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ALLIED JOINT DOCTRINE FOR COUNTERING WEAPONS OF MASS DESTRUCTION IN MILITARY OPERATIONS

Edition A, version 1

SEPTEMBER 2023

NORTH ATLANTIC TREATY ORGANIZATION

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NATO LETTER OF PROMULGATION

20 September 2023

1. The enclosed Allied Joint Publication AJP-3.23, Edition A, version 1, ALLIED JOINT DOCTRINE FOR COUNTERING WEAPONS OF MASS DESTRUCTION IN MILITARY OPERATIONS, which has been approved by the nations in the Military Committee Joint Standardization Board, is promulgated herewith. The agreement of nations to use this publication is recorded in STANAG 6538.

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RECORD OF NATIONAL RESERVATIONS

CHAPTER	RECORD OF RESERVATIONS BY NATIONS
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RECORD OF SPECIFIC RESERVATIONS

[nation]	[detail of reservation]
CZE	Implementation of STANAG 6538 Ed. 1 is postponed until the achievement of required capabilities at individual levels enabling comprehensive approach and interoperability in accordance with the requirements stated in AJP-3.23(A), chapters 3, 4 and 5, including the related annexes.
DNK	Due to organizational changes within the Danish Air Force, the full range of STANAG implementation is expected to be completed within 6 years from date of ratification. Albeit, The Danish Air Force expects to continuously implement parts of the STANAG throughout the progression of the organizational changes. In overall Denmark will implement parts of the STANAG as soon as possible for all service branches.
HRV	The Croatian Armed Forces will implement this standardization document when the necessary organizational, material and financial conditions will be met.
ITA	For the subject STANAG, “OTHER” has to be considered as: Italian Defence General Staff Inspectorate General of Military Medical Services, Italian Command for Joint Operations, Italian Special Operations Command, Italian Defence General Staff Information and Security Division, Italian Defence General Staff Logistics and Infrastructure Policy Division, Italian Defence General Staff Office of Legal Affairs.
NLD	NLD has no part in dismantling and countering WMD, nor has it the ambition to change it's role. Therefore this publication is not applicable for NLD.
SVK	Due to limitations of national legislation the Slovak Republic will implement this STANAG in future.
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Related Documents

A. *Treaty on the Non-proliferation of Nuclear Weapons (NPT)*, 5 March 1970

B. *Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction*, 26 March 1975

C. *Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction*, 13 January 1993

D. PO(2016)0435, *Strengthening NATO's CBRN Defence Capabilities: Applying Lessons Learned from Recent CBRN Responses, 27 June 2016*

E. PO(2019)0054, February 2019, *Non-binding Guidelines for Enhanced Civil-Military Cooperation to Deal with the Consequences of Large-Scale CBRN Events Associated with Terrorist Attacks*

F. PO(2022)0251, *NATO's CBRN Defence Policy*

G. MC 0133/5, 11 September 2019, *NATO's Operations Planning*

H. MC 0343/1, 21 May 2002, *NATO Military Assistance to International Disaster Relief Operations*

I. MC 0411/2, 12 May 2014, *NATO Military Policy on CIMIC and CMI Interaction*

J. MC 0511/1, 4 February 2020, *MC Guidance for Military Operations in a CBRN Environment*

K. MC 0590/1, 16 July 2020, *NATO CBRN Reachback Concept*

L. MC 0603/1, 11 June 2014, *NATO Comprehensive CBRN Defence Concept*

M. MC 0635, 3 August 2017, *Weapons of Mass Destruction Disablement Functional Concept*

N. MCM-0230-2014, 31 March 2015, *NATO CBRN Reachback Element Concept of Operations*

O. MCM-0270-2018, 10 December 2018, *Concept of Combined Joint Chemical, Biological, Radiological and Nuclear Defence Task Force*

P. AC/98-D(2020)0007, 9 September 2020, *Non-binding Guidelines for Civil-Military Medical Cooperation in Response to Chemical, Biological, Radiological and Nuclear (CBRN) Mass Casualty Incidents*

