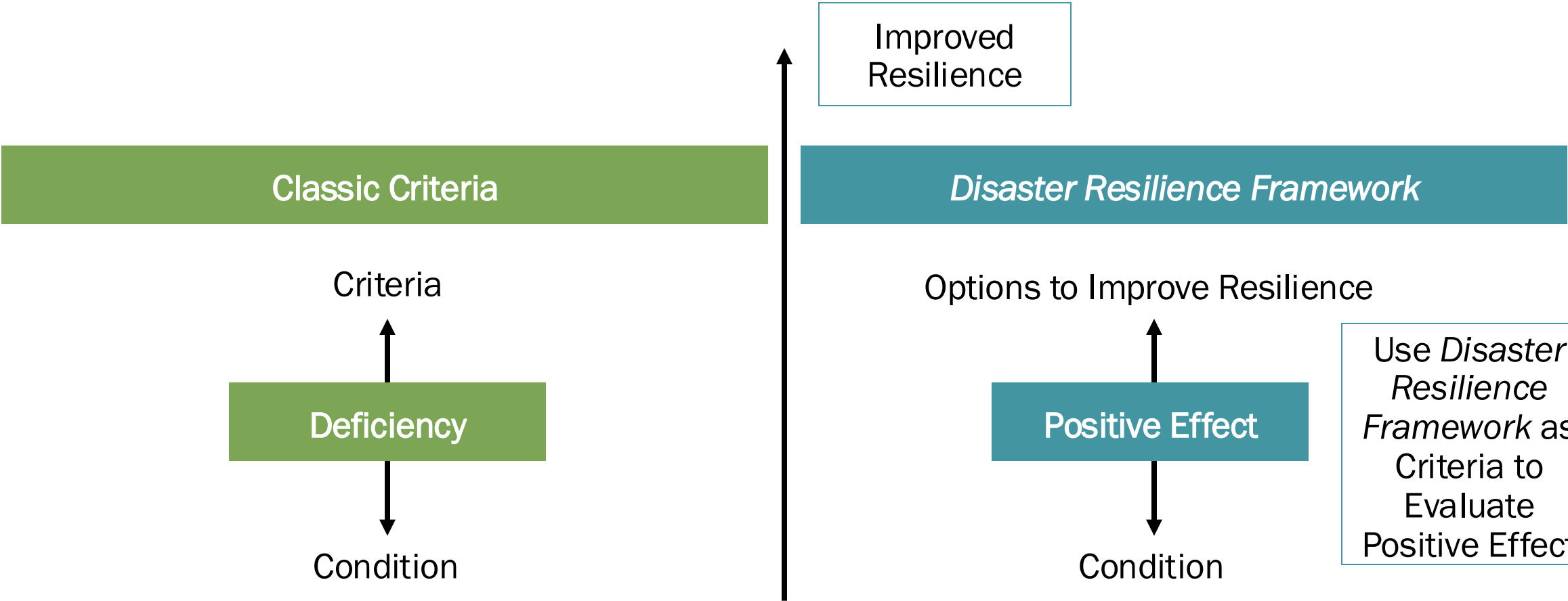
By mainstreaming climate resilience:

- Energy infrastructure
- Water systems
- Federally funded roads
- Defense facilities

By thinking strategically about climate resilience gaps:

- National climate information
- Identify and fund high-priority projects
- Climate migration

Classic Criteria v. *Disaster Resilience Framework*



Climate Change: Options to Enhance the Resilience of Federally Funded Flood Risk Management Infrastructure (GAO-24-105496)

We identified 14 options the U.S. Army Corps of Engineers can take to enhance climate resilience of federally funded flood risk management infrastructure.



Source: U.S. Army Corps of Engineers Omaha District photo by Eileen Williamson. | GAO-24-105496

Climate Change: Options to Enhance the Resilience of Federally Funded Flood Risk Management Infrastructure (GAO-24-105496)

This report examined:

- (1) The Corps’ actions to enhance the climate resilience of federally funded flood risk management infrastructure.
- (2) The strengths and limitations of options available to the Corps to further enhance the climate resilience of federally funded flood risk management infrastructure.

