Joint Publication 3-40

Joint Countering Weapons of Mass Destruction

27 November 2019

PREFACE

1. Scope

This publication provides fundamental principles and guidance to plan, execute, and assess military activities to counter weapons of mass destruction.

2. Purpose

This publication has been prepared under the direction of the Chairman of the Joint Chiefs of Staff (CJCS). It sets forth joint doctrine to govern the activities and performance of the Armed Forces of the United States in joint operations, and it provides considerations for military interaction with governmental and nongovernmental agencies, multinational forces, and other interorganizational partners. It provides military guidance for the exercise of authority by combatant commanders and other joint force commanders (JFCs), and prescribes joint doctrine for operations and training. It provides military guidance for use by the Armed Forces of the United States, in preparing and executing their plans and orders. It is not the intent of this publication to restrict the authority of the JFC from organizing the force and executing the mission in a manner the JFC deems most appropriate to ensure unity of effort in the accomplishment of objectives.

3. Application

a. Joint doctrine established in this publication applies to the Joint Staff, commanders of combatant commands, subordinate unified commands, joint task forces, subordinate components of these commands, the Services, the National Guard Bureau, and combat support agencies.

b. This doctrine constitutes official advice concerning the enclosed subject matter; however, the judgment of the commander is paramount in all situations.

c. If conflicts arise between the contents of this publication and the contents of Service publications, this publication will take precedence unless the CJCS, normally in coordination with the other members of the Joint Chiefs of Staff, has provided more current and specific guidance. Commanders of forces operating as part of a multinational (alliance

or coalition) military command should follow multinational doctrine and procedures ratified by the United States. For doctrine and procedures not ratified by the United States, commanders should evaluate and follow the multinational command's doctrine and procedures, where applicable and consistent with US law, regulations, and doctrine.

For the Chairman of the Joint Chiefs of Staff:

DANIEL J. O'DONOHUE
Lieutenant General, USMC
Director, Joint Force Development

SUMMARY OF CHANGES
REVISION OF JOINT PUBLICATION 3-40
DATED 31 OCTOBER 2014

- **Updates and aligns the countering weapons of mass destruction (CWMD) doctrine for the joint force with major changes to Department of Defense (DOD) policy, strategy, and planning guidance for CWMD.**

- **Highlights the DOD strategy for CWMD as the underpinning for CWMD guidance.**

- **Introduces the weapons of mass destruction activity continuum.**

- **Introduces the operational framework for CWMD that consists of three organizing principles (prevent, protect, and respond) carried out through specialized activities (pathway defeat; weapons of mass destruction [WMD] defeat; and chemical, biological, radiological, and nuclear [CBRN] response).**

- **Describes the organizing principles: prevent, protect, and respond.**

- **Defines the specialized activities: pathway defeat, WMD defeat, and CBRN response.**

- **Describes the specialized tasks associated with each specialized activity and organizing principle.**

- **Describes the role of the functional campaign plan for CWMD, integrating DOD-wide efforts to prevent the use, acquisition, and proliferation of WMD; prepare the joint force to respond to WMD crises; and assure allies and partners.**

- **Describes the relationship between military organizations and functions to other US Government departments and agencies and international partners.**

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EXECUTIVE SUMMARY
COMMANDER'S OVERVIEW

- **Outlines countering weapons of mass destruction policy and strategy**
- **Discusses countering weapons of mass destruction activities and operations relation to the joint functions**
- **Describes the operational environment and operational framework**
- **Outlines a countering weapons of mass destruction strategic approach for planning**
- **Examines how foundational and crosscutting activities and tasks, along with specialized tasks within and across the countering weapons of mass destruction organizing principles, logically group tasks to prevent or counter specific weapons of mass destruction threats**

Introduction

The US, its partners, and allies face an increasing weapons of mass destruction (WMD) threat from actors of concern who operate transregionally, conduct activities throughout the operational environment (OE), and are multifunctionally organized. Countering weapons of mass destruction (CWMD) is a national security priority that requires a coordinated, whole-of-government approach that brings all instruments of national power to bear against these actors and their WMD-related activities. The Department of Defense (DOD) contributes to the United States Government (USG) effort by providing joint forces that plan and execute tasks to ensure the US, its forces, and partners are neither coerced nor attacked with WMD.

WMD are chemical, biological, radiological, and nuclear (CBRN) weapons capable of a high order of destruction or causing mass casualties, excluding the means of transporting or propelling the weapon where such means is a separable and divisible part from the weapon.

Countering Weapons of Mass Destruction Policy and Strategy

The President provides policy and strategy for USG departments and agencies to ensure unified effort in the *2017 National Security Strategy of the United States of America* [short title: National Security Strategy (NSS)], *National*

Strategy for Countering Weapons of Mass Destruction Terrorism, Presidential directives, and other plans and orders.

DOD derives its national strategic direction primarily from the President's guidance in the NSS, presidential directives, and other national strategic documents, in conjunction with the National Security Council and the Homeland Security Council. The *(U) 2018 National Defense Strategy of the United States of America: Sharpening the American Military's Competitive Edge* [short title: National Defense Strategy] is DOD policy that refines the strategic direction of the NSS for DOD.

Relationship to the Joint Functions

CWMD activities and operations intersect all functional areas, domains, and combatant commands (CCMDs) and require the integration and coordination of the joint functions discussed in Joint Publication (JP) 3-0, *Joint Operations.*

Countering Weapons of Mass Destruction Doctrine Relationship to Other Doctrine

CBRN-related joint doctrine includes JP 3-11, *Operations in Chemical, Biological, Radiological, and Nuclear Environments,* and JP 3-41, *Chemical, Biological, Radiological, and Nuclear Response.*

Operational Environment and Operational Framework

The evolution of the WMD threat has created new challenges for joint force commanders (JFCs) beyond dealing with adversary WMD use. The proliferation of WMD is a transregional problem that routinely crosses geographic CCMDs' geographical boundaries. The primary challenges facing the JFC encompass:

- The diversity of threat actors—expansion from traditional state actors down to the possibility of a lone actor with no particular affiliation.
- The emergence of novel WMD threats (i.e., nontraditional agents).
- The dual-use nature of much of the related technology and expertise.
- The increasing complexity of the WMD continuum and number of proliferation and procurement networks.

Weapons of Mass Destruction Activity Continuum

Although the characteristics of the WMD continuum are continuously evolving, one constant remains—all actors use pathways to develop or acquire WMD. These pathways consist of networks or connections among individuals, groups, and organizations that enable the development, possession, and/or proliferation of WMD and related capabilities. WMD pathways continuously adapt to keep pace with changes in the OE. They are supported by a complex array of actors and networks that take advantage of permissive environments, accessibility of dual-use technology, and available expertise to support WMD development.

Though not necessarily sequential, the WMD activity continuum covers the spectrum of WMD activities from intent to use:

- Intent.
- Infrastructure.
- Expertise.
- Production.
- Weaponization.
- Delivery systems.

Weapons of Mass Destruction Supply and Demand Networks

WMD networks are the connective tissue a state or non-state actor uses to gain or transfer access to weapons, material, technology, and expertise. These networks enable state and non-state actors to acquire, develop, proliferate, or use WMD. Licit and illicit organizations operating transregionally may wittingly or unwittingly support the proliferation and/or use of WMD through networks and add to the complexity of mitigating the WMD threat.

Weapons of Mass Destruction Actors of Concern

Actors of concern consist of state and non-state actors that carry out activities that, left unaddressed, pose a potential threat to the strategic objectives of the USG. In the WMD context, an actor of concern poses a threat of developing, acquiring, proliferating, or employing WMD; related expertise; materials; technologies; and means of delivery. These actors may also perceive destructive capabilities of WMD as a highly desirable means to counter more technologically advantaged nations and alliances.

Chemical, Biological, Radiological, and Nuclear Environment

CBRN weapons may be used to attack US citizens, infrastructure, or vital interests; to target US power projection, sustainment, and force protection vulnerabilities; to deny access to an area, limiting the ability of the US to respond to urgent threats; or to undermine support by key regional partners for US vital interests through intimidation.

Operational Framework

The operational framework for CWMD consists of three organizing CWMD principles (prevent, protect, and respond) carried out through specialized activities (pathway defeat, WMD defeat, and CBRN response).

CWMD Organizing Principles. CWMD operations and activities focus on pathway defeat and utilize prevent, protect, and respond as CWMD organizing principles for planning. The joint force conducts a wide range of CWMD operations and activities against state and non-state actors of concern to deter the conceptualization, development, possession, proliferation, and use or threat of use and mitigate the effects of WMD.

Planning

The Competition Continuum and Countering Weapons of Mass Destruction Across the Range of Military Operations

Competition Continuum. The competition continuum is the environment under which we conduct the range of military operations. The dynamic and complex environment in which WMD acquisition and use occur requires the integration of activities and operations across the competition continuum. The common aspect across the continuum is an active campaigning mindset. Cooperation and competition below armed conflict are, for practical purposes, always occurring, so the presence or absence of armed conflict is the only variable element. This comprehensive framework requires the joint force to play a more prominent role in areas regarded as outside the military sphere and thus requiring integrated efforts with USG partners. JFCs determine the most effective blend of CWMD activities and operations throughout the competition continuum to address unique challenges posed by WMD. JFCs ensure these activities are best suited to dissuade countries from developing WMD, deter use of WMD by actors of concern that have developed a WMD capability, and, if necessary, defeat any state or non-state actor that uses or threatens the use of WMD.

General Countering Weapons of Mass Destruction Planning Guidance

Guidance for CWMD planning exists within national and DOD-specific guidance documents. The development of CWMD plans and planning products serve to address campaign, contingency, and support planning requirements derived from strategic guidance. Specific planning products support requirements described in Chairman of the Joint Chiefs of Staff Instruction 3110.01, *(U) 2018 Joint Strategic Campaign Plan (JSCP).*

Campaign and Operational Design for Countering Weapons of Mass Destruction Planning

The geographic combatant commander's operational approach for CWMD should be consistent with the strategic approach. The CWMD operational approach reflects the JFC's visualization for creating desired effects. The approach provides the necessary foundation for detailed planning, as well as related branch plans that may evolve. During development of the operational approach, the CCMD staff incorporates CWMD planning considerations.

Department of Defense Functional Campaign Plan Countering Weapons of Mass Destruction Integration

The *Department of Defense Strategy for Countering Weapons of Mass Destruction* and the *Functional Campaign Plan for Countering Weapons of Mass Destruction* provides CCMDs, the Services, and combat support agencies with a common strategy and framework to synchronize planning on a regional, transregional, and global basis. It integrates DOD-wide efforts to prevent the use, acquisition, and proliferation of WMD; prepare the joint force to respond to WMD crises; and assure allies and partners.

Countering Weapons of Mass Destruction Strategic Approach for Planning

All plans, where appropriate, should support achievement of DOD's strategic CWMD objectives, namely:

- Reduce incentives to pursue, possess, and employ WMD.
- Increase barriers to acquisition, proliferation, and potential use of WMD.
- Manage WMD risks emanating from hostile, fragile, or failed states and safe havens.
- Deny the effects of current and emerging WMD threats through layered, integrated defenses.

Planning Considerations

Strategic Implications. Commanders at every level need to be aware of the strategic implications associated with any WMD threat and adapt their CWMD planning efforts accordingly. CWMD activities and operations occur at all three levels of warfare—strategic, operational, and

tactical—and any single action may have consequences at all levels.

Joint Intelligence Preparation of the Operational Environment (JIPOE). JIPOE supports the JFC by characterizing the OE that contains WMD as a system of pathways, networks, relevant actors, resources, and extant and potential capabilities, all interacting within the competition continuum. This holistic characterization and predictive analysis enables development of the operational design elements and effective targeting.

Interagency Coordination. USG departments and agencies planning and acting together create effects that cannot be created by DOD alone due to differing authorities, responsibilities, and capabilities. Various CWMD missions often place DOD in a supporting role to other USG departments or agencies.

Allies and Partner Nations. DOD CWMD efforts have a greater likelihood of success if planned in cooperation with allies and partner nations. CWMD shaping activities planned and executed in cooperation with partners may prevent or disrupt actors of concern acquisition, development, or employment of WMD and alleviate the need for more aggressive and costly action later.

Network Perspective. A JFC's ability to characterize and monitor proliferation networks and state WMD programs as holistic systems is essential to affecting that system. One of the primary challenges facing the JFC is the proliferation of WMD technology and products.

Execution

DOD leverages foundational and crosscutting activities and tasks to support specialized tasks that help prevent new WMD threats or use of WMD, protect against extant WMD, and respond to WMD use by managing and mitigating the associated consequences. DOD coordinates these CWMD efforts while incorporating them into broader plans and activities.

Countering Weapons of Mass Destruction Activities and Tasks

The arrangement of foundational and crosscutting activities and tasks along with specialized tasks within and across the organizing principles, serve as a method for logically grouping tasks to prevent or counter specific WMD threats.

To the extent possible, foundational and crosscutting tasks are executed within the activities of: maintain and expand technical expertise; cooperate with and support partners; and understand the OE, threats, and vulnerabilities. Specialized tasks are placed within the respective organizing principles of prevent, protect, and respond.

Foundational and Crosscutting Activities and Tasks

Foundational Activities and Tasks. Foundational activities and tasks for countering WMD consist of:

- **Maintain and Expand Technical Expertise.** This activity focuses on nurturing and sustaining the intellectual capital provided by DOD and mission partner CWMD experts.
- **Cooperate with and Support Partners.** JFCs should plan to perform CWMD activities and tasks in full cooperation with USG interagency partners in a variety of departments and agencies, multinational partners, and nongovernmental organizations.

Crosscutting Activity and Tasks

- **Understand the Environment, Threats, and Vulnerabilities.** The JFC develops and maintains a comprehensive understanding of the WMD actors and materials that affect the OE.

Organizing Principles and Specialized Activities and Tasks

The organizing principles (prevent, protect, and respond) and associated specialized activities (pathway defeat, WMD defeat, and CBRN response) serve as the operational framework for CWMD. The specialized activities and tasks are conducted to impede the development or acquisition of new WMD threats; defeat, contain, or reduce extant WMD capabilities; and minimize the effects of CBRN use. Specialized tasks are not unique to a particular organizing principle, but their effects may be greater when conducted in relation to any one organizing principle.

- **WMD Pathway Defeat.** WMD pathway defeat and related specialized tasks focus on the prevention of development or acquisition of WMD, to include conventional, cyberspace, and special operations. Pathway defeat activities focus on actions to dissuade, deter, delay, disrupt, destroy, divert, or otherwise complicate conceptualization and development of WMD. Though not exclusive, pathway defeat actions are

often in support to or in close collaboration with interagency partners.

- **WMD Defeat.** After acquisition or development of a capability, WMD defeat efforts target the ability to assemble, stockpile, deliver, transfer, or employ WMD. This involves the JFC employing tailored capabilities to neutralize or destroy weapons and agents; delivery systems; and materials, facilities, and processes, including the functional or structural defeat of hardened targets.

- **CBRN Response.** CBRN response efforts minimize the effect of CBRN use to the joint force and other mission-critical personnel. Actions to manage consequences support US and foreign civil authorities and their populations by responding to a CBRN incident and mitigating the hazards and effects of WMD use. Actions to safeguard the force are completed during the conduct of other CWMD activities, since those activities may require the force to operate in an environment contaminated by CBRN hazards or effects of WMD use.

CONCLUSION

This publication provides fundamental principles and guidance to plan, execute, and assess military activities to counter WMD.

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CHAPTER I
INTRODUCTION

> *"The danger from hostile state and non-state actors who are trying to acquire nuclear, chemical, radiological, and biological weapons is increasing."*
>
> ***National Security Strategy***
> **December 2017**

1. General

a. The US, its partners, and allies face an increasing weapons of mass destruction (WMD) threat from actors of concern who operate transregionally, conduct activities throughout the operational environment (OE), and are multifunctionally organized. Countering weapons of mass destruction (CWMD) is a national security priority that requires a coordinated, whole-of-government approach that brings all instruments of national power to bear against these actors and their WMD-related activities. The Department of Defense (DOD) contributes to the United States Government (USG) effort by providing joint forces that plan and execute tasks to ensure the US, its forces, and its partners are neither coerced nor attacked with WMD.

b. While various definitions of WMD and CWMD exist across the USG and international communities, this joint publication (JP) describes WMD and CWMD specifically to guide joint force understanding, campaigning, planning, execution, and assessment of CWMD activities.

(1) WMD are chemical, biological, radiological, and nuclear (CBRN) weapons capable of a high order of destruction or causing mass casualties, excluding the means of transporting or propelling the weapon where such means is a separable and divisible part from the weapon. WMD delivery systems are part of the WMD activities continuum and are of concern to conducting CWMD operations even when they can be separated from the WMD payload. However, while recognizing that CWMD activities may complement DOD efforts to combat separable delivery systems, this JP does not prescribe doctrine to combat delivery systems or conventional (non-CBRN) weapon threats where no explicit WMD link exists.

For further information on countering delivery systems, see JP 3-01, Countering Air and Missile Threats, *and JP 3-60,* Joint Targeting.

(2) CWMD is efforts to curtail the conceptualization, development, possession, proliferation, use, and effects of WMD, related expertise, materials, technologies, and means of delivery.

2. Countering Weapons of Mass Destruction Policy and Strategy

a. The President provides policy and strategy for USG departments and agencies to ensure unified effort in the *2017 National Security Strategy of the United States of America*

[short title: National Security Strategy (NSS)], *National Strategy for Countering Weapons of Mass Destruction Terrorism,* presidential directives, and other plans and orders.

(1) **NSS.** The President establishes CWMD policy within the first pillar of the 2017 NSS (Protect the American People, the Homeland, and the American Way of Life). It is characterized by counterproliferation (CP) and targeting terrorists that possess WMD.

(2) ***National Strategy for Countering Weapons of Mass Destruction Terrorism.*** The President provides broad lines of effort, strategic objectives, and desired end states in the *National Strategy for Countering Weapons of Mass Destruction Terrorism.* The strategy emphasizes "global-burden-sharing" to counter terrorists with WMD.

(3) **Presidential Directives.** Presidential directives establish strategy and framework and assign roles, responsibilities, and tasks to USG departments and agencies to achieve unity of effort. Presidential directives providing direction for the CWMD mission area include the following:

(a) Presidential Policy Directive (PPD)-25, *(U) Guidelines for US Government Interagency Response to Terrorist Threats or Incidents in the US and Overseas,* provides a framework for the USG response to imminent terrorist threats or incidents requiring a time-sensitive response, including crises involving WMD.

(b) PPD-33, *(U) Detection and Early Warning of Nuclear Proliferation,* establishes interagency framework for the detection of nuclear proliferation to optimize US capabilities, avoid duplication of efforts, address high-priority gaps, and ensure activities are supportive of US national security objectives.

(c) PPD-42, *(U) Preventing and Countering Weapons of Mass Destruction Proliferation, Terrorism, and Use,* is a comprehensive document that addresses proliferation, terrorism, and use of WMD and strengthening nonproliferation regimes and provides a framework for civil nuclear cooperation and countering WMD threats. PPD-42 provides detailed guidance on nuclear threat reduction, technologies, and capabilities to prevent and counter the proliferation and use of WMD, national technical nuclear forensics, and countering WMD terrorism.

b. **Secretary of Defense (SecDef).** DOD derives its national strategic direction primarily from the President's guidance in the NSS, presidential directives, and other national strategic documents, in conjunction with the National Security Council (NSC) and the Homeland Security Council. SecDef's *(U) 2018 National Defense Strategy of the United States of America: Sharpening the American Military's Competitive Edge* [short title: National Defense Strategy (NDS)] is DOD policy that refines the strategic direction of the NSS for DOD.

(1) **2018 NDS**

(a) The NDS is derived from the NSS and is designed to sharpen the Armed Forces of the United States' competitive edge to compete, deter, and win. The strategy recognizes the reemergence of great power competition and focuses on deterring

aggression and coercion by great powers, rogue regimes, terrorists, and WMD threats. It seeks to rebuild our military strength and establish competitive advantages in the face of intensifying pressure from major challengers to ensure the US can sustain its current advantages into the future.

(b) The NDS has 11 defense objectives. The CWMD mission area may be a factor in all 11 of the objectives, one is specifically focused: dissuade, prevent, or deter state adversaries and non-state actors (e.g., terrorists, violent extremist organizations, criminals, scientists, businesses, facilitators, and their networks) from developing, acquiring, proliferating, or using WMD.

(c) The NDS strategic approach is illustrated in Figure I-1. The central idea is to achieve the defense objectives by expanding the competitive space through a more lethal, rapidly innovating joint force and defense enterprise, combined with a robust, more capable alliance and partnership network, and thereby generate the military advantage needed to maintain favorable regional balances of power and increase US influence. This strategic approach and ways provide the capabilities to compete, deter, and win in conflict and reinforce all levels of national power from sustainable positions of military advantage. Expanding the competitive space requires application of all instruments of national power.

(d) The NDS recognizes the threat of WMD as a major global trend. It notes that rogue regimes continue to seek out or develop CBRN weapon capabilities—as well as long-range missile capabilities—and, in some cases, proliferate these capabilities to malign actors. Terrorists likewise continue to pursue WMD. Breakthroughs in chemistry continue to perpetuate the threat of use of deadlier chemical agents such as fourth generation agents. The spread of radiological sources and nuclear weapons technology and advanced manufacturing technology remains a persistent problem. Advances in bioengineering are increasing the potential, variety, and ease of access to biological weapons.

(e) The NDS simultaneity guidance envisions a joint force capable of simultaneously operating and deterring adversaries' and enemies' capabilities and winning any war. For the CWMD mission, this means day-to-day actions to degrade WMD threats, and offensive operations during periods of competition below armed conflict or armed conflict itself, to disrupt WMD threats to protect the homeland. Joint forces apply simultaneous CWMD efforts across all layers of the global operating model: contact, blunt, surge, and homeland defense (HD).

1. **Contact Layer.** Joint force CWMD capabilities are applied together with allies and partners to expand the competitive space by countering WMD proliferation by state and non-state actors and includes pathway defeat and, when required, WMD defeat. See Chapter II, "Operational Environment and Operational Framework," for discussion of both pathway and WMD defeat. The contact layer may include joint force support to nonproliferation efforts by USG departments and agencies charged with managing and ensuring compliance with treaties, conventions, and other control measures. Appendix A, "Organizational and Command Relationships," describes USG departments and agencies' CWMD roles, organization, and responsibilities.

Figure I-1. National Defense Strategic Approach

2. **Blunt Layer.** Ready forces conduct operations to gather data to help commanders determine if a situation or incident should be treated as a WMD event and to support resolution efforts.

3. **Surge Layer.** War-winning forces apply mass to the fight, including action against adversaries with nuclear capabilities.

4. **HD Layer.** Joint forces operate in the homeland and defend the approaches to the homeland. They are capable of defending the homeland against WMD through robust response to threats and incidents. These operations may include defense support of civil authorities (DSCA) and/or HD activities and operations.

(2) The ***Department of Defense Strategy for Countering Weapons of Mass Destruction*** **(DODS-CWMD)** emphasizes shaping the environment to dissuade actors from pursuing WMD, early action through pathway defeat, and cooperating with partners to achieve CWMD objectives. The strategy's four objectives focus efforts for DOD CWMD activities conducted in concert with other USG instruments of national power. For more discussion, see Chapter III, "Planning," paragraph 6, "Countering Weapons of Mass Destruction Strategic Approach for Planning." For more discussion on the means of DOD CWMD, see Chapter IV, "Execution," paragraph 2, "Countering Weapons of Mass Destruction Activities and Tasks."

(3) **Department of Defense Directive (DODD) 2060.02,** *DOD Countering Weapons of Mass Destruction (WMD) Policy,* directs US forces to:

(a) Dissuade, deter, and defeat actors of concern and their networks that seek to harm or coerce the US, its citizens, forces, and its allies and partner nations (PNs) through the use or threat of use of WMD, while maintaining the ability to respond to and mitigate the effects of WMD use.

(b) Implement a strategy for CWMD that supports national strategic guidance and frameworks; support military force planning and doctrine to organize, train, exercise, and equip the Services to counter WMD and prepare appropriate plans to address the defensive aspects of CWMD.

(c) Prevent new WMD possession or WMD use and minimize WMD effects by focusing efforts on the objectives outlined in the DODS-CWMD.

(d) Prepare DOD to support the objectives outlined in the DODS-CWMD by ensuring effective CWMD capabilities, including maintaining and expanding technical expertise.

(4) The ***(U) National Military Strategy of the United States of America, 2018*** **(short title: National Military Strategy [NMS]).**

(a) The Chairman of the Joint Chiefs of Staff (CJCS) provides the joint force with an overarching strategic framework to protect and advance US national interests globally in the NMS. The 2018 NMS contains five mission areas, cited as ways for employment of the joint force. The mission areas are to respond to threats, deter strategic attack (and proliferation of WMD), deter conventional attack, assure allies and partners, and compete below the level of armed conflict. The strategy informs the prioritization of force employment, force development, and force design for the joint force.

(b) The CJCS also directs strategic planning, including development of a functional campaign plan to counter WMD globally. The CJCS is the global integrator for the campaign, while Commander, United States Special Operations Command (CDRUSSOCOM), is the coordinating authority.

3. Relationship to the Joint Functions

a. CWMD activities and operations intersect all functional areas, domains, and combatant commands (CCMDs) and require the integration and coordination of the joint functions discussed in JP 3-0, *Joint Operations*.

(1) **Command and Control (C2).** Unity of command and unified action are essential to CWMD. Acknowledging that not all required CWMD activity authorities are resident in DOD, commanders and planners leverage the authorities, experience, access, and capabilities of the interagency partners, allies, and PNs.

(2) **Information.** Information encompasses the management and application of information and its deliberate integration with other joint functions to influence relevant actor perceptions, behavior, action or inaction, and human and automated decision making regarding the potential development, acquisition, proliferation, or use of WMD. Joint force activities should consider messages that support WMD deterrence, making clear that the cost of adversary action outweighs perceived benefits and that the joint force is prepared to deny the adversary benefits they hope to gain through use of WMD. The overarching theme to DOD efforts supporting CWMD messaging is that the US is committed to identifying and holding fully responsible any actor of concern who willfully supports, enables, or engages in WMD activities to target or threaten the US or our allies and partners, and our aggregate defenses and any post-incident response will result in adversary costs greatly exceeding any perceived benefits of using WMD.

(3) **Intelligence.** Intelligence support to CWMD is critical for commanders and staffs to fully understand WMD in the OE. Intelligence identifies an adversary's WMD pathways and capabilities and will illuminate an adversary's probable intentions, activities, and vulnerabilities. It provides locations, characterization, and security status of toxic industrial materials.

(4) **Fires.** Fires support CWMD operations, actions, and investments by engaging targets associated with WMD pathways and, if necessary, can create effects on WMD targets or delivery systems to prevent their imminent use. When planning CWMD operations, actions, and investments in support of pathway defeat, WMD defeat, or during combat, consider all available joint fires—including electronic attack and other capabilities such as fires in and through cyberspace—along with their effects and associated risks.

(5) **Movement and Maneuver.** CWMD activities and operations can enhance joint force movement and maneuver by limiting the adversary's ability to deny freedom of action with the use or threatened use of WMD. Specific CWMD activities may require careful movement and maneuver considerations, especially when planned to take place in denied areas. When possible, this function should posture and position conventional forces, special operations forces (SOF), or specialized CBRN response capabilities where they can most effectively prevent, protect against, or respond to WMD use.

(6) **Protection.** Protection focuses on conserving the joint force's combat capabilities through:

(a) Active defensive measures to protect the joint force from a WMD attack.

(b) Passive defensive measures, including detectors and mission-oriented protective posture/collective protection, which will enable friendly forces, systems, and facilities to identify and continue to function in a contaminated environment and to continue emergency management and CBRN response in order to reduce the loss of personnel and capabilities due to WMD attacks or CBRN incidents. When directed, the joint force commander's (JFC's) requirement to protect may extend beyond force protection and encompass protection of US civilians; the forces, systems, and civil infrastructure of PNs; and interagency partners.

(7) **Sustainment.** Sustainment refers to the provision of logistics and personnel services necessary to maintain and execute CWMD operations and activities until mission accomplishment. Sustainment support can be provisioned from military units or commercial sources. Operational contract support is the process of planning for and obtaining supplies, services, and construction from commercial sources in support of combatant commander (CCDR)-directed operations. Planners should consider CWMD- and CBRN-related sustainment requirements, such as chemical defense equipment, medical countermeasures, and CBRN defense materials required for protection, continuing the fight, and remediation after CWMD activities.

For more information, see JP 4-0, Joint Logistics; *JP 4-02,* Joint Health Services; *and JP 4-10,* Operational Contract Support.

4. Countering Weapons of Mass Destruction Doctrine Relationship to Other Doctrine

CWMD doctrine applies across the scope of military activities and operations where the potential for WMD threats exists. Other doctrinal publications addressing activities and operations for which CWMD doctrine should be a planning and operational consideration. Since CWMD activities are often linked with the potential for operations in CBRN environments, the relationship with CBRN defense doctrine is important. CBRN defense refers to the employment of capabilities that counter the entire range of CBRN hazards. Specific CBRN-related joint doctrine includes JP 3-11, *Operations in Chemical, Biological, Radiological, and Nuclear Environments,* and JP 3-41, *Chemical, Biological, Radiological, and Nuclear Response.*

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CHAPTER II
OPERATIONAL ENVIRONMENT AND OPERATIONAL FRAMEWORK

"Actors of concern pose a threat of developing, acquiring, proliferating, or employing weapons of mass destruction (WMD) and related capabilities–expertise, materials, technologies, and means of delivery. These activities present a clear potential threat to the strategic objectives of the United States"

***Department of Defense Strategy for Countering Weapons of Mass Destruction*, June 2014**

1. General

a. This chapter provides a general overview of the WMD environment, which comprises development pathways, proliferation and procurement networks, possession and/or use of WMD, and actors of concern operating within the WMD continuum. This chapter also introduces the operational framework as the foundation for specific CWMD tasks, as well as planning and execution considerations addressed in follow-on chapters.

b. The global security environment is becoming more complex and threatened with adversary pursuit of WMD, delivery systems, and related CBRN technologies which challenges the joint force, international organizations, and PNs. The evolution of the WMD threat has created new challenges for JFCs beyond dealing with adversary WMD use. The proliferation of WMD is a transregional problem that routinely crosses geographic CCMDs' geographical boundaries. The primary challenges facing the JFC encompass:

(1) The diversity of threat actors—expansion from traditional state actors down to the possibility of a lone actor with no particular affiliation.

(2) The emergence of novel WMD threats (i.e., nontraditional agents [NTAs]).

(3) The dual-use nature of much of the related technology and expertise.

(4) The increasing complexity of the WMD continuum and number of proliferation and procurement networks.

c. The scope and speed associated with WMD development activities juxtaposed with the dispersed nature of CWMD activities across the USG require the JFC to coordinate with interagency partners to enable their activities while leveraging PNs' capabilities. CWMD requires a strong partnership between the US, its allies, and other PNs to combine their CWMD capabilities and to dissuade, deter, or defeat WMD adversaries and threats.

