



# ***DoD and Climate Change Adaptation***

***June 29, 2011***





# ***I. Why Does DoD Care***

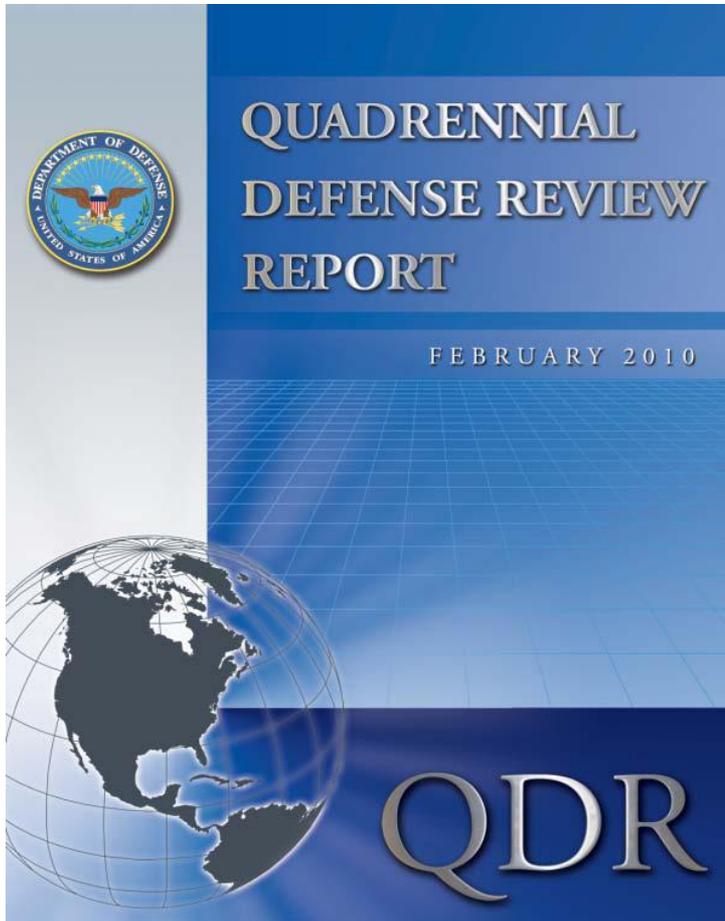
## ***II. Scope of DoD Assets***

## ***III. Tool Development***



# Quadrennial Defense Review (QDR) 2010

Acquisition, Technology and Logistics



- “DoD will need to adjust to the impacts of climate change on our facilities...”
- “... a comprehensive assessment of all installations to assess the potential impacts of climate change on its missions and adapt as required.”
- “The Department will leverage the *Strategic Environmental Research and Development Program*, a joint effort among DoD, the Department of Energy, and the Environmental Protection Agency, to develop climate change assessment tools.”



