



DoD DIRECTIVE 4715.21

CLIMATE CHANGE ADAPTATION AND RESILIENCE

Originating Component: Office of the Under Secretary of Defense for Acquisition and Sustainment

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Purpose: In accordance with the direction in Executive Order 13653 and DoD Directive (DoDD) 5135.02, this issuance establishes policy and assigns responsibilities to provide the DoD with the resources necessary to identify, assess, manage, and monitor risks associated with the impacts of climate change. This involves deliberate preparation, close cooperation, and coordinated planning by the DoD to:

- Facilitate Federal, State, local, tribal, private sector, and nonprofit sector efforts to improve climate preparedness and resilience, and to implement the current DoD Climate Adaptation Plan.
- Help safeguard U.S. economy, infrastructure, environment, and natural resources.
- Provide for the continuity of DoD operations, services, and programs.

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SECTION 1: GENERAL ISSUANCE INFORMATION

1.1. APPLICABILITY. This issuance applies to:

a. OSD, the Military Departments, the Office of the Chairman of the Joint Chiefs of Staff (CJCS) and the Joint Staff, the Combatant Commands, the Office of Inspector General of the Department of Defense, the Defense Agencies, the DoD Field Activities, and all other organizational entities within the DoD (referred to collectively in this issuance as the “DoD Components”).

b. All DoD operations worldwide unless superseded by international agreement.

1.2. POLICY. The DoD must be able to adapt current and future operations to proactively address the impacts of climate change in order to maintain an effective and efficient U.S. military. Mission planning and execution must include:

a. Identification, assessment, and monitoring of the effects of climate change on the DoD mission.

b. Taking those effects into consideration when developing plans and implementing procedures.

c. Anticipating and managing any risks that develop as a result of climate change to build resilience.

1.3. SUMMARY OF CHANGE 2. The changes to this issuance:

a. Amend responsibilities as a result of the establishment of:

(1) The Under Secretary of Defense for Acquisition and Sustainment (USD(A&S)) in accordance with DoDD 5135.02.

(2) The Under Secretary of Defense for Research and Engineering in accordance with DoDD 5137.02.

(3) The Deputy Assistant Secretary of Defense for Arctic and Global Resilience.

(4) The Performance Improvement Officer and Director of Administration and Management in accordance with DoDD 5105.53 and the January 11, 2021 Deputy Secretary of Defense Memorandum.

b. Clarify responsibilities for the Under Secretary of Defense for Personnel and Readiness to reflect climate adaptation and resilience roles and responsibilities.

c. Update references and organizational symbols.

SECTION 2: RESPONSIBILITIES

2.1. USD(A&S). In coordination with the Under Secretary of Defense for Policy (USD(P)), the USD(A&S):

- a. Develops and oversees the implementation of DoD policy on climate change adaptation and resilience.
- b. Establishes DoD climate change boards, councils, and working groups to integrate climate change considerations into DoD programs, plans, and policies, when necessary.
- c. In coordination with the Performance Improvement Officer and Director of Administration and Management, establishes efficient cost, schedule, performance, and strategic efficiencies, and establishes reporting metrics across the DoD through alignment to DoD strategic planning and performance management.
- d. Ensures DoD modeling and simulation efforts in support of climate change impact analysis is conducted in accordance with the responsibilities assigned in DoDD 5000.59.

2.2. ASSISTANT SECRETARY OF DEFENSE FOR ENERGY, INSTALLATIONS, AND ENVIRONMENT (ASD(EI&E)). Under the authority, direction, and control of the USD(A&S), the ASD(EI&E):