2. Weapons of Mass Destruction Activity Continuum

a. **Overview**

(1) Although the characteristics of the WMD continuum are continuously evolving, one constant remains—all actors use pathways to develop or acquire WMD. These pathways consist of networks or connections among individuals, groups, and organizations that enable the development, possession, and/or proliferation of WMD and related capabilities. WMD pathways continuously adapt to keep pace with changes in the OE. They are supported by a complex array of actors and networks that take advantage of permissive environments, accessibility of dual-use technology, and available expertise to support WMD development.

(2) Supply and demand characteristics of the proliferation supporting pathways are a combination of witting and unwitting participants that may or may not adhere to existing proliferation norms and rules. The increasing number of suppliers and network enablers available to those seeking to develop WMD increases the availability of the necessary materials and knowledge to develop WMD and the means to deliver them. This increase also creates greater challenges for those attempting to prevent proliferation.

(3) Innovation and the dual-use nature of technology, materials, and equipment make identifying pathways and preventing WMD development difficult. Advanced technology, materials, and equipment is available to anyone who can afford it and ownership does not necessarily constitute illegal or nefarious intent. The procurement of advanced technology can condense timelines which limits options to prevent WMD development and increases the risk of surprise.

(4) Monitoring and controlling WMD pathways is essential in denying actors of concern access to WMD technology, knowledge, materials, expertise, and weapons. Globalization has enabled the creation of new, innovative, and sophisticated pathways that facilitate development, procurement, and proliferation efforts. The evolution of new pathways, combined with the spread of knowledge and ease of access to critical components, makes WMD detection more difficult.

b. **WMD Activities**

(1) Though not necessarily sequential, the WMD activity continuum covers the spectrum of WMD activities from intent to use (Figure II-1). A subset of this continuum is those activities that are strictly associated with the development of a WMD capability. These activities encompass intent, infrastructure, expertise, production, weaponization, and delivery systems. Beyond the development pathways is the achievement of an initial capability, qualitative and quantitative capability improvements, and potential WMD use.

(2) WMD development is not a linear process. Actors can conduct multiple activities simultaneously to reduce the time needed to achieve a capability. Additionally, procurement of advanced technologies can enable actors to bypass technological hurdles inherent in WMD development. Actors can also circumvent WMD development entirely by directly acquiring a weapons capability from another actor.

(a) **Intent.** Desire or decision to develop and/or acquire WMD. This decision may be made by a small group of actors, organizations, or nation leaders. The

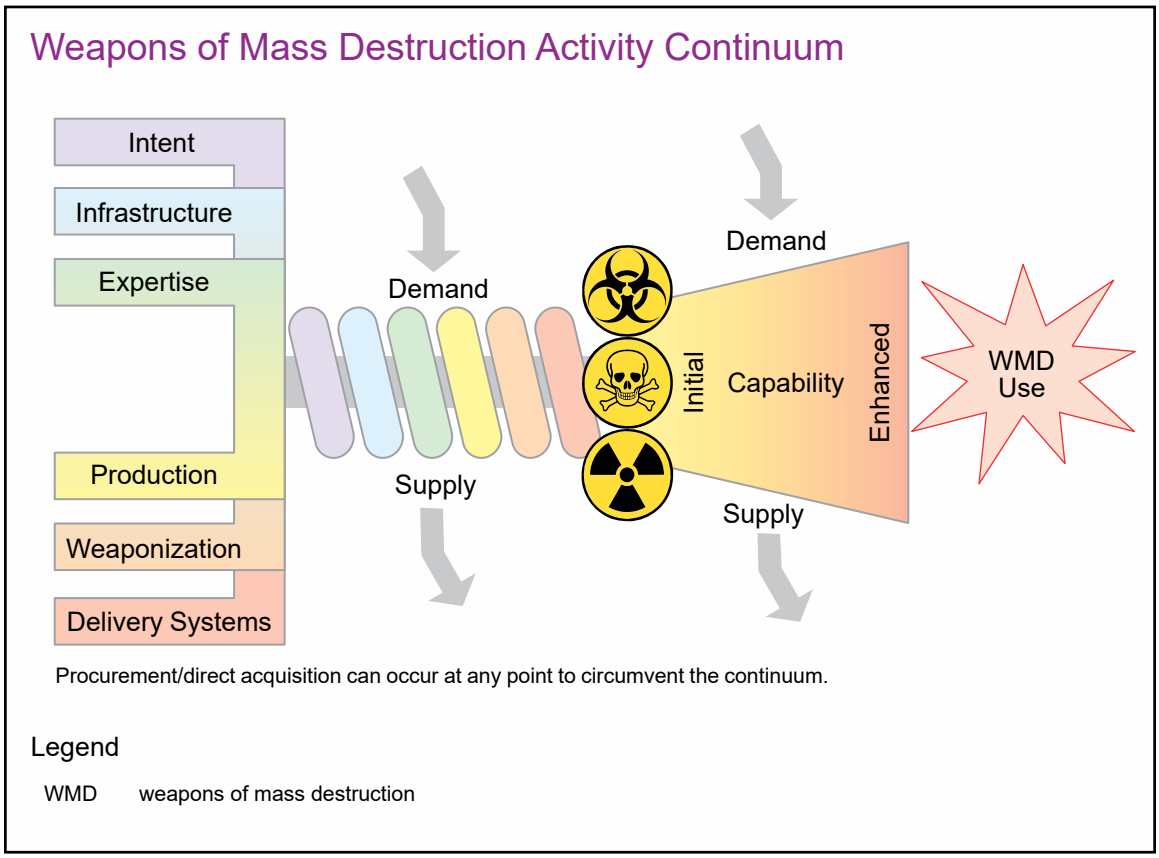

Figure II-1. Weapons of Mass Destruction Activity Continuum

likely compartmentalization and secrecy of such decisions can make it difficult to gather intelligence to identify an actor's intent.

(b) **Infrastructure.** Development and establishment of physical and organizational infrastructure necessary to support WMD development. This includes specialized facilities, equipment, raw materials, acquisition, and logistic networks, as well as financial means to support them.

(c) **Expertise.** Development, procurement, or acquisition of technical expertise required to build WMD. This includes building the knowledge base to support all of the activities in the continuum.

(d) **Production.** Activities to produce components and materials necessary to construct and maintain WMD. Production can include the use of civil infrastructure to progress along the continuum without inciting international reaction.

(e) **Weaponization.** Activities to convert critical components, chemical/biological agents, or radiological/fissile material into a weapons package.

(f) **Delivery Systems.** Development of mechanisms to mate CBRN weapon packages with a system capable of delivering it to a specified target.

3. Weapons of Mass Destruction Supply and Demand Networks

a. WMD networks are the connective tissue a state or non-state actor uses to gain or transfer access to weapons, material, technology, and expertise. These networks enable state and non-state actors to acquire, develop, proliferate, or use WMD. Licit and illicit organizations operating transregionally may wittingly or unwittingly support the proliferation and/or use of WMD through networks and add to the complexity of mitigating the WMD threat. Examples of existing networks include the use of front companies, intermediaries, and shell corporations to procure sensitive items from the global market. Networks may be limited in their duration and may be dissolved once their purposes are achieved. The interconnectedness and sheer number of networks available to move knowledge and materials globally complicates the ability to identify and interdict them.

b. Most WMD pathways take advantage of preexisting networks (both licit and illicit) to facilitate the movement of people, material, information, infrastructure, and money. The use of existing legitimate networks for nefarious purposes presents a challenge to the JFC. Decisions to interdict, surveil, or disrupt a given network node or connective link may create unintended consequences if not thoroughly analyzed. For example, if an established transportation route is used to move WMD materials of concern, the JFC and PN officials should develop interdiction plans that minimize the disruption of legitimate movement of goods, while ensuring the means to stop the flow of WMD materials is in place. Potential links between networks comprise material, people, information, infrastructure, money, and lines of communication. Recognition and appreciation of these links, and their interconnectivity, will guide the development of the means to illuminate, monitor, and, if necessary, interdict, disrupt, or destroy them. This awareness is paramount for a pathway defeat approach to CWMD.

c. States that have developed WMD, or were once recipients of WMD-related technologies and materials, may begin to indigenously produce and export these same technologies to other countries of proliferation concern. The ability and willingness of these states to export WMD-related expertise, technologies, and materials to other states outside of, or in noncompliance with, international nonproliferation rules are a serious threat. Non-state actors (e.g., terrorists, violent extremist organizations, criminals, scientists, businesses, facilitators) and their networks may be involved in the intentional or unintentional proliferation of WMD-related technologies and materials. This compounds the risks of acquisition of WMD by actors of concern.

For further information on networks, see JP 3-25, Countering Threat Networks.

4. Weapons of Mass Destruction Actors of Concern

Actors of concern consist of state and non-state actors that carry out activities that, left unaddressed, pose a potential threat to the strategic objectives of the USG. In the WMD context, an actor of concern poses a threat of developing, acquiring, proliferating, or employing WMD; related expertise; materials; technologies; and means of delivery. These actors may also perceive destructive capabilities of WMD as a highly desirable means to counter more technologically advantaged nations and alliances.

a. **State Actors.** States may view WMD possession as a source of strategic leverage, international prestige, regional dominance, or deterrence. This may be accomplished through the threat or actual use of WMD. For a state to employ WMD, it must possess one or more weapons, a viable delivery capability, and the infrastructure necessary for C2 of the weapon system. States lacking a conventional delivery capability or seeking to avoid attribution may use asymmetric means or proxies (state or non-state) to deliver weapons. JFCs use joint intelligence preparation of the operational environment (JIPOE) to assess an actor of concern's capability to employ WMD. If state and regional instability increases in or around WMD possessor states, full control of weapons or WMD materials of concern may be jeopardized. JFCs should partner with other USG and multinational partners to advocate for responsible stewardship.

For further information on JIPOE, see JP 2-01.3, Joint Intelligence Preparation of the Operational Environment.

b. **Non-State Actors.** The WMD acquisition and development efforts of non-state actors differ from traditional state programs in their organization, scale, and resourcing. Many chemical and biological production facilities used by a non-state actor, such as clandestine laboratories, can operate within a limited space (e.g., one-car garage), using common, dual-use, or improvised equipment. Detecting and disrupting non-state actor networks and small-scale production facilities is a significant challenge for the JFC. Non-state actors can operate independently, with state actor support, or in tandem as enablers or as proxies of state actors. Non-state actors are likely to employ WMD in an unconventional manner as an improvised threat. This can include improvised CBRN weapons or using CBRN material as enhancements to improvised explosive devices. Employment of CWMD capabilities, such as weapons technical intelligence, facilitate understanding and subsequent defeat of networks that support non-state actors in acquiring or developing WMD.

5. Chemical, Biological, Radiological, and Nuclear Environment

a. This section provides a general overview of the CBRN threat and effects of WMD use. CBRN weapons may be used to attack US citizens, infrastructure, or vital interests; to target US power projection, sustainment, and force protection vulnerabilities; to deny access to an area, limiting the ability of the US to respond to urgent threats; or to undermine support by key regional partners for US vital interests through intimidation.

(1) **Chemical Agent Effects.** Most chemical agents are extremely lethal and rapidly produce mass casualties among unprotected personnel. The burden posed by implementing protective measures and measures to mitigate the spread of contamination will likely negatively affect operating tempo. Mass casualties could overwhelm medical facilities or spread contamination denying continued use of those facilities. C2 assets can become overwhelmed with managing effects of the chemical weapon attack, which would adversely impact awareness of other activities. Additionally, contaminated ports and airfields could hamper the flow of logistics, reduce sortie generation, and delay forward movement.

(2) **Biological Agent Effects.** The effects of biological weapons on an operation will depend on the type of operation, the number of casualties, the severity of incapacitation of individual military personnel (i.e., Service members merely inconvenienced or completely removed from the fight), the demand for medical personnel, the amount and type of medical supplies required, equipment (from antibiotics to beds and ventilators) and facilities to treat casualties, quarantine or monitoring of exposed but asymptomatic personnel, the need for medical evacuation assets (e.g., vehicles, planes, escorting medical attendants), and the infectiousness of the agent between humans. A biological attack can range in operational decrement from that of a more limited impact to unit effectiveness due to lost duty days (e.g., norovirus outbreak) to catastrophic for affected units (e.g., pneumonic plague). Depending on the agent, effects can be temporary or permanent for those affected. Toxins are poisonous substances that may be produced synthetically, such as commercial processes for microbial and fungal products. Technology for bulk production of some toxins exist. Disease outbreaks must be aggressively addressed to save lives, but it is also imperative to discern whether an outbreak is deliberate, accidental, or naturally occurring. Forensics provide attribution to identify those responsible. Following a disease outbreak, a case definition needs to be constructed to determine the number of cases and the attack rate. If the attack rate deviates from the norm, an outbreak is more likely. Potential epidemiological clues to a biological attack include highly unusual events with large numbers of casualties, higher morbidity or mortality than expected for a given disease, unprecedented antibiotic resistance for a given pathogen, uncommon disease in a geographical area, point-source outbreak with shorter incubation time than usual (due to an increased amount of inoculum), multiple disease outbreaks, lower attack rates in protected individuals, dead animals, reverse spread (i.e., from humans to animals or disease observation in animals and people concurrently), unusual disease manifestation (e.g., inhalation and cutaneous anthrax in multiple regions concurrently), downwind plume pattern, and direct evidence.

(3) **Radiological Effects.** Radiological weapons include radiological dispersal devices (RDDs) and radiological exposure devices (REDs). Radiological weapons are considered a serious threat due to the availability of radiological sources. These sources are used throughout the medical, research, and industrial communities with minimal security precautions. Radiological weapons are not considered to be militarily useful for a state but may be desirable for non-state actors and terrorist organizations wishing to inflict psychological and economic damage.

(a) **RDD.** RDDs are improvised assemblies or processes, other than nuclear explosive devices, designed to disseminate radioactive material to cause destruction, damage, or injury. RDDs contaminate the environment with radioactive materials and threaten populations with exposure. Their use may also result in area denial and costly cleanup or decontamination. An RDD is a possible terrorist weapon given the prevalent commercial use of radioactive source material and the relatively ease to disperse this material using conventional explosives.

(b) **RED.** REDs are highly radioactive penetrating sources (gamma and/or neutron) which are relatively easy to deploy and are placed in a location where people could be exposed, injured, or killed.

For further guidance on improvised explosive devices, refer to JP 3-15.1, Counter-Improvised Explosive Device Activities.

(4) **Nuclear Weapons Effects.** When detonated, a nuclear weapon will release its energy as blast, electromagnetic pulse, thermal radiation, and nuclear radiation (alpha and beta particles, gamma rays, and neutrons). The primary hazards for unshielded personnel are blast, prompt radiation, and thermal radiation, which are dependent on the size of the weapon, the proportion of energy released due to fission instead of fusion, the height of the detonation, and atmospheric conditions. When the detonation occurs as an air burst high enough that the fireball does not touch the ground, the fission products are scattered widely from the point of detonation. When the detonation occurs under, at, or near the surface, the fission products mix with surface materials, such as dirt and soil, and settle in a pattern commonly known as fallout around the area of detonation in the direction of the prevailing winds. This produces the preponderance of the radiation hazard and casualties beyond the immediate point of detonation. The effects from a nuclear weapon will extend hundreds of meters to hundreds of kilometers depending on the weapon characteristics and method of delivery. These effects include electromagnetic pulse effects that may vary based on weapon type and configuration, height of burst, and environmental conditions, and other factors. These effects could damage or disrupt various electronic systems impacting operations.

For further information on CBRN weapons and effects, see JP 3-11, Operations in Chemical, Biological, Radiological, and Nuclear Environments.

6. Operational Framework

a. **Overview.** The operational framework for CWMD (Figure II-2) consists of three organizing CWMD principles (prevent, protect, and respond) carried out through specialized activities (pathway defeat, WMD defeat, and CBRN response).

b. **CWMD Organizing Principles.** CWMD operations and activities focus on pathway defeat and utilize prevent, protect, and respond as CWMD organizing principles for planning. The joint force conducts a wide range of CWMD operations and activities against state and non-state actors of concern to deter the conceptualization, development, possession, proliferation, and use or threat of use and mitigate the effects of WMD.

(1) **Prevent.** This organizing principle consists of activities and operations to dissuade states or non-states from pursuing the development or acquisition of WMD. Prevent activities and operations also extend beyond the attainment of WMD capabilities, disrupting proliferation from possessor state or non-state actors and deterring WMD use. Examples of activities conducted in support of prevent include promoting treaty compliance and control regimes; impeding the transfer of materials of concern; restricting the supply of WMD-related capabilities; and conducting pathway defeat activities and operations to dissuade, deter, delay, disrupt, destroy, deny, and assure. Such activities will complicate access to scientific expertise and technologies, infrastructure, and materials of concern. Prevent activities and operations are frequently conducted with other USG departments and agencies, as well as PNs with capabilities and capacity to address WMD

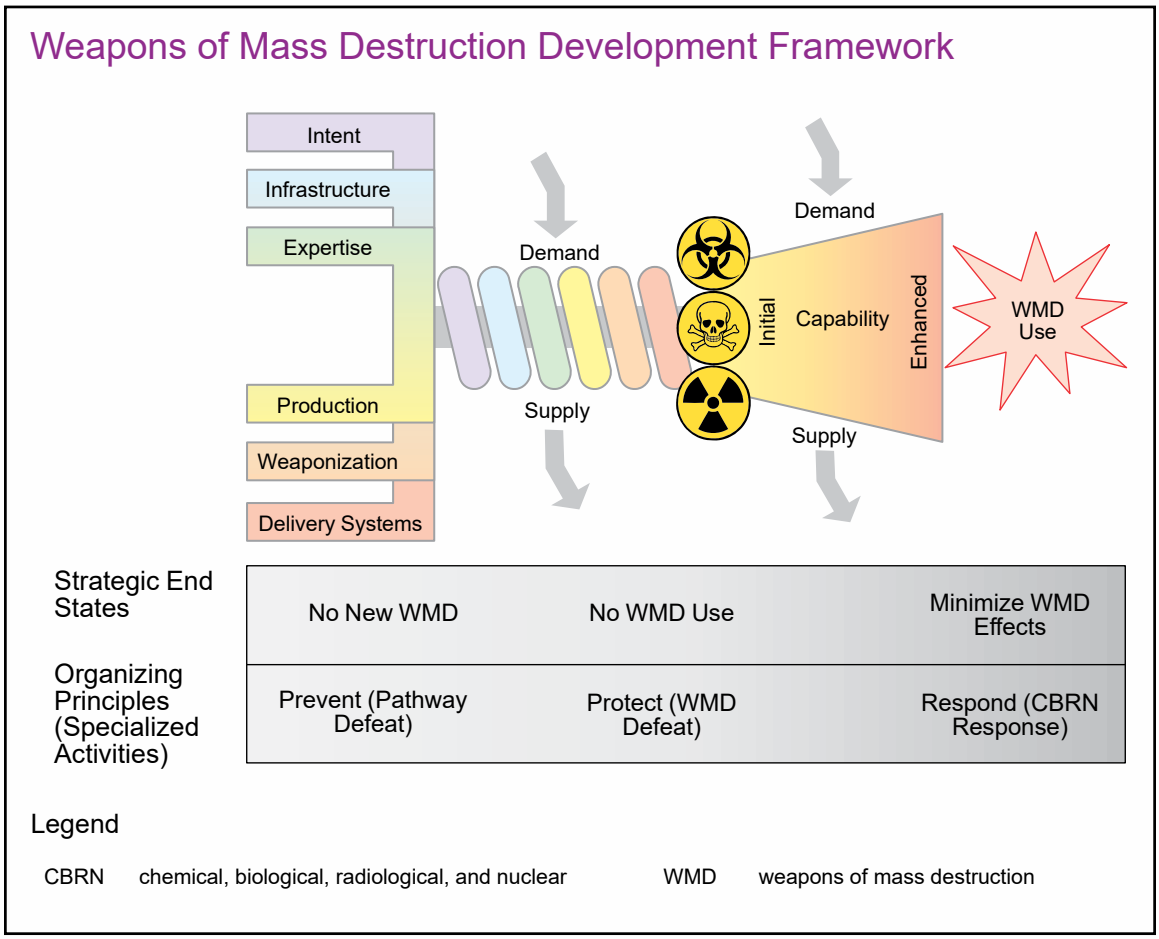

Figure II-2. Weapons of Mass Destruction Development Framework

threats and related missile systems. Prevent includes aspects of both nonproliferation and CP. While nonproliferation is principally applied to prevent the acquisition or development of WMD by state or non-state actors during the early WMD development stages, it may also be employed in latter stages. CP applies to those actions taken to prevent proliferation, stop or roll back current WMD programs, defeat delivery systems, and protect US interests from the threat of or use of WMD. CP activities are principally applied after adversaries develop WMD, but they can also be applied early on in the WMD development and acquisition stages.

(2) **Protect.** This organizing principle consists of activities and operations to protect the US and its interests from attack or coercion by WMD possessors. Concurrently, the joint force conducts activities and operations to contain or reduce existing WMD stockpiles. Protect activities and operations, below armed conflict, may include building a layered and integrated WMD defense to disrupt WMD deployment and posturing forces to respond to WMD attacks. Central to planning for and execution of WMD defeat activities and operations are the ability to control, defeat, disable, and dispose of extant WMD capabilities, to include related delivery systems. The joint force builds partner capacity and conducts security cooperation (SC) to assist allies and PNs with CWMD activities in their homeland or abroad.

(3) **Respond.** This organizing principle consists of activities to support operations in a CBRN environment, to respond to or mitigate the effects of a WMD or CBRN event, and to support USG efforts to attribute WMD attacks. Respond emphasizes CBRN preparedness of personnel, capabilities, and forces to attribute, mitigation effects, support and sustain operations during day-to-day activities. Leveraging USG capabilities to respond to CBRN events such as WMD use or toxic industrial incidents is critical. Building partner capacity to respond to such incidents is also essential and should influence planning priorities at all levels. Ensuring strong working relationships exist between the USG and PNs will help to minimize the effects of WMD or CBRN crises, demonstrate resiliency, and contribute greatly to deterrence.

c. **Specialized Activities.** The JFC conducts the following specialized activities with the ultimate end state of ensuring the US, allies, partners, and interests are neither coerced nor attacked:

(1) **Pathway Defeat.** Pathway defeat activities and operations are designed to prevent actors of concern from developing or acquiring WMD capabilities and to ensure those who do not possess WMD do not obtain them. Pathway defeat comprise operations and activities to delay, disrupt, destroy, or otherwise complicate networks, links, and nodes that support the conceptualization, development, production, and proliferation of WMD. Though pathway defeat efforts primarily focus on the prevention of WMD development, activities and operations also include countering horizontal proliferation and/or procurement once an initial capability has been attained. Chapters III, "Planning," and IV, "Execution," expand on planning and executing considerations and specialized tasks for preventing WMD acquisition or development. Designated USG departments and agencies have primary responsibility for most CWMD efforts preceding WMD use. Therefore, the JFC must closely work with other USG partners to learn about their activities, as well as cooperate to fully understand the intricacies of pathways and associated networks to effectively counter WMD development, proliferation, and/or procurement. By examining WMD pathways through the lens of people, places, and things, it is possible to detect efforts previously unidentified, emerging WMD actors and take action to complicate, disrupt, or stop progress toward WMD development.

(2) **WMD Defeat.** WMD defeat activities focus on actions to contain and reduce risks posed by extant WMD and/or stockpiles. Whether supporting the interagency or as a lead, WMD defeat comprise operations and activities to contain, reduce, reverse, neutralize, or destroy extant WMD and the ability to stockpile, transfer, or employ WMD. These activities and operations may range from threat reduction cooperation while operating in a permissive environment to the execution of lethal options. Chapters III, "Planning," and IV, "Execution," expand on planning and executing considerations for protecting against extant WMD capabilities and preparing for response, as well as specialized tasks for CBRN response.

(3) **CBRN Response.** CBRN Response activities focus on actions taken to defend, respond, and recover from WMD use if and when deterrence fails. The JFC postures, prepares the force, and mitigates CBRN effects to operate and win in any given environment. The JFC may also be called upon to support response efforts of allies and or

PNs, as well as provide defense support to US civil authorities and assist with forensic attribution. JP 3-41, *Chemical, Biological, Radiological, and Nuclear Response,* expands on planning and executing considerations, as well as specialized tasks for responding to CBRN use.

For additional information on the specialized tasks, see Chapter IV, "Execution," paragraph 4, "Organizing Principles and Specialized Tasks."

d. Proactive actions can be taken at every stage of the WMD activity continuum to successfully counter WMD development or proliferation, or use. CBRN defense activities including reconnaissance and surveillance provide hazard awareness and understanding of threats in order to posture forces. Furthermore, JFCs should bear in mind international nonproliferation rules and dual-use technologies and capabilities may complicate CWMD activities (e.g., Article IV of the Treaty on the Nonproliferation of Nuclear Weapons [short title: Nonproliferation Treaty {NPT}] acknowledges its signatories right to develop nuclear energy for peaceful purposes, which may also mask the development of fissile material for warheads).

e. States with extant WMD capabilities may begin to indigenously produce and export these same or related technologies to other actors of concern. The ability and willingness of these states to export WMD-related technologies and materials to other states outside of, or in noncompliance with, international nonproliferation rules are a serious threat. Furthermore, a proliferation threat exists from non-state actors who proliferate WMD-related technologies and materials, increasing the risks of terrorists acquiring WMD. While difficult to detect, WMD proliferation that occurs outside of international controls remains a JFC concern.

JP 3-41, Chemical, Biological, Radiological, and Nuclear Response, *expands on planning and executing considerations, as well as specialized tasks for responding to CBRN use.*

CHAPTER III
PLANNING

"Countering WMD [weapons of mass destruction] efforts often occur as part of larger United States Government activities or military operations. Consequently, they must be fully integrated into other plans and activities rather than isolated as separate efforts."

Department of Defense Strategy for Countering Weapons of Mass Destruction,
June 2014

1. General

Introduction. This chapter provides JFCs with information to assist them in the joint planning process (JPP) to translate strategic CWMD guidance into operational designs and corresponding plans that account for the transregional nature of the WMD problem set. This chapter also discusses the many aspects of CWMD that should be integrated into joint campaign, contingency, concept, and operation plans. Additionally, current planning requires the integration of military CWMD planning with the other instruments of national power to accomplish USG strategic objectives. Ultimately, across the entirety of the CWMD mission, CWMD planning integrates WMD-specific knowledge, experience, and capabilities into the JFC's overall JPP.

2. The Competition Continuum and Countering Weapons of Mass Destruction Across the Range of Military Operations

a. **Competition Continuum.** The competition continuum is the environment under which we conduct the range of military operations. The dynamic and complex environment in which WMD acquisition and use occur requires the integration of activities and operations across the competition continuum. The common aspect across the continuum is an active campaigning mindset. Cooperation and competition below armed conflict are, for practical purposes, always occurring, so the presence or absence of armed conflict is the only variable element. This comprehensive framework requires the joint force to play a more prominent role in areas regarded as outside the military sphere and thus requiring integrated efforts with USG partners. JFCs determine the most effective blend of CWMD activities and operations throughout the competition continuum to address unique challenges posed by WMD. JFCs ensure these activities are best suited to dissuade countries from developing WMD, deter use of WMD by actors of concern that have developed a WMD capability, and, if necessary, defeat any state or non-state actor that uses or threatens the use of WMD.

(1) Competition may also include, with SecDef approval, WMD defeat operations against extant WMD capabilities in the hands of actors of concern. Competition with a state actor does not preclude some cooperation with the same actor on other areas. When properly executed, competition below armed conflict creates strategic opportunities for the US and its partners.

(2) The joint force cooperates with existing and new partners to understand the OE and develop their capabilities to conduct CWMD actions unilaterally or with the US either regionally or transregionally. Cooperation may also include nonproliferation activities to ensure compliance with treaties, conventions, and other control regimes.

b. **Operations Across the Competition Continuum.** JFCs conduct CWMD in a wide variety of combat and non-combat situations across the competition continuum. The competition continuum is augmented by the understanding that military activities and operations take place along a continuum that spans from cooperation to competition below the level of armed conflict to armed conflict. Military activities and operations involve USG interorganizational support, as well as engagement with local CWMD forces and governments; developing indigenous CWMD security capabilities; deterring WMD threats; WMD crisis response operations; limited contingencies; and, when required, CWMD operations in support of major operations and campaigns to counter WMD threats. Furthermore, CWMD operations and activities along the competition continuum are not arbitrarily binned into phases and may take place concurrently.

For more information on the competition continuum, see JP 3-0, Joint Operations.

(1) **Major Operations and Campaigns.** The President and SecDef may decide to conduct major operations or campaigns involving large-scale combat to defeat a significant WMD threat. Major operations and campaigns are characterized by the legal use of violence to defeat another state's military forces, as well as employment of other US instruments of national power—diplomatic, informational, and economic. CWMD may be the primary focus of a major operation or campaign or a subordinate objective. Operations, activities, and investments below armed conflict and cooperation efforts may take place while the joint force simultaneously executes major operations and campaigns.

(2) **Crisis Response and Limited Contingency Operations**

(a) **Crisis Response.** The President and SecDef respond to imminent WMD threats or actual WMD incidents by executing CJCS or CCMD CWMD crisis response plans. CWMD crisis response operations, such as mitigating the effects of a CBRN incident, may involve multiple threat locations. SecDef may deploy national forces to address the situation and/or a CCMD may employ theater forces. Given the transregional nature of the WMD environment, response plans often require an integrated approach and collaboration between multiple CCMDs, PNs, and other mission partners.

For further guidance on military support to foreign CBRN response, refer to Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3214.01, Defense Support for Chemical, Biological, Radiological, and Nuclear Incidents on Foreign Territory, *and JP 3-41,* Chemical, Biological, Radiological, and Nuclear Response, *for joint CBRN response.*

(b) **Domestic Response.** Domestically, the Federal Bureau of Investigation (FBI) is the lead federal agency for criminal investigations of all terrorist-related incidents and threats, including those that involve nuclear/radioactive materials. The Department of

Homeland Security (DHS) is the lead for contingency response operations domestically with the United States Coast Guard (USCG) and Environmental Protection Agency.

For further guidance on military support to domestic CBRN response, refer to CJCSI 3125.01, Defense Response to Chemical, Biological, Radiological, and Nuclear (CBRN) Incidents in the Homeland. *See JP 3-41,* Chemical, Biological, Radiological, and Nuclear Response, *for joint CBRN response, and JP 3-28,* Defense Support of Civil Authorities, *for guidance on DSCA.*

(c) **Limited Contingency Operations.** In cases where there is time to develop a contingency plan, the CCMD may employ CWMD forces in small-scale operations, limited by duration and/or scope of the objective. Limited contingencies may be conducted to achieve independent objectives as part of activities below armed conflict or in support of major operations of extended duration involving sustained combat to protect US interests, prevent attack, further conflict, or engage adversaries. CWMD limited contingencies may take the form of intelligence operations to illuminate a WMD proliferation network determined to be a threat to the US, strikes, or raids to neutralize or reduce the threats and other operations as directed by SecDef.