# Security Implications

Acquisition, Technology and Logistics

## Climate Change



- **Weather**
- **Ocean**
- **Land**
- **Space**

## Impacts



- **Food**
- **Water**
- **Shelter**
- **Energy**
- **Health**

## Factors



- **Exposure**
- **Sensitivity**
- **Adaptability**

## Response



- **Defense**
- **Diplomacy**
- **Development**

**Implies a National "whole of government" approach**



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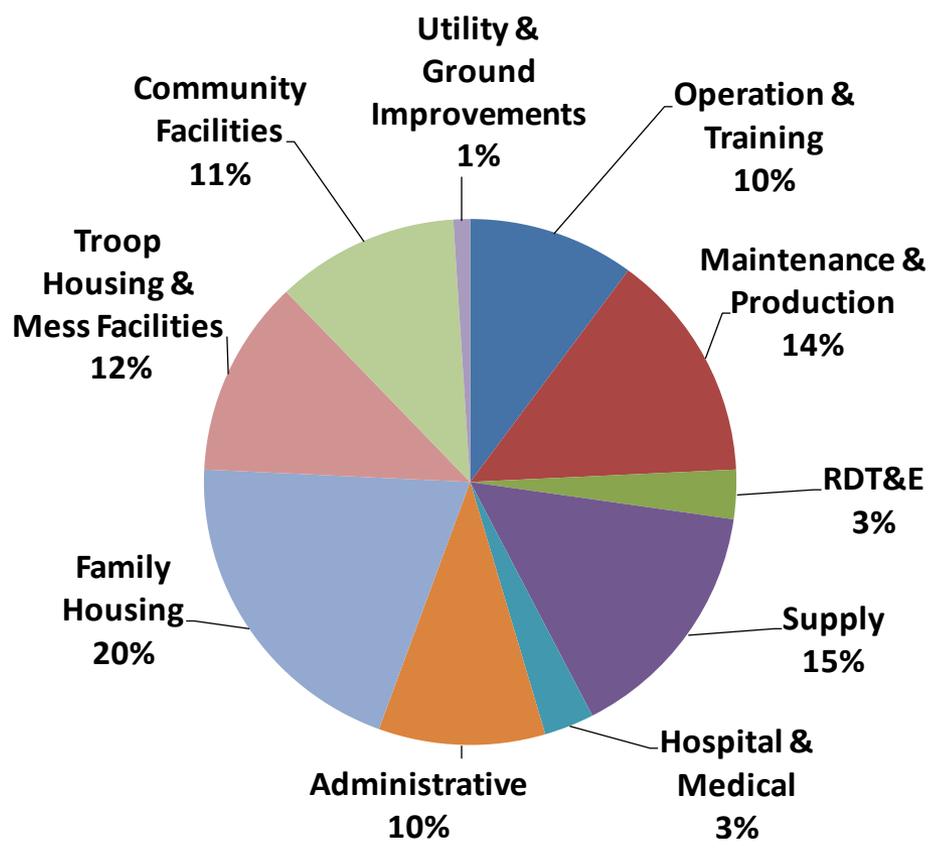


# DoD Built Infrastructure

Acquisition, Technology and Logistics

- **539,000 Facilities**  
(buildings and structures)
  - 307,295 buildings
    - 2.2 billion square feet
- **Comparisons**
  - **GSA: 1,500 government buildings**
    - 176 million square feet
  - **Wal-Mart US: 4,200 buildings**
    - 687 million square feet
- **160,000 Fleet Vehicles**

### DoD Building Stock





# DoD as a Land Managing Agency

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- DoD is responsible for managing and protecting
  - 420 federally-listed species
    - More than 40 species are only found on DoD lands
  - 523 species at-risk.
- DoD harbors more sensitive species per acre than any other federal land managing agency.



DoD is responsible for managing nearly 29 million acres of land and hundreds of square miles of air and sea space to conduct missions vital to national security.



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# Legacy Resources Management Tools

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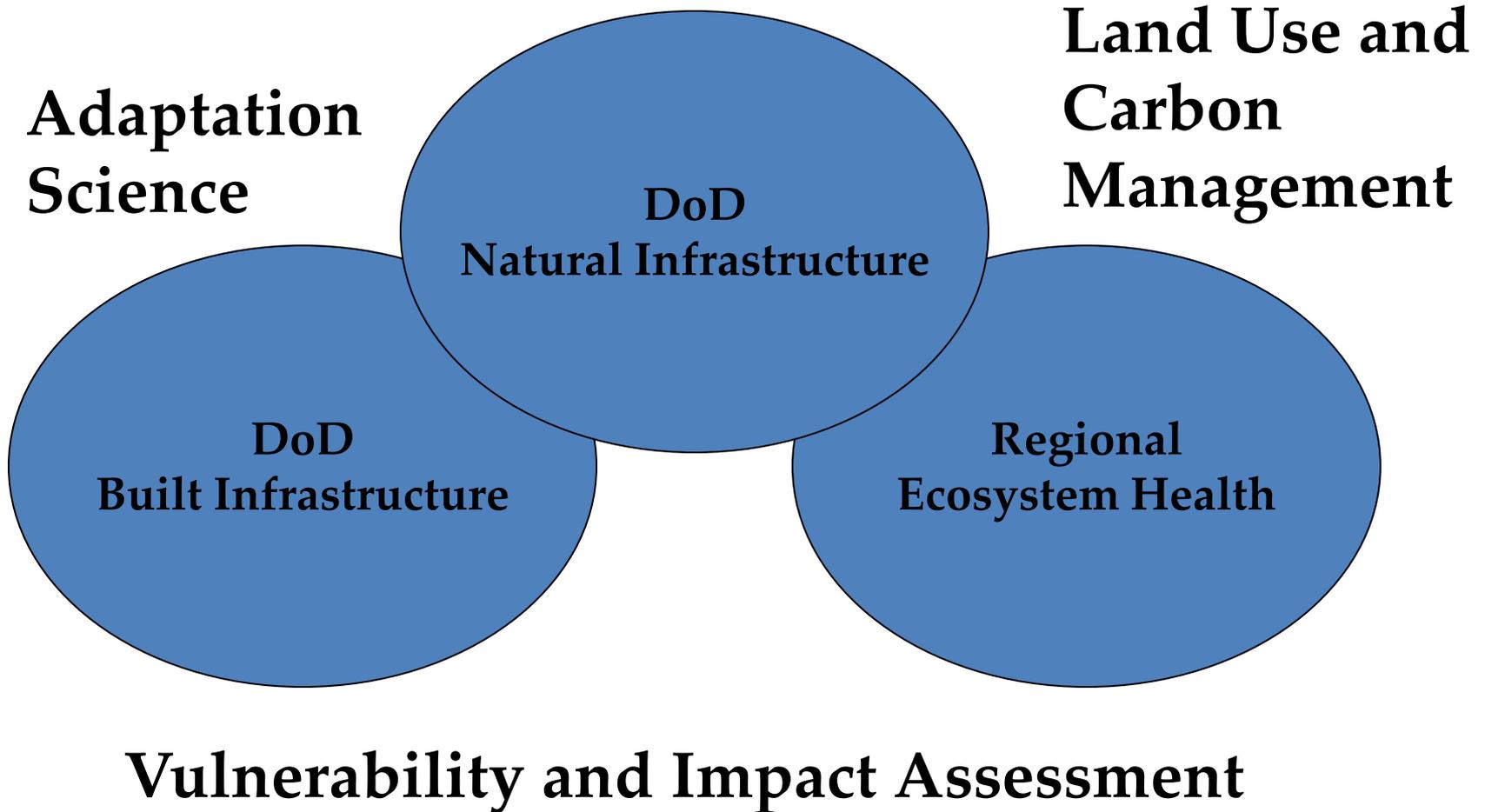
- Guidelines for Assessing the Vulnerability of Species and Habitats to Climate Change
- Sea Level Rise Risk Screen for DoD Coastal Installations
- Modeling the Impacts of Climate Change on Birds and Vegetation on Military Lands





