

## Why GAO Did This Study

Federal funding for disaster assistance since 2005 has totaled at least \$450 billion, including a 2019 supplemental appropriation of \$19.1 billion for recent disasters. In 2018 alone, 14 separate billion-dollar weather and climate disaster events occurred across the United States, with total costs of at least \$91 billion including the loss of public and private property, according to the National Oceanic and Atmospheric Administration. Disaster costs will likely increase as certain extreme weather events become more frequent and intense due to climate change, according to the U.S. Global Change Research Program, a global change research coordinating body that spans 13 federal agencies. In 2013, GAO included “Limiting the Federal Government’s Fiscal Exposure by Better Managing Climate Change Risks” on its list of federal program areas at high risk of fraud, waste, abuse, mismanagement, or most in need of transformation.

The cost of recent weather disasters has illustrated the need to plan for climate change risks and invest in climate resilience. Investing in climate resilience can reduce the need for far more costly steps in the decades to come.

The Disaster Recovery Reform Act of 2018 provides one potential source of funding for climate resilience projects. In particular, it allows the President to set aside up to 6 percent of the estimated aggregate amount of grants from certain programs under a major disaster declaration to implement pre-disaster hazard mitigation activities. Officials estimate funds for the related program will average \$300 million to \$500 million annually.

View [GAO-20-127](#). For more information, contact J. Alfredo Gómez at (202) 512-3841 or [gomezj@gao.gov](mailto:gomezj@gao.gov)

## CLIMATE RESILIENCE

### A Strategic Investment Approach for High-Priority Projects Could Help Target Federal Resources

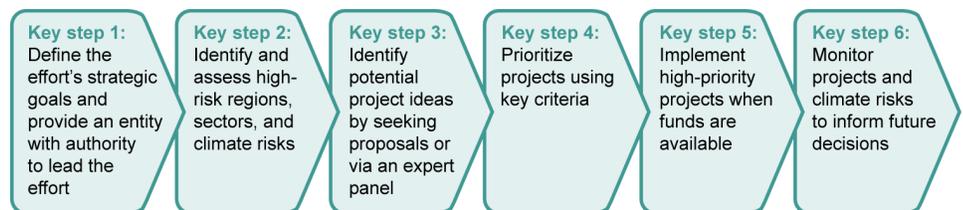
## What GAO Found

The federal government has invested in projects that may enhance climate resilience, but it does not have a strategic approach to guide its investments in high-priority climate resilience projects. Enhancing climate resilience means taking actions to reduce potential future losses by planning and preparing for potential climate hazards such as extreme rainfall, sea level rise, and drought. Some federal agencies have made efforts to manage climate change risk within existing programs and operations, and these efforts may convey climate resilience benefits. For example, the U.S. Army Corps of Engineers’ civil works program constructs flood control projects, such as sea walls, that may enhance climate resilience. However, additional strategic federal investments may be needed to manage some of the nation’s most significant climate risks because climate change cuts across agency missions and presents fiscal exposures larger than any one agency can manage. GAO’s analysis shows the federal government does not strategically identify and prioritize projects to ensure they address the nation’s most significant climate risks. Likewise, GAO’s past work shows an absence of government-wide climate change strategic planning.

As of August 2019, no action had been taken to implement 14 of GAO’s 17 recommendations to improve federal strategic planning for climate resilience. GAO’s enterprise risk management framework calls for reviewing risks and selecting the most appropriate strategy to manage them. However, no federal agency, interagency collaborative effort, or other organizational arrangement has been established to implement a strategic approach to climate resilience investment that includes periodically identifying and prioritizing projects. Such an approach could supplement individual agency climate resilience efforts and help target federal resources toward high-priority projects.

Six key steps provide an opportunity for the federal government to strategically identify and prioritize climate resilience projects for investment, as GAO found based on its review of prior GAO work, relevant reports, and stakeholder interviews (see figure).

#### Six Key Steps for Identifying High-Priority Climate Resilience Projects for Federal Investment



Source: GAO analysis based on relevant reports, international standards, past GAO work, and stakeholder interviews. | [GAO-20-127](#)

GAO identified one domestic and one international example to illustrate these key steps: Louisiana’s Coastal Protection and Restoration Authority (CPRA) coastal master planning effort and Canada’s Disaster Mitigation and Adaptation Fund (DMAF).