For more guidance on joint operations and planning, refer to JP 3-0, Joint Operations, *and JP 5-0,* Joint Planning.

(3) **Military Engagement, SC, and Deterrence Activities.** The primary purpose of CWMD military engagement and SC activities is to enable PNs to build indigenous capabilities that deter WMD threats and incidents, as well as conduct operational preparation of the environment (OPE) to a desired set of conditions to facilitate stability and future operations, as well as to support CWMD planning. Intelligence operations and OPE include activities to understand the OE, information exchange and intelligence sharing, development of PN and friendly military capabilities, identification and development of infrastructure and logistics capabilities, interagency coordination, and other efforts to ensure access to critical regions across the globe.

(a) **Military Engagement.** CWMD military engagement is a noncombat activity conducted by CWMD staff representatives and forces conducting CWMD operations. The objective of military engagement is to build trust and confidence, share information, coordinate mutual activities, maintain influence, build defense relationships, and develop allied and friendly military capabilities for self-defense and multinational operations.

(b) **SC.** SC in support of CWMD is a noncombat activity involving interaction with foreign forces and the building of relationships promoting US CWMD interests, developing PN CWMD capabilities and capacities for self-defense and multinational operations, and providing US forces with peacetime and contingency access to critical regions around the world. SC activities may advance US CWMD interests and efforts.

(c) **Deterrence Activities.** Deterrence activities are conducted in an effort to prevent WMD proliferation and/or use by presenting a credible US and/or PN response through specific counteractions that would deny the effects an enemy intends to create by using WMD. Effective deterrence may also call into question the utility of an adversary's intent to develop, maintain, or use WMD. Military force may be necessary to compel an enemy to stop using WMD and to reestablish deterrence. Ideally, effective deterrence influences an adversary's decision-making processes without the need for military action. Military engagement, SC, force posturing and forward deployment, information integration, and demonstration of fielded CWMD capabilities all contribute to deter use of WMD. Deterrence in one region may cause actors in another area to reconsider their intent to proliferate or deliver WMD.

3. General Countering Weapons of Mass Destruction Planning Guidance

a. Guidance for CWMD planning exists within national and DOD-specific guidance documents (addressed in Chapter I, "Introduction"). The development of CWMD plans and planning products serve to address campaign, contingency, and support planning requirements derived from strategic guidance. Specific planning products support requirements described in CJCSI 3110.01, *(U) 2018 Joint Strategic Campaign Plan (JSCP)* [short title: JSCP].

b. The JSCP contains a number of CWMD planning requirements, to include a JSCP-directed, CWMD-specific functional campaign plan (*Functional Campaign Plan for Countering Weapons of Mass Destruction* [FCP-CWMD]); CWMD portions of global and regional campaign plans, which are produced by CCMDs and promulgated through the JSCP; either JSCP- or command-directed contingency plans with CWMD supporting annexes or appendices; existing contingency plans, concept plans concept plans, or operations plans; and CWMD-specified plans for existing execute orders.

(1) In addition, regional planning requirements are addressed through geographic combatant commander (GCC) guidance to develop plans focusing on military engagement; SC; deterrence; and other noncombat, understand, shape, and preventive activities through the development of theater-specific plans such as a combatant command campaign plan (CCP) or regional campaign plan. Regional CWMD planning can either be written into stand-alone plans or incorporated into a CCP.

(2) Supporting CCMDs reinforce the planning efforts of supported commands to address transregional planning concerns in their assigned global campaign plans and integrated contingency plans. The GCC may direct the development of a contingency plan to respond to WMD aggression, instability, or failure of a possessor state and other WMD-related threats by crisis response, limited contingencies, or major operations.

For further information on detailed general planning considerations and process descriptions of the JPP, refer to JP 5-0, Joint Planning.

4. Campaign and Operational Design for Countering Weapons of Mass Destruction Planning

Once the JFC and staff have reviewed and analyzed the strategic guidance for CWMD-related campaign plans, and the FCP-CWMD, together with the OE, they articulate current and desired conditions relevant to CWMD. Understanding the underlying factors associated with existing conditions enables planners to identify and describe complex WMD problems and issues. Once problems and issues have been thoroughly identified, the CCMD staff develops their operational approach to describe the commander's vision of where and how resources and effort can be applied to create effects toward the achievement of objectives. The GCC's operational approach for CWMD should be consistent with the strategic approach. The CWMD operational approach reflects the JFC's visualization for creating desired effects. The approach provides the necessary foundation for detailed planning, as well as related branch plans that may evolve. During development of the operational approach, the CCMD staff incorporates CWMD planning considerations outlined later in this chapter.

5. Department of Defense Functional Campaign Plan Countering Weapons of Mass Destruction Integration

The DODS-CWMD and the FCP-CWMD provides CCMDs, the Services, and combat support agencies (CSAs) with a common strategy and framework to synchronize planning on a regional, transregional, and global basis. It integrates DOD-wide efforts to prevent the use, acquisition, and proliferation of WMD; prepare the joint force to respond to WMD crises; and assure allies and partners. While conducting campaign and contingency planning, CCMDs should integrate FCP-CWMD objectives and tasks. CCMDs may either integrate their CWMD planning with respective campaign plans or develop a stand-alone CWMD support plan. All plans should be coordinated with relevant USG departments and agencies, allies, and PNs.

6. Countering Weapons of Mass Destruction Strategic Approach for Planning

a. All plans, where appropriate, should support achievement of DOD's strategic CWMD objectives, namely:

(1) Reduce incentives to pursue, possess, and employ WMD.

(2) Increase barriers to acquisition, proliferation, and potential use of WMD.

(3) Manage WMD risks emanating from hostile, fragile, or failed states and safe havens.

(4) Deny the effects of current and emerging WMD threats through layered, integrated defenses.

b. CCMD planning also accounts for regional, as well as the transregional and global, implications of CWMD-related efforts. In response to the broader NDS guidance and more specific JSCP requirements, CCMDs prepare, coordinate, and include activities and

operations within their respective campaign plans to support global campaign plans. In this manner, transregional planning efforts achieve common regional and global CWMD objectives. GCCs should maintain awareness of CWMD operations and activities occurring outside their area of responsibility (AOR) to avoid negatively impacting or being impacted by other CCDRs' decisions and/or activities. Additionally, Services and CSAs resource the majority of strategic CWMD programs and activities. Therefore, CCMDs should coordinate their plans with these organizations to ensure alignment with current resources and capability development.

7. Planning Considerations

a. **Strategic Implications.** Commanders at every level need to be aware of the strategic implications associated with any WMD threat and adapt their CWMD planning efforts accordingly. CWMD activities and operations occur at all three levels of warfare—strategic, operational, and tactical—and any single action may have consequences at all levels. Nowhere is this more evident than in joint operations involving WMD, where action or inaction at the tactical level can have profound strategic repercussions. The transregional nature of the threat and spectrum of the WMD continuum requires JFCs fully understand the OE, foster civil-military dialogue, align military and nonmilitary activities, employ an integrated approach, and continually assess and adapt planning.

b. **JIPOE.** JIPOE supports the JFC by characterizing the OE that contains WMD as a system of pathways, networks, relevant actors, resources, and extant and potential capabilities, all interacting within the competition continuum. This holistic characterization and predictive analysis enables development of the operational design elements and effective targeting. Additionally, analysis of potential transformational events, such as the rise of new actors of concern and the impact of technology breakthroughs, facilitates national-level determination of end states, objectives, and priorities.

(1) **Understanding the OE.** Progress in the effort to counter WMD depends on understanding the environment as it is, recognizing the change desired, identifying activities to bring about that change, assessing whether that change has occurred, and determining whether the change is a result of those activities or some external factor. Assessing the conditions in the OE will determine where DOD resources and efforts should be focused on a more acceptable set of conditions (e.g., responsible state behavior). This understanding provides planners and operators a better appreciation of the actor of concern and ultimately support preparation of the environment activities for any possible CWMD operation.

(2) **Understanding Baseline Conditions.** As part of the JIPOE process, JFCs develop an understanding of baseline conditions within the OEs. Establishing baseline conditions is essential to creating effects, achieving objectives, and measuring progress toward attaining end states. Analysis of baseline conditions enables the JFC to identify where desired change is possible and to assess whether change has occurred. Baseline conditions are critical to identifying anomalies that may indicate the presence of a WMD threat. Many WMD threats may not be readily apparent without an understanding of

historical conditions. For instance, identifying biological anomalies that are indicators of WMD usage requires an understanding of current and historical disease patterns, since many potential biological weapons are the intentional use of naturally occurring pathogens. Another consideration is the toxic industrial materials that may be manufactured, stored, and/or transported within the OE that may cause WMD-like effects.

For further guidance on JIPOE, refer to JP 2-01.3, Joint Intelligence Preparation of the Operational Environment.

c. **Interagency Coordination.** USG departments and agencies planning and acting together create effects that cannot be created by DOD alone due to differing authorities, responsibilities, and capabilities. Various CWMD missions often place DOD in a supporting role to other USG departments or agencies. CCMDs consider command relationships, integration of resources, and coordination and synchronization of activities as they develop any CWMD-related plans.

d. **Allies and PNs.** DOD CWMD efforts have a greater likelihood of success if planned in cooperation with allies and PNs. CWMD shaping activities planned and executed in cooperation with partners may prevent or disrupt actors of concern acquisition, development, or employment of WMD and alleviate the need for more aggressive and costly action later. In addition, collaborative action is effective at building partner capabilities and creating stronger security relationships with allies and international partners, which reduces impact on joint force resources and enhance the GCC's ability to respond to all types of crises.

e. **Network Perspective.** A JFC's ability to characterize and monitor proliferation networks and state WMD programs as holistic systems is essential to affecting that system. One of the primary challenges facing the JFC is the proliferation of WMD technology and products. The JFC strives to understand the continuous and complex interaction of friendly, enemy, adversary, and neutral networks.

For further guidance on threat networks, refer to JP 3-25, Countering Threat Networks.

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CHAPTER IV
EXECUTION

"Attack him where he is unprepared, appear where you are not expected."

Sun Tzu, *The Art of War*

1. General

Introduction. This chapter describes CWMD specialized tasks, as well as foundational and crosscutting activities and tasks. It also articulates the critical role DOD, joint forces, allies, and partners play in the successful execution of CWMD tasks. Depending on the mission and OE, joint forces may also need to execute actions beyond those discussed in this chapter.

a. Enabling and specialized tasks and associated capabilities are guided by DOD CWMD strategic end states and priority objectives, as shown in Chapter I, "Introduction." CWMD activities and tasks are part of the range of military operations that take place within the competition continuum. In this context, commanders ensure their forces counter the threatened or actual use of WMD by actors of concern in their operational areas and within in all OEs.

b. DOD leverages foundational and crosscutting activities and tasks (as illustrated in Figure IV-1) to support specialized tasks that help prevent new WMD threats or use of WMD, protect against extant WMD, and respond to WMD use by managing and mitigating the associated consequences. DOD coordinates these CWMD efforts while incorporating them into broader plans and activities.

2. Countering Weapons of Mass Destruction Activities and Tasks

a. The arrangement of foundational and crosscutting activities and tasks along with specialized tasks within and across the organizing principles, serve as a method for logically grouping tasks to prevent or counter specific WMD threats. To the extent possible, foundational and crosscutting tasks are executed within the activities of: maintain and expand technical expertise; cooperate with and support partners; and understand the OE, threats, and vulnerabilities. Specialized tasks are placed within the respective organizing principles of prevent, protect, and respond (Figure IV-1). While CWMD tasks may be conducted individually or in conjunction with other operations, collectively they support JFC operations.

b. The joint force leverages specialized and non-CWMD-specific activities and tasks to achieve CWMD objectives. JFCs conduct a range of activities and tasks to advance DOD CWMD efforts or support other USG requirements. These efforts utilize DOD capabilities, such as ballistic missile defense; interagency capabilities, such as materials analysis conducted by national laboratories; and PN capabilities, such as port security. Execution of tasks bolsters common threat awareness and advances CWMD self-sufficiency and military and civilian preparedness. The JFC and staff need to understand

Countering Weapons of Mass Destruction Activities and Tasks

Organizing Principles	Prevent	Protect	Respond
Specialized Activities	WMD Pathway Defeat	WMD Defeat	CBRN Response
Specialized Tasks	Dissuade, deter, delay, disrupt, destroy, deny, assure	Control (isolate, divert, intercept, secure, seize) Defeat (neutralize, destroy) Disable (exploit, degrade) Dispose (reduce, redirect, dismantle, monitor)	Attribute, mitigate, sustain, support

Foundational Activities and Tasks:

- Maintain and expand technical expertise (recruit, develop, retain).
- Cooperate with support partners (partner, coordinate).

Crosscutting Activity and Tasks:

- Understand the environment, threats, and vulnerabilities (locate, identify, characterize, assess, predict).

Legend

CBRN chemical, biological, radiological, and nuclear

WMD weapons of mass destruction

Figure IV-1. Countering Weapons of Mass Destruction Activities and Tasks

the nonlinear and often concurrent nature of military activities that span across the competition continuum.

3. Foundational and Crosscutting Activities and Tasks

a. **Foundational Activities and Tasks.** As depicted in Figure IV-1, foundational activities and tasks for countering WMD consist of:

(1) **Maintain and Expand Technical Expertise.** This activity focuses on nurturing and sustaining the intellectual capital provided by DOD and mission partner CWMD experts. This knowledge and skill sets provide the necessary expertise for CWMD-related planning, research and development, programing, exercising, system integration, analysis, reachback, mission execution, and assessments. Maintaining expertise requires long-term commitment to recruiting, developing, and retaining high-quality personnel.

(2) **Cooperate with and Support Partners.** JFCs should plan to perform CWMD activities and tasks in full cooperation with USG interagency partners in a variety of departments and agencies, multinational partners, and nongovernmental organizations. In concert with the NDS, this activity recognizes the by, with, and through method as an imperative to attaining strategic CWMD end states. This activity promotes common threat awareness, builds CWMD self-sufficiency, improves military interoperability, enhances military and civilian preparedness, enhances deterrence, and, in some cases, facilitates security of dual-use and CBRN materials. The JFC will coordinate with partners to ensure tasks associated with this activity are successfully conducted within military engagement, SC, cooperative threat reduction (CTR), and deterrence operations and activities across the competition continuum. The JFC should seek to strengthen existing partner relationships and support programs to build the foundation for future partnering opportunities. When conducting this activity, CCMDs coordinate with the Office of the Secretary of Defense (OSD) and Department of State (DOS) to make contact with international counterparts in PNs. JFCs need to include partners in planning and execution processes as early as possible. CCMDs can then leverage existing activities, such as multinational training and exercises, to strengthen relationships and improve regional capabilities and capacity to achieve CWMD objectives.

For more information on exercises, see CJCS Guide 3500.01, (U) Chairman's Guidance for Training and Exercise Support to Global Integration.

(a) **Partner Task.** CCDRs maintain partnerships and seek new relationships to build partner capacity in key areas that support CWMD across the competition continuum. Domestic and foreign security partnerships support the collective capability to deter, prevent, respond to, and defeat WMD threats and manage the effects of an attack. These integration activities may require a coordinated international military response to support nonproliferation efforts assigned by treaties, agreements, sanctions, and export control regimes and frameworks and national, international, and host nation (HN) programs.

(b) **Coordinate Task.** Promote and improve common threat awareness, interoperability, and response preparedness. Actions that support this task include operational planning with partners and SC efforts that synchronize CP activities such as interdiction.

b. **Crosscutting Activity and Tasks**

Understand the Environment, Threats, and Vulnerabilities. The JFC develops and maintains a comprehensive understanding of the WMD actors and materials that affect the OE. To accomplish this, the JFC needs to locate, identify, characterize, assess, and predict threats against US and partner vulnerabilities. Capabilities that support these tasks include detection; modeling; identity intelligence; detailed operational planning; and analysis of materials, precursors, and agents related to WMD proliferation, development, or use. The JFC may use a combination of forces and capabilities such as surveillance, reconnaissance, intelligence analysts, interagency experts, conventional forces, and SOF in support of this activity. This activity is an iterative process undertaken

continually throughout the planning process and during execution of operations and activities.

(a) **Locate Task.** The JFC uses SOF and intelligence collection assets to locate WMD-associated system nodes and program elements, to include production facilities, storage/stockpile sites, and key program personnel. Developing robust information sharing relationships, particularly related to identity data, is an essential component to this task.

(b) **Identify Task.** Once a WMD-related element and capability is located, the JFC's intelligence staff, in coordination with mission partners, scopes, categorizes, and prioritizes the posed threat. Confirmation of a threat will lead to further analysis to characterize and then assess specific elements of the program more effectively in follow-on tasks. During conflict, initial identification of CBRN materials will most likely be performed by conventional forces. Prior to execution, conventional forces should be made aware of the types of facilities, material, and munitions they may encounter so personnel protective equipment, security, and reporting are properly prepared.

(c) **Characterize Task.** The JFC gains an understanding of an actor of concern's WMD program by mapping its individual components, internal linkages, and external associations through a variety of intelligence collection and analysis capabilities. This understanding must include the types of weapons and the materials, technology, and expertise associated with all aspects of an actor of concern's WMD capability. The JFC staff uses characterization to inform assessment, attribution, and predictive analysis. During and after conflict, characterization occurs when the joint force has access to and can fully examine WMD facilities, stockpiles, weapons, and/or personnel. Understanding gained through this process conducted by specifically trained and designated forces, combined with subsequent definitive analyses at internationally recognized laboratories, provides overall characterization of a WMD program's size, scope, and type. Specialized, technical capabilities are used to construct a common operational picture presenting current information on the actors of concern, friendly forces, neutral elements, the environment, and geospatial information.

(d) **Assess Task.** Analysis conducted in conjunction with larger DOD, civilian, USG, and international partners helps the JFC determine the threat posed by an actor of concern's WMD program. This includes an assessment by the JFC staff of US and PN vulnerabilities in relation to a specific actor's WMD capability and the overall OE. The JFC may use hazard estimation, measurement, and modeling systems, as well as multinational exercises, to assess the level of threat that an actor of concern's WMD poses to US and friendly forces.

(e) **Predict Task.** Specialized, technical capabilities forecast changes to actors of concern, friendly forces, neutral elements, the environment, and geospatial information. JFCs use modeling, diagnostics, intelligence, and analysis capabilities to understand the current environment, detect anomalies, and continually assess the WMD threat and related networks to extrapolate possible future threats.

4. Organizing Principles and Specialized Activities and Tasks

a. The organizing principles (prevent, protect, and respond) and associated specialized activities (pathway defeat, WMD defeat and CBRN response) serve as the operational framework for CWMD. The specialized tasks are conducted to impede the development or acquisition of new WMD threats; defeat, contain, or reduce extant WMD capabilities; and minimize the effects of CBRN use. Specialized tasks are not unique to a particular organizing principle, but their effects may be greater when conducted in relation to any one organizing principle (see Figures IV-2 through IV-4). The DODS-CWMD emphasizes early action through pathway defeat to dissuade actors from pursuing WMD and cooperating with partners to achieve countering WMD objectives.

(1) **Specialized Activity 1: WMD Pathway Defeat.** WMD pathway defeat and related specialized tasks focus on the prevention of development or acquisition of WMD, to include conventional, cyberspace, and special operations. As illustrated in Figure IV-2, pathway defeat activities have the greatest impact on the prevent organizing principle and focus on actions to dissuade, deter, delay, disrupt, destroy, divert, or otherwise complicate conceptualization and development of WMD. Though not exclusive, pathway defeat actions are often in support to or in close collaboration with interagency partners.

(a) **Dissuade and Deter.** JFCs conduct efforts to persuade or convince potential actors of the futility or overwhelming cost of developing, acquiring, proliferating, or using WMD. These actions, which are employed early in the pathway defeat continuum, are intended to prevent potential actors of concern from making adverse geopolitical

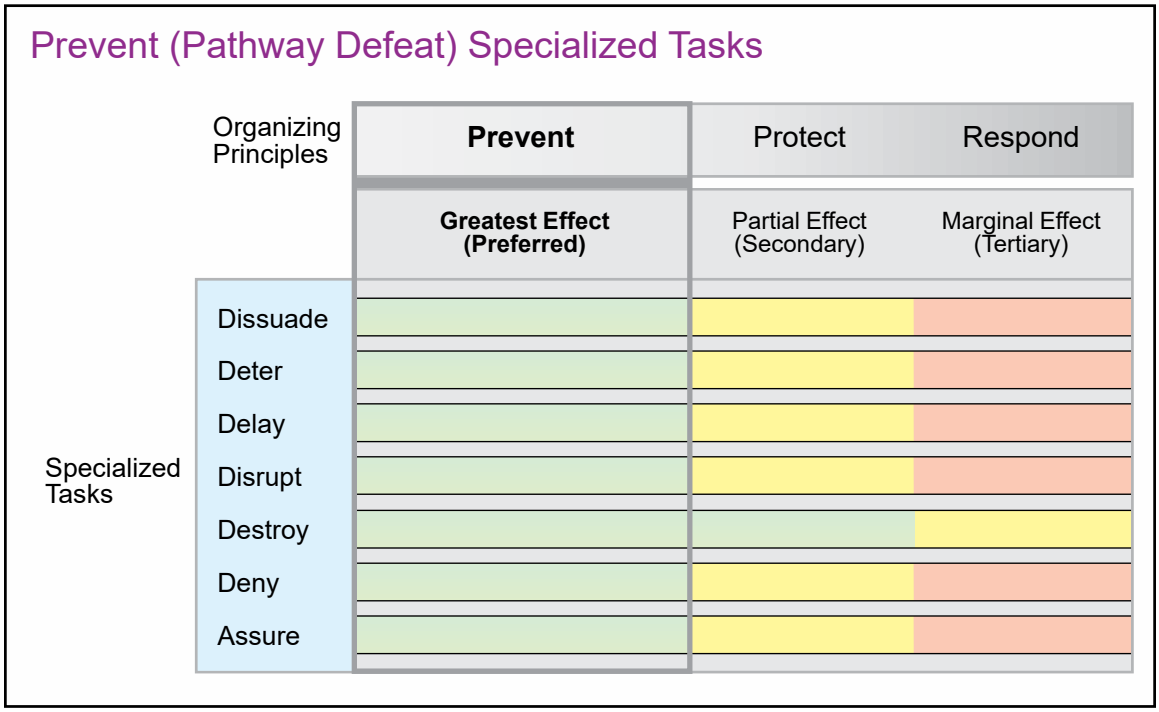

Figure IV-2. Prevent (Pathway Defeat) Specialized Tasks

choices but may also serve to persuade known actors of concern from challenging global norms. Ideally, these pre-development activities may preclude the need to directly employ offensive capabilities against actors of concern.

1. **Dissuade Task.** This task involves joint force efforts and resources to prevent actors of concern from development ideation, acquisition, proliferation, or maintaining WMD capabilities.

2. **Deter Task.** This task involves joint force efforts and resources to prevent the use of WMD by actors of concern by creating a credible threat of unacceptable consequences resulting from WMD use and the belief that the costs of WMD use outweigh the potential benefits.

(b) **Delay Task.** The JFC conducts efforts to slow down an actor of concern's development, acquisition, proliferation, or use of WMD. These efforts may include capabilities employed directly against the actor of concern or in support of another lead agency to create lethal and/or nonlethal effects. This can include direct action against specific nodes in a WMD network or program such as production facilities, computer networks, and transportation or financial nodes. Efforts to delay adversaries may also include financial sanctions, legal actions, or restriction of travel (e.g., national watch list).

(c) **Disrupt Task.** The JFC may choose to interrupt an actor of concern's development or acquisition of a WMD capability by preventing access to critical components. This may be done with direct action interdicting material en route. Disruption is particularly well suited for targeting key nodes in an actor of concern's network, such as transportation, leadership, logistics, or financial nodes.

(d) **Deny Task.** Early in the WMD continuum, the JFC frustrates and ultimately negates all paths to an actor of concern's acquisition or development ambitions. Though less effective and more costly and difficult, denying WMD proliferation, further qualitative or quantitative improvements, and WMD use may also take place in the protect-WMD defeat activity.

(e) **Assure Task.** The joint force reassures friends and partners through force posture and the use of cooperative security agreements to extend deterrence, particularly nuclear forces, for their protection. This reassurance serves to dissuade states from developing their own deterrent WMD capabilities.

(2) **Specialized Activity 2: WMD Defeat.** After acquisition or development of a capability, WMD defeat efforts target the ability to assemble, stockpile, deliver, transfer, or employ WMD. This involves the JFC employing tailored capabilities to neutralize or destroy weapons and agents; delivery systems; and materials, facilities, and processes, including the functional or structural defeat of hardened targets. WMD defeat activities have the greatest impact on the protect organizing principle. This activity is sub-divided in four major groupings: control, defeat, disable, and dispose. Figure IV-3 lists major groupings and specialized tasks associated with WMD defeat, which has the greatest impact on the protect organizing principle.

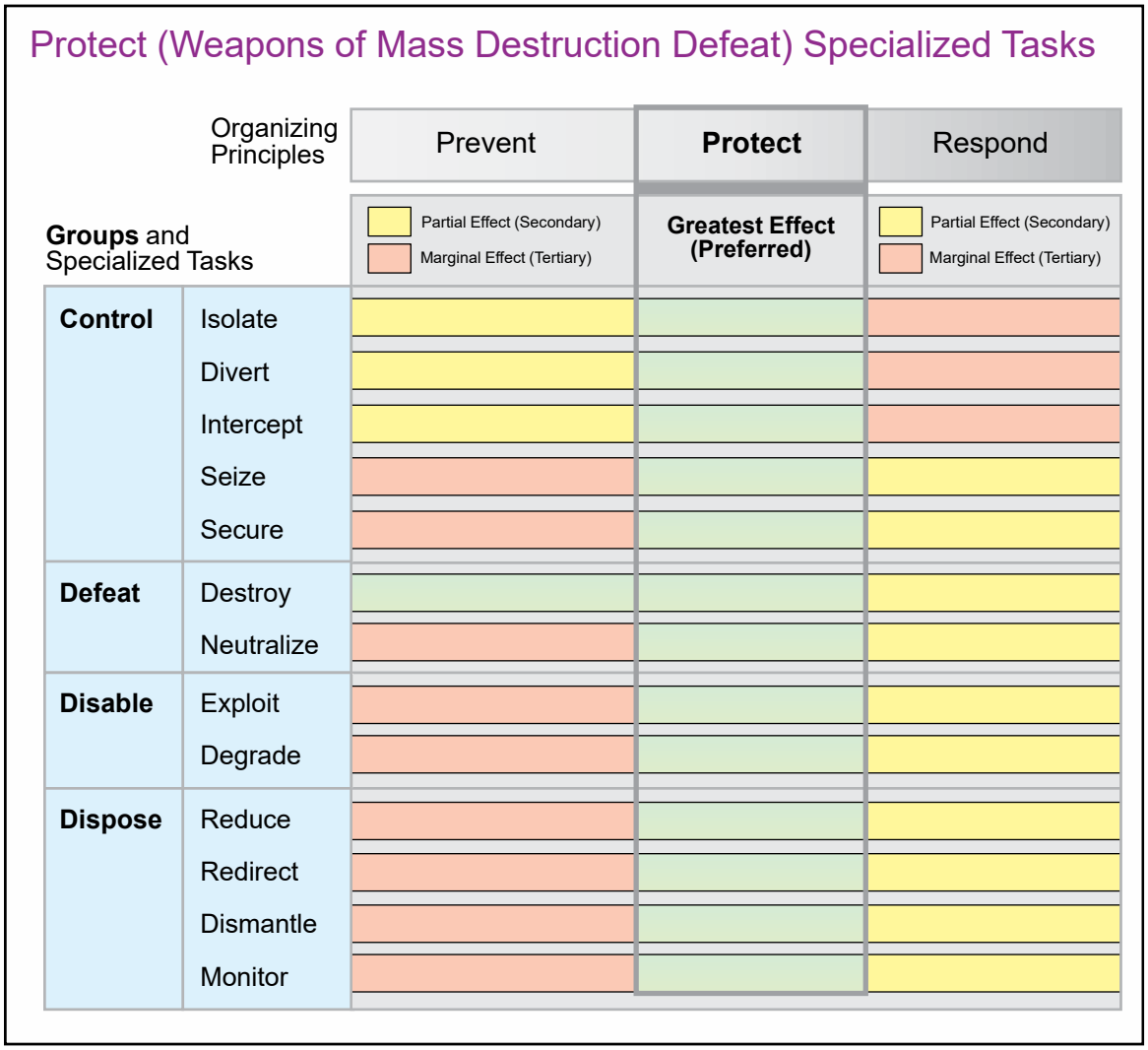

Figure IV-3. Protect (Weapons of Mass Destruction Defeat) Specialized Tasks

(a) **Control WMD Threats.** The joint force isolates, diverts, intercepts, seizes, and secures WMD, including related technology, materials, expertise, and means of delivery to prevent access to or movement of the actor of concern's program elements. Control may be executed throughout the competition continuum. It routinely relies on capabilities that are not specialized for CWMD but are nonetheless essential to CWMD success.

1. **Isolate Task.** The joint force isolates and denies access to critical WMD program components to impede actors of concern from furthering WMD acquisition, development, proliferation, or utilization. This task includes conducting critical factors analyses of WMD programs to identify capabilities, requirements, and vulnerabilities that can be acted upon. Isolation operations may require the coordination of conventional forces and interagency and international partners, to include law enforcement and specialized technical capabilities. Isolation of WMD critical components may be necessary for follow-on CWMD activities and tasks.

2. **Divert Task.** This task involves efforts and resources to change the intended course or destination of shipments of WMD, related technologies, materials, expertise, and/or means of delivery, either willingly or by force. The JFC may use a combination of operations to accomplish this task. In some cases, this may not require employment of force; rather, a show of force, the demonstration of a US presence, or a formal communication of USG concern will create the desired effect. For example, diversion may result from activities such as cyberspace operations, maritime interception operations, or formal diplomatic actions (demarche).

3. **Intercept Task.** Conventional forces and SOF may be necessary to stop the movement or proliferation of CBRN materials, WMD components, means of delivery, WMD-related personnel, or functional weapons. Such actions may require boarding, search, and detection capabilities to secure and seize shipments. Intercept operations will likely involve interagency or multinational partners. This task may involve a combination of activities such as port inspections and checkpoints that would authorize USG or international partner inspections. This may include US Navy personnel embarked aboard USCG vessels to carry out necessary technical inspections.

For more information on maritime interdiction, see JP 3-03, Joint Interdiction.

4. **Seize Task.** The joint force uses offensive action to obtain control and possession of WMD capabilities (e.g., a designated area, building, transport, materials, or personnel) to deny an actor of concern's access to WMD capabilities. Once a force seizes a WMD-related objective, it secures the objective and prepares it for follow-on actions such as exploitation and/or destruction.