# SERDP/ESTCP Climate Change RDT&E

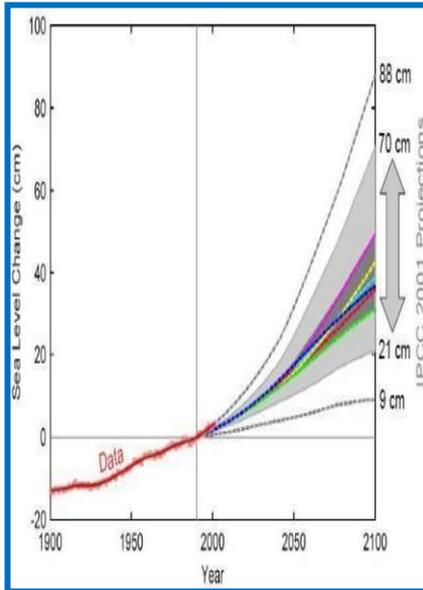
Acquisition, Technology and Logistics





# SERDP Sea Level Rise Impact Research Projects

Acquisition, Technology and Logistics



- Significant Threat to Coastal Military Installations
  - New methodologies required to fully assess threat
  - Adaptation approaches required
  - Prescribed Sea Level Rise Scenarios to 2100
    - 0.5m, 1.0m, 1.5m, 2.0m
    - Reflects current scientific assessment range



# Sea Level Rise Impact Studies

*Acquisition, Technology and Logistics*

- **Hamptons Road Area (Norfolk, Langley, Ft. Eustis, Oceana)**
  - Army COE ERDC
  - Detailed hydrological and coastal modeling
  - Multi-criteria, multi-hazard, risk assessment tailored to military interests
- **San Diego CA (Coronado, Pendleton)**
  - SPAWAR, UC-San Diego, San Diego State University, Terra Costa, USGS
  - Analysis methods for the aspects of SLR unique to the Pacific coast – El Nino and cliff topography
- **Gulf Coast (Eglin AFB)**
  - Florida State University, URS Corporation
  - Large-scale numerical model for quantifying the hazard risk to coastal military facilities and probability models for quantifying and managing uncertainty
- **North Carolina (Camp Lejeune)**
  - Woods Hole Oceanographic Institute
  - Geomorphological evolution of shorelines and barrier islands

**PRODUCT: Military-relevant framework and tools to guide decision-making in the context of sea level rise and storm surge.**



# Questions?

**Ms. Maureen Sullivan**  
**Director, Environmental Management**  
**Office of the Deputy Under Secretary of Defense**  
**(Installations & Environment)**

**703-695-7957**

**Maureen.Sullivan@osd.mil**

**<https://www.denix.osd.mil/portal/page/portal/denix>**