- a. Serves as the DoD's primary climate change adaptation official.
- b. Collaborates with the USD(P), Under Secretary of Defense for Personnel and Readiness, and CJCS to account for climate change impact during planning processes across the spectrum of military operations.
- c. Develops DoD climate change adaptation and resilience policy in coordination with the USD(P).
- d. Collaborates with DoD issuance Principal Staff Assistants to integrate climate change considerations in appropriate existing policies, procedures, and programs as part of their regular revision process.
- e. Oversees DoD climate change adaptation and resilience research, development, testing, and evaluation programs in coordination with the Assistant Secretary of Defense for Science and Technology (ASD(S&T)). Collaborates with the Military Departments and other Federal agencies on climate change-related research and its applications to produce actionable science.
- f. Collaborates with DoD Components and other Federal agencies to support efforts by the private sector, and other professional and governmental organizations, to identify, develop, and demonstrate technologies, engineering standards, tools, and approaches that enable climate change adaptation and resilience, in accordance with Section 4 of Executive Order 13653.

g. Provides guidance and direction on relevant technologies, engineering standards, tools, scenario development and use, and other approaches to enable prudent climate change adaptation and resilience, including the Unified Facilities Criteria Program, in accordance with DoD Instruction (DoDI) 4120.24.

h. Promotes, as an advisor to the Defense Acquisition Board and other key acquisition bodies, integrating climate change considerations into programs under his or her purview.

i. Oversees identification and management of climate change-related risks in coordination with other DoD risk management and readiness programs.

j. Considers climate change adaptation and resiliency in the installation planning and basing processes to include impacts on built and natural infrastructure.

k. Engages with State and local governments to promote compatible development that considers climate change adaptation opportunities through the Joint Land Use Study Program in accordance with DoDI 3030.03.

l. Leverages the Strategic Environmental Research and Development Program, a joint effort between the DoD, Department of Energy, and Environmental Protection Agency, to develop and implement climate change assessment and adaptation planning tools.

2.3. ASSISTANT SECRETARY OF DEFENSE FOR SUSTAINMENT. Under the authority, direction, and control of the USD(A&S), the Assistant Secretary of Defense for Sustainment:

a. Identifies and considers the risks climate change poses to logistics infrastructure, materiel acquisition and supply (including critical suppliers and critical components), key transportation modes and routes, and storage and stockpile activities.

b. Takes appropriate actions to manage the risks identified in Paragraph 2.3.a.

c. Integrates consideration of the impacts of a changing climate into existing policies under his or her cognizance.

2.4. ASSISTANT SECRETARY OF DEFENSE FOR ACQUISITION. Under the authority, direction, and control of the USD(A&S), the Assistant Secretary of Defense for Acquisition:

a. In accordance with DoDD 5000.01 and DoDI 5000.02:

(1) Oversees integration of climate change considerations, including life cycle analyses, into acquiring or modifying weapons systems, platforms, equipment, and products.

(2) Develops or updates policies to integrate climate change considerations into mission area analyses and acquisition strategies across the life cycle of weapons systems, platforms, and equipment.

(3) Oversees integration of climate change-related policy and practices in defense acquisition workforce training and education.

b. Supports the CJCS in integrating climate change considerations into interactions between the Joint Capabilities Integration and Development System and Defense Acquisition System processes in accordance with CJCS Instruction 5123.01.

2.5. ASD(S&T). Under the authority, direction, and control of the Under Secretary of Defense for Research and Engineering, the ASD(S&T):

a. In coordination with the ASD(EI&E):

(1) Oversees defense-related research in climate science for the development of approaches and technologies that reduce risk and promote mission execution.

(2) Provides guidance and direction on relevant technologies and technological approaches to comply with policy and lessen the effects of climate change on operational mission needs.

b. Oversees DoD engagement with the U.S. Global Change Research Program through the National Science and Technology Council's committee structure in accordance with Executive Order 12881.

2.6. DIRECTOR, DEPARTMENT OF DEFENSE TEST RESOURCE MANAGEMENT CENTER. Under the authority, direction, and control of the Under Secretary of Defense for Research and Engineering, the Director, Department of Defense Test Resource Management Center:

a. Oversees integration of climate change considerations into DoD testing range sustainment policy objectives established in DoDD 3200.15.

b. Oversees DoD assessment of impacts to testing capabilities resulting from climate change trends in accordance with the responsibilities assigned in DoDD 5105.71.

c. Identifies climate change trends that may impact testing range capabilities across the DoD, and oversees DoD Component implementation of strategies to sustain testing range capabilities.

d. In coordination with the DoD Component heads, collaborates with internal and external stakeholders to address common climate change challenges and opportunities, including regional planning efforts.