5. **Secure Task.** The joint force establishes protective measures to prevent unauthorized access to sites or removal of WMD-related technologies, materials, or personnel. Security may be necessary to prevent use, proliferation, or looting of WMD capabilities or to prevent compromising integrity of physical evidence. The requirement to secure sites is a crucial mission-analysis consideration due to the potentially large force requirements and the balance of competing JFC priorities. WMD master site lists prioritize WMD-related sites for deconfliction and integration with other objectives.

(b) **Defeat WMD Threats.** The joint force neutralizes or destroys extant WMD to ensure no WMD use. The preponderance of the scope and efforts take place within WMD defeat activities and the protect organizing principle but, as with every activity or task, aspects of it may bleed over into the prevention and response organizing principles. Within the prevent organizing principle, the joint force may defeat an actor of concern's ability to develop, acquire, proliferate, or use WMD by neutralizing or destroying nodes in the WMD network or program. Defeat may take place below the level of armed conflict and in conflict as either a specialized action or as part of a larger operation.

1. **Destroy Task.** The joint force destroys WMD capabilities so they cannot perform their intended function without being entirely rebuilt. Such actions require a significant amount of pre-strike planning and authorization prior to execution. Proper

weaponeering and hazard modeling help the JFC employ the proper resources, understand the potential consequences of execution, and minimize collateral damage. The JFC needs to consider national and strategic objectives of such an operation or campaign before deciding to destroy a WMD-related target. This task is also applicable to disabling WMD threats.

2. **Neutralize Task.** The joint force utilizes a combination of capabilities that create lethal and/or nonlethal effects to render actor of concern's WMD capabilities ineffective or unusable. Examples include making chemical and biological agents and materials harmless or making delivery systems unusable. When assigning tasks to neutralize WMD, commanders specify the actor of concern's capability or material and the duration it should be rendered ineffective or unusable. Forces (including specialized units and equipment) required to neutralize a target vary according to the type and size of the target and desired effects.

(c) **Disable WMD Threats.** The joint force exploits and degrades critical and at-risk components of a WMD program. Critical components are those that pose an immediate threat to friendly forces, while at-risk components are those components of a WMD program that are at risk of loss or proliferation. The joint force disables WMD program components to ensure these items are not used, lost, stolen, or proliferated. If follow-on activities to complete WMD program dismantlement are required, the joint force may transfer responsibility to another department or agency for final disposition. The joint force must establish control of the specified WMD target before disablement can be conducted.

1. **Exploit Task.** The joint force seeks to maximize the value of intelligence gained from personnel, data, information, and materials obtained during CWMD operations. Processing and exploitation of information, personnel, and/or materiel found during the conduct of CWMD operations may be conducted at various locations in conjunction with interagency and international partners, as required, to produce timely, actionable intelligence.

For further guidance on processing and exploitation, refer to JP 2-0, Joint Intelligence, *and JP 2-01,* Joint and National Intelligence Support to Military Operations.

2. **Degrade Task.** The joint force seeks to erode an actor of concern's ability to develop, proliferate, or use WMD by disrupting functionality of WMD or related capabilities. Degradation should ensure the actor of concern is not able to threaten friendly forces for a period of time. Typically destruction and disposal of an actor's WMD capability are preferred to degradation, but factors such as time, resources, access, and security may necessitate only the most critical, at-risk elements be degraded and/or destroyed.

(d) **Dispose of WMD Threats.** The joint force conducts and/or supports a systematic effort to rid an actor of concern of the remnants (e.g., program elements, facilities, surplus, dual-use capacity, confiscated/seized cargo, equipment, delivery systems) of a WMD program. Typically, the JFC sets conditions for disposition of an actor

of concern's WMD program, but final disposition will probably require a larger USG or international effort. This may include deliberate technical processes that reduce or dismantle production methods, materials, stockpiles, and technical infrastructure; establishment of protocols of reductions and compensation or agreements to return seized cargo; the redirection of WMD, related technologies, materials, or an actor's efforts and expertise towards peaceful productive activities; and monitoring to ensure expertise or program elements are not re-constituted or reused in any illicit capacity. Appendix B, "Treaties, Resolutions, Activities, and Legal Considerations," addresses treaties, resolutions, control regimes, activities, and legal considerations, which JFCs account for and which will shape the planning of operations and campaigns that deal with the WMD threats or hazards.

1. **Reduce Task.** The joint force conducts and/or supports efforts to diminish an actor of concern's WMD program, improve the security of remaining capabilities and critical components, reduce costs of sustaining the program elements, and eliminate excess capacity or capability. Reduction programs and operations, such as demilitarization of stockpiles, may be led by another USG department or agency, PN, or international organization. CCMDs should coordinate activities to make certain they are mutually supporting and do not conflict.

2. **Redirect Task.** The joint force conducts and/or supports repurposing facilities, expertise, and material associated with an actor of concern's WMD program elements. Redirection of expertise includes retaining personnel with WMD expertise (e.g., scientists and engineers) for new, legitimate employment. This is especially acute when program elements have a dual-use nature. Depending on the OE, the lead for this effort will most likely have transitioned to another organization or PN. The JFC should be prepared to provide support as directed.

3. **Dismantle Task.** The joint force conducts and/or supports the process by which an actor of concern's WMD facility, stockpile, or program is systematically taken apart to a level that it can no longer operate for its intended purpose. Depending on the operating environment, the lead for this effort may have already transitioned to another organization or PN. The JFC should be prepared to provide support as directed. If directed to execute this task, the JFC may require specialized capabilities and will need to consider possible consequences of execution.

4. **Monitor Task.** The joint force conducts and/or supports continuous review and inspection of programs, personnel, and facilities to ensure they are not producing WMD and remnants of an actor of concern's WMD program are not being reconstituted or reused in any illicit capacity. The JFC and DOD will normally be functioning in support of USG interagency and international partners. Depending on information requirements, the JFC may conduct intelligence, surveillance, and reconnaissance, or use other collection methods to support this task. Monitoring treaty compliance is also addressed in Appendix B, "Treaties, Resolutions, Activities, and Legal Considerations."

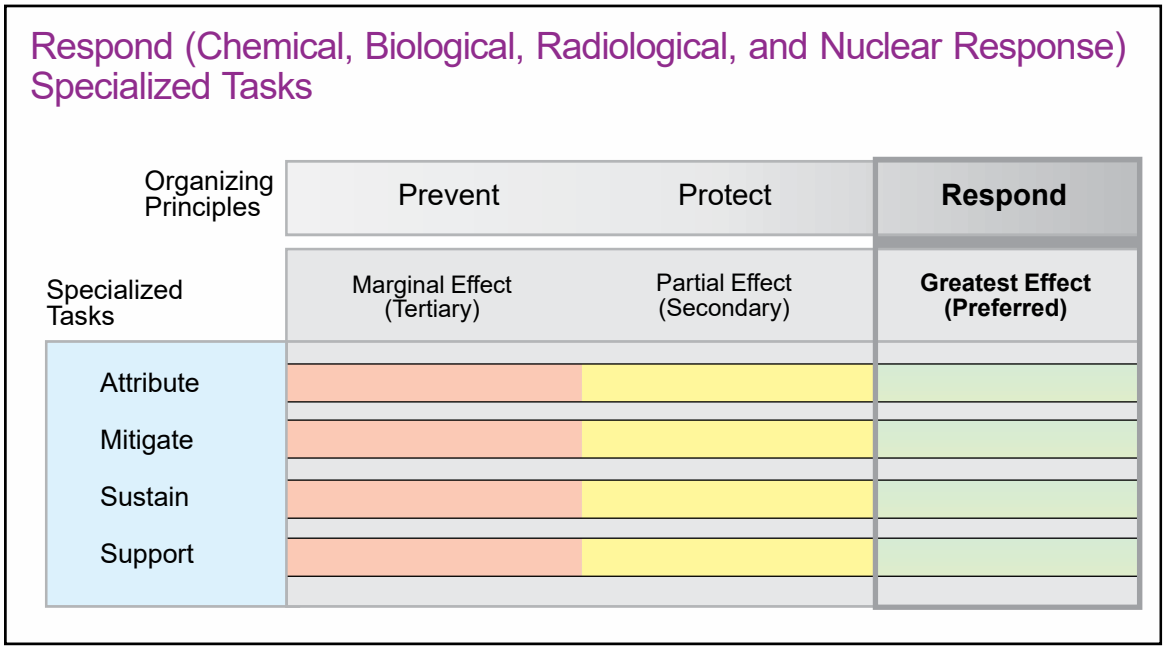

Figure IV-4. Respond (Chemical, Biological, Radiological, and Nuclear Response) Specialized Tasks

(3) **Specialized Activity 3: CBRN Response.** CBRN response efforts minimize the effect of CBRN use to the joint force and other mission-critical personnel. Figure IV-4 lists the specialized tasks associated with CBRN response: attribute, mitigate, sustain, and support, and as depicted in the figure, they have the greatest effect on the respond organizing principle. Actions to manage consequences support US and foreign civil authorities and their populations by responding to a CBRN incident and mitigating the hazards and the effects of WMD use. Actions to safeguard the force are completed during the conduct of other CWMD activities, since those activities may require the force to operate in an environment contaminated by CBRN hazards or effects of WMD use. When conducted on a small scale, tasks to safeguard the force may constitute part or all of a crisis response or limited contingency operation. For major operations and campaigns, which balance offensive, defensive, and stability operations, this activity supports the joint force's defensive and stability actions. Within the construct of such operations, the joint force needs to be prepared for a variety of WMD situations, such as an inadvertent release, release due to joint force action, or an actor of concern's employment of CBRN materials.

For further guidance on DSCA, refer to JP 3-28, Defense Support of Civil Authorities. *For more information on safeguarding the force and managing consequences, see JP 3-11,* Operations in Chemical, Biological, Radiological, and Nuclear Environments, *and JP 3-41,* Chemical, Biological, Radiological, and Nuclear Response, *respectively.*

For further guidance on domestic CBRN response, refer to CJCSI 3125.01, Defense Response to Chemical, Biological, Radiological, and Nuclear (CBRN) Incidents in the Homeland.

For further guidance on international CBRN response operations, refer to Department of Defense Instruction (DODI) 2000.21, DOD Support to International Chemical, Biological, Radiological, and Nuclear (CBRN) Incidents, *and CJCSI 3214.01,* Defense Support for Chemical, Biological, Radiological, and Nuclear Incidents on Foreign Territory.

b. **Attribute Task.** The joint force conducts and/or supports efforts to determine the origin of the material or weapon, as well as the actor responsible for a CBRN event. The process derives forensic conclusions from analysis of collected samples and information from law enforcement and intelligence sources. Forensic-enabled intelligence collection, processing, exploitation, and analysis capabilities support the identification of CBRN sourcing and attribution. Joint forces directly support the attribution process through intelligence (e.g., site exploitation), sample collection and transfer, and technical analysis. These forces require training, certification, specialized equipment and expertise, and, in some cases, the JFC requests unique authorities prior to execution. These forces are identified early in the planning process. Attribution provides a dissuasion and deterrence value if properly signaled to actors of concern but as a capability is focused on response activities.

c. **Mitigate Task.** The joint force conducts efforts to lessen the effects of a CBRN incident or WMD attack. This task focuses on minimizing or negating the vulnerability to, and effects of, WMD attacks and CBRN incidents. These activities may support civil authorities and foreign governments.

d. **Sustain Task.** The joint force conducts logistics and personnel efforts to maintain and prolong the capability to respond to CBRN incidents. In reference to the joint force, sustainment is the ability to support operations in a CBRN environment and conduct recovery/reconstitution operations to regenerate unit combat readiness (e.g., detailed troop decontamination, detailed equipment decontamination, medical activities, and rest and relaxation). These activities may also support civil authorities and foreign governments.

e. **Support Task.** In many scenarios, DOD, and the JFC, will be directed to support another USG department or agency (e.g., DHS or DOS) in the conduct of operations to provide assistance to civil authorities when their own capabilities are insufficient to save lives and maintain essential government services. In the event of a CBRN incident where the HN does not have the capability to support the local population and DOS does not have a presence, DOD may be directed by the President or SecDef to lead US operations. The JFC should be aware of any standing agreement that may provide a means to deliver this support as required.

APPENDIX A
ORGANIZATIONAL AND COMMAND RELATIONSHIPS

1. General

a. This appendix identifies the numerous USG organizations that have a role in CWMD and highlights their various responsibilities, functions, and capabilities. While this list is extensive, it is not all-inclusive. Conventional forces and SOF regularly conduct operations and activities that contribute to CWMD efforts, either directly or indirectly. Additionally, specially trained or designated forces used to conduct strategic deterrence; intelligence, surveillance, and reconnaissance; or counterterrorism (CT) missions also contribute to CWMD mission success. This appendix highlights organizations with specific CWMD authorities, responsibilities, or missions. However, when planning or executing a CWMD operation, a JFC should leverage all of DOD's and USG's CWMD capabilities.

b. Success in CWMD requires a coordinated, whole-of-government effort. DOD recognizes that DOS is normally the USG lead agency for CWMD operations abroad, and DOD has a supporting role during shaping activities. To formally coordinate with interagency partners, CCMDs identify programs and activities of concern to the Joint Staff (JS) and OSD. Using the National Security System coordination process, OSD facilitates interaction among CCMDs and interagency partners. CCDRs use established relationships to coordinate with interagency partners to increase their success in CWMD.

c. When planning or executing CWMD operations and activities, JFCs coordinate and cooperate with not only other USG departments and agencies but also multinational partners. With numerous stakeholders in the CWMD mission area, it is critical that unity of effort is achieved and the roles, responsibilities, and authorities of the numerous organizations are understood by the JFC. JFCs should consider the capabilities and responsibilities of the organizations in this chapter when determining command relationships and coordinating interorganizational activities.

2. Department of Defense Organizations, Responsibilities, and Relationships

a. **SecDef and the CJCS**

(1) **OSD.** OSD develops, coordinates, and oversees implementation and integration of DOD CWMD policy. OSD coordinates with interagency partners for the transition or transfer of responsibility of CWMD operations from the Armed Forces of the United States to and from other USG departments and agencies, international organizations, or other nations, as appropriate. OSD coordinates with both DOS and the JS to obtain international CWMD legal authorities, protocols, standards, and agreements; multinational support for CWMD operations; and, when required, HN support. They coordinate with DOS to notify the Organization for the Prohibition of Chemical Weapons of discoveries or destruction of chemical weapons materials and former production facilities. The Organization for the Prohibition of Chemical Weapons is the international organization tasked to implement the Convention on the Prohibition of the Development,

Production, Stockpiling, and use of Chemical Weapons and on their Destruction [short title: Chemical Weapons Convention (CWC)]. They coordinate with the National Counterproliferation Center (NCPC) to enhance intelligence support regarding WMD capabilities of all state and non-state actors. OSD coordinates with other USG departments and agencies in support to the homeland in the conduct of DSCA operations, such as domestic CBRN response or nuclear forensics. They also coordinate DOD processes and procedures within the USG National Technical Nuclear Forensics interagency community.

For further information on roles and responsibilities for CWMD, refer to DODD 2060.02, DOD Countering Weapons of Mass Destruction (WMD) Policy.

(2) **CJCS.** The CJCS serves as the principal military advisor to the President, NSC, and SecDef regarding CWMD activities. The CJCS approves the apportionment of forces for planning. The CJCS also recommends assignment and allocation of forces to the SecDef to execute the CWMD mission. The CJCS is designated as the global integrator. Subject to the CJCS's authority, direction, and control, the JS coordinates with the CCMDs and Services to ensure CWMD operations are executed in compliance with domestic, international, and foreign laws, policies, treaties, and agreements. The JS assists with interagency support for CWMD operations and assists in planning and exercising CWMD activities within the interagency process. They also coordinate and provide intelligence support to the CCDRs for target identification and prioritization. When required, after SecDef approval, the CJCS will publish appropriate execute orders for CWMD activities.

For more information on the CJCS role as the global integrator, refer to CJCSI 3050.01, (U) Implementing Global Integration.

b. **CCMDs**

(1) **General.** GCCs plan and execute CWMD missions within their AORs. They develop CWMD strategy, policies, and campaign and contingency plans for their AORs; determine CWMD mission shortfalls; identify CWMD mission resourcing requirements; and incorporate CWMD activities into their operational plans. Functional CCMDs support GCC CWMD activities as designated in CCPs, functional campaign plans, regional campaign plans, contingency plans, or as directed by SecDef.

(2) **United States Special Operations Command (USSOCOM)**

(a) CDRUSSOCOM serves as the DOD CWMD coordinating authority and, where appropriate, provides mission advocacy to enable CCMD transregional CWMD campaign activities to counter emerging and existing threats and disrupt WMD capability development. As coordinating authority, CDRUSSOCOM leads CWMD plans development; recommends changes in any area of the plan and resourcing, including changes to strategic prioritization matrix; integrates assessments emphasizing or deemphasizing areas based on the broader campaign objectives; sets priorities of all tasks or objectives in the plan; assesses risk and mitigations for all tasks and objectives; nominates strategic objectives; and develops decision support templates and aligns

campaign resources to support contingency plans. Additionally, CDRUSSOCOM performs the following functions:

1. In collaboration with the CCMDs, the Defense Intelligence Agency (DIA), and the Defense Threat Reduction Agency (DTRA), facilitates the development of strategic-level JIPOE in support of the CWMD mission.

2. In coordination with the CCMDs, JS, DOD agencies, other USG departments and agencies, and PNs, develops a CWMD assessment and transregional synchronization process that supports shared understanding of WMD threats, coordinates DOD campaign activities, and informs priorities and resource decisions.

3. In collaboration with the CCMDs, supports the conduct and coordination of preparation of the environment/OPE to facilitate GCC campaign activities to identify, disrupt, or interdict proliferation of illicit WMD material or dual- and multi-use use technology.

4. In collaboration with DIA, the JS, the CCMDs, and DTRA, creates, maintains, and manages a CWMD collaboration and dissemination dashboard. This dashboard is a strategic visualization of DOD CWMD products and portals to support CDRUSSOCOM's CWMD coordinating authority. It displays transregional situational awareness of WMD threats and DOD, interagency, and PN CWMD efforts. The dashboard enables coordination and collaboration within, and external to, DOD to inform CDRUSSOCOM, the JS, and SecDef decision making. It also assists CDRUSSOCOM in executing advocacy, assessment, planning, and recommendation roles.

5. The USSOCOM CWMD Fusion Cell coordinates planning of a DOD CWMD campaign; integrates intelligence priorities; assesses progress against WMD networks and pathways; articulates gaps and advocates for capabilities to improve DOD unity of effort; and supports the execution of CWMD operations, activities, and investments to disrupt and defeat national, regional, and transregional WMD threats. The Fusion Cell also provides planning assistance to CCMDs for CWMD-related campaigns, contingency plans, and exercise activities through regionally aligned, yet transregionally focused, planning support teams.

(b) USSOCOM has a Title 10, United States Code (USC), Section 167, responsibility to provide specialized forces developed, recruited, selected, trained, organized, equipped, and capable of carrying out assigned missions, including the conduct of the military activities and operations to counter WMD as directed in DODD 2062.02, *DOD Countering Weapons of Mass Destruction (WMD) Policy,* and DODD 5100.01, *Functions of the Department of Defense and Its Major Components.* USSOCOM synchronizes the planning of special operations and provides SOF to support persistent, networked, and distributed CCMD operations to deter adversary use of WMD and advance national interests. USSOCOM provides DOD with unique capabilities: operational reach as well as agile, scalable, and flexible options for military action across the breadth of special operations core activities, the competition continuum, and geographic boundaries, and seams. USSOCOM CWMD capabilities include its ability to provide tailored SOF

executing the special operations core activities, C2 for SOF, and planning capabilities for SOF and DOD CWMD requirements.

(3) **United States Northern Command (USNORTHCOM).** Commander, USNORTHCOM, exercises coordinating authority for planning of DOD efforts in support of the USG response to pandemic influenza and infectious disease. Both USNORTHCOM and United States Indo-Pacific Command (USINDOPACOM) have specific responsibilities related to DSCA that may include CBRN response operations to save lives and minimize suffering.

(4) **United States Strategic Command (USSTRATCOM).** Commander, USSTRATCOM, leads strategic deterrence planning, in coordination with other CCMDs, and executes strategic deterrence operations as directed. USSTRATCOM employs tailored nuclear, global strike, electronic warfare, missile defense, and intelligence capabilities to deter strategic attack, assure allies, and, as directed, decisively respond if deterrence fails.

(5) **United States Cyber Command (USCYBERCOM).** Commander, USCYBERCOM, plans and executes global cyberspace operations. USCYBERCOM employs tailored cyberspace operations missions to deter adversaries, counter the proliferation of WMDs, shape the OE, and, when required, defeat threats via effects in and through cyberspace.

(6) **United States Transportation Command (USTRANSCOM).** Commander, USTRANSCOM, exercises coordinating authority for joint deployment and distribution enterprise operations and planning. USTRANSCOM provides common-user and commercial air, land, and sea transportation; terminal management; aerial refueling; and aero medical evacuation of patients, as required, to support the global deployment, employment, sustainment, and redeployment of US forces in support of CWMD missions. When requested by a federal agency and approved by SecDef, USTRANSCOM provides transportation support to non-DOD organizations, such as movement of critical capabilities or commodities or evacuation of personnel. The command advocates for policy and doctrine, organization, training, materiel, leadership and education, personnel, and facilities requirements for returning CBRN-contaminated airlift and sealift platforms to general use. In coordination with the geographic CCMDs, USTRANSCOM ensures contingency plans address CBRN vulnerabilities of the entire supply chain.

c. **Military Departments.** The Services serve in the following roles in CWMD:

(1) Organize, train, equip, and otherwise prepare military forces to conduct missions to counter WMD and their means of delivery in support of the JFC.

(2) Contribute to shaping an international environment hostile to proliferation and strengthening deterrence through building partners' CWMD-related capabilities and capacities.

(3) Coordinate CWMD capability needs with the CJCS and advocate for military capabilities to counter WMD.

(4) Maintain and expand CWMD technical expertise.

(5) Provide subject matter expertise to support CCMD requirements in the CWMD mission area, as directed.

d. **Chief, National Guard Bureau (CNGB).** The CNGB formulates, develops, and coordinates all policies, programs, and plans affecting CWMD assets within the National Guard (NG). The CNGB synchronizes the alert and deployment of the NG CBRN response enterprise with the state adjutant general via their National Guard joint force headquarters state (NG JFHQ-State) and Commander, USNORTHCOM, for major or catastrophic CBRN incidents within the US and its territories to support civil authorities in response to CBRN incidents in order to save lives and minimize human suffering. NG CBRN enterprise assets consist of military first responders comprised of WMD-civil support teams; chemical, biological, radiological, nuclear, and high-yield explosives enhanced response force packages; and homeland response forces.

For more information on DOD CBRN Response Enterprise assets, see JP 3-41, Chemical, Biological, Radiological, and Nuclear Response.

e. **CSAs**

(1) **DIA.** The DIA Office of Science and Technology applies CWMD technical expertise, scientific methods, and technical tradecraft across the full range of intelligence operations in support of global technical collection, exploitation, and operations. The DIA also develops a deep understanding of the following specialties: research and development, technical collections, technical exploitation, and technical operations.

(2) **DTRA.** DTRA enables DOD, the USG, and international partners to counter and deter WMD and improvised threat networks. Implied in this mission statement is the strategic imperative to enable a safe, secure, and effective nuclear deterrence. Specific DTRA capabilities and functions supporting the CCMDs include the following:

(a) In coordination with USSOCOM, provides planning to support CCMDs for CWMD-related plans. Specifically, provides CWMD support to CCMDs with respect to global, regional, and functional campaign, contingency, and component-level planning.

(b) Manages and oversees research, development, test, and evaluation to counter the threat and use of WMD and assist in the development and integration of capabilities to support DOD CWMD efforts and activities.

(c) Provides a continuous CBRN decision support capability and serves as the technical hub for the National Countering Weapons of Mass Destruction Technical Reachback Enterprise. The National Countering Weapons of Mass Destruction Technical Reachback Enterprise provides planning, execution, and battle damage assessment for military operations on WMD, CBRN, and toxic industrial chemical/toxic industrial material facilities and events, including hard and deeply buried targets, collateral damage estimation, and collateral effect analyses. The National Countering Weapons of Mass

Destruction Technical Reachback Enterprise also provides federal and civil authorities' hazard assessment and response assistance and foreign CCMD response assistance.

(d) In coordination with CCMDs, the Under Secretary of Defense for Policy, and the JS, and under the authority, direction, and control of the Under Secretary of Defense for Acquisition and Sustainment, implements the Proliferation Security Initiative (PSI), CTR, International Counterproliferation Program, and CBRN Preparedness Program to build partnership capacity in coordination with CCMDs.

(e) Conducts arms-control treaty monitoring and on-site inspections in support of DOD's role in the verification of, and compliance with, WMD treaties and agreements.

(f) Plans support to GCCs in identifying and prioritizing opportunities to reduce or secure vulnerable nuclear weapons and chemical biological warfare stockpiles; delivery systems; and materials of concern, including NTAs.

(g) Provides tactical radiological and nuclear search operations expertise and equipment for overt and low-visibility search, spanning from a recovery or recapture of a lost or stolen US weapon or interdiction of nuclear materials of concern. Also, conducts field confirmatory analysis and characterization of CBRN materials of concern and advises, trains, equips, assists, and provides exercise support to designated CCMD forces.

(3) **National Geospatial-Intelligence Agency (NGA).** The NGA is a unique combination of intelligence agency and CSA. It provides timely, relevant, accurate, and actionable geospatial intelligence (GEOINT). The NGA serves an important role in GEOINT support to CWMD activities.

3. United States Government Organizations, Responsibilities, and Relationships

a. **General.** CWMD requires unity of effort, which results in a coordinated response of combined capabilities of the USG. Coordination between DOD and other USG departments and agencies is critical to the success of CWMD operations against the global WMD threat. Short of war, these CWMD efforts are normally led by a department or agency other than DOD. In many cases, the JFC will be supporting another USG department or agency and that organization may be supporting a PN or international organization. SecDef is a statutory member of the NSC, while the CJCS serves in the role of principal military advisor. The NSC Staff oversees lines of communications between USG departments and agencies involved in CWMD activities to facilitate unity of effort. This is intended to leverage all instruments of national power. The Under Secretary of Defense for Policy and JS facilitate coordination between CCMDs and interagency partners to meet defense planning requirements. Additionally, where appropriate, coordination with interagency partners also occurs through a combination of military representatives to country teams, geographic CCMDs' joint interagency coordination groups (JIACGs) or similar elements, and established joint interagency task forces.

b. The majority of interagency CWMD programs and contributions occur as shaping activities, which include ongoing operations and activities such as SC. Since there are a

number of different organizations within the USG that contribute to CWMD, it is important to develop some level of mutual awareness of their roles and capabilities to identify potential areas for cooperation. USG departments and agencies, and their CWMD-related functions, are summarized in the following paragraphs.

(1) **Office of the Director of National Intelligence (ODNI)**

(a) **National Counterterrorism Center (NCTC).** The NCTC is the primary organization in the USG that integrates and analyzes intelligence pertaining to terrorism and CT, including all intelligence related to terrorist use of WMD. The NCTC collocates intelligence, military, law enforcement, and homeland security networks to facilitate information sharing across USG departments and agencies. In addition to its information sharing role, the NCTC provides an interagency planning function for CT activities and is responsible for integrating all instruments of national power toward successful implementation of the national CT strategy.

(b) **NCPC.** The NCPC works with the intelligence community to identify critical gaps in WMD knowledge resulting from shortfalls in collection, analysis, or exploitation and then develops solutions to reduce or close these gaps. The NCPC does this by analyzing, integrating, and disseminating comprehensive, all-source WMD proliferation intelligence; providing all-source intelligence support needed for the execution of CP plans or activities; and performing independent WMD proliferation analysis. It may also play a role in the nuclear attribution process by fusing law enforcement and intelligence information with nuclear forensics conclusions provided by national technical nuclear forensics center. The majority of the NCPC staff are detailed from the intelligence community, as well as DOD and the Department of Energy (DOE) national laboratories.

(2) **DOS.** DOS plays a crucial role in the overall USG effort to counter WMD. DOS aims to build international consensus on arms control and nonproliferation based on common concern and shared responsibility. The Under Secretary for Arms Control and International Security leads interagency policy development on nonproliferation and manages global US security policy, principally in the areas of nonproliferation, arms control, regional security and defense relations, and arms transfers and security assistance. Other specific responsibilities include directing and coordinating export control policies and policies to prevent missile, nuclear, chemical, biological, and conventional weapons proliferation. DOS CWMD responsibilities are primarily planned and executed via the Bureau of Arms Control, Verification, and Compliance (AVC); the Bureau of International Security and Nonproliferation (ISN); and the Bureau of Political-Military Affairs (PM), all of which report to the Under Secretary for Arms Control and International Security.

(a) **AVC.** The AVC core missions concern arms control, verification, and compliance with international arms control, nonproliferation, and disarmament agreements or commitments. The AVC advances national and international security through the negotiation and implementation of arms control and disarmament agreements involving WMD and their means of delivery. As the principal policy community representative to the intelligence community, The AVC ensures US intelligence capabilities are effectively

acquired, maintained, and enhanced to collect, analyze, and disseminate precise and timely information bearing upon matters of verification and compliance. These verification and compliance reviews concern the nature and status of foreign governments' WMD and delivery system programs. The AVC also provides, through its Nuclear Risk Reduction Center, information technology support and secure government-to-government communications linkages with treaty partners.

(b) **ISN.** The ISN manages a broad range of US nonproliferation policies, programs, agreements, and initiatives. The ISN leads DOS's efforts to prevent the spread of WMD—whether chemical, biological, radiological, or nuclear—and their delivery systems.

(c) **PM.** The PM provides policy direction in the areas of international security, security assistance, military operations, defense strategy and plans, and defense trade. The PM also facilitates coordination of CWMD efforts between DOS and DOD.

(d) **International Security Advisory Board.** The International Security Advisory Board provides DOS with independent insight and advice on all aspects of arms control, disarmament, international security, CWMD, and related aspects of public diplomacy.

(3) **DHS.** DHS protects the US against threats to the homeland. The *National Response Framework,* prepared by DHS, provides information on how USG departments and agencies should work together to prepare for and respond to WMD events. The global nuclear detection architecture is a framework for detecting (through technical and nontechnical means), analyzing, and reporting on nuclear and other radioactive materials that are out of regulatory control. DHS agencies, along with the Department of Justice (DOJ) through the FBI, DOE, the Department of the Treasury, the Department of Commerce (DOC), DOD, and the intelligence community, play a vital role in supporting national CWMD efforts. Agencies within DHS that contribute to the CWMD mission include:

(a) **USCG.** The USCG may play an integral role in WMD interdiction operations by protecting US economic and security interests in maritime regions, including international waters, US coastal regions, ports, and waterways. Additionally, the USCG's Title 14, USC, authorities allow them to perform law enforcement operations that DOD forces are precluded from performing under the Posse Comitatus Act. USCG personnel can be used to enforce all applicable US laws on, under, and over the high seas and waters subject to US jurisdiction and retain their Title 14, USC, authority, when participating in interdiction operations led by DOD while under DOD C2. Area commanders should clearly lay out roles and responsibilities for USCG personnel prior to interdiction operations.