GAO was asked to review the federal approach to prioritizing and funding climate resilience projects that address the nation's most significant climate risks. This report examines (1) the extent to which the federal government has a strategic approach for investing in climate resilience projects; (2) key steps that provide an opportunity to strategically prioritize projects for investment; and (3) the strengths and limitations of options for focusing federal funding on these projects.

GAO reviewed relevant reports and interviewed 35 stakeholders with relevant expertise, including federal officials, researchers, and consultants. In addition, during the course of this work, GAO identified domestic and international examples of governments that invest in climate resilience and related projects. GAO selected two of these examples for in-depth review and presentation in the report: the state of Louisiana's coastal master planning effort and Canada's Disaster Mitigation and Adaptation Fund.

## What GAO Recommends

Congress should consider establishing a federal organizational arrangement to periodically identify and prioritize climate resilience projects for federal investment. Such an arrangement could be designed using the six key steps for prioritizing climate resilience investments and the opportunities to increase the climate resilience impact of federal funding options that are identified in this report.

The Federal Emergency Management Agency and two federal coordinating bodies reviewed a draft of this report and provided technical comments, which GAO incorporated as appropriate.

In the domestic example, in 2005 the Louisiana legislature consolidated coastal planning efforts previously carried out by multiple state entities into a single effort led by CPRA to address the lack of strategic coordination. CPRA periodically identifies high-priority coastal resilience projects designed to address two primary risks: flooding and coastal land loss. To identify potential projects, CPRA sought project proposals from citizens, nongovernmental organizations, and others. To prioritize projects, CPRA used quantitative modeling to estimate project outcomes under multiple future scenarios of varied climate and other conditions and coordinated with stakeholders to understand potential project impacts. In 2017, CPRA identified \$50 billion in high-priority projects to be implemented as funds become available.

In the international example, in 2018, the Canadian government launched the DMAF, a financial assistance program to provide US\$1.5 billion over 10 years for large-scale, nationally significant projects to manage natural hazard risks, including those triggered by climate change. Infrastructure Canada, the entity responsible for administering the DMAF, seeks project ideas from provinces and territories, municipal and regional governments, indigenous groups, and others. These entities apply directly to Infrastructure Canada for funding. According to Canadian officials, two committees of experts—one composed of experts from other federal departments and the other composed of nonfederal experts (e.g., urban planners and individuals with regional expertise)—provide feedback on potential projects. These projects are prioritized based on multiple criteria such as the extent to which they reduce the impacts of natural disasters.

On the basis of GAO's review of relevant reports and past GAO work, interviews with stakeholders, and illustrative examples, GAO identified two options—each with strengths and limitations—for focusing federal funding on high-priority climate resilience projects. The options are (1) coordinating funding provided through multiple existing programs with varied purposes and (2) creating a new federal funding source specifically for investment in climate resilience.

A strength of coordinating funding from existing sources is access to multiple funding sources for a project. For example, one stakeholder GAO interviewed—whose community used federal funding to implement large-scale resilience projects—said that having multiple programs is advantageous because when funding from one program is not available—such as when the project does not match that program's purpose or when there are insufficient funds—funds could be sought from another program. A limitation of that option, according to CPRA officials, is that coordinating funding from multiple sources could be administratively challenging and could require dedicated staff to identify programs, assess whether projects meet program funding criteria, apply for funds, and ensure program requirements are met. Alternatively, one strength of a new federal funding source is that it could encourage cross-sector projects designed to achieve benefits in multiple sectors. For example, according to one stakeholder, such a funding source could allow experts from multiple sectors—such as infrastructure, housing, transportation, and health—to collaborate on projects, leading to more creative, comprehensive approaches to enhance community resilience. However, such a new funding source would have to be created, which would require Congressional authorization.

In addition, GAO identified opportunities to increase the climate resilience impact of federal funding options. For example, a federal resilience investment effort presents an opportunity to encourage several types of complementary resilience activities by nonfederal actors such as states, localities, and private-sector partners. In this example, the federal government could require or provide incentives for communities to use and enforce climate-resilient building codes or limit development in high-risk areas through zoning regulations.