2.7. USD(P). In coordination with the USD(A&S), the USD(P), through the Assistant Secretary of Defense for Strategy, Plans, and Capabilities, develops policies, plans, programs, forces, and posture needed to implement the DoD strategy, including, as appropriate, adapting actions to increase resilience to climate change.

2.8. ASSISTANT SECRETARY OF DEFENSE FOR HOMELAND DEFENSE AND HEMISPHERIC AFFAIRS (ASD(HD&HA)).

Under the authority, direction, and control of the USD(P), the ASD(HD&HA):

a. Develops, coordinates, and integrates DoD climate change policy for homeland defense activities including national preparedness, crisis management, defense mobilization in emergency situations, defense continuity programs, mission assurance, the Defense Support of Civil Authorities (DSCA), and continuity of operations and government, preserving freedom of navigation and other ASD(HD&HA) mission areas in accordance with DoDI S-2005.01.

b. Through the Office of the Deputy Assistant Secretary of Defense for Arctic and Global Resilience, integrates climate considerations into all DoD strategies, plans, and processes; coordinates with the interagency on international climate and energy security; and works with allies and partners to support development of their climate and energy resilience.

2.9. ASSISTANT SECRETARY OF DEFENSE FOR SPECIAL OPERATIONS AND LOW-INTENSITY CONFLICT. Under the authority, direction, and control of the USD(P), the Assistant Secretary of Defense for Special Operations and Low-Intensity Conflict:

a. Monitors and directs appropriate planning for anticipated humanitarian assistance and disaster relief (HA/DR) requests for DoD assistance, including stabilization support. These plans address climate change impacts such as increased demand and resources for HA/DR activities, and increased instability sparked by competition for limited natural resources.

b. Provides guidance and oversight to the Combatant Commanders (CCDRs) on on-going humanitarian assistance programs and resources to encourage partner nations' efforts for:

(1) Disaster risk reduction, mitigation, preparedness, and resiliency.

(2) Building capacity for humanitarian assistance, global health engagement, and disaster prevention in light of changing climate risks.

c. Incorporates climate risks into stability operations policy, doctrine, and planning, including the impact of climate trends on conflict and state fragility.

2.10. UNDER SECRETARY OF DEFENSE FOR PERSONNEL AND READINESS. In coordination with the USD(A&S), the Under Secretary of Defense for Personnel and Readiness:

a. Oversees integration of climate change considerations into DoD training range sustainment policy objectives established in DoDD 3200.15.

b. Oversees DoD assessment of impacts to training capabilities resulting from climate change trends.

c. Identifies climate change trends that may impact training ranges and training capabilities across DoD, and oversees DoD Component implementation of strategies to sustain training range capabilities.

d. Identifies, assesses, and plans for the impacts of climate change on the safety, health, and well-being of the DoD military and civilian workforce.

e. Supports DoD Components as they develop the climate literacy of the DoD military and civilian workforce.

f. In coordination with the DoD Component heads, supports the development of policy and guidance on climate-relevant military education requirements needed to maintain operational readiness and military resilience, consistent with DoDD 5124.11 and Volume 1 of DoDI 1322.35.

g. Supports the Military Services and the Joint Staff as they integrate climate change considerations into:

(1) DoD education and training programs.

(2) Joint training, exercise, and evaluation program events.

h. Incorporates associated impacts of climate change and extreme weather into readiness reporting.