Options to Further Enhance the Climate Resilience of Federally Funded Flood Risk Management Infrastructure	
1.	Create clear institutional authority to mainstream climate resilience.
2.	Research the feasibility of innovative approaches.
3.	Expand technical assistance for planning.
4.	Update climate information for planning.
5.	Update planning guidance.
6.	Integrate climate resilience into project-level benefit cost analysis.
7.	Expand the use of adaptive management in projects.
8.	Update engineering standards and regulations.
9.	Conduct climate screening assessment of authorized but unfunded projects.
10.	Prioritize projects that incorporate climate resilience.
11.	Update manuals for operation and maintenance.
12.	Expand technical assistance to nonfederal sponsors for operations and maintenance.
13.	Conduct climate vulnerability assessments of existing infrastructure.
14.	Establish process for retrofitting existing infrastructure to account for climate change.

Climate Change: Options to Enhance the Resilience of Agricultural Producers and Reduce Federal Fiscal Exposure (GAO-23-104557)

We identified 13 options the U.S. Department of Agriculture could take to enhance climate resilience planning efforts.



Source: GAO File Photo.

Climate Change: Options to Enhance the Resilience of Agricultural Producers and Reduce Federal Fiscal Exposure (GAO-23-104557)

This report examined:

- (1) The U.S. Department of Agriculture’s efforts to enhance the climate resilience of agriculture among agricultural producers
- (2) The options available for the U.S. Department of Agriculture to further enhance their efforts in this area.

Potential Options for the U.S. Department of Agriculture (USDA) to Help Enhance Producers' Climate Resilience	
1.	Collect data on practices that enhance climate resilience.
2.	Expand technical assistance to prioritize and promote climate resilience.
3.	Prioritize climate resilience in whole-farm conservation planning.
4.	Expand the capacity and expertise of USDA's Climate Hubs.
5.	Develop an agricultural climate resilience plan that addresses regional needs.
6.	Establish standards for climate-resilient agricultural operations.
7.	Revise the Natural Resources Conservation Service's Conservation Practice Standards to include climate resilience.
8.	Expand conservation program eligibility criteria to include and prioritize climate resilience.
9.	Expand the capacity of USDA's conservation programs.
10.	Research the feasibility of incorporating climate resilience into crop insurance rates.
11.	Require producer adoption of climate-resilient practices to claim crop insurance premium subsidies.
12.	Offer crop insurance premium subsidies for climate-resilient operations.
13.	Require producer adoption of climate-resilient practices to maintain Farm Bill Title I program eligibility.

Climate Resilience: Options to Enhance the Resilience of Federally Funded Roads and Reduce Fiscal Exposure (GAO-21-436)

We identified 10 options the U.S. Department of Transportation can take to help states improve climate resilience of federally funded roads.



Source: Delaware Department of Transportation (2017). | GAO-21-436

Climate Resilience: Options to Enhance the Resilience of Federally Funded Roads and Reduce Fiscal Exposure (GAO-21-436)

This report examined:






- (1) The Federal Highway Administration’s climate resilience efforts for federally funded roads.
- (2) The options available to the Federal Highway Administration to further enhance the climate resilience of federally funded roads.

Options to Further Enhance the Climate Resilience of Federally Funded Roads	
1.	Integrate climate resilience into Federal Highway Administration policy and guidance.
2.	Update design standards and building codes to account for climate resilience.
3.	Provide authoritative, actionable, forward-looking climate information.
4.	Add climate resilience funding eligibility requirements, conditions, or criteria to formula grant programs.
5.	Expand the availability of discretionary funding for climate resilience improvements.
6.	Alter the Emergency Relief (ER) program by providing incentives for, or conditioning funding on, pre-disaster resilience actions.
7.	Expand the availability of ER funding for post-disaster climate resilience improvements.
8.	Establish additional climate resilience planning or project requirements.
9.	Link climate resilience actions or requirements to incentives or penalties.
10.	Condition eligibility, funding, or project approval on compliance with climate resilience policy and guidance.

Source: GAO analysis of literature and interviews with knowledgeable stakeholders. | GAO-21-436

Ongoing Work: Prioritizing Climate Resilience Investments with Economic Information

We identified five key elements of an organizational arrangement to prioritize climate resilience investments.

 National climate resilience strategic plan	Federal climate change efforts should be coordinated in a strategic plan toward common goals, such as climate resilience.
 National climate information system	The federal government should identify and update the best available climate information.
 Expanding the use of economics information	Sponsoring or conducting research on the potential economic effects of climate change could help identify significant risks.
 A consistent approach for prioritizing climate resilience investments	The federal government should periodically identify and prioritize climate resilience projects for federal investment.
 Community-driven climate migration pilot program	Assisting communities that express affirmative interest in relocation should be used as a climate resilience strategy.

Source: GAO; GAO (icons). | GAO-24-106937

Questions?

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