(b) **Customs and Border Protection (CBP).** To prevent WMD smuggling, CBP works through existing partnerships with customs and law enforcement agencies in PNs to protect US borders and ports of entry and screen admissibility of persons, cargo,

and vessels arriving into US ports. CBP also supports a National Targeting Center and operates the Container Security Initiative with DOE.

(c) **CWMD Office.** The mission of the CWMD Office is to counter attempts by terrorists or other threat actors to carry out an attack against the US or its interests using a WMD. The CWMD Office is a support component within DHS formed by consolidating primarily the Domestic Nuclear Detection Office (DNDO) and a majority of the Office of Health Affairs, as well as other DHS elements. The goals of the CWMD Office are to enhance the nation's abilities to prevent terrorists and other threat actors from using WMD, support operational partners in closing capability gaps along adversary pathways, and invest in and develop innovative technologies to meet partner requirements and improve operations. DNDO improves the nation's ability to detect and report transportation of nuclear or radiological material. Additionally, DNDO operates the National Technical Nuclear Forensics Center, which has two primary missions. The first provides centralized planning, integration, assessment, and stewardship of the nation's nuclear forensics capabilities to ensure a ready, robust, and enduring capability in coordination with other USG departments and agencies who have assigned responsibilities for national technical nuclear forensics. These include DOJ/FBI, who is the lead federal agency responsible for the criminal investigation of terrorist events and the nuclear forensic investigation of planned or actual attack; DOD; DOE; DOS; ODNI; and DHS. The second mission is to advance the capability to perform nuclear forensics on nuclear and radiological materials in a pre-detonation (intact) state.

(d) **Federal Emergency Management Agency (FEMA).** FEMA provides support to our nation's critical infrastructure in response to CBRN hazards through comprehensive emergency management programs, including risk reduction, preparedness, response, and recovery.

(e) **Immigration and Customs Enforcement (ICE).** One of ICE's highest priorities is to prevent illicit procurement networks, terrorist groups, and hostile nations from illegally obtaining US military products; sensitive, dual-use technology; WMD; or CBRN materials. The ICE homeland security investigation's CP investigations program oversees a broad range of investigative activities related to such violations. The CP investigations program enforces US laws involving the export of military items and controlled, dual-use goods, firearms, and ammunition, as well as exports to sanctioned or embargoed nations.

(4) **DOJ.** The Attorney General has lead authority to investigate and prosecute federal crimes, which includes the use or attempted use of WMD and the export or re-export of strategic commodities and dual-use goods, software, or technologies. Much of this investigation authority has been delegated to the FBI.

(a) **FBI.** The FBI is the lead federal agency for investigating WMD crimes. It focuses its WMD-related activities to prevent the illicit acquisition of WMD and identify and disrupt their attempted use. The preemptive focus of these efforts requires the FBI to use its investigative and analytical capabilities to identify potential WMD suspects, targets, and threats before an attack occurs. FBI WMD investigation and prevention efforts are

managed by the WMD Directorate within its National Security Branch. Comprising primarily special agents, intelligence analysts, and program managers, the WMD Directorate develops training for employees of the FBI; interagency partners; state and local law enforcement organizations; and public health, industry, and academia partners. The WMD Directorate also provides national-level WMD intelligence support to FBI field divisions and to the larger intelligence community. At the local level, each field division has a special agent who serves as the WMD coordinator responsible for coordinating the FBI's WMD-related activities.

(b) **Drug Enforcement Administration (DEA).** The DEA utilizes unique capabilities with counterparts in the international law enforcement community and PNs to locate, track, apprehend, and seize personnel, assets, and resources used to smuggle WMD.

(5) **United States Agency for International Development (USAID).** USAID's work advances US national security and economic prosperity, demonstrates American generosity, and promotes a path to recipient self-reliance and resilience. USAID may support a USG response to a CBRN incident in a foreign nation.

(6) **Department of the Treasury.** The Department of the Treasury is the primary USG department responsible for economic and financial security of the US. It works with USG departments and agencies, foreign governments, and international financial institutions in support of national strategies to counter WMD proliferation; safeguards US financial systems; and supports DOS programs to train and equip PNs customs agents.

(7) **DOC.** DOC develops and administers federal policy and programs affecting the industrial and commercial segments of the national economy. DOC formulates US export control policy to prevent WMD proliferation and control sensitive, dual-use technology transfers.

(8) **Department of Health and Human Services (DHHS).** DHHS protects the health and safety of all Americans and provides essential human services. The key CWMD-related organizations within DHHS are the Centers for Disease Control and Prevention (CDC), the Agency for Toxic Substances and Disease Registry (ATSDR), and the National Institutes of Health (NIH).

(a) **CDC.** The CDC provides a system of health surveillance to monitor and prevent disease outbreaks (including bioterrorism), implements disease prevention strategies, prevents and controls infectious and chronic diseases, and maintains national health statistics. The CDC also provides for immunization services, environmental disease prevention, and essential human services, including medical preparedness. The CDC exists to fight disease, whether naturally occurring or due to accidental release or deliberate attack.

(b) **ATSDR.** The ATSDR protects people from environmental hazards by responding to natural and man-made disasters, working with communities in crisis from environmental threats, supporting state and city public health programs to reduce or eliminate hazardous substances in communities, and to reduce exposure to hazardous

substances. The ATSDR conducts epidemiological health studies in communities across the country, maintains nationwide exposure and disease registries, and collects data from chemical release incidents to support emergency response and prevention decisions.

(c) **NIH.** The NIH's primary contribution to USG CWMD efforts is to assist with the development of policies and regulations concerning dual-use research and facilities. This is primarily done by the NIH's Office of Biotechnology Activities (OBA) and the National Science Advisory Board for Biosecurity (NSABB). The NIH's OBA promotes science, safety, and ethics in biotechnology through the Dual-Use Research Program, development of public policies, and the convening of the NSABB. The NSABB is a federal advisory committee chartered to provide advice, guidance, and leadership regarding biosecurity oversight of dual-use research, (i.e., biological research with legitimate scientific purpose that may be misused to pose a biological threat to public health and/or national security).

(9) **Department of Transportation (DOT).** DOT establishes national transportation policy. Its federal administration includes highways; urban mass transit; railroads; aviation; and the safety of waterways, ports, highways, and oil and gas pipelines.

(10) **DOE.** DOE contributes to the future of the nation by ensuring energy security; producing and maintaining the nation's nuclear stockpile; promoting nuclear nonproliferation; providing specialized nuclear and radiological emergency response; assisting nuclear and radiological CT and CP efforts; and fostering fundamental science, advanced computing, and technological innovation.

(a) **DOE Watch.** The Forrestal Watch Office provides the 24-hour single point of contact for collecting, processing, and disseminating time-sensitive emergency notifications. It performs initial notifications and coordinates management, logistics, and mobilization actions during periods of national emergencies, natural and man-made disasters, acts of terrorism, or other extraordinary situations requiring centralized management notification and response.

(b) **Office of Intelligence and Counterintelligence.** The Office of Intelligence and Counterintelligence provides policy makers and the intelligence community with scientifically based and technically sound intelligence analysis in the areas of foreign nuclear programs, proliferation of nuclear materials to state and non-state actors, nuclear and energy security, and emerging science and technology.

(c) **National Nuclear Security Administration (NNSA).** The NNSA is a semi-autonomous agency within DOE responsible for the management and security of the nation's nuclear weapons, nuclear nonproliferation, and naval reactor programs. It also responds to nuclear and radiological emergencies in the US and abroad. NNSA's program support is divided into several key program areas, including defense, nuclear nonproliferation, naval reactors, emergency operations, infrastructure and environment, nuclear security, management and administration, and the Office of the Administrator. Each program area is focused on specific challenges:

1. **Defense Programs.** One of the primary missions of the NNSA is to maintain and enhance the safety, security, and reliability of the US nuclear weapons stockpile. The NNSA, through its Office of Defense Programs, ensures the US nuclear arsenal meets national security requirements and continues to serve as a deterrent. In partnership with DOD, NNSA's defense programs provide the research, development, secure transportation, and production activities necessary to support the US nuclear weapons stockpile.

2. **Nonproliferation.** The Office of Defense Nuclear Nonproliferation works closely with a wide range of international partners, key USG departments and agencies, the US national laboratories, and the private sector to detect, secure, and dispose of dangerous nuclear and radiological material and related WMD technology and expertise.

3. **Emergency Response.** The Office of Emergency Operations is the USG's primary capability for radiological and nuclear emergency response and for providing security to the nation from the threat of nuclear terrorism. The Office of Emergency Operations maintains a high level of readiness for protecting and serving the US and its allies through the development, implementation, and coordination of programs and systems designed to serve as a last line of defense in the event of a nuclear terrorist incident or other types of radiological accident. This readiness level provides the USG with quickly deployable, dedicated resources capable of responding rapidly and comprehensively to nuclear or radiological incidents worldwide.

4. **Nuclear Security.** The Office of Defense Nuclear Security develops and implements the security programs for the NNSA. In this capacity, Defense Nuclear Security is the NNSA line management organization responsible for security direction and program management with respect to prioritization of resources, program evaluation, and funding allocation. Key management areas include security operations, resources, engineering, and technical support to NNSA field elements and facilities.

5. **CT and CP.** The Office of Counterterrorism and Counterproliferation provides expertise, practical tools, and technically informed policy recommendations required to advance US nuclear CT and CP objectives. The office executes a unique program of work focused solely on these missions, synchronizing their support activities across the NNSA, coordinating DOE/NNSA-related policies, and building partnerships with USG departments and agencies and key foreign governments on these issues.

(11) **Nuclear Regulatory Commission.** The Nuclear Regulatory Commission regulates all US use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety, to promote the common defense and security, and to protect the environment.

4. Command Relationships

a. **General.** CWMD operations can be global, transregional, or regional in scope. The environment in which actors of concern and associated proliferation networks operate,

rather than geographic boundaries, defines the operational area. Operations against the same actor may occur in several geographic AORs simultaneously. CWMD operations that occur in more than one AOR will be coordinated between responsible CCDRs with specific command relationships established by SecDef tasking orders or CCMD plans and operation orders.

b. **C2**

(1) **Day-to-Day Operations.** Many critical CWMD operations and activities are conducted during periods of normal day-to-day operations. These CWMD operations and activities should be included in regional plans and supporting plans and integrated into CCMD contingency plans for execution. The day-to-day integration of these activities across the three CWMD lines of effort described in the *Strategy for Countering Weapons of Mass Destruction* is an important part of CWMD. These efforts help shape an environment that prevents an actor from obtaining or successfully employing WMD and may prevent the necessity of responding to a WMD attack. C2 of day-to-day operations is per existing CCMD C2 relationships established by the CCDR and commanders of subordinate commands and forces.

(2) **Contingency Operations.** C2 arrangements for CWMD operations are tailored for the requirements of each contingency and are determined by the supported commander. The size and scope, as well as preplanned integration, of CWMD operations determine the requirements for specific CWMD C2 functions. Small-scale or less complex CWMD operations may not require formation of a separate C2 structure. A CCMD's preexisting command structure, with limited staff and technical augmentation, may suffice. Increasing CWMD expertise within an existing standing joint force or component headquarters (HQ) increases the unit's capacity to address WMD aspects of the mission. For a large-scale or more complex effort, CWMD operations may require formation of a functional joint task force (JTF) for CWMD operations. The following discussion applies to situations requiring additional CWMD emphasis, such as staff augmentation or formation of a functional JTF.

(3) **Functional JTF Considerations.** SecDef, a CCDR, a subordinate unified commander, or an existing JTF commander can serve as the establishing authority for a JTF to execute a specific CWMD mission or when CWMD operations require joint resources on a significant scale.

(a) **Subordinate Commands and Forces.** Forces conducting CWMD operations may be a combination of conventional forces and SOF, support organizations from the Services, or CSAs, augmented by other USG departments and agencies or non-US personnel.

(b) **C2 Relationships.** The JTF establishing authority also establishes the command relationships between the JTF and other subordinate commands. Other specific C2 relationships within the JTF are determined by the supported commander based on mission requirements. Notional C2 relationships for a functional CWMD JTF include establishing a separate JTF at the CCMD level, with the JTF commander reporting directly

to the CCDR; establishing the CWMD JTF under an existing JTF; or establishing a CWMD task force under a component commander.

(c) **Composition.** A CWMD JTF HQ will generally combine DOD functional and technical experts; be augmented by non-DOD personnel, as required; and have real-time reachback to national-level technical experts. When formed, a CWMD JTF HQ may draw personnel from portions of an existing standing joint force or subordinate component; CWMD subject matter experts from other CCMDs; and/or the Services and specialized joint activities, including a CSA such as DTRA.

(4) **JTF HQ.** At a minimum, and as required by the supported commander to conduct a specific CWMD operation, the functional JTF HQ should be able to:

(a) Conduct the assigned CWMD mission and C2; coordinate operations of assigned forces.

(b) Coordinate with US forces, other USG departments and agencies, foreign governments, international organizations, and HNs.

(c) Provide overall assessment, analysis, and planning for CWMD operations.

(d) Coordinate CWMD planning activities with other commands.

(e) Plan for JTF deployment, employment, and redeployment.

(f) Plan for transfer of responsibility of CWMD operations to or from the CCDR and from or to other USG departments and agencies, international organizations, and HNs, as appropriate.

(g) Plan to minimize or mitigate potential CWMD collateral effects.

(h) Maintain situational awareness of CWMD activities and operations, both friendly and actors of concern.

(i) Recommend prioritization of CWMD resources and forces.

(j) Integrate into the supported CCMD's C2 and coordination processes (e.g., joint targeting coordination board).

(5) **JTF Staff Organization.** When providing C2 directly for a small-scale CWMD operation or overseeing a functional JTF for a large-scale CWMD operation, JFCs should consider augmenting their staffs with CWMD expertise. This augmentation may be from a Service component, a standing joint force HQ, subject matter experts resident at the CCMD, a CSA, or individual augmentation. JFCs may require the following cross-functional staff organizations to manage CWMD processes and tasks:

(a) **CWMD Cell.** A CWMD cell is formed to manage CWMD processes, capabilities, and activities within a JFC's HQ. The CWMD cell provides the JFC with specialized, technical, subject matter expertise to support CWMD operations. The CWMD cell collaborates with interagency and multinational partners as required, to develop CWMD situational awareness and support the planning, coordination, and synchronization of operations.

(b) **CWMD Working Group.** A CWMD working group is an enduring or ad hoc organization within a CCMD HQ or JFC's HQ focused on CWMD activities to provide analysis to the commander. The working group consists of a core functional group, such as CWMD cell members and other staff and component representatives, as required.

5. Interagency Coordination and Interorganizational Cooperation

a. **Domestic.** Domestic CWMD operations involve complex command relationships; in most cases, DOD will act in a supporting role to another USG department or agency. In conducting DSCA, to include CBRN response, a distinction is made between the different chains of command for active DOD; Title 10, USC; federal forces providing support to civil authorities; and for NG forces commanded by the state governor under Title 32, USC, and state active duty. State and local governments are closest to those affected by incidents and have a lead role in response and recovery. For a federal response to a CBRN incident, DOD support is tailored to the scope and magnitude of the incident. DOD assets are employed with a focus on response requirements beyond the resources of state and federal civil authorities. A dual-status commander may be appointed to C2 both federal military and state NG forces. The dual-status commander is supported by separate federal and state NG chains of command and can be employed for DSCA events, including CBRN response. USNORTHCOM and USINDOPACOM are the DOD-designated planning agent and the supported commander for DSCA missions in their respective AORs.

For further guidance on C2 relationships, refer to JP 3-33, Joint Task Force Headquarters; *for further information, see JP 3-28,* Defense Support of Civil Authorities.

b. **Interorganizational Cooperation.** DOD will liaise and coordinate with other agencies and civilian authorities. Interorganizational cooperation is a continuous process that should be established and emphasized during planning, prior to the execution of CWMD operations and activities. Coordination takes place at the strategic, operational, and tactical levels. Whether coordination is conducted through the CCDR's JIACG or other means, such as an interagency planning cell or group at the CCMD or JTF levels, the importance of interorganizational cooperation in the planning process cannot be overstated.

c. **State and Local Coordination.** In the case of a domestic CBRN incident, DOD should determine what specialized national, international, or local assets are responding to the incident. The CNGB facilitates the use of Air National Guard (ANG) and Army National Guard (ARNG) forces and assets through the state adjutants general to conduct CBRN response operations to assist federal, state, local, and tribal authorities in responding to a domestic CBRN event. When directed by SecDef, the CNGB supports transition of state active duty or Title 32, USC, NG forces to federalized Title 10, USC, status for DSCA

in coordination with individual states and the ANG and ARNG. At the state level, the NG JFHQ-State will coordinate with state and local authorities to ensure the NG efforts are synchronized with civil authorities. Once deployed to a supported state, the NG CBRN response enterprise, (WMD-civil support team, CBRN and high-yield explosive enhanced response force packages, and homeland response forces) will be controlled through the NG JFHQ-State or, if designated, a dual-status commander. After the state has requested federal assistance, the defense coordination officer will coordinate for the use of all Title 10, USC, portions of the CBRN response enterprise and conventional forces after a validated request for assistance is approved by DOD. These processes should be practiced during training events and exercises.

For further guidance on interorganizational cooperation, refer to JP 3-08, Interorganizational Cooperation. *For further guidance on CBRN response, refer to JP 3-41,* Chemical, Biological, Radiological, and Nuclear Response. *For further guidance on dual-status command, see JP 3-28,* Defense Support of Civil Authorities. *For further information on National Guard domestic operations, see Chief, National Guard Bureau Instruction 3000.24,* National Guard Bureau Domestic Operations, *and Chief, National Guard Bureau Manual 3510.25,* National Guard Homeland Response Force and Chemical, Biological, Radiological, Nuclear, and High-Yield Explosives Enhanced Response Force Package Procedures.

6. Multinational and Security Cooperation

a. Participation by multinational partners is critical to the successful prosecution of CWMD efforts. DOD, in cooperation with multinational partners, plays a critical role in building new coalitions, mechanisms, and international norms to counter actors of concern that pose a threat of developing, acquiring, proliferating, or employing WMD, related expertise, technologies, and materials. CCMDs are encouraged to conduct military-to-military exchanges in areas such as tactics, techniques, and procedures; intelligence; and technology.

b. US military operations are routinely conducted with forces of other nations within the structure of an alliance or coalition. An adversary may employ CBRN weapons against non-US forces, especially those with little or no defense against these weapons, in an effort to weaken, divide, or destroy the multinational effort. When conducting combat operations, the JFC should consider the capabilities and limitations of all available forces to maximize their contributions and minimize their vulnerabilities. Peacetime activities with multinational partners, particularly multinational and interagency training and planning exercises focused on building their CWMD capabilities, provide means of preparing for multinational combat operations in CBRN environments.

c. With very few exceptions, multinational operations will involve the use of HN sovereign airspace and territory, bases or civilian airports, facilities, and personnel (including non-USG and contracted civilian workers supporting US and multinational forces). For CCDR campaign and contingency plans, HN considerations, including CBRN defense, are the subject of significant peacetime planning in which operational, legal, contractual, and personnel issues are addressed. CCDR coordination of HN support

activities will involve a number of interagency partners, as well as the US country team. Particular emphasis is placed on early warning and detection; actions to prepare US and indigenous military forces; and protection of threatened civilian populations, essential infrastructures, and facilities. The CCDR should coordinate the development and implementation of plans and exercises that are aligned with HN agreements for providing assistance in the event of a CBRN incident, especially where those agreements may affect US military response.

d. **SC.** SC encompasses US activities with foreign security establishments to build relationships and develop friendly military capabilities to achieve US CWMD objectives. SC activities can include, among other things, military-to-military contacts, exchanges, security force assistance to develop foreign security force capability and capacity, education, exercises, operational support, and defense institution building. DOD CWMD SC activities should seek to improve PN capabilities and capacity to achieve the following:

(1) Develop SC initiatives to maintain and enhance situational awareness of proliferation pathways and indicators of potential use.

(2) Develop SC initiatives to disrupt proliferation pathways and use.

(3) Develop prioritized SC initiatives that enable PNs to respond safely and effectively to CBRN events.

For further guidance on SC, see JP 3-20, Security Cooperation.

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APPENDIX B
TREATIES, RESOLUTIONS, ACTIVITIES, AND LEGAL CONSIDERATIONS

1. General

This appendix provides a reference for staff officers assigned to CCMDs, JTFs, or other major staff and operational elements responsible for CWMD planning and execution. It addresses treaties, resolutions, control regimes, activities, and legal considerations which JFCs account for and which will shape the planning of operations and campaigns that deal with the WMD threats or hazards.

2. Treaties and Control Regimes

a. **Overview.** Treaties and control regimes are two tools that are used to implement the NSS. They establish global norms against the proliferation of WMD precursors, dual-use goods, weapons, and their means of delivery. Both provide international standards to gauge and address the activities of potential proliferators. Joint forces will comply with treaties to which the US is a party and may support building cooperation and arms control and treaty monitoring activities. Several of the cornerstone treaties regarding WMD are listed within this appendix. Joint forces also need to be aware of those treaties that the US is not party to but may pose constraints or restraints, such as nuclear-weapon-free zones. (See http://www.un.org/disarmament/WMD/ for text of treaties.)

b. **Nuclear Policies and Agreements.** The US has historically used two methods to counter the threat and proliferation of nuclear weapons. The first is its overt strategic deterrence policy laid out in the current *Nuclear Posture Review*. The second is its nonproliferation policy, which is implemented through a network of formal arms control treaties and agreements such as CTR programs and informal agreements like the PSI. While the US is not party to all of these policies and agreements, and some are nonbinding, they can affect joint force actions and the JFC should account for them. Significant nuclear-related treaties, policies, and agreements include the START [New Strategic Arms Reduction Treaty], the NPT, nuclear-weapon-free zones, the Comprehensive Nuclear Test-Ban Treaty (CTBT), the Global Initiative to Combat Nuclear Terrorism (GICNT), various United Nations Security Council resolution (UNSCR) sanctions, and the Nuclear Suppliers Group control lists. The Deputy Assistant Secretary of Defense for Nuclear and Missile Defense and the Deputy Assistant Secretary of Defense for CWMD represents DOD interests on these and other CP and nonproliferation policy issues.

(1) The NPT. The NPT is the cornerstone of international efforts to prevent the spread of nuclear weapons, as it prohibits non-nuclear-weapon state party from receiving, manufacturing, and acquiring nuclear weapons and a nuclear-weapon state party from transferring nuclear weapons, related materials, and technology. DOD supports US efforts to promote full compliance by all parties to the treaty. In becoming party to the NPT, nonnuclear weapon states pledge not to acquire nuclear weapons in exchange for a pledge by the nuclear weapon states (US, United Kingdom, France, Russia, and China) not to assist the development of nuclear weapons by any nonnuclear weapon states and to facilitate "the fullest possible exchange of equipment, materials and scientific and

technological information for the peaceful uses of nuclear energy." The nuclear weapon states, defined as any state that tested a nuclear explosive before 1967, also agree to "pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament." The NPT does not prohibit US movement of nuclear WMD, devices, and/or associated materials to final disposition sites in the US or another country authorized to store nuclear material.

(2) Nuclear Test Ban Treaties. Efforts to curtail nuclear weapon tests have been made since the 1940s. Previous treaties have restricted nuclear testing as follows: the 1963 Limited Test Ban Treaty barred explosions in the atmosphere, in space, and under water; the 1974 US-USSR [Union of Soviet Socialist Republics] Threshold Test Ban Treaty banned underground nuclear weapons tests having an explosive force of more than 150 kilotons; and the Peaceful Nuclear Explosions Treaty, signed in 1976, extended the 150-kiloton limit to nuclear explosions for peaceful purposes. While the CTBT was opened for signature in 1996, it has not entered into force, leaving a ban on nuclear testing as the oldest item on the arms control agenda—the CTBT would ban all nuclear explosions.

(3) Nuclear-Weapon-Free Zones. Several regions of the world have treaties in force between the states in those regions that ban those states from developing, possessing, and using nuclear weapons, known as nuclear-weapon-free zones, including Latin America (Treaty of Tlatelolco), Central Asia (Treaty on a Nuclear-Weapon-Free Zone in Central Asia), the South Pacific (Treaty of Rarotonga), Africa (Treaty of Pelindaba), and Southeast Asia (Treaty of Bangkok). The US is party to the protocols for the Treaty of Tlatelolco, which obligates the US not to use or threaten to use nuclear weapons against the states in Latin American that are parties to Treaty of Tlatelolco.

c. **Chemical Policies and Agreements**

(1) Policies. DOD has developed an array of policy and implementation guidance to ensure adherence to treaties, control regimes, and to forward global norms. They ensure efforts to demilitarize stockpile weapons, current research, and development of defensive measures are conducted in a manner that ensures safety and adherence to state and national regulations and international obligations.

(2) CWC. The CWC seeks to eliminate, under international verification, an entire category of WMD. The US is a party to this multilateral treaty, which prohibits the development, production, stockpiling, and use of chemical weapons, except for limited research, development, test, and evaluation, and requires the destruction of existing stockpiles and former chemical weapons production facilities under international verification. Each signatory is allowed to operate one single small-scale facility to produce small quantities of Schedule 1 toxic chemicals (i.e., chemical agents) for use in research and development of defensive measures and for any other purpose not prohibited by the CWC, and one additional facility to produce Schedule 1 toxic chemicals in even smaller quantities for protective purposes only. The Army's Combat Capabilities Development Command Chemical Biological Center at Aberdeen Proving Ground, Maryland, operates the single small-scale facility; and the Army's Chemical Defense Training Facility Laboratory at the US Army Chemical, Biological, Radiological and Nuclear School at Fort

Leonard Wood, Missouri, operates the protective purpose facility. The CWC is internationally implemented by the Organization for the Prohibition of Chemical Weapons, which verifies compliance with the treaty. The CWC, coupled with the activities of the Australia Group, strives to limit transfer of dual-use technology that could be used to make chemical weapons to states that are not states parties to the CWC. The CWC seeks to eliminate, under OPCW [Organisation for the Prohibition of Chemical Weapons] verification, an entire category of WMD.

(3) The Australia Group. The Australia Group is an international organization that aims to minimize the risk of assisting chemical and biological weapon proliferation and terrorism. Members commit to implementing effective export controls for items on the Australia Group common control list and to provide adequate licensing and enforcement. Participants meet annually to maintain the currency of the control list, exchange information on proliferation threats, and explore best practices for export controls and customs enforcement. Candidates for membership must be a manufacturer, exporter, or trans-shipper of Australia Group controlled items; meet the group's stated nonproliferation credentials; and demonstrate a willingness to implement the regime's control guidelines and are admitted by a consensus decision.

d. **Biological Policies and Agreements**

(1) The *National Strategy for Countering Biological Threats* provides the basis for US policy on countering biological threats. It is a presidential document with the overarching goal to protect against the misuse of the life sciences to develop or use biological agents to cause harm. The *National Strategy for Countering Biological Threats* identifies biological threat challenges; strategic objectives; and the roles and responsibilities of the federal, state, and local governments; the private sector; individuals and families; and international partners. Additionally, the *National Strategy for Biosurveillance* emphasizes information sharing among USG departments and agencies to identify biological threats. The *National Biodefense Strategy* is a USG coordinated effort to protect the US and its citizens from biological threats.

(2) Policy for Oversight of Life Sciences. The dual-use research of concern (DURC) policy establishes regular review of USG-funded research with certain high-consequence pathogens and toxins with the potential to be deliberately misused. The DURC policy is designed to mitigate risks and collect information for the oversight of agents and toxins with the most significant potential for mass casualties or devastating effects to the economy, critical infrastructure, or public confidence. The aim of the DURC policy is to preserve the benefits of life sciences research and minimize the risk of misuse of knowledge, information, products, or technologies provided by such research. The DURC policy focuses on 14 pathogens and one toxin regulated by DHHS and US Department of Agriculture Select Agent Program due to their potential to pose a severe threat to human, animal, or plant health or to animal and plant products. The responsibility for maintaining this policy falls to OBA, under the Office of Science Policy within NIH, DHHS. The NSABB and the DURC policy help to align interagency partners' situational awareness of biological agents with the potential to be used as WMD.

(3) The Convention on the Prohibition of the Development, Production, and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction [short title: Biological and Toxin Weapons Convention (BTWC)]. The BTWC established the first multilateral treaty banning the development, production, or stockpiling of an entire category of weapons. The BTWC prohibits parties from developing, producing, and stockpiling biological agents and toxins in types and quantities that have no justification for prophylactic, protective, or other peaceful purposes. The BTWC does not prohibit the biological agents or toxins themselves but rather certain purposes for which they may be employed. Unlike the CWC, the BTWC does not contain a verification regime to ensure signatories are complying with their obligations. To increase compliance and transparency, State Parties agreed to the voluntary exchange of confidence-building measures "to prevent or reduce the occurrence of ambiguities, doubts, and suspicions and in order to improve international cooperation in the field of peaceful biological activities." The confidence-building measures consist of six measures, including exchange of data on research centers and laboratories; national biological defense research and development programs and outbreak of infectious diseases and similar occurrences caused by toxins; encouragement of publication of results and promotion of use of knowledge; declaration of legislation, regulations, and other measures; declaration of past activities in offensive and/or defensive biological research; and development programs and declaration of vaccine production facilities.

3. United Nations Security Council Resolutions

a. **Overview.** UNSCRs 1540, 1673, and 1810 require member states to "detect, deter, prevent, and combat, including through international cooperation when necessary, the illicit trafficking and brokering" of WMD and delivery systems to non-state actors. Additional related UNSCRs apply to North Korea and Iran. It is important to understand that UNSCRs are not US law, but the US has an international obligation under the United Nations (UN) Charter to comply with them. The US must approve legislation, executive orders, or regulations which support UNSCRs goals or use existing authorities that support UNSCR enforcement in their current form.

b. **UNSCR 1540.** UNSCR 1540 requires member states to "criminalize proliferation, enact strict export controls, and secure all sensitive materials within their borders." It also requires states to enforce effective domestic controls over WMD and WMD-related materials in production, use, storage, and transport; to maintain effective border controls; and to develop national export and trans-shipment controls over such items, all of which help interdiction efforts. The resolution does not, however, provide any enforcement authority nor does it specifically mention interdiction. About two-thirds of all states have reported to the UN on their efforts to strengthen defenses against WMD trafficking. UNSCRs 1673, 1810, and 1977 extended the duration of the 1540 Committee, with the 2011 resolution extending the Committee's mandate for 10 years.