2.11. UNDER SECRETARY OF DEFENSE FOR INTELLIGENCE AND SECURITY.

The Under Secretary of Defense for Intelligence and Security:

a. Oversees planning, organizing, coordinating, and balancing of climate change and environmental monitoring-related investment and risk for all DoD intelligence, surveillance, and reconnaissance and environmental system capabilities, and consults with CCDRs, as appropriate.

b. As the Director of Defense Intelligence and principal advisor to the Director of National Intelligence (DNI) and all other Intelligence Community elements on Defense Intelligence matters:

(1) Coordinates with the DNI to ensure effective, complementary, and mutual climate change and environmental monitoring related support between Defense Intelligence programs and the National Intelligence Program.

(2) Coordinates with the DNI on all other responsibilities and functions as related to risks, potential impacts, considerations, vulnerabilities, and effects of altered operating environments related to climate change and environmental monitoring.

2.12. PERFORMANCE IMPROVEMENT OFFICER AND DIRECTOR OF ADMINISTRATION AND MANAGEMENT. The Performance Improvement Officer and Director of Administration and Management coordinates with the USD(A&S) to establish cost, schedule, performance, and strategic efficiencies, and establishes reporting metrics across the DoD through alignment to DoD strategic planning and performance management.

2.13. DoD COMPONENT HEADS. The DoD Component heads:

a. Integrate climate change considerations into DoD Component policy, guidance, plans, and operations.

b. Assess and manage risks to built and natural infrastructure, including changes as appropriate to installation master planning, natural and cultural resource management, design and construction standards, asset management, encroachment management, utility systems, and emergency management operations.

c. Assess, incorporate, and manage the risks and effects of altered operating environments on DoD Component capabilities and capacity, including force structure, basing, military operations, capacity building, stability operations, and demand for HA/DR and DSCA in short- and long-term plans.

d. Assess and manage vulnerabilities associated with climate change to acquisition and supply, including the full life cycle of weapons systems, platforms, equipment, and products within the respective DoD Component's portfolio.

e. Assess and mitigate the effects of climate change on the ability to carry out training and test activities in the field environment. Determine the total impacts on training and test activities across the DoD Component concerned, including supporting range complex planning.

f. Update health surveillance programs, including current health assessments, to address effects on personnel, including changes in extreme temperatures, precipitation patterns, and disease vector distribution.

g. Nominate climate change concepts, effects on mission, and DoD adaptation and resiliency efforts into education and training.

h. Collaborate with internal and external stakeholders to address common climate change challenges and opportunities, including regional planning efforts.

i. Leverage authoritative environmental prediction sources for appropriate data and analysis products to assess weather and climate impacts.

j. Integrate resource considerations and cost management including life-cycle costs into plans, business processes, material management, and acquisition strategies, along with associated investment and risk management processes at all relevant levels within the Component concerned.

2.14. CJCS. In addition to the responsibilities in Paragraph 2.13., the CJCS:

- a. Collaborates with allies and partners to optimize joint exercises and war games incorporating climate change considerations, including factors contributing to geopolitical and socioeconomic instability and long-term planning.
- b. Continues efforts to incorporate geostrategic and operational energy and water considerations into force planning, requirements development, and acquisition processes.

2.15. CCDRS. In addition to the responsibilities in Paragraph 2.13., the CCDRS:

- a. Incorporate climate change impacts into plans and operations and integrate DoD guidance and analysis in Combatant Command planning to address climate change-related risks and opportunities across the full range of military operations, including steady-state campaign planning and operations and contingency planning.
- b. Assess the risks to U.S. security interests posed by climate change within their areas of responsibility and resulting risks to U.S. operations, and identify associated U.S. military capability gaps and operational risks.
- c. Require country-specific cooperation and engagement including joint training and exercises that enhance partner capacity and improve joint force tactics, techniques, and procedures for addressing climate change impacts.
- d. Monitor internal policy guidance provided to the other DoD Components for the preparation and review of program and budget submissions.
- e. Review and refine capacity and capability requirements for HA/DR and DSCA for the respective assigned areas of responsibility.

GLOSSARY

G.1. ACRONYMS.