Q. AJP-3.8, 3 October 2018, *Allied Joint Doctrine for Comprehensive Chemical, Biological, Radiological, and Nuclear Defence*

R. AJP-3.22, 14 July 2016, *Allied Joint Doctrine for Stability Policing*

S. AJP-5, 2 May 2019, *Allied Joint Doctrine for the Planning of Operations*

T. AJMedP-7, 21 January 2022, *Allied Joint CBRN Medical Support Doctrine*

U. ATP-3.18.1, 27 April 2017, *Allied Tactical Publication for Explosive Ordnance Disposal*

V. ATP-3.8.1, Volume I, 15 March 2022, *CBRN Defence on Operations*

W. ATP-3.8.1, Volume II, 13 May 2014, *Specialist CBRN Defence Capabilities*

X. ATP-3.8.1, Volume III, 5 April 2011, *CBRN Defence Standards for Education, Training and Evaluation*

Y. ATP-45, 20 March 2020, *Warning and Reporting and Hazard Prediction of Chemical, Biological, Radiological and Nuclear Incidents (Operators Manual)*

Z. ATP-65, 29 January 2021, *The Effect of Wearing CBRN Individual Protection Equipment on Individual and Unit Performance during Military Operations*

AA. ATP-70, 30 April 2014, *Collective Protection in a CBRN Environment*

BB. ATP-84, 11 April 2014, *CBRN Defence Equipment Operations Guidelines*

CC. AMedP-7.5, 30 October 2017, NATO Planning Guide for the Estimation of CBRN Casualties

DD. AMedP-7.6, 8 February 2018, Commander's Guide on Medical Support to CBRN Defensive Operations

EE. AEP-66, 15 April 2015, *NATO Handbook for Sampling and Identification of Biological, Chemical and Radiological Agents (SIBCRA)*

FF. AEODP-08, 16 June 2021, *Interservice Chemical, Biological, Radiological and Nuclear Explosive Ordnance Disposal Operations (CBRN EOD) on Multinational Deployments*

GG. *NATO Crisis Response System Manual (NCRSM) 2021*

HH. BI-SC Directive 15-23, 23 July 2009, *Policy on Legal Support*

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Preface

Context

1. Despite the existence of a broadly accepted regime of international agreements, adversaries continue to develop and field weapons of mass destruction (WMD) including, chemical, biological, radiological and nuclear (CBRN) weapons and devices. Some state and non-state actors, including terrorist organizations seek to acquire WMD, other CBRN materials, and means of delivery, to threaten or use them against NATO as a powerful means to advance their interests. Many scientific advances are unknowingly reinforcing these processes, aided by the free migration of information and scientific expertise around the world.

2. Adversaries may use or threaten to use WMD against the Alliance's populations, infrastructure, or vital interests. They may seek to deny access to an area or hinder freedom of action, limiting the ability of a joint force to respond to urgent threats; or to undermine support by key regional partners through intimidation.

3. Because of the devastating consequences of the use of WMD, active and passive defence and mitigation capabilities need to be readily available. A robust credible defence against WMD attack helps sow uncertainly in the adversary over the effectiveness of such an attack and thus contributes to deterrence. This enables joint forces to continue military operations in a CBRN environment and permits joint forces, alongside appropriate civilian agencies, to assist Allies and partners should WMD be used.

4. The evolution of the WMD threat has created challenges for joint forces beyond dealing with state-actor's WMD use, including the following:

- The varied nature and characteristics of WMD and CBRN materials including the evolution of technology and means of delivery;
- The dual-use applicability of related facilities, technology, and expertise;
- The diversity of threats;
- The complexity and dynamics of WMD proliferation;
- The increasing challenges on how proliferation networks are organised and run;
- The psychological impact of WMD use on populations, decision makers and forces.