4. International Activities

a. **Overview.** The US, along with its partners and allies, participates in a variety of international activities to counter WMD, particularly to stop the proliferation of WMD and

the materiel, technology, and expertise necessary to create and sustain a WMD program. These activities seek to strengthen international norms and common values and build capacity through cooperation, information sharing, and exercises. The following list highlights select relevant international activities but is not an all-inclusive listing.

b. **The PSI.** The PSI is a global effort to stop shipments of WMD, their delivery systems, and related materials worldwide. The PSI Statement of Interdiction Principles identifies specific steps participants can take to effectively interdict WMD-related shipments and prevent proliferation. The PSI Principles also recognize the value in cooperative action and encourage participating nations to work together to apply intelligence, diplomatic, law enforcement, military, and other capabilities to prevent WMD-related transfers to state and non-state actors. A group of diplomatic, law enforcement, legal, military, and intelligence experts from 21 PSI participating states form an operational experts group. The operational experts group works on behalf of all PSI partners and meets regularly to develop operational concepts, organize the interdiction exercise program, share information about national legal authorities, and pursue cooperation with key industry sectors. Participation in the PSI is voluntary. There is no organizational HQ or secretariat. Support for the PSI is an acknowledgement of the need for stronger measures to defeat proliferators through cooperation with other countries.

c. **Nuclear Suppliers Group.** The Nuclear Suppliers Group is a multinational body concerned with reducing nuclear proliferation by controlling the export and re-transfer of materials that may support nuclear weapon development and by improving safeguards and protection of existing materials. The US encourages adherence to the Nuclear Suppliers Group's guidelines, seeks to improve information sharing on nations of concern and commodities sought by proliferators, and seeks to ensure Nuclear Suppliers Group control lists are current and properly focused.

d. **Missile Technology Control Regime (MTCR).** The MTCR is an informal and voluntary association of nations that share the goal of nonproliferation of unmanned delivery systems capable of delivering WMD. The MTCR limits the transfer of long-range (i.e., greater than 300 kilometers in range or 500 kilograms [kg] in payload) missiles and associated technology. The MTCR rests on adherence to common export policy guidelines applied to a common list of controlled items, making it more difficult for nations seeking to acquire and produce unmanned means of WMD delivery.

e. **GICNT.** In July 2006, Russia and the US announced the creation of the GICNT before the Group of Eight Summit in St. Petersburg, Russia. The mission of the GICNT is to strengthen global capacity to prevent, detect, and respond to nuclear terrorism by conducting multilateral activities that strengthen the plans, policies, procedures, and interoperability of PNs. Like the PSI, this initiative is nonbinding and requires agreement on a statement of principles. Thirteen nations—Australia, Canada, China, France, Germany, Italy, Japan, Kazakhstan, Morocco, Turkey, the United Kingdom, Russia, and the US—endorsed a Statement of Principles at the first meeting in October 2006. Today, the GICNT is an international partnership of 88 nations and six international organizations who are committed to working individually and collectively to implement a set of shared nuclear security principles to improve accounting, control, and protection of nuclear and

radiological materials and facilities; develop capabilities to detect and halt illicit trafficking of such materials; prevent terrorists/other non-state actors from acquiring nuclear materials; put in place laws to counter nuclear terrorism-related activity; share information; and develop a capability to respond and mitigate acts of nuclear terrorism. The US and Russia serve as co-chairs of the GICNT, and Spain serves as coordinator of the Implementation and Assessment Group. The International Atomic Energy Agency, the European Union, the International Criminal Police Organization-International Police, and the UN Office on Drugs and Crime have observer status. Without dues or a secretariat, actions under the initiative will take legal guidance from the International Convention on the Suppression of Acts of Nuclear Terrorism, the Convention on the Physical Protection of Nuclear Materials, and UNSCRs 1540 and 1373. GICNT PNs periodically hold exercises and workshops to improve coordination and exchange best practices.

5. Interdiction Legal Considerations

a. **Introduction.** WMD interdiction encompasses operations directed towards weaponized CBRN devices/warheads and delivery vehicles; dual-use items required to produce weapons, their precursors, or related items; related technology; financial and transportation intermediaries which facilitate trade in WMD; and individuals associated with all of the above. JFCs account for the legal issues inherent in WMD interdiction operations to fully comply with US law, treaties, and international agreements. Planners should involve their respective general counsel or staff judge advocate (SJA) representative early in the mission analysis and throughout execution to identify key issues and work to resolve them (see JP 3-84, *Legal Support*). Additionally, allies and PNs may have differing interpretations of rights and obligations under international law than the US. This will require sensitivity, cooperation, and negotiation when operating in a multinational environment.

For further guidance on legal support, see JP 3-84, Legal Support.

b. **General Considerations.** The international treaties and agreements discussed in the previous section, in addition to specific UNSCRs, obligate member states to prevent WMD proliferation. Treaties, US laws and regulations, and bilateral agreements also identify, however, certain rights and obligations of states, ships, and aircraft related to search and seizure in territorial and international waters and airspace. These issues include state of belligerency; territorial rights; legal status of the target vessel, aircraft, or vehicle; use of military forces; seizure of material and detention of persons; preservation of evidence; and rules of engagement/rules for the use of force during interdiction. Use of cyberspace operations to support WMD interdiction may pose additional legal concerns. Where CCDRs believe they require additional legal authority to conduct WMD interdiction activities, they should seek guidance from OSD and the JS.

(1) State of Belligerency. International law recognizes a difference in the rights of states during armed conflict (state of belligerency). Belligerent states may seize and condemn enemy vessels or vehicles; stop and search neutral vessels, aircraft, or vehicles for contraband; and blockade enemy port(s) and airspace on both the high seas and within the enemy's territorial seas. This right does not extend to the territorial seas or airspace of

neutral states or to international straits. Less clear are circumstances where no declared state of belligerency exists. This is the circumstance under which most WMD interdiction activities will occur. Some interdiction authorities include flag-state consent, ship master's consent, or specific boarding authorities contained within the United Nations Convention on the Law of the Sea (UNCLOS) that constitute customary international law. Article 51 of the UN Charter (right to self-defense) may provide some basis for action in this circumstance. UNSCRs may also provide basis for action under certain circumstances.

(2) Territorial Rights. The authority to stop and inspect a ship, aircraft, or ground vehicle resides with the nation in whose territory the vessel, aircraft, or vehicle is transiting. The UNCLOS and Chicago Convention on International Civil Aviation are cornerstone territorial rights agreements. Although the US may not be a party to the UNCLOS, many provisions of the treaty reflect customary norms, which give rise to rights and obligations under international law.

(a) It is important to note that some military actions, such as hailing and querying vessels on the high seas, can be supportive of USG CP objectives without being classified as interference with ships otherwise conducting legitimate commerce.

(b) National Airspace. The requirement for a state to obtain diplomatic clearance for state aircraft prior to entering or transiting another nation's airspace (over its territory or territorial waters) affects all aspects of planning and deployment. Overflight constraints are to be complied with by all forces and are a key element in the planning process. Under the 1944 Chicago Convention on International Civil Aviation, also known as the Chicago Convention, a state has the right to enforce its domestic laws and regulations on aircraft transiting its national airspace, to include the airspace above its territorial borders and waters, and to ensure the observance of any obligation of such state under a multilateral international agreement. A state may deny access to its national airspace or compel an aircraft entering its national airspace to land for inspection if suspected of violating its laws or if it poses an imminent security risk. A state may also deny access to its national airspace to aircraft contaminated by WMD. No state aircraft may fly over, or land on, the territory of a foreign nation without prior diplomatic clearance.

1. PSI Statement of Interdiction Principles (Aircraft). The PSI calls upon participant states to take specific actions in support of interdiction efforts, to the extent permissible under their national legal authorities and international legal obligations, to include:

a. At their own initiative or upon request and good cause shown by another state, require aircraft transiting their airspace to land for inspection if reasonably suspected of carrying WMD cargo to or from states or non-state actors, seize any such cargo, and deny transit rights to aircraft reasonably suspected of carrying such cargo.

b. Conduct aircraft inspections and seize WMD cargo at their airfields or other facilities used for transshipment to/from states or non-state actors.

2. Interdiction in National Airspace

a. General principles

(1) The Chicago Convention, International Air Services Transit Agreement, and other instruments of international air law attempt to strike a balance between the legitimate safety and security interests of territorial states and the economic and social benefits of unimpeded transit/overflight.

(2) Ultimately, every state has complete and exclusive sovereignty over the airspace above its territory (Chicago Convention, Article 1).

b. State aircraft (e.g., military aircraft) require "authorization by special agreement or otherwise" to overfly a foreign state (Chicago Convention, Article 3[c]). Usually this is accomplished through the diplomatic clearance process. Transit and landing rights may be withdrawn at any time. As a matter of international custom and practice, state aircraft are not subject to search or inspection in a foreign state.

c. Non-scheduled (e.g., charter) international civil flights are granted right of overflight by the Chicago Convention without prior permission (Chicago Convention, Article 5); however, the right is conditional. Overflown states have the right to require landing (Chicago Convention, Article 5) as a condition of overflight and may conduct an inspection of aircraft, may require prior notification and special permission for overflight in the interests of safety (Chicago Convention, Article 5), expect that aircraft not carry "munitions of war or implements of war" (defined nationally) without permission, may prohibit the transit of other items (defined nationally), and expect aircraft to comply with UNSCR obligating denial of overflight.

d. "Scheduled" international civil flights require special permission to transit foreign airspace. For states that are parties to both the Chicago Convention and International Air Services Transit Agreement, this permission is granted for non-stop transit and non-traffic stops (International Air Services Transit Agreement, Article 1). Additional bilateral/multilateral agreements apply for traffic stops (e.g., scheduled airline passenger service). States have the right to deny transit or order landing for inspection of a flight over its territory suspected of violating its laws or applicable UNSCRs and international law or if the aircraft poses an imminent security risk.

3. National Registry of Civil Aircraft. States of registry maintain international jurisdictional rights and legal obligations over their civil aircraft. Aircraft have the nationality of the state in which they are registered. Under some circumstances, UNSCRs may obligate states to prevent the use of their registered aircraft for WMD proliferation (Iran UNSCRs 1737, 1747, 1803, 1929; North Korea UNSCRs 1718, 1874, 2087, 2094). Once entered into force, the Beijing Convention (2010) will require states of registry to establish jurisdiction and criminalize air transport of WMD and some precursors.

a. Legal Status. The commercial maritime shipping and aviation industries often involve multiple layers of nationality in ownership, operating company, voyage contracting, leasing, flagging, and vessel's master/captain. Each nation associated

with a specific transaction can be approached in some fashion to cooperate with WMD interdiction efforts.

b. Flag State Consent. Unless a UNSCR expressly states otherwise, the authority to stop and inspect a ship or civil aircraft in international waters or airspace or authority to authorize a third-party nation to stop and inspect in international waters or airspace, generally depends upon the "flag" registry of the ship or aircraft. The flag state can be different from the owner or operator nationality, and the ship or aircraft is considered under the jurisdiction of the laws and directives of competent authority of the flag state. Generally, states have the right to stop and search any ship or aircraft in international waters or airspace flagged (registered) by the state or authorize a third party to do the same. Under the PSI, the US has negotiated a series of ship "boarding agreements" with certain other participants. These agreements provide for US boarding of these states' flagged ships under specific circumstances and conditions. Planners should consult their command's political advisor and SJA on these specific agreements.

c. Master's or Command Pilot's Consent. The US holds that it may board and carry out certain activities on ships otherwise immune if the master (captain) of the ship provides consent. Although such boarding, while in international waters, is technically limited to a visit only, the master may authorize a boarding party to examine any portion of the ship. The master is, however, not obligated to provide extended authorization unless directed by competent authority of the flag state. With respect to aircraft in international airspace, the command pilot of a civil aircraft may consent to have the aircraft diverted from its original destination to a designated airport so it can land and be boarded for inspection. Some states do not necessarily concur with the US position.

d. Sovereign Immunity. Warships and military aircraft of a state enjoy sovereign immunity. Coastal states may not stop and search warships but may direct them to depart the coastal state's territorial waters if the warship violates the right of innocent passage.

e. Seizure of Material and Detention of Persons. Seizures and detentions must have basis in international law, US law, or HN law. Specific cases and circumstances are too numerous to be recounted here. It is critical to involve the SJA as early as possible in the planning process to aid in determining requirements to support seizures, detentions, and expedite disposition.

f. Disposition–Availability of Evidence and Chain of Custody. In cases involving probable prosecution by the US or prosecuting state, agencies should take measures and provide guidance to field units regarding preservation of relevant evidence and establishing chain of custody. Preservation of the chain of custody is also essential to support attribution.

g. In cases involving possible foreign prosecutions arising from US interdictions and investigations, the interagency team should ascertain whether US investigators intend to make available all unclassified and relevant evidence to their counterparts in the prosecuting state for use by the prosecuting state in any hearings and

trials. This may include testimony, weapons, ammunition, imagery, small vessels, and other physical evidence requiring special handling or storage.

h. The prosecuting state should consider its transport and storage options (items are often located in third-party states or at-sea), as well as chain of custody procedures it may wish to communicate to the US and other investigators. The prosecuting state may wish to immediately coordinate with officials and investigators of other concerned states to establish early chain of custody and collection and preservation of evidence in ways that ensure admissibility in prosecuting state courts.

i. The US will, in appropriate circumstances, facilitate delivery of statements from US military witnesses to the prosecuting state. All requests for such personnel or their statements will normally be made to the cognizant US embassy for forwarding to DOD, DHS (for the USCG), and DOJ. Consideration should be given to the availability of witnesses and facilitating contact with (including travel of) potential prosecuting state investigators while the witnesses remain available.

6. Domestic Legal Considerations

Accounting of legal considerations is also essential for domestic operations. For CWMD-related DSCA activities, military forces could be requested and used to manage the consequences of a CBRN incident. In a domestic setting, it is imperative that JFCs understand the statutory and operational relationships among US states, territories, and federal government. They must also understand the distinctive roles, responsibilities, capabilities, and limitations of Titles 10, 14, 18, and 32, USC, and state active duty personnel.

For more detailed information on domestic legal considerations, see JP 3-28, Defense Support of Civil Authorities.

APPENDIX C
WEAPON CHARACTERISTICS

1. Purpose

This appendix provides an unclassified overview of CBRN weapons. A general knowledge of CBRN weapon characteristics will aid the JFC in gaining an overall situational awareness of diverse CBRN threats within the operational area and the development of specific risk assessments to counter these threats.

2. Nuclear Weapons Materials Production

a. **Mining, Milling, Refining, and Conversion.** During mining and milling, uranium ore is processed to isolate the uranium into concentrate called yellow cake. Uranium that is too enriched for reactor fuel, medical use, or weapons development is converted into UF6 [uranium hexaflouride]. This uranium is then reduced (converted) to metal, metal oxide, or a metal-ceramic matrix for further fabrication into reactor fuel elements.

b. **Uranium Enrichment.** Isotope separation (enrichment) technologies are processes that usually begin with natural uranium and result in enriched uranium and depleted uranium. Enrichment seeks to isolate and collect the relatively small percentage of the isotope uranium-235 (U-235), in natural uranium, which is suitable for fission weapons. Highly enriched uranium contains 20 percent or more of U-235; low-enriched uranium contains less than 20 percent U-235. Most power reactors require low-enriched uranium containing between three to five percent U-235. Weapons-grade uranium will contain 90 percent or more of U-235. Natural uranium can be used as fuel in certain types of specially moderated reactors—a byproduct of energy production from that fuel is plutonium-239 (Pu-239).

c. **Plutonium Production.** Plutonium, one of the two fissile elements used to fuel nuclear explosives, is not found in significant quantities in nature. Plutonium can only be made in sufficient quantities in a nuclear reactor. It is usually produced in a production reactor. To achieve the high percentages of Pu-239 required for weapons-grade plutonium, it must be produced specifically for this purpose. The uranium must spend several weeks in the reactor core and then be removed. Production reactors are used to make plutonium (and often tritium) efficiently. Production reactors can be graphite-moderated and either air-, carbon dioxide-, or helium-cooled; some programs have also used heavy water reactors. The longer a given sample of fuel is irradiated, the greater the build-up of plutonium-240 (Pu-240), an isotope which decays by spontaneous fission and which should be minimized in weapon plutonium. Consequently, plutonium production reactors are usually designed to be refueled at specific intervals while operating (on-line refueling) so relatively little Pu-240 is generated in the removed "spent" fuel. To be used in a nuclear weapon, plutonium must be separated from the much larger mass of non-fissile material in the irradiated fuel. Plutonium is removed from spent fuel by chemical separation; no nuclear or physical separation (as for example in uranium enrichment) is needed. After being separated chemically from the irradiated fuel and reduced to metal, the plutonium is ready for machining and use in a nuclear explosive device. If the reactor involved uses

RESEARCH REACTORS

Most radioisotope production occurs in research reactors, with power ranges from tens of kilowatts to several hundred megawatts, compared to 2,000 megawatts in commercial nuclear reactors. However, a few commercial power reactors also function as radioisotope producers.

From the security viewpoint, it is worth noting that both reactor and accelerator produced radioisotopes are usually processed in hot cells near the production facility. The processing involves chemical preparation after initial manufacture to produce a more pure form of the radioisotope for commercial use. It also physically shapes the product into the desired form (e.g., pellets or pencils).

SOURCE: "Commercial Radioactive Sources: Surveying the Security Risks", Charles D. Ferguson, Tasheen Kazi, and Judith Perera. Occasional Paper No. 11, Center for Nonproliferation Studies. Monterrey Institute of International Studies

thorium fuel, uranium-233 (U-233), also a fissile isotope, can be recovered in a process similar to plutonium extraction.

For further guidance on enrichment, refer to The Effects of Nuclear Weapons.

3. Radiological Weapons and Sources

a. **Radiological Weapons Development Lifecycle.** The lifecycle of radiological weapons is derived in a similar manner as nuclear weapons. This pathway is more difficult to characterize due to the prevalence of radioactive sources in everyday life.

b. **RDD Candidate Materials.** Radioactive materials that make the best candidates for use in an RDD are those that are widely used in medicine, industry, and research. RDD candidates should have an intermediate half-life—highly radioactive materials decay too quickly to assemble and deliver as an RDD, while those with very long half-lives are not radioactive enough to cause much damage. All of the candidate isotopes that pose the greatest security risk for an RDD are produced in the nuclear fuel cycle and for industrial applications of radiation.

For further guidance on the medical effects of radiological weapons, refer to Armed Forces Radiobiology Research Institute; Medical Management of Radiological Casualties; or Army Techniques Publication (ATP) 4-02.83/Marine Corps Reference Publication (MCRP) 4-11.1B/Navy Tactical Reference Publication (NTRP) 4-02.21/Air Force Manual (AFMAN) 44-161(Interservice [I]), Multiservice Tactics, Techniques, and Procedures for Treatment of Nuclear and Radiological Casualties.

4. Biological Weapons and Sources

a. **Biological Weapons Development Lifecycle.** The lifecycle of a biological weapon begins with the culturing of a specific organism with the virulence required. This

capability generally runs on a continuum from research, product scale-up, testing production, weaponization, storage, deployment/employment, and demilitarization. These stages can run in parallel as a capability is upgraded or circumvented as capability is contracted, out-sourced, imported, or stolen. Additionally, production times may be relatively short within the lifecycle as some bacteria can double in number every 20 minutes. Large stockpiles could be produced within a few years in a modest-sized pharmaceutical plant before it is repurposed for another use.

b. **Production.** Fermenters may be employed to grow large amounts of certain bacteria, but biological agents are not stored in bulk containers or in munitions. Biological agents would most likely be stored in small quantities of a few milliliters in plastic "cryovials" in liquid nitrogen canisters or in -80 degrees Celsius freezers in a containment room or building, such as biosafety level 3-4 facilities with access control and exterior security. Maintaining the capability does not depend on continued serviceability of the agent as it can be kept in frozen storage until needed. When prepared for use, large volumes of liquid nutritive media would be necessary to revive bacterial agents in incubators or warm rooms, possibly in flasks on shaker platforms for extracellular bacteria or in tissue culture for intracellular species. Virus preparation from the frozen state would require, depending on the species, numerous live eggs in incubators or tissue cultures employing commercially available cell lines, large amounts of liquid media, and numerous flasks to expand the amount of agent for deployment.

c. **Biological Agents.** Biological agents (pathogens and toxins) pose a risk of deliberate misuse with significant potential for mass casualties or devastating effects to the economy, critical infrastructure, and public confidence (see Figure C-1). Many diseases caused by weaponized biological agents present with nonspecific clinical signs that could be difficult to diagnose and recognize as a biological attack.

For further guidance on the medical effects of biological weapons, refer to US Army Medical Research Institute of Infectious Diseases Pocket Reference Guide to Select Biological Agents and Toxins; *Medical Management of Biological Casualties Handbook;* or *ATP 4-02.84/MCRP 4-11.1C/NTRP 4-02.23/AFMAN 44-156_Integrated Policy (IP),* Multiservice Tactics, Techniques, and Procedures for Treatment of Biological Warfare Agent Casualties.

5. Chemical Weapons and Sources

a. **Chemical Weapons Development Lifecycle (Figure C-2).** The lifecycle of a chemical weapon capability runs on a continuum from research through production, weaponization, storage, deployment/employment, and demilitarization. Agents and munitions that have exceeded their shelf life should be disposed of in a manner that precludes their continuing to be a hazard (e.g., incineration or neutralization). These stages can run in parallel as a capability is upgraded or circumvented as the capability is franchised or imported. Research involves gathering and cultivating needed expertise and validating production and weaponization processes. Production times are often relatively short within the life-cycle. Large stockpiles can be produced within a few years in a

Agents with Significant Risks of Deliberate Misuse

Pathogens	Viruses	Influenza viruses (avian, swine, etc.) Ebola virus Marburg virus Variola major and minor viruses (Smallpox) Alphaviruses (Eastern Equine Encephalitis, Venezuelan Equine Encephalitis) Foot-and-mouth disease virus (animal disease only) Rinderpest virus (animal disease only)
	Bacteria	Bacillus anthracis (Anthrax) Burkholderia mallei (Glanders) Burkholderia pseudomallei (Melioidosis) Francisella tularensis (Tularemia) Yersinia pestis (Plague) Coxiella burnetii (Q fever) Brucella species (Brucellosis) Rickettsia prowazekii (Epidemic typhus)
	Toxins	Clostridium botulinum neurotoxin Ricin toxin Abrin toxin Staphylococcus enterotoxins

Exemplary list, not exhaustive of Pathogens and Toxins.

Figure C-1. Agents with Significant Risks of Deliberate Misuse

modest-sized chemical plant before it is re-purposed to another use. Agents are usually stored in munitions or in bulk containers.

b. Maintaining the capability depends on continued serviceability of the munitions, the agent, and the munitions filling equipment for agents stored in bulk. Deployment and employment may involve specialized units qualified to handle agents and fill munitions. The task of controlling chemical warfare agent identification is further complicated through nations' use of binary compounds. Binary compounds have significantly extended storage life. Frequently, the agent must be reprocessed or replaced to maintain the usefulness of the weapon. Eventually, agents and munitions will need to be demilitarized. Burial of chemical warfare agents is not a permitted destruction method in accordance with the CWC. Munitions buried prior to CWC entry into force may remain buried but, if recovered, will be destroyed in accordance with an approved destruction method. Weapons degraded beyond normal military usefulness can still pose significant hazards, especially if proper control is lost. Agents and munitions that were disposed of through burial or

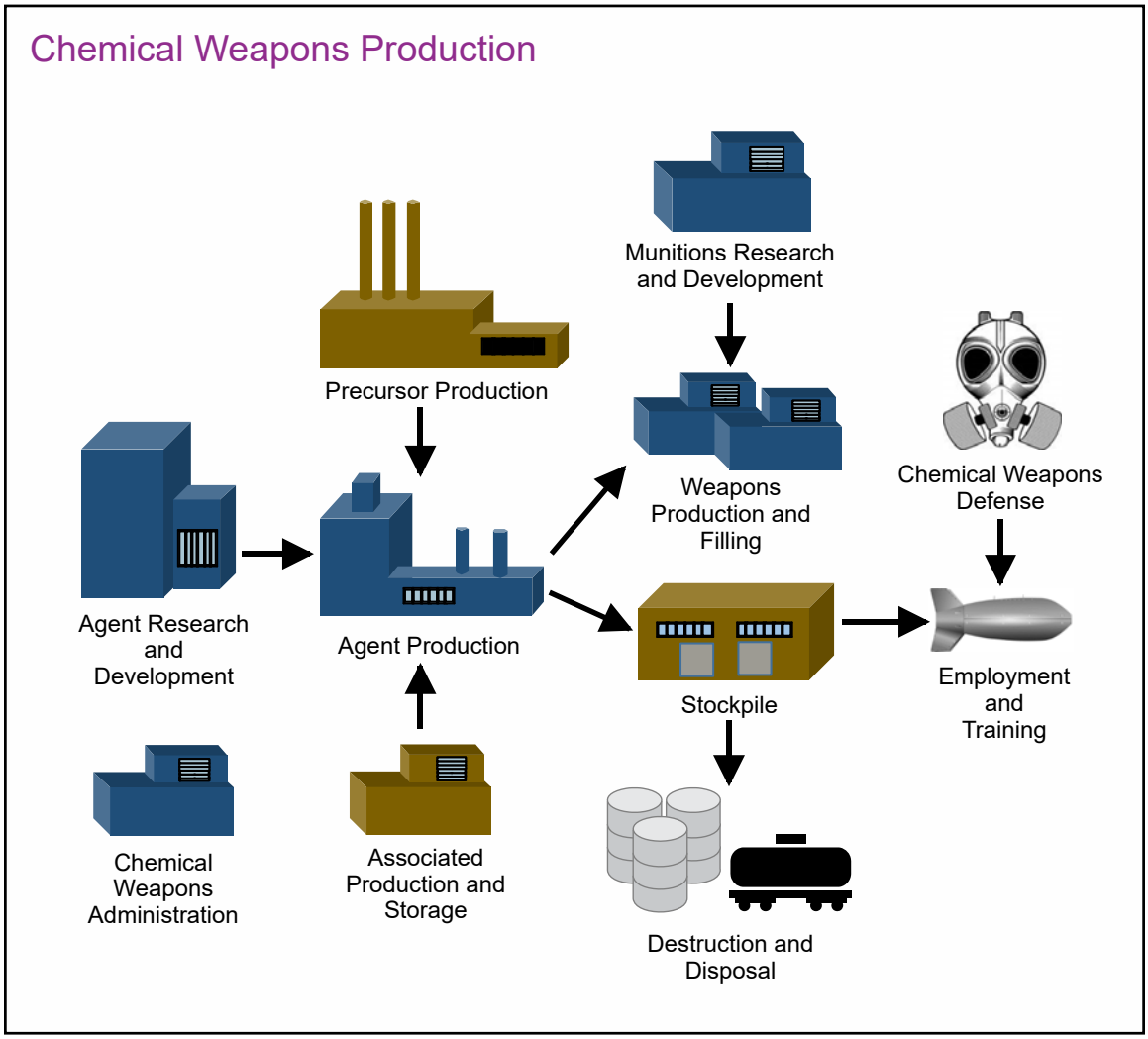

Figure C-2. Chemical Weapons Production

ocean dumping prior to the CWC should remain undisturbed, and if they pose an environmental hazard, or are recovered, they should be destroyed in an approved manner as any other munition or agent.

For further guidance on chemical weapons, refer to US Army Medical Research Institute of Chemical Defense Field Management of Chemical Casualties; Medical Management of Chemical Casualties Handbook; or *ATP 4-02.85/MCRP 4-11.1A/NTRP 4-02.22/Air Force Tactics, Techniques, and Procedures (AFTTP)(Instruction) 3-2.69,* Multi-Service Tactics, Techniques, and Procedures for Treatment of Chemical Warfare Agent Casualties and Conventional Military Chemical Injuries.

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APPENDIX D
DUAL-USE CHALLENGES

1. General

JFCs should understand the implications associated with dual-use technologies, materials, equipment, and expertise, which can provide the capability to develop WMD (Figure D-1). Many CBRN-associated resources have a range of legitimate applications in academia, industry, public health sector, and research. Even though they are normally used for civilian purposes, they may be exploited for military or nefarious applications. These dual-use items present actors of concern a means to covertly acquire or develop CBRN weapon capabilities. The legitimate appearance of these activities and facilities complicates the JFC's ability to detect, track, and target these potential threats. The Australia Group maintains an extensive collection of information related to potential chemical/biological materials and equipment that may be clandestinely used to produce chemical or biological weapons. The following is an excerpt from Australia Group *Common Control List Handbook, Volume I: Chemical Weapons-Related Common Control Lists* and describes some dual-use items of concern. For more information and access to additional Australia Group products see: https://australiagroup.net/en/index.html.

a. **Chemical Production Dual-Use Equipment**

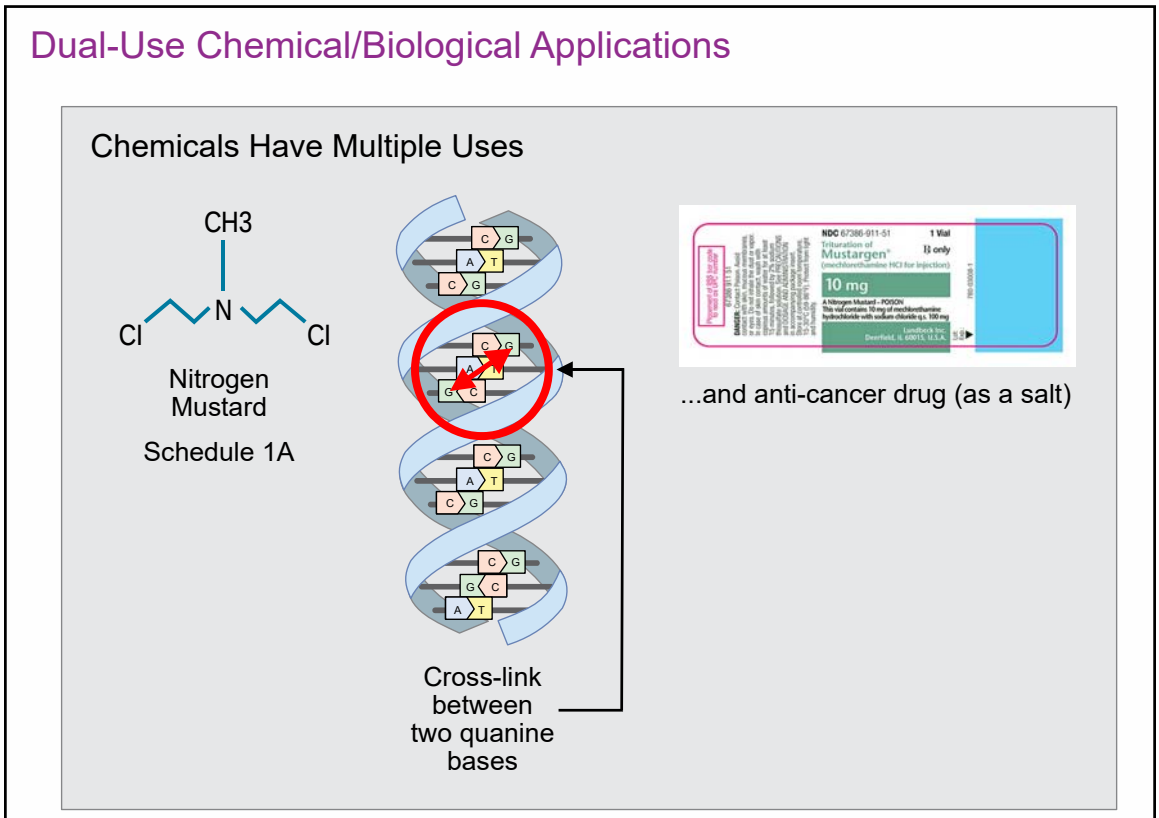

Figure D-1. Dual-Use Chemical/Biological Applications

(1) Reaction vessels, reactors, or agitators reaction vessels or reactors (Figure D-2), with or without agitators, with total internal (geometric) volume greater than 0.1 cubic meters (m^3) (100 l) and less than 20 m^3 (20000 l), where all surfaces that come in direct contact with the chemical(s) being processed or contained are made from the following materials:

(a) Nickel or alloys with more than 40 percent nickel by weight.

