

CLIMATE CHANGE RISKS TO NATIONAL SECURITY

September 2022

GAO-22-105830 National Security

THE BIG PICTURE

Both the Department of Defense's (DOD) global network of military installations and U.S. civilian infrastructure face climate change and extreme weather-related challenges. Climate change can also increase instability that affects U.S. security interests. GAO previously identified the significant fiscal risk that climate change poses for the U.S. government, with billions of dollars in estimated liabilities. However, climate change also poses national security risks.

Figure 1: Selected Climate Effects on National Security



Source: GAO (information). | GAO-22-105830

Text of Figure 1: Selected Climate Effects on National Security:

Flooding	Fort Irwin in California, which provides live-fire training to soldiers, experienced severe flash flooding in 2013 that caused a loss of power and significant damage to base infrastructure. The U.S. Army Corps of Engineers reported that the flooding caused more than \$65 million in damages.
Melting polar ice	On the Alaskan coast, thawing permafrost, decreasing sea ice, and rising sea level have led to increased erosion affecting radar sites providing early warning and communication.
Migration trends	In January 2019, we reported that the effects of climate change may alter migration trends, and some experts and U.S. agencies noted this could contribute to instability and result in national security challenges.
Rising sea levels	Norfolk Naval Shipyard in Virginia, which repairs and modernizes Navy warships, has had increased flooding as relative sea levels have risen. The installation annually averages three to five significant high tides and one hurricane.
Catastrophic storms	Hurricane Michael devastated Tyndall Air Force Base in Florida, shutting down most base operations for months and causing severe damage to operational infrastructure that supports training pilots for deployment to Air Force combat units. In February 2020, an Air Force official estimated that rebuilding the base would cost about \$3.6 billion.
Utilities	We reported that climate change could affect drinking water and wastewater infrastructure. In 2021, we noted that climate change was expected to have far-reaching effects on the electricity grid, on which both DOD and civilian agencies depend. These effects include decreases in the production and efficiency of transmission of electricity and could cost billions of dollars each year.

Source: GAO (information) | GAO-22-105830

ACTIONS TAKEN

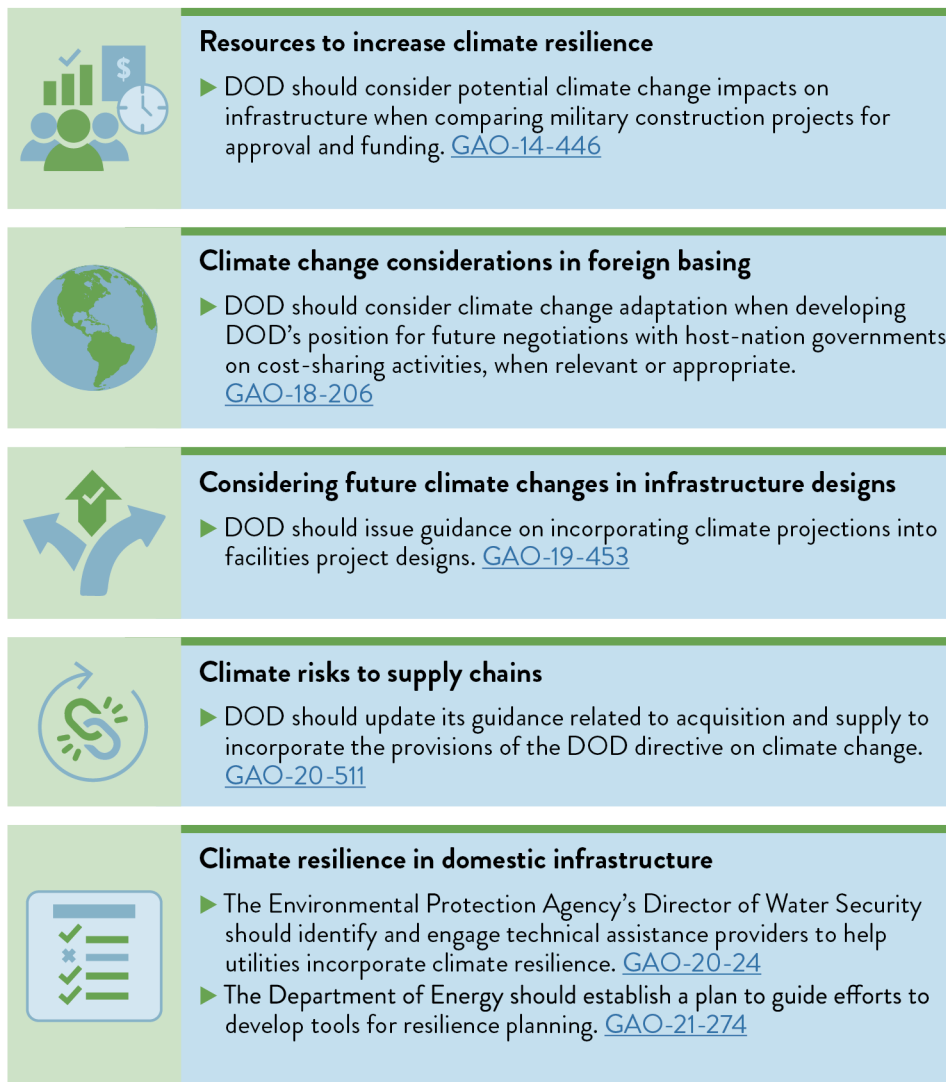
DOD and civilian agencies have taken various actions to address climate risks to national security-related infrastructure, including in response to GAO recommendations. For example:

- ▶ In 2021, DOD issued a Climate Adaptation Plan that outlines a strategic framework and lines of effort to address climate vulnerabilities, such as developing resilient infrastructure and supply chains.
- ▶ In 2020, DOD provided guidance to its installations on how to use a site-specific database of sea-level rise projections in planning and project design.
- ▶ In 2020, the Environmental Protection Agency updated a tool it developed to assist water sector utilities in assessing climate-related risks to utility assets and operations.
- ▶ In 2020, the Department of State established a Climate Security and Resilience Program, which is assessing specific risks from climate change and natural hazards to overseas U.S. embassies, consulates, and staff housing.
- ▶ In 2015, the Department of Energy partnered with 18 electric utilities to help them plan for climate change.

GAO RECOMMENDATIONS

GAO has made numerous recommendations to help improve the nation’s climate resilience and reduce national security risks, including key recommendations below.

Figure 2: Key Policy Questions and GAO Recommendations as of July 2022



Source: GAO. | GAO-22-105830

Text of Figure 2: Key Policy Questions and GAO Recommendations as of July 2022

Resources to increase climate resilience

- DOD should consider potential climate change effects on infrastructure when comparing military construction projects for approval and funding. [GAO-14-446](#)

Climate change considerations in foreign basing

- DOD should consider climate change adaptation when developing DOD's position for future negotiations with host-nation governments on cost-sharing activities, when relevant or appropriate. [GAO-18-206](#)

Considering future climate changes in infrastructure designs

- DOD should issue guidance on incorporating climate projections into facilities' project designs. [GAO-19-453](#)

Climate risks to supply chains

- DOD should update its guidance related to acquisition and supply to incorporate the provisions of the DOD directive on climate change. [GAO-20-511](#)

Climate resilience in domestic infrastructure

- The Environmental Protection Agency's Director of Water Security should identify and engage technical assistance providers to help utilities incorporate climate resilience. [GAO-20-24](#)
- The Department of Energy should establish a plan to guide efforts to develop tools for resilience planning. [GAO-21-274](#)

Source: GAO | GAO-22-105830

CONCLUSIONS

Agencies have taken steps to implement our recommendations, but more work remains. GAO's recommendations that DOD and civilian agencies have not yet implemented point to ways the U.S. government can continue to improve its resilience to the effects of climate change.

These recommendations include considering potential climate change effects when comparing defense infrastructure projects for approval and funding, issuing guidance on incorporating climate projects into facilities project designs, considering climate change in acquisition and supply, and assisting civilian utilities with climate resilience efforts.

Taking steps to implement these recommendations will help both DOD and civilian agencies increase their resilience to the national security threats associated with climate change.

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