5. Countering weapons of mass destruction (CWMD) requires a systematic, coordinated and synchronised approach able to simultaneously bring multiple capabilities to bear against actors and their WMD-related activities. NATO recognizes that lead agencies during day-to-day operations are normally international organizations (IO) operating under a United Nations (UN) umbrella. NATO plans and executes programmes and activities in close coordination with those IO on a case-by-case basis and when authorized by North Atlantic Council. Commanders can leverage established relationships to coordinate with IO to increase their effectiveness in CWMD activities.

6. CWMD activities complement non-proliferation activities with a global, continuous counter-proliferation campaign that crosses NATO boundaries and requires close coordination and cooperation with international agencies and partners. During major joint operations, the global consequences of CWMD need to be carefully considered even when executing actions at the tactical level or generating effects at the operational level. CWMD activities are highly interdisciplinary and politically sensitive.

Scope

7. AJP-3.23 provides principles and fundamentals to effectively plan and conduct CWMD missions and tasks within deployed Allied joint operations.

Purpose

8. This publication provides guidance to military authorities and informs NATO political and civil authorities of their recommended roles in CWMD efforts within a joint and multinational framework.

Application

9. AJP-3.23 primarily issues guidance to NATO commanders and staffs on their CWMD authorities at the strategic and operational level and also informs NATO political and civil authorities of their proposed roles.

Structure

10. This publication consists of five chapters and three annexes:

- Chapter 1 provides the background necessary to understand CWMD.
- Chapter 2 details characteristics of programmes and proliferation networks related to WMD.
- Chapter 3 describes lines of effort for CWMD.
- Chapter 4 outlines organizational and command relations for CWMD.
- Chapter 5 provides understanding for CWMD planning and execution.

Linkages

11. This doctrine incorporates aspects of *NATO's Chemical, Biological, Radiological and Nuclear (CBRN) Defence Policy* and related concepts. It complements the Allied Joint Doctrine Architecture as a new level 2 doctrine and describes CWMD as a joint activity.

12. AJP-3.8 describes NATO's CBRN defence capabilities in the broader context of its comprehensive approach to both WMD non-proliferation and CBRN defence. It guides operational staff to proactively contribute to the prevention of an adversary's WMD and CBRN substance possession or use.

Chapter 1 – Introduction

Section 1 – Weapons of Mass Destruction

1.1 NATO defines WMD as a weapon that is able to cause widespread devastation and loss of life. The term WMD is commonly understood as a collective phrase for all chemical, biological, radiological, and nuclear weapons and devices. This doctrine addresses those CBRN weapons or devices capable of a high order of destruction, mass casualties and considerable disrupting effects for both the operational effectiveness of a force and the security of the civilian population.

1.2 Chemical, biological and radiological weapons designed for limited effects outside of a tactical environment, such as injuring or killing one targeted individual, are not considered WMD and beyond the scope of this doctrine. WMD do not include conventional high-yield explosives or the means of transporting or propelling the weapon where such means is a separable and divisible part of the weapon.

Section 2 – Countering Weapons of Mass Destruction

1.3 **Definition.** Countering weapons of mass destruction (CWMD) is defined as "The efforts to prevent the conceptualization, development, possession, proliferation and use of weapons of mass destruction, including related expertise, materials, technologies and means of delivery, and to mitigate their effects."[1] These activities consist of, but are not limited to, locating, securing, characterizing, eliminating or disposing of WMD, and an adversary's capability to research, develop, test, produce, and stockpile such.

1.4 CWMD is a broad activity undertaken against WMD programmes, networks, and pathways. Activities include targeting transfer of WMD expertise, adversary CBRN research facilities (military and dual-use), production sites, transportation capabilities, storage, and launch locations. Additionally, options for interdicting illicit CBRN substances, precursor materials, and equipment need to be considered.