ASD(EI&E)	Assistant Secretary of Defense for Energy, Installations, and Environment
ASD(HD&HA)	Assistant Secretary of Defense for Homeland Defense and Hemispheric Affairs
ASD(S&T)	Assistant Secretary of Defense for Science and Technology
CCDR	Combatant Commander
CJCS	Chairman of the Joint Chiefs of Staff
DNI	Director of National Intelligence
DoDD	DoD directive
DoDI	DoD instruction
DSCA	Defense Support of Civil Authorities
HA/DR	humanitarian assistance and disaster relief
USD(A&S)	Under Secretary of Defense for Acquisition and Sustainment
USD(P)	Under Secretary of Defense for Policy

G.2. DEFINITIONS. These terms and their definitions are for the purposes of this issuance.

actionable science. Theories, data, analyses, models, projections, scenarios, and tools that are:

Relevant to the decision under consideration.

Reliable in terms of its scientific or engineering basis and appropriate level of peer review.

Understandable to those making the decision.

Supportive of decisions across wide spatial, temporal, and organizational ranges, including those of time-sensitive operational and capital investment decision-making.

Co-produced by scientists, practitioners, and decision-makers and result in rigorous and accessible products to meet the needs of stakeholders.

adaptation. Adjustment in natural or human systems in anticipation of or response to a changing environment in a way that effectively uses beneficial opportunities or reduces negative efforts.

climate change. Defined in the DoD Dictionary of Military and Associated Terms.

climate literacy. Understanding how the climate impacts DoD missions, how DoD operations impact the climate, and how to make climate-informed decisions.

resilience. Ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions.

scenario. A situation that details future potential conditions in a manner that supports decision-making under conditions of uncertainty, but does not predict future change that has an associated likelihood of occurrence.

REFERENCES

- Chairman of the Joint Chiefs of Staff Instruction 5123.01, “Charter of the Joint Requirements Oversight Council and Implementation of the Joint Capabilities Integration and Development System,” current edition
- Deputy Secretary of Defense Memorandum, “Re-establishment of the Assistant to the Secretary of Defense for Intelligence Oversight and the Director of Administration and Management,” January 11, 2021
- DoD Directive 3200.15, “Sustaining Access to the Live Training and Test Domain,” December 18, 2013, as amended
- DoD Directive 5000.01, “The Defense Acquisition System,” September 9, 2020, as amended
- DoD Directive 5000.59, “DoD Modeling and Simulation (M&S) Management,” August 8, 2007, as amended
- DoD Directive 5105.53, “Director of Administration and Management (DA&M),” February 26, 2008
- DoD Directive 5105.71, “Department of Defense Test Resource Management Center (TRMC),” March 8, 2004
- DoD Directive 5124.11, “Assistant Secretary of Defense for Readiness (ASD(R)),” September 6, 2019
- DoD Directive 5135.02, “Under Secretary of Defense for Acquisition and Sustainment (USD(A&S)),” July 15, 2020
- DoD Directive 5137.02, “Under Secretary of Defense for Research and Engineering (USD(R&E)),” July 15, 2020
- DoD Instruction 1322.35, Volume 1, “Military Education: Program Management and Administration,” April 26, 2022
- DoD Instruction S-2005.01, “(U) Freedom of Navigation (FON) Program,” October 20, 2014
- DoD Instruction 3030.03, “Joint Land Use Study (JLUS) Program,” July 13, 2004, as amended
- DoD Instruction 4120.24, “Defense Standardization Program,” March 31, 2022
- DoD Instruction 5000.02, “Operation of the Adaptive Acquisition Framework,” January 23, 2020, as amended
- Executive Order 12881, “Establishment of the National Science and Technology Council,” November 23, 1993, as amended
- Executive Order 13653, “Preparing the United States for the Impacts of Climate Change,” November 1, 2013
- Office of the Chairman of the Joint Chiefs of Staff, “DoD Dictionary of Military and Associated Terms,” current edition
- Office of the Under Secretary of Defense for Acquisition and Sustainment, “Department of Defense Climate Adaptation Plan,” current edition