(b) Alloys with more than 25 percent nickel and 20 percent chromium by weight.

(c) Fluoropolymers (polymeric or elastomeric materials with more than 35 percent fluorine by weight).

(d) Glass or glass-lined (including vitrified or enameled coating).

(e) Tantalum or tantalum alloys.

(f) Titanium or titanium alloys.

(g) Zirconium or zirconium alloys.

Chemical Reactor Vessel

Figure D-2. Chemical Reactor Vessel

(h) Niobium (columbium) or niobium alloys.

(2) Prefabricated repair assemblies and their specially designed components, that:

(a) Are designed for mechanical attachment to glass-lined reaction vessels or reactors that meet the parameters above.

(b) Have metallic surfaces that come in direct contact with the chemical(s) being processed which are made from tantalum or tantalum alloys.

b. **Storage Tanks, Containers or Receivers**

(1) Storage tanks, containers or receivers (Figure D-3) with a total internal (geometric) volume greater than 0.1 m^3 (100 l) where all surfaces that come in direct contact with the chemical(s) being processed or contained are made from the following materials:

(a) Nickel or alloys with more than 40 percent nickel by weight.

(b) Alloys with more than 25 percent nickel and 20 percent chromium by weight Fluoropolymers (polymeric or elastomeric materials with more than 35 percent fluorine by weight).

(c) Glass or glass-lined (including vitrified or enameled coating).

Chemical Storage Tanks

Figure D-3. Chemical Storage Tanks

(d) Tantalum or tantalum alloys.

(e) Titanium or titanium alloys.

(f) Zirconium or zirconium alloys.

(g) Niobium (columbium) or niobium alloys.

(2) Prefabricated repair assemblies and their specially designed components, that:

(a) Are designed for mechanical attachment to glass-lined storage tanks, containers or receivers that meet the parameters above.

(b) Have metallic surfaces that come in direct contact with the chemical(s) being processed which are made from tantalum or tantalum alloys.

c. **Heat Exchangers or Condensers and Distillation or Absorption Columns** (Figure D-4 and Figure D-5)**.** Heat exchangers or condensers with a heat transfer surface area of greater than 0.15 square meters, and less than 20 square meters, and tubes, plates, coils, or blocks (cores) designed for such heat exchangers or condensers, where all surfaces that come in direct contact with the chemical(s) being processed are made from the following materials:

Chemical Heat Exchanger

Figure D-4. Chemical Heat Exchanger

Chemical Distillation Column

Figure D-5. Chemical Distillation Column

(1) Nickel or alloys with more than 40 percent nickel by weight.

(2) Alloys with more than 25 percent nickel and 20 percent chromium by weight.

(3) Fluoropolymers (polymeric or elastomeric materials with more than 35 percent fluorine by weight).

(4) Glass or glass-lined (including vitrified or enameled coating).

(5) Graphite or carbon-graphite.

(6) Tantalum or tantalum alloys.

(7) Titanium or titanium alloys.

(8) Zirconium or zirconium alloys.

(9) Silicon carbide.

(10) Titanium carbide.

(11) Niobium (columbium) or niobium alloys.

Technical note 1: Carbon-graphite is a composition consisting of amorphous carbon and graphite, in which the graphite content is eight percent or more by weight.

d. **Filling Equipment (Figure D-6).** Remotely operated filling equipment in which all surfaces that come in direct contact with the chemical(s) being processed are made from the following materials:

(1) Nickel or alloys with more than 40 percent nickel by weight.

(2) Alloys with more than 25 percent nickel and 20 percent chromium by weight.

e. **Valves (Figure D-7)**

(1) Valves, having both of the following:

(a) A nominal size greater than 1.0 centimeters (cm) (3/8 inch).

(b) All surfaces that come in direct contact with the chemical(s) being produced, processed, or contained are made from the materials of construction in technical note 2.

Chemical Filling Equipment

Figure D-6. Chemical Filling Equipment

Chemical Valve

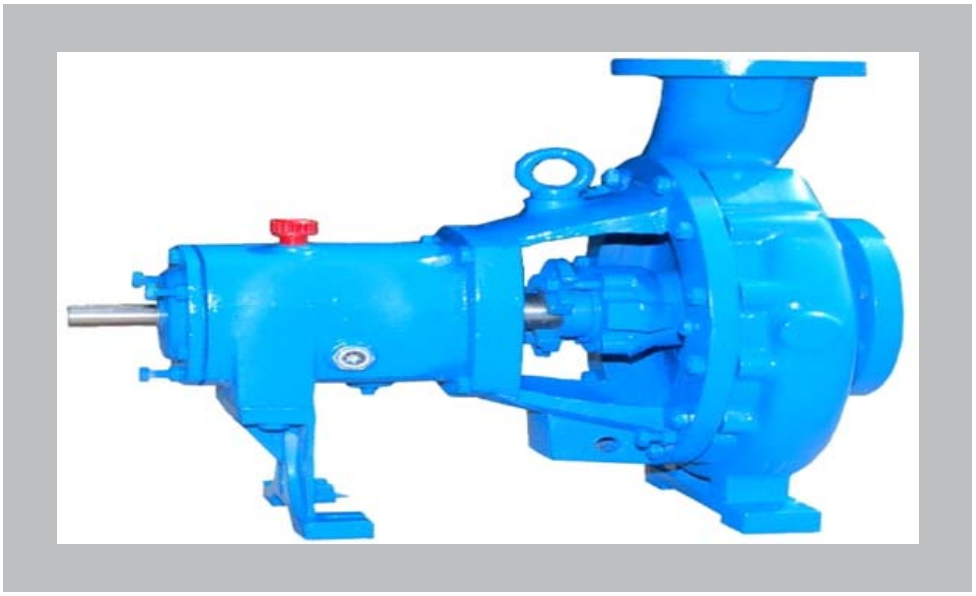

Figure D-7. Chemical Valve

(2) Valves, not already identified in paragraph 6.a., having all of the following:

(a) A nominal size equal to or greater than 2.54 cm (1 inch) and equal to or less than 10.16 cm (4 inch).

(b) Casings (valve bodies) or preformed casing liners.

(c) A closure element designed to be interchangeable.

(d) All surfaces of the casing (valve body) or preformed case liner that come in direct contact with the chemical(s) being produced, processed, or contained are made from the materials of construction in technical note 2.

(3) Components, as follows:

(a) Casings (valve bodies) designed for valves in paragraphs 6.a.or 6.b., in which all surfaces that come in direct contact with the chemical(s) being produced, processed, or contained are made from the materials of construction in technical note 2.

(b) Preformed casing liners designed for valves in paragraphs 6.a.or 6.b., in which all surfaces that come in direct contact with the chemical(s) being produced, processed, or contained are made from the materials of construction in technical note 2.

Technical note 2. Materials of construction for valves include any of the following:

a. Nickel or alloys with more than 40 percent nickel by weight.

b. Alloys with more than 25 percent nickel and 20 percent chromium by weight.

c. Fluoropolymers (polymeric or elastomeric materials with more than 35 percent fluorine by weight.

d. Glass or glass-lined (including vitrified or enameled coating).

e. Tantalum or tantalum alloys.

f. Titanium or titanium alloys.

g. Zirconium or zirconium alloys.

h. Niobium (columbium) or niobium alloys.

i. Ceramic materials as follows:

(1) Silicon carbide with a purity of 80 percent or more by weight.

(2) Aluminum oxide (alumina) with a purity of 99.9 percent or more by weight.

(3) Zirconium oxide (zirconia).

f. **Multi-Walled Piping (Figure D-8).** Multi-walled piping incorporating a leak detection port, in which all surfaces that come in direct contact with the chemical(s) being processed or contained are made from the following materials:

(1) Nickel or alloys with more than 40 percent nickel by weight.

(2) Alloys with more than 25 percent nickel and 20 percent chromium by weight.

(3) Fluoropolymers (polymeric or elastomeric materials with more than 35 percent fluorine by weight).

(4) Glass or glass-lined (including vitrified or enameled coating).

(5) Graphite or carbon-graphite.

(6) Tantalum or tantalum alloys.

(7) Titanium or titanium alloys.

(8) Zirconium or zirconium alloys.

Chemical Processing Piping

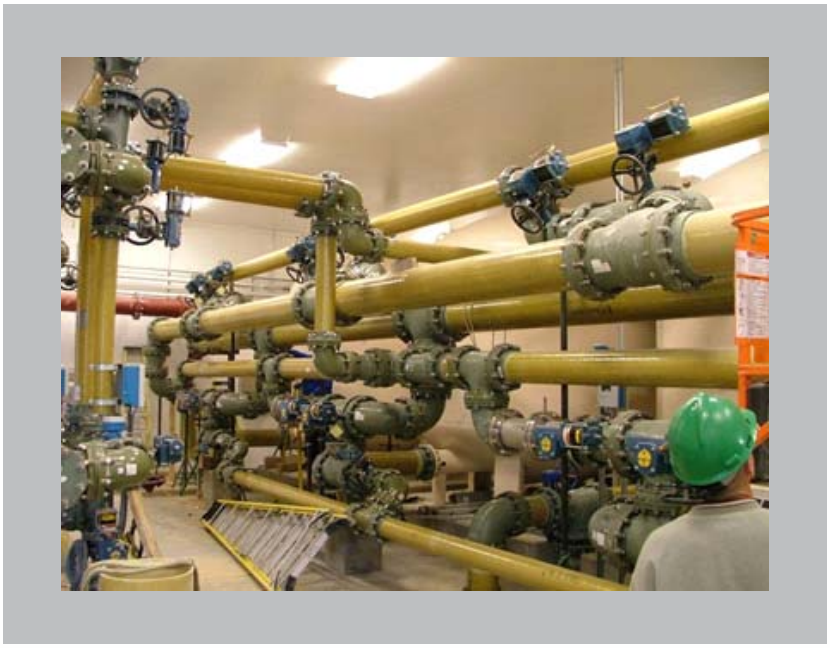

Figure D-8. Chemical Processing Piping

(9) Niobium (columbium) or niobium alloys.

g. **Pumps (Figure D-9).** Multiple-seal and seal-less pumps with manufacturer's specified maximum flow-rate greater than 0.6 m^3/hour, or vacuum pumps with manufacturer's specified maximum flow-rate greater than 5 m^3/hour (under standard temperature (273 Kelvin [0o Celsius]) and pressure [101.3 kilopascal] conditions), and casings (pump bodies), preformed casing liners, impellers, rotors or jet pump nozzles designed for such pumps, in which all surfaces that come into direct contact with the chemical(s) being processed are made from any of the following materials:

(1) Nickel or alloys with more than 40 percent nickel by weight.

(2) Alloys with more than 25 percent nickel and 20 percent chromium by weight.

(3) Fluoropolymers (polymeric or elastomeric materials with more than 35 percent fluorine by weight).

(4) Glass or glass-lined (including vitrified or enameled coating).

(5) Graphite or carbon-graphite.

(6) Tantalum or tantalum alloys.

(7) Titanium or titanium alloys.

Chemical Production Pumps

Figure D-9. Chemical Production Pumps

(8) Zirconium or zirconium alloys.

(9) Ceramics.

(10) Ferrosilicon (high silicon iron alloys).

(11) Niobium (columbium) or niobium alloys.

Technical note 3: The seals referred to in this control come into direct contact with the chemical(s) being processed (or are designed to) and provide a sealing function where a rotary or reciprocating drive shaft passes through a pump body.

2. Biological Facilities and Equipment

a. **Facilities.** Containment facilities and related equipment as follows:

(1) Complete containment facilities that meet the criteria for the appropriate level of biosafety.

(2) Containment as specified in the *WHO Laboratory Biosafety Manual*.

(3) Equipment designed for fixed installation in containment facilities specified in a., as follows:

(a) Double-door pass-through decontamination autoclaves.

(b) Breathing air suit decontamination showers.

(c) Mechanical-seal or inflatable-seal walkthrough doors.

b. **Equipment**

(1) Fermenters (Figure D-10 and Figure D-11). Fermenters capable of cultivation of microorganisms or of live cells for the production of viruses or toxins, without the propagation of aerosols, having a total internal volume of 20 liters or greater. Components designed for such fermenters, as follows:

(a) Cultivation chambers designed to be sterilized or disinfected in-situ.

(b) Cultivation chamber holding devices.

(c) Process control units capable of simultaneously monitoring and controlling two or more fermentation system parameters (e.g., temperature, pH, nutrients, agitation, dissolved oxygen, air flow, foam control). Fermenters include bioreactors (including single-use [disposable] bioreactors), chemostats, and continuous-flow systems.

Biological Production Fermenter

Figure D-10. Biological Production Fermenter

Biological Production Fermenter

Figure D-11. Biological Production Fermenter

(2) Centrifugal Separators. Centrifugal separators capable of the continuous separation of pathogenic microorganisms, without the propagation of aerosols, and having all the following characteristics:

(a) One or more sealing joints within the steam containment area.

(b) A flow rate greater than 100 liters per hour.

(c) Components of polished stainless steel or titanium.

(d) Capable of in-situ steam sterilization in a closed state.

Technical note 4: Centrifugal separators include decanters.

(3) Cross (tangential) Flow Filtration Equipment (Figure D-12). Cross (tangential) flow filtration equipment capable of separation of microorganisms, viruses, toxins, or cell cultures having all the following characteristics:

(a) A total filtration area equal to or greater than one square meter.

(b) Having any of the following characteristics:

1. Capable of being sterilized or disinfected in-situ.

Biological Production Filtration

Figure D-12. Biological Production Filtration

2. Using disposable or single-use filtration components.

(4) Freeze-Drying Equipment. Steam, gas, or vapor stabilizable freeze-drying equipment with a condenser capacity of 10 kg of ice or greater in 24 hours and less than 1000 kg of ice in 24 hours.

(5) Spray-Drying Equipment. Spray drying equipment capable of drying toxins or pathogenic microorganisms having all of the following characteristics:

(a) A water evaporation capacity of ≥ 0.4 kg/hour and ≤ 400 grams/hour.

(b) The ability to generate a typical mean product particle size of ≤10 micrometers with existing fittings or by minimal modification of the spray-dryer with atomization nozzles enabling generation of the required particle size and capable of being sterilized or disinfected in-situ.

(6) Protective and containment equipment as follows: protective full or half suits, or hoods dependent upon a tethered external air supply and operating under positive pressure.

Technical note 5: This does not control suits designed to be worn with self-contained breathing apparatus. Biocontainment chambers, isolators, or biological safety cabinets having all of the following characteristics, for normal operation:

a. Fully enclosed workspace where the operator is separated from the work by a physical barrier.

b. Able to operate at negative pressure.

c. Means to safely manipulate items in the workspace.

d. Supply and exhaust air to and from the workspace is HEPA [high-efficiency particulate air]-filtered.

(7) Spraying or fogging systems and components. Complete spraying or fogging systems, specially designed or modified for fitting to aircraft, lighter than air vehicles or unmanned aerial vehicles (UAVs), capable of delivering, from a liquid suspension, an initial droplet volume median diameter (VMD) of less than 50 microns at a flow rate of greater than two liters per minute. Spray booms or arrays of aerosol generating units, specially designed or modified for fitting to aircraft, lighter than air vehicles or UAVs, capable of delivering, from a liquid suspension, an initial droplet VMD of less than 50 microns at a flow rate of greater than two liters per minute.

(8) Nucleic Acid Assemblers and Synthesizers. Nucleic acid assemblers and synthesizers, which are partly or entirely automated and designed to generate continuous nucleic acids greater than 1.5 kilobases in length with error rates less than 5 percent in a single run.

(9) Items for inclusion in Awareness Raising Guidelines. Experts propose that the following items be included in awareness raising guidelines to industry:

(a) Equipment and technology (not specified elsewhere in the control list of Dual-use Biological Equipment and Related Technology and Software) for the encapsulation of live pathogenic microorganisms, viruses, and toxins, with a typical mean product particle size of 10 micrometers or less.

(b) Fermenters of less than 20 liter capacity with special emphasis on aggregate orders or designs for use in combined systems.

(c) Conventional or turbulent air-flow clean-air rooms and self-contained fan-HEPA [high-efficiency particulate air] filter units that may be used for the appropriate level of biosafety containment facilities.

3. Radiological Dual-Use Equipment

Radioactive materials are both legitimately and extensively used around the world. These materials serve important roles in medicine, industry, research, and academia.

Within an area of operation, JFC's can expect to find numerous radioactive material applications. Commanders should also recognize that nefarious actors may seek to acquire these materials for bad intent. While the technical, security, and financial hurdles required to make or acquire a nuclear weapon are monumental, common thieves may be able to steal radioactive materials with relative ease. The following information is provided by the US Nuclear Regulatory Commission and serves as an overview of common radioactive material uses. For more information, see https://www.nrc.gov/

a. **Diagnostic Medical Use.** Use of nuclear materials in radioactive uptake, dilution, excretion, imaging, or localization diagnostic clinical or research procedures for humans and animals. The metabolic or physiological properties of radiolabeled drugs are used to obtain medical information, and the radiation produced from sealed sources are used in diagnostic devices to image body parts or determine tissue density. Diagnostic medical use includes the use of certain portable imaging devices in dentistry and podiatry, as well as bone mineral analysis devices in podiatry.

b. **Therapeutic Medical Use.** Use of nuclear materials to deliver palliative (pain relieving) or therapeutic doses of radiation to specific tissues or body areas. Although most therapeutic uses of radiation involve the treatment of cancer, therapeutic doses may also be used to treat benign conditions such as the use of intervascular brachytherapy radiation to treat clogged blood vessels (restenosis).

c. **Medical Research Use.** Research involving human subjects using byproduct materials may only be performed if the licensee has a Title 10, Code of Federal Regulations (CFR), Part 35, medical use authorization. There are a wide variety of research uses of nuclear materials in human subjects. They include the use of nuclear materials in well-established nuclear medicine procedures to monitor a human research subject's response to a nonradioactive drug or device treatment, as well as clinical trials to determine the safety or effectiveness of new radioactive drugs and devices. The particular medical research use must conform with the requirements in Title 10, CFR, Part 35, and the possession and medical use authorizations in the license.

d. **Certain in Vitro Diagnostic Tests.** Some medical facilities or private physicians may only have regulated material in the form of prepackaged in vitro diagnostic test kits. These facilities and physicians do not have "medical use" licenses because these materials are not regulated pursuant to Title 10, CFR, Part 35. The amount of regulated materials used in this form of in vitro diagnostic testing determines whether its use is authorized by a specific license issued pursuant to Title 10, CFR, Part 30, or a general license pursuant to 10 CFR, Part 31.11. See the general license uses page for those materials generally licensed pursuant to Title 10, CFR, Part 31.11.

e. **Industrial Radiography.** Industrial radiography is the use of radiation to produce an image of internal features on photographic film; it is used to inspect metal parts and welds for defects.

f. **Irradiators.** Irradiators are devices or facilities that expose products to radiation to sterilize them, such as spices and some foods, milk containers, and hospital supplies.

Self-shielded irradiators are constructed so there is no external beam during use and there is "usually a small cabinet type device that is not built in." Non-self-shielded irradiators do not provide shielding from the radiation beam; therefore, additional shielding needs to be provided and special radiation protection precautions need to be taken.

g. **Well Logging.** Well logging is a process used to determine whether a well drilled deep into the ground has the potential to produce oil. This process uses byproduct or special nuclear material tracer and sealed sources in connection with the exploration for oil, gas, or minerals in wells.

h. **Gauging Devices.** Gauging devices are used to measure, monitor, and control the thickness of sheet metal, textiles, paper napkins, newspaper, plastics, photographic film, and other products as they are manufactured. No portable gauging devices (i.e., gauges mounted in fixed locations) are designed for measurement or control of material density, flow, level, thickness, or weight, and so forth. The gauges contain sealed sources that radiate through the substance being measured to a readout or controlling device. Portable gauging devices, such as moisture density gauges, are used at field locations. These gauges contain a gamma-emitting sealed source, usually cesium-137, or a sealed neutron source, usually americium-241 and beryllium.

i. **Other Measuring Systems.** Other measuring systems includes analytical systems such as x-ray fluorescence analyzers, gas chromatographs used for quality control testing in industrial processes, instrument calibrators, krypton leak detectors, and other "non-gauge" measuring systems.

j. **Research and Development.** Research and development involves the possession and use of radionuclides in industrial facilities for research and development.

k. **Source Material.** Source material licenses are issued for the possession and use of refined uranium or thorium for fabrication, research, and manufacture of consumer products such as ceramics and glassware, manufacture of refractories, uranium shielding, analytical standards, military munitions, and other uses. A small number of these licenses are issued to allow the use of uranium in subcritical assemblies.

l. **Special Nuclear Material.** Special nuclear material licenses are issued for the possession and use of small quantities of Pu-239, U-235, and U-233 (less than 200 grams total) for purposes such as biological and chemical testing; calibration of instruments; neutron sources for use in industrial applications; power sources to generate heat or power for remote weather stations and sensors, satellites, and other special applications; and sealed sources in devices such as gauges.

APPENDIX E
SCIENCE AND TECHNOLOGY

"…artificial intelligence, 3D [three-dimensional] printing and synthetic biology will bring profound changes to our everyday lives and benefits to millions of people. However, their potential for misuse could also bring destruction. The nexus between these emerging technologies and WMD [weapons of mass destruction] needs close examination and action."

United Nations Secretary-General Ban Ki-Moon 2016

1. General

Developments in science and technology have progressed at a blistering pace since the end of World War II. New breakthroughs in science and technology are announced, and each breakthrough in turn begets another breakthrough. While these scientific and technological advancements have largely been applied to improve our quality of life, the potential for misuse is of great concern. The following discussion is intended to highlight a few areas of future science and technology development that have application to CWMD.

a. **Technology Advancement Examples**

(1) Advanced information communication technologies, artificial intelligence, robotics and automation, cloud-based platforms, and Internet of things.

(2) Digital currencies, blockchain technology applications.

(3) Advanced materials and manufacturing.

(4) Biotechnologies at an inflection point—genetic testing and editing advances, catalyzed by the new gene manipulation methods are turning science fiction into reality.

(5) Unconventional energy sources.

b. **Science and Technology Pace**

(1) Rapid technological advancements will increase the pace of change and create new opportunities but will aggravate divisions between winners and losers.

(2) Automation and artificial intelligence threaten to change industries faster than economies can adjust, potentially displacing workers and limiting poor country development.

(3) Biotechnologies such as genome editing will revolutionize medicine and other fields, while sharpening moral differences.

c. Figure E-1 shows examples of several science and technology trends.

2. Chemical Developments

As Figure E-2 shows, advancements in chemical and biological sciences have out-paced treaty inspection regimes' (e.g., BTWC and CWC) ability to keep up with the increase number of chemical compounds and genetic sequences since these treaties were signed. The development of fourth generation chemical agents has made protective measures more difficult.

3. Biological Developments

Synthetic Biological Production. Scientific advances over the past several decades have accelerated the ability to engineer existing organisms and to potentially create novel ones not found in nature. Synthetic biology, which collectively refers to concepts, approaches, and tools that enable the modification or creation of biological organisms, is being pursued overwhelmingly for beneficial purposes ranging from reducing the burden of disease to improving agricultural yields to remediating pollution. Although the contributions synthetic biology can make in these and other areas hold great promise, it is also possible to imagine malicious uses that could threaten US citizens and military personnel.

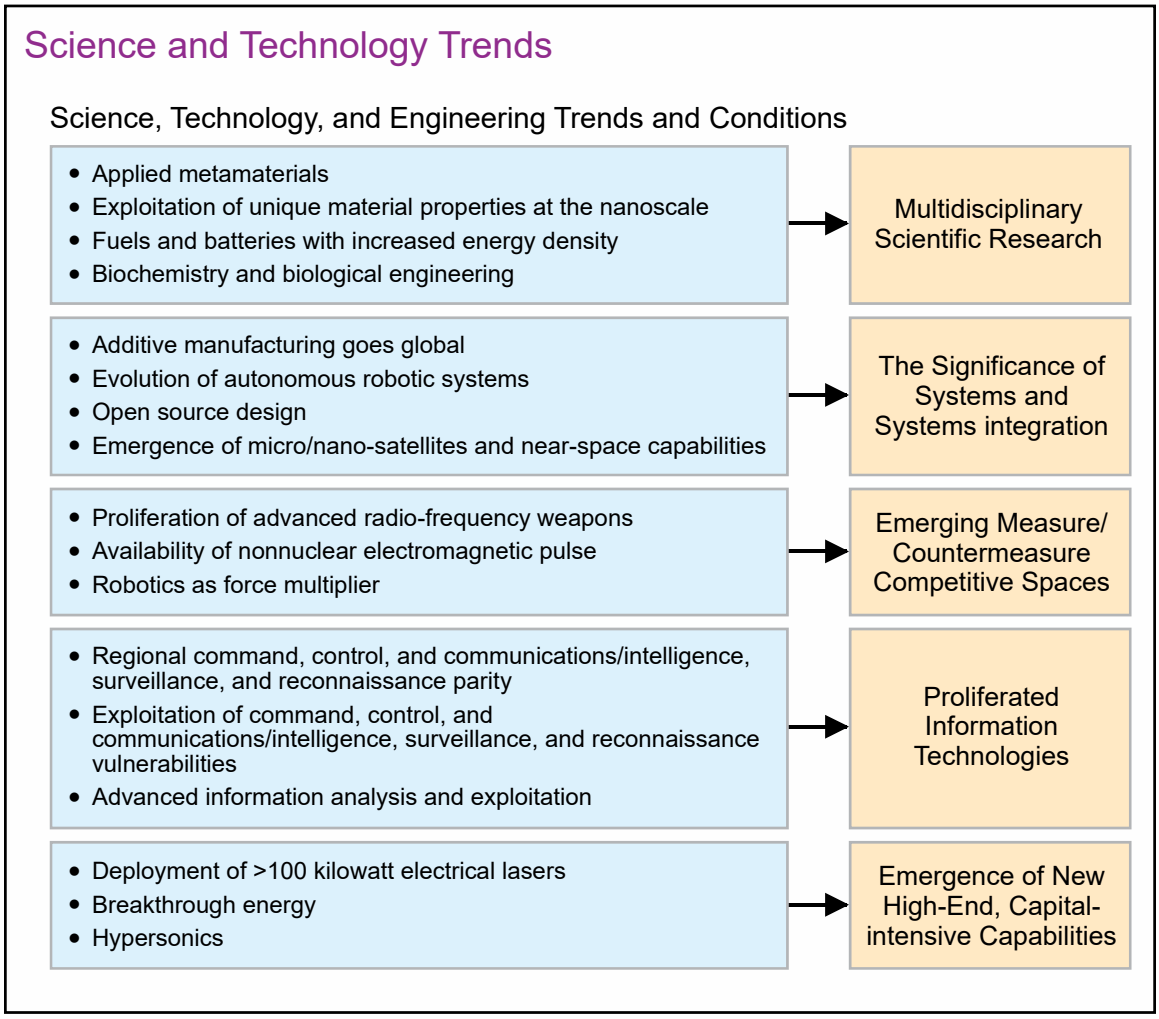

Figure E-1. Science and Technology Trends

Science and Technology Trends (continued)

Present

- Energy (advanced fission, renewables, solar)
  - hydraulic fracturing, photovoltaic efficiencies
- Energy storage (advanced batteries, capacitors)
- Communications (internet, wireless, reading brain waves)
- Information (artificial intelligence, big data, machine learning, quantum computing)
- Robotics and autonomous systems (Predator, Reaper)
- Bionics (exoskeletons)
- Biomedical (cloning, gene therapy, geneering, neuroscience)
- Manufacturing (additive manufacturing/3D printing, growth, prefab skyscrapers)
- Propulsion/transport (hypersonics, magnetic levitation, quadcopters)
- Materials (nanotechnology, metamaterials, high-temperature superconductors)
- Civil Engineering (sky needles, bridges, tunnels)
- Positioning (Beidou, Galileo, GLONASS, GPS)
- Space (nanosatellites, orbital habitats, reusable launch)
  - tensility structures
- Weapons (advanced chemical and biological, DEWs [laser, microwave], railguns)

Future (<25 Years)

- Energy (fusion, solar <$1 watt)
  - ubiquitous 3rd generation SILEX (laser enrichment)
  - antimatter, LENR
- Energy Storage (flywheels, supercapacitors)
- Communications (virtual reality/augmented reality, telepresence)
- Information (DNA, general artificial intelligence/strong artificial intelligence, human machine interface, Moore's Law extinction)
- Robotics and autonomous systems (anthropomorphics)
- Bionics (neural dust, powered combat armor)
- Biomedical (antisenescence, chimeras, optogenetics)
- Manufacturing (nanoassembly)
- Propulsion/transport (single-stage-to-orbit)
  - Cannae, electromagnetic, and mach-effect thruster drives
- Materials (room temperature superconductors)
- Civil engineering (archologies, megastructures, seabases)
- Positioning (NAVIC)
- Space (exomining, orbital manufacturing, manned Mars 2024)
  - propellantless propulsion, laboratory faster than light/ space warping
- Weapons (DEWs [particle, plasma])

Legend

3D	three-dimensional
DEW	directed energy weapon
DNA	deoxyribonucleic acid
GLONASS	Globalnaya Navigazionnaya Sputnikovaya Sistema or Global Navigation Satellite System
GPS	Global Positioning System
LENR	low energy nuclear reaction
NAVIC	Indian Regional Navigation Satellite System
Prefab	prefabricated
SILEX	separation of isotopes by laser excitation

Figure E-1. Science and Technology Trends (continued)

For more information on Biodefense in the Age of Synthetic Biology, see https://www.nap.edu/read/24890/chapter/1.

4. Nuclear and Radiological Developments

a. Particle Beam Weaponry. A particle-beam weapon uses a high-energy beam of atomic or subatomic particles to damage the target by disrupting its atomic and/or molecular structure. A particle-beam weapon is a type of directed-energy weapon, which directs energy in a particular and focused direction using particles with miniscule mass. Some particle-beam weapons have potential practical applications (e.g., as an antiballistic missile defense systems).

b. The critical nature of modern communications systems, and in particular satellite technology, makes the threat of electromagnetic pulse weapons a great concern for commanders. Advancements in this area are increasing rapidly with our peer and near-peer competitors.