Section 3 – Interdisciplinary Approach

1.5 The global reach of networks and technology enabling WMD development and proliferation requires a comprehensive, interdisciplinary, interorganizational and international approach to meet these challenges. NATO or single Allies may desire to create effects that cannot be created by the military alone. Success likely requires support from and coordination with the diplomatic, information, legal, and economic instruments of national power.[2] NATO may act in a supported or supporting role, and military operations and activities will likely be integrated within larger international efforts. NATO will meet these challenges through the use of military and non-military tools in a coherent and sustained manner.

1.6 NATO builds confidence and mutual understanding through diplomacy, arms control measures, deterrence, and high-level engagement. Commanders employ the military capabilities necessary to create the desired effects and conduct effective cooperation and coordination with local authorities and other international entities to synchronise operations,

[1] NATO-agreed Term, TTF No. 2021-0146
[2] AJP-5 Allied Joint Doctrine for the Planning of Operations, Edition A Version 2, May 2019.

ensuring their actions and communications are aligned with and contribute to NATO's strategic communications.

1.7 This publication provides guidance to military authorities and informs NATO political and civil authorities of their recommended roles in CWMD efforts as outlined in Chapter 3.

Section 4 – Objectives and Lines of Effort of Countering Weapons of Mass Destruction

1.8 The strategic objectives of CWMD, aligned to the functional areas of Prevent, Protect and Recover, are:

- Prevent WMD development and acquisition: focuses on actions that dissuade and deter adversaries from developing and obtaining WMD capabilities;
- Protect against existing WMD: focuses on actions to reduce risks posed by existing WMD threats; and
- Recover from WMD use: focuses on actions to support operations in a CBRN environment, to mitigate the effects of a WMD use and to support efforts to attribute WMD attacks.

1.9 Achieving these objectives will require the following lines of effort as described in Chapter 3:

- Defeat WMD development and acquisition;
- manage existing WMD threats;
- conduct force protection and consequence management;
- understand the environment, threats, and vulnerabilities;
- maintain and expand CWMD technical expertise;
- cooperate with and support partners.

1.10 CWMD spans the range of military operations and is not planned or executed in isolation but rather within an integrated campaign. CWMD can take place in permissive, non-permissive, or hostile environments. Planning should emphasize continuing CWMD in a CBRN environment, and on minimizing or negating vulnerabilities to the effects of CBRN incidents.

Section 5 – Geopolitical Instability and Threat Evaluation

1.11 Due to geopolitical instability (e.g. states with WMD capabilities that are in civil war or susceptible to potential collapse), WMD and dual-use technologies, materials, infrastructure and expertise may be vulnerable to capture by adversaries or proliferation through loss of control, security, and accountability.

1.12 Adversaries may seek to capitalise on geopolitical instability to circumvent the development process by directly acquiring WMD technologies, capabilities, and expertise. Individuals with key WMD technical or network knowledge may seek shelter from the dangers of geo-political instability through other state or non-state actors in exchange for their cooperation.

Chapter 2 – Weapons of Mass Destruction Programme and Proliferation Characteristics

Section 1 – General

2.1 Adversaries that seek or possess WMD to enhance their influence or achieve greater strategic advantage pose an enduring challenge and threat to peace and stability worldwide. The growing availability and sophistication of WMD-related technologies and expertise compound the threat, thus disrupting international efforts to foster stability and to restrain proliferation activity. The erosion of the arms control architecture has negatively impacted strategic stability and contributed to the deterioration of the security landscape. The potential use of WMD against NATO by hostile state and non-state actors remains a threat to NATO populations, territories and forces.

2.2 **States** may view WMD possession as a source of strategic advantage, international prestige, regional dominance, suppression of resistance, deterrence, or as a means to balance other states' technological superiority. This may be accomplished through force projection, either through the threat or use of WMD. For a state to employ WMD, both a delivery capability to put a weapon on target and the infrastructure necessary to command and control the weapon system are required. States may use asymmetric means or proxies (state or non-state) to acquire or deliver WMD.

2.3 **Non-state actors** may seek to acquire or use WMD to increase their influence or impose their will. The use of WMD by non-state actors is more likely than WMD use by established and stable states, for whom