Climate Resilience in the U.S. Department of Defense

CLEARED
For Open Publication
May 16, 2019
Department of Defense
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

Office of the Deputy Assistant Secretary of Defense (Environment)

May 2019

SLIDES ONLY

NO SCRIPT PROVIDED

Climate-Why Do We Care?

DoD must be able to adapt to any threat

- DoD must adapt operations to address the impacts of a variety of threats, to include those from weather, climate and natural events.
- The effects of a changing climate are a national security issue with potential impacts to DoD missions, operational plans and installations.
- The Department is taking a systematic approach to mitigate climate threats and to increase installation resiliency.

Current Impacts: Flooding

- **Coastal:**
  - May result from storm surge during severe weather events.
  - Over time, gradual sea level changes magnify the impacts of storm surge, and may eventually result in permanent inundation of property.
  - Increasing coverage of land from nuisance flooding during high tides, also called "sunny day" flooding, is already affecting many coastal communities, including our largest Naval Base in Norfolk, Virginia.

- **Inland:**
  - Changing precipitation patterns have expanded and amplified flood-prone areas.
  - Concerned about unprecedented flash flooding in drought-prone areas, like the U.S. West.
  - Older water and energy distribution infrastructure is particularly vulnerable.

Offutt Air Force Base Flood-March 2019 (AP photo)

Flooding Impacts and Mitigation Examples

- **Hampton Roads area, Virginia (Navy and Air Force)**

  Impact: One the most vulnerable to flooding in the United States. Sea level rise, land subsidence, and changing ocean currents have resulted in more frequent nuisance flooding and increased vulnerability to coastal storms.

  Mitigation: Partnered with other cities and DoD on a Joint Use Land Study to identify and implement 18 recommendations, required all new development be raised significantly, and partnered with NASA to develop a base-specific flood modeling tool.

- **Fort Irwin, California (Army)**

  Impact: Experienced severe flash-flooding in 2013 and 2015, which caused a loss of power and significant damage to base infrastructure.

  Mitigation: Working closely with the Army Corps of Engineers, Fort Irwin leaders launched a study of the stormwater management system, and implemented the 2014 plan, including major investments to overhaul the water distribution infrastructure.

- **Offutt Air Force Base, Nebraska**

  Impact: Local levees failed to keep flooding at bay – 39 buildings flooded with up to 8 ‘of water with more structures damaged. About 3,000 feet of the 11,700-foot runway was submerged.
  Mitigation: Because of site-specific planning, critical Strategic Command site was unaffected. Master planners are examining moving facilities above 500-year flood levels and improving the base’s flood resilience.

Current Impacts: Wildfires

- Due to routine training and testing activities that are significant ignition sources, wildfires are a constant concern on military installations.
- As a result, the DoD spends considerable resources on claims, asset loss, and suppression activities due to wildfire.
- Other climatic factors including wind and drought can increase severity of wildfire activity and and result in infrastructure and testing/training impacts.

Vandenburg Air Force Base, California (DoD photo)

Wildfire Impacts and Mitigation Examples

- **Vandenberg Air Force Base, California**

  Impact: Between 2016 and 2017, wildfires burned over 10,000 acres, jeopardized space launches, and prompted personnel evacuation.

  Mitigation: DoD successfully worked with local forestry officials (CALFIRE) to promote joint training opportunities in an effort to protect key infrastructure and communities within California. At the installation level, natural resource managers work to evaluate the threat of wildfires to key resources and develop fire management plans.

- **Colorado (Air Force and Army training grounds)**

  Impact: In 2018, two related wildfires broke out during an infantry and helicopter training exercise for an upcoming deployment. Gusty winds and drought conditions allowed the fire to spread, destroying homes near DoD bases and over 3,300 acres.

  Mitigation: DoD firefighting crews, often the National Guard, are increasing collaboration with other local and Federal officials on the use of a Modular Airborne Fire Fighting system, which more accurately identifies at-risk structures and the fireline path. This promotes better response times and prediction capabilities.

Current Focus of Efforts

- **Continuing to update DoD Policies and UFCs**
  - DoDI 6055.17, *DoD Emergency Management Program*, ensures the consideration of an all hazards approach to manage risks, including weather and climate related impacts on military installations.
  - UFC 1-200-01, *DoD Building Codes*, which governs all existing structures and UFC 1-200-01, *High Performance and Sustainable Buildings*, which applies to all new construction.
- **Tools**
  - **Climate vulnerability tool** to provide an agreed-upon and consistent set of climate-related projections for the DoD planning and engineering community.
  - Sea level rise projection tool data is being integrated into new DoD flood policy.
  - Installation Energy Plans require climate and water resilience measures.

United States Indo-Pacific Command (INDOPACOM)

- **Impact**
  - Increased demands for the United States to provide disaster assistance.
  - The intensity, duration, and frequency of these natural disasters is increasing.
- **Mitigation**
  - INDOPACOM focuses their training on readiness to respond to and be resilient to natural disasters, as well as sustainable resource management toward critical resources scarcity.
  - This command has also established Pacific Augmentation Teams around its Area of Responsibility to identify quickly immediate needs that can be met with military assets.

What's Ahead

To build on existing efforts and continue to strengthen climate impact mitigation strategies, DoD is:

- Finalizing a Climate Handbook for Installation Natural Resource Management Plans

- UFC 3-201-02, *Landscape Architecture* is currently being updated and expected to be finalized in 2019 to support installation water management and climate resilience.

- Partnering with the defense communities around our bases to address climate-related problems holistically.

January 2019 DoD Climate Report

- Represents a high-level assessment of the vulnerability of DoD installations based on operational roles--DoD focused on 79 mission assurance priority installations.

- **Flooding:** 60 of the 79 installations have experienced or are vulnerable to flooding, including 16 of the 18 Navy installations.

- **Wildfires:** 43 of the 79 installations are vulnerable to wildfires, including 32 Air Force installations assessed.

- **Drought:** 48 of the 79 installations are vulnerable to drought, including all 18 Navy installations assessed.

- **Compound Risk:** Of the 79 installations assessed, 57 are vulnerable to more than one climate-related hazard.

References

Applicable Policies, Tools and Reports

- **DoD Directive 4715.21, *Climate Change Adaptation and Resilience***
- **DoD Instruction 6055.17, *DoD Emergency Management Program***
- **Unified Facilities Criteria,**
  - UFC 2-100-01, Installation Master Planning,
  - UFC 1-200-01, DoD Building Codes (existing structures)
  - UFC 1-200-01, High Performance and Sustainable Buildings (new construction)
- ***Department of Defense Climate-Related Risk to DoD Infrastructure Initial Vulnerability Assessment Survey (SLVAS) Report*, January 2018**
- ***Report on Effects of a Changing Climate to the Department of Defense*, January 2019**
- ***DoD Climate Change Adaptation Roadmap*, October 2014**
- **Climate Change Planning Handbook, Installation Adaptation And Resilience, Naval Facilities Engineering Command, January 2017**
- **Regional Sea Level Scenarios for Coastal Risk Management (CARSWG), April 2016**