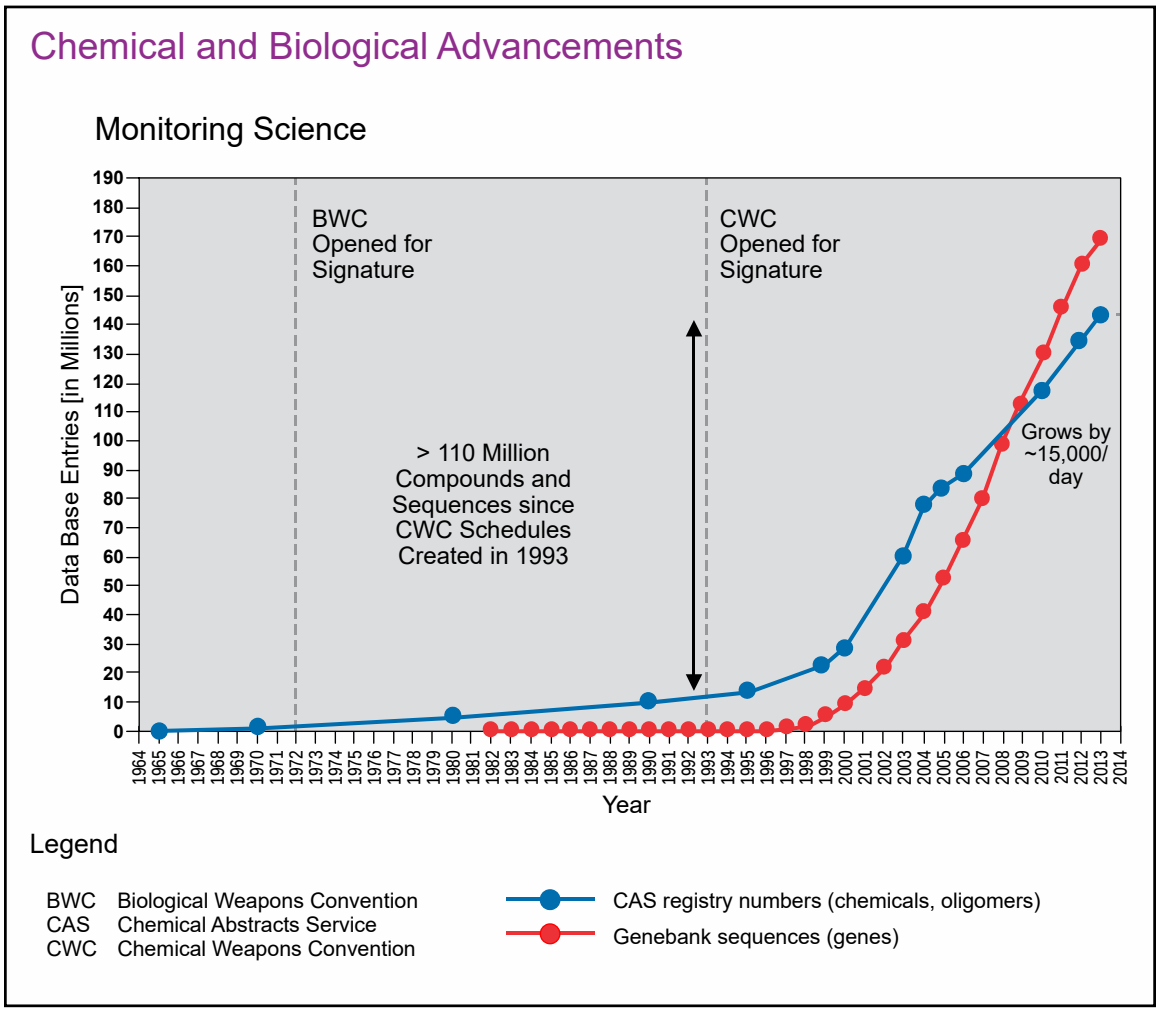

Figure E-2. Chemical and Biological Advancements

5. Nano-Technology

a. Science and technology has been focusing for many years on the miniaturization of equipment, machines, and sub-components such as microchips. This trend will continue as a benefit to friendly forces, yet also provide adversaries with increased capability. Increasing science and technology advances in three-dimensional printing will also help friendly forces, but adversaries will have a better ability to avoid detection of their activities.

b. The previous discussion is designed to emphasize the importance of keeping up-to-date with advancements in both science and technology. JFC's are not expected to be subject matter experts on all facets of technology, but the inclusion of science and technology subject matter experts within a JTF will assist commanders with recognizing the impacts of advancements in science and technology on future CWMD operations.

APPENDIX F
POINTS OF CONTACT

Joint Staff/J-7/Joint Doctrine Division
Website: http://www.jcs.mil/doctrine/
E-mail: js.pentagon.j7.mbx.jedd-support@mail.mil
Phone number: 703-692-7273 (DSN 222)

Joint Staff Doctrine Sponsor
Directorate for Strategy, Plans, and Policy
Deputy Directorate for Strategic Stability, CWMD Division
Phone: 703-693-3709
E-mail: js.pentagon.j5.list.dd-sts-cwmd-div-all@mail.mil

Lead Agent
USSOCOM J59-D
7701 Tampa Point Blvd., MacDill, AFB, FL 33621
Phone: 813-826-6829
E-mail: J59-CDI-D@socom.mil

Office of Coordinating Responsibility
USSOCOM J5
USSOCOM CWMD-FC
7701 Tampa Point Blvd., MacDill, AFB, FL 33621

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APPENDIX G
REFERENCES

The development of JP 3-40 is based on the following primary references:

1. General

a. Aviation Operational Threat Response Plan.

b. Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction.

c. Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction.

d. *Department of Defense Strategy for Countering Weapons of Mass Destruction.*

e. *Guidance for Employment of the Force.*

f. Homeland Security Presidential Directive (HSPD)-5, *Management of Domestic Incidents.*

g. *Maritime Operational Threat Response Plan.*

h. *National Biodefense Strategy.*

i. *(U) National Defense Strategy of the United States of America: Sharpening the American Military's Competitive Edge.*

j. *National Incident Management System.*

k. *(U) National Military Strategy of the United States of America, 2018.*

l. *National Response Framework.*

m. *National Security Strategy of the United States of America*.

n. *National Strategy for Countering Biological Threats.*

o. *National Strategy for Countering Weapons of Mass Destruction.*

p. *National Strategy for Homeland Security.*

q. *National Strategy for Strategic Interdiction.*

r. National Security Presidential Directive (NSPD)-17/HSPD-4, *National Strategy to Combat Weapons of Mass Destruction.*

s. NSPD-20, *Counterproliferation Interdiction.*

t. Presidential Decision Directive/NSC-62, *(U) Protection Against Unconventional Threats to the Homeland and Americans Overseas.*

u. PPD-8, *National Preparedness.*

v. PPD-21, *(U) Critical Infrastructure Security and Resilience.*

w. *The Proliferation Security Initiative: Statement of Interdiction Principles.*

x. Title 10, USC.

y. Title 14, USC.

z. Title 32, USC.

aa Title 50, USC.

bb. *Unified Command Plan.*

2. Department of Defense Publications

a. DODD 2060.02, *DOD Countering Weapons of Mass Destruction (WMD) Policy.*

b. DODD S-2060.04, *(U) DOD Support to the National Technical Nuclear Forensics (NTNF) Program.*

c. DODD 3025.18, *Defense Support of Civil Authorities (DSCA).*

d. DODD 5100.01, *Functions of the Department of Defense and Its Major Components.*

e. DODD 5134.08, *Assistant Secretary of Defense for Nuclear, Chemical and Biological Defense Programs ASD[NCB]).*

f. DODD 5205.14, *DOD Counter Threat Finance (CTF) Policy.*

g. DODI 2000.21, *DOD Support to International Chemical, Biological, Radiological, and Nuclear (CBRN) Incidents.*

h. DODI 3020.52, *DOD Installation Chemical, Biological, Radiological, Nuclear, and High-Yield Explosive (CBRNE) Preparedness Standards.*

i. DODI 3025.21, *Defense Support of Civilian Law Enforcement Agencies.*

j. DODI 6055.17, *DOD Emergency Management (EM) Program.*

k. DODI 6200.03, *Public Health Emergency Management Within the Department of Defense.*

l. DODI 6490.03, *Deployment Health.*

3. Chairman of the Joint Chiefs of Staff Publications

a. CJCSI 2030.01D, *Chemical Weapons Convention Implementation and Compliance Policy Guidance.*

b. CJCSI 2110.01E, *International Transfer of US Defense-Related Technology and Munitions.*

c. CJCSI 3100.01D, *Joint Strategic Planning System.*

d. CJCSI 3110.01K, *(U) 2018 Joint Strategic Capabilities Plan (JSCP).*

e. CJCSI 3125.01D, *Defense Response to Chemical, Biological, Radiological, and Nuclear (CBRN) Incidents in the Homeland.*

f. CJCSI 3214.01E, *Defense Support for Chemical, Biological, Radiological, and Nuclear Incidents on Foreign Territory.*

g. CJCSI 3261.01C, *Recapture and Recovery of Nuclear Weapons.*

h. CJCSI 3401.01E, *Joint Combat Capability Assessment.*

i. CJCSI 3500.01H, *Joint Training Policy for the Armed Forces of the United States.*

j. CJCSI 3520.02B, *Proliferation Security Initiative (PSI) Activity Program.*

k. CJCSI 5113.03, *(U) Counterproliferation Interdiction Policy.*

l. JP 1, *Doctrine for the Armed Forces of the United States.*

m. JP 2-01.3, *Joint Intelligence Preparation of the Operational Environment.*

n. JP 3-0, *Joint Operations.*

o. JP 3-01, *Countering Air and Missile Threats.*

p. JP 3-03, *Joint Interdiction.*

q. JP 3-08, *Interorganizational Cooperation.*

r. JP 3-10, *Joint Security Operations in Theater.*

s. JP 3-11, *Operations in Chemical, Biological, Radiological, and Nuclear Environments.*

t. JP 3-12, *Cyberspace Operations.*

u JP 3-13, *Information Operations.*

v. JP 3-15.1, *Counter-Improvised Explosive Device Activities.*

w. JP 3-27, *Homeland Defense.*

x. JP 3-28, *Defense Support of Civil Authorities.*

y. JP 3-29, *Foreign Humanitarian Assistance.*

z. JP 3-33, *Joint Task Force Headquarters.*

aa. JP 3-41, *Chemical, Biological, Radiological, and Nuclear Response.*

bb. JP 3-50, *Personnel Recovery.*

cc. JP 3-80, *Resource Management.*

dd. JP 3-84, *Legal Support.*

ee. JP 4-0, *Joint Logistics.*

ff. JP 4-02, *Joint Health Services.*

gg. JP 4-10, *Operational Contract Support*.

hh. JP 5-0, *Joint Planning.*

ii. JP 6-0, *Joint Communications System.*

4. Multi-Service Publications

a. ATP 3-11.32/Marine Corps Warfighting Publication 10-10E.8/Navy Tactics, Techniques, and Procedures (NTTP) 3-11.37/AFTTP 3-2.46, *Multi-Service Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Passive Defense.*

b. ATP 3-11.36/MCRP 10-10E.1/NTTP 3-11.34/AFTTP 3-2.70, *Multi-Service Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Planning.*

c. ATP 3-11.41/MCRP 10-10E.6/NTTP 3-11.24/AFTTP 3-2.37, *Multi-Service Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Consequence Management Operations.*

d. ATP 4-02.7/MCRP 3-40A.6/NTTP 4-02.7/AFTTP 3-42.3, *Multi-Service Tactics, Techniques, and Procedures for Health Service Support in a Chemical, Biological, Radiological and Nuclear Environment.*

e. ATP 4-02.283/MCRP 3-40A.2/NTRP 4-02.21/AFMAN 44-161(I), *Multi-Service Tactics, Techniques, and Procedures for Treatment of Nuclear and Radiological Casualties.*

f. ATP 4-02.84/MCRP 3-40A.3/NTRP 4-02.23/AFMAN 44-156_IP, *Multi-Service Tactics, Techniques, and Procedures for Treatment of Biological Warfare Agent Casualties.*

g. ATP 4-02.285/MCRP 4-11.1A/NTRP 4-02.22/AFTTP (Instruction) 3-2.69, *Multi-Service Tactics, Techniques, and Procedures for Treatment of Chemical Agent Casualties and Conventional Military Chemical Injuries.*

h. Field Manual (FM) 3-11/MCRP10.10E.3/Navy Warfare Publication 3-11/AFTTP 3-2.42, *Multi-Service Doctrine for Chemical, Biological, Radiological, and Nuclear Operations.*

i. FM 6-05/MCRP 3-30.4/NTTP 3-05.19/AFTTP 3-2.73/USSOCOM Publication 3-33, *Multi-Service Tactics, Techniques, and Procedures for Conventional Forces and Special Operations Forces Integration Interoperability, and Interdependence.*

j. Technical Manual 3-11.32/MCRP 10-10E.5/NTRP 3-11.25/AFTTP 3-2.56, *Multi-Service Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Warning and Reporting and Hazard Prediction Procedures.*

5. Army Publications

a. Army Doctrine Publication (ADP) 3-0, *Operations.*

b. ADP 3-07, *Stability.*

c. ADP 3-28, *Defense Support of Civil Authorities.*

d. ADP 5-0, *The Operations Process.*

e. Army Doctrine Reference Publication (ADRP) 3-0, *Operations.*

f. ADRP 3-07, *Stability.*

g. ADRP 5-0, *The Operations Process.*

h. FM 3-13, *Information Operations.*

6. Marine Corps Publication

Marine Corps Tactical Publication 10.10E, *MAGTF Nuclear, Biological, and Chemical Defensive Operations.*

7. Navy Publication

Navy Doctrine Publication 1, *Naval Warfare.*

8. Air Force Publications

a. Air Force Doctrine Annex 3-0, *Operations and Planning.*

b. Air Force Doctrine Annex 3-40, *Counter Weapons of Mass Destruction Operations.*

c. Air Force Instruction 10-2501, *Air Force Emergency Management Program.*

d. AFMAN 10-2503, *Operations in a Chemical, Biological, Radiological, Nuclear, and High-Yield Explosive (CBRNE) Environment.*

e. Air Force Policy Directive (AFPD) 10-25, *Air Force Emergency Management Program.*

f. AFPD 10-26, *Countering Weapons of Mass Destruction Enterprise.*

9. Allied Publications

a. North Atlantic Treaty Organization (NATO) Allied Medical Publication (AMedP)-6(C) Volume 1, *NATO Handbook on the Medical Aspects of NBC Defensive Operations (Nuclear).*

b. NATO AMedP-6(C) Volume 2, *NATO Handbook on the Medical Aspects of NBC Defensive Operations (Biological).*

c. NATO AMedP-6(C) Volume 3, *NATO Handbook on the Medical Aspects of NBC Defensive Operations (Chemical).*

10. Other Sources

a. *DIA and Joint IED Defeat Organization Improvised Explosive Device (IED) Technical Exploitation Lexicon, 5th edition.*

b. Defense Intelligence Agency, *Weapons Technical Intelligence (WTI) Handbook.*

APPENDIX H
ADMINISTRATIVE INSTRUCTIONS

1. User Comments

Users in the field are highly encouraged to submit comments on this publication using the Joint Doctrine Feedback Form located at: https://jdeis.js.mil/jdeis/jel/jp_feedback_form.pdf and e-mail it to: js.pentagon.j7.mbx.jedd-support@mail.mil. These comments should address content (accuracy, usefulness, consistency, and organization), writing, and appearance.

2. Authorship

a. The lead agent for this publication is United States Special Operations Command. The Joint Staff doctrine sponsor for this publication is the Director for Strategy, Plans, and Policy (J-5).

b. The following staff, in conjunction with the joint doctrine development community, made a valuable contribution to the revision of this joint publication: lead agent, Mr. John Campbell, United States Special Operations Command; Joint Staff doctrine sponsor, Mr. Giovanni Pindilli, Joint Staff J-5; Mr. Alan Armistead, Joint Staff J-7, Joint Doctrine Analysis Division; and Lt Col Mark Newell, Joint Staff J-7, Joint Doctrine Division.

c. The lead agent would like to acknowledge the efforts of the late Mr. Ernest "Lee" Smith of USSOCOM J-53 in crafting this publication. Mr. Smith's lifetime of dedication to protecting America and its allies from the scourge of weapons of mass destruction has made an incalculable contribution to the progress the nation has made in controlling the world's most dangerous weapons.

3. Supersession

This publication supersedes JP 3-40, *Countering Weapons of Mass Destruction,* 31 October 2014.

4. Change Recommendations

a. To provide recommendations for urgent and/or routine changes to this publication, please complete the Joint Doctrine Feedback Form located at: https://jdeis.js.mil/jdeis/jel/jp_feedback_form.pdf and e-mail it to: js.pentagon.j7.mbx.jedd-support@mail.mil.

b. When a Joint Staff directorate submits a proposal to the CJCS that would change source document information reflected in this publication, that directorate will include a proposed change to this publication as an enclosure to its proposal. The Services and other organizations are requested to notify the Joint Staff J-7 when changes to source documents reflected in this publication are initiated.

5. Lessons Learned

The Joint Lessons Learned Program (JLLP) primary objective is to enhance joint force readiness and effectiveness by contributing to improvements in doctrine, organization, training, materiel, leadership and education, personnel, facilities, and policy. The Joint Lessons Learned Information System (JLLIS) is the DOD system of record for lessons learned and facilitates the collection, tracking, management, sharing, collaborative resolution, and dissemination of lessons learned to improve the development and readiness of the joint force. The JLLP integrates with joint doctrine through the joint doctrine development process by providing lessons and lessons learned derived from operations, events, and exercises. As these inputs are incorporated into joint doctrine, they become institutionalized for future use, a major goal of the JLLP. Lessons and lessons learned are routinely sought and incorporated into draft JPs throughout formal staffing of the development process. The JLLIS Website can be found at https://www.jllis.mil (NIPRNET) or http://www.jllis.smil.mil (SIPRNET).

6. Distribution of Publications

Local reproduction is authorized, and access to unclassified publications is unrestricted. However, access to and reproduction authorization for classified JPs must be IAW DOD Manual 5200.01, Volume 1, *DOD Information Security Program: Overview, Classification, and Declassification,* and DOD Manual 5200.01, Volume 3, *DOD Information Security Program: Protection of Classified Information.*

7. Distribution of Electronic Publications

a. Joint Staff J-7 will not print copies of JPs for distribution. Electronic versions are available on JDEIS Joint Electronic Library Plus (JEL+) at https://jdeis.js.mil/jdeis/index.jsp (NIPRNET) and https://jdeis.js.smil.mil/jdeis/generic.jsp (SIPRNET), and on the JEL at http://www.jcs.mil/doctrine (NIPRNET).

b. Only approved JPs are releasable outside the combatant commands, Services, and Joint Staff. Defense attachés may request classified JPs by sending written requests to Defense Intelligence Agency (DIA)/IE-3, 200 MacDill Blvd., Joint Base Anacostia-Bolling, Washington, DC 20340-5100.

c. JEL CD-ROM. Upon request of a joint doctrine development community member, the Joint Staff J-7 will produce and deliver one CD-ROM with current JPs. This JEL CD-ROM will be updated not less than semi-annually and when received can be locally reproduced for use within the combatant commands, Services, and combat support agencies.

GLOSSARY

PART I—ABBREVIATIONS, ACRONYMS, AND INITIALISMS

ADP	Army doctrine publication
ADRP	Army doctrine reference publication
AFMAN	Air Force manual
AFPD	Air Force policy directive
AFTTP	Air Force tactics, techniques, and procedures
AMedP	Allied medical publication
ANG	Air National Guard
AOR	area of responsibility
ARNG	Army National Guard
ATP	Army techniques publication
ATSDR	Agency for Toxic Substances and Disease Registry (DHHS)
AVC	Bureau of Arms Control, Verification, and Compliance (DOS)
BTWC	Biological and Toxin Weapons Convention
C2	command and control
CBP	Customs and Border Protection (DHS)
CBRN	chemical, biological, radiological, and nuclear
CCDR	combatant commander
CCMD	combatant command
CCP	combatant command campaign plan
CDC	Centers for Disease Control and Prevention (DHHS)
CDRUSSOCOM	Commander, United States Special Operations Command
CFR	Code of Federal Regulations
CJCS	Chairman of the Joint Chiefs of Staff
CJCSI	Chairman of the Joint Chiefs of Staff instruction
cm	centimeter(s)
CNGB	Chief, National Guard Bureau
CP	counterproliferation
CSA	combat support agency
CT	counterterrorism
CTBT	Comprehensive Nuclear Test-Ban Treaty
CTR	cooperative threat reduction
CWC	Chemical Weapons Convention
CWMD	countering weapons of mass destruction
DEA	Drug Enforcement Administration (DOJ)
DHHS	Department of Health and Human Services
DHS	Department of Homeland Security
DIA	Defense Intelligence Agency
DNDO	Domestic Nuclear Detection Office (DHS)

DOC	Department of Commerce
DOD	Department of Defense
DODD	Department of Defense directive
DODI	Department of Defense instruction
DODS-CWMD	Department of Defense Strategy for Countering Weapons of Mass Destruction
DOE	Department of Energy
DOJ	Department of Justice
DOS	Department of State
DOT	Department of Transportation
DSCA	defense support of civil authorities
DTRA	Defense Threat Reduction Agency
DURC	dual-use research of concern
FBI	Federal Bureau of Investigation (DOJ)
FCP-CWMD	Functional Campaign Plan for Countering Weapons of Mass Destruction
FEMA	Federal Emergency Management Agency (DHS)
FM	field manual (USA)
GCC	geographic combatant commander
GEOINT	geospatial intelligence
GICNT	Global Initiative to Combat Nuclear Terrorism
HD	homeland defense
HN	host nation
HQ	headquarters
HSPD	homeland security Presidential directive
I	interservice (USAF)
ICE	Immigration and Customs Enforcement (DHS)
IP	integrated policy (USAF)
ISN	Bureau of International Security and Nonproliferation (DOS)
JFC	joint force commander
JIACG	joint interagency coordination group
JIPOE	joint intelligence preparation of the operational environment
JP	joint publication
JPP	joint planning process
JS	Joint Staff
JTF	joint task force
kg	kilogram(s)

m^3	cubic meter(s)
MCRP	Marine Corps reference publication
MTCR	Missile Technology Control Regime
NATO	North Atlantic Treaty Organization
NCPC	National Counterproliferation Center
NCTC	National Counterterrorism Center
NDS	national defense strategy
NG	National Guard
NGA	National Geospatial-Intelligence Agency
NG JFHQ-State	National Guard joint force headquarters-state
NIH	National Institutes of Health (DHHS)
NMS	national military strategy
NNSA	National Nuclear Security Administration (DOE)
NPT	Nonproliferation Treaty
NSABB	National Science Advisory Board for Biosecurity (NIH)
NSC	National Security Council
NSPD	national security Presidential directive
NSS	national security strategy
NTA	nontraditional agent
NTRP	Navy tactical reference publication
NTTP	Navy tactics, techniques, and procedures
OBA	Office of Biotechnology Activities (NIH)
ODNI	Office of the Director of National Intelligence
OE	operational environment
OPE	operational preparation of the environment
OSD	Office of the Secretary of Defense
PM	Bureau of Political-Military Affairs (DOS)
PN	partner nation
PPD	Presidential policy directive
PSI	Proliferation Security Initiative
Pu-239	plutonium-239
Pu-240	plutonium-240
RDD	radiological dispersal device
RED	radiological exposure device
SC	security cooperation
SecDef	Secretary of Defense
SJA	staff judge advocate
SOF	special operations forces
U-233	uranium-233
U-235	uranium-235

UAV	unmanned aerial vehicle
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNSCR	United Nations Security Council resolution
USAID	United States Agency for International Development
USC	United States Code
USCG	United States Coast Guard
USCYBERCOM	United States Cyber Command
USG	United States Government
USINDOPACOM	United States Indo-Pacific Command
USNORTHCOM	United States Northern Command
USSOCOM	United States Special Operations Command
USSTRATCOM	United States Strategic Command
USTRANSCOM	United States Transportation Command
VMD	volume median diameter
WMD	weapons of mass destruction

PART II—TERMS AND DEFINITIONS

chemical, biological, radiological, and nuclear response. In countering weapons of mass destruction, the activities to attribute responsibility for an event, minimize effects, sustain operations, and support follow on actions. Also called **CBRN response.** (Approved for inclusion in the DOD Dictionary.)

countering weapons of mass destruction. Efforts against actors of concern to curtail the conceptualization, development, possession, proliferation, use, and effects of weapons of mass destruction, related expertise, materials, technologies, and means of delivery. Also called **CWMD.** (DOD Dictionary. Source: JP 3-40)

counterproliferation. Those actions taken to reduce the risks posed by extant weapons of mass destruction to the United States, allies, and partners. Also called **CP.** (DOD Dictionary. Source: JP 3-40)

nonproliferation. Actions to prevent the acquisition of weapons of mass destruction by dissuading or impeding access to, or distribution of, sensitive technologies, material, and expertise. (DOD Dictionary. Source: JP 3-40)

pathway defeat. Activities to dissuade, deter, delay, disrupt, destroy, deny, and assure to complicate conceptualization, development, production, and proliferation of weapons of mass destruction. (Approved for inclusion in the DOD Dictionary.)

weapons of mass destruction. Chemical, biological, radiological, or nuclear weapons capable of a high order of destruction or causing mass casualties, excluding the means of transporting or propelling the weapon where such means is a separable and divisible part from the weapon. Also called **WMD.** (Approved for incorporation into the DOD Dictionary)

weapons of mass destruction defeat. Activities designed to control, defeat, disable, and dispose of extant weapons of mass destruction and the ability to stockpile, transfer, or employ weapons of mass destruction. Also called **WMD defeat.** (Approved for inclusion in the DOD Dictionary.)

weapons of mass destruction proliferation. None. (Approved for removal from the DOD Dictionary.)

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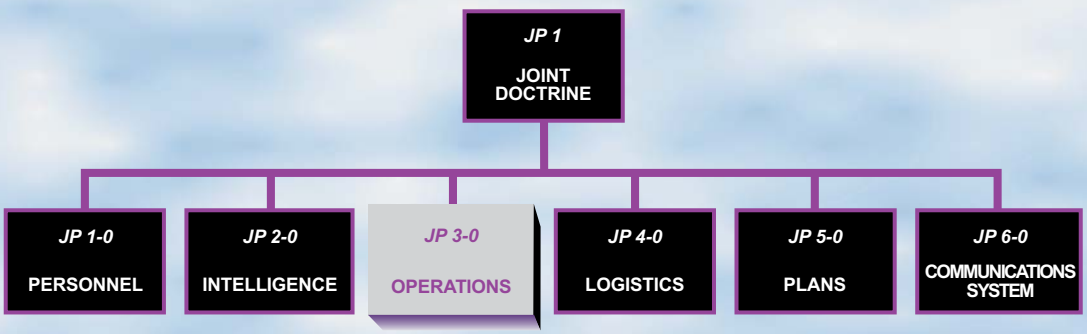
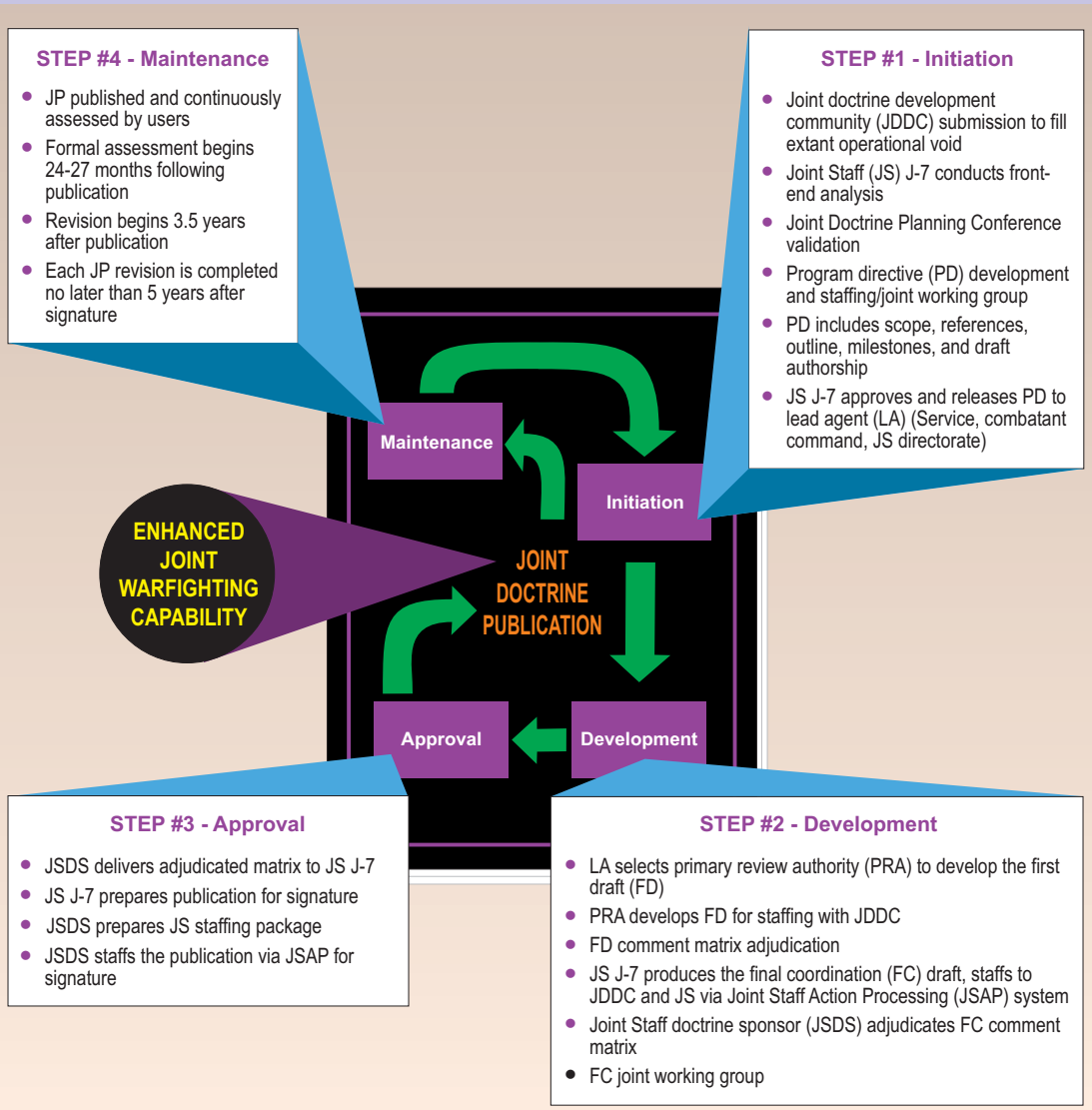
JOINT DOCTRINE PUBLICATIONS HIERARCHY



All joint publications are organized into a comprehensive hierarchy as shown in the chart above. **Joint Publication (JP) 3-40** is in the **Operations** series of joint doctrine publications. The diagram below illustrates an overview of the development process:



JOINT

CHIEFS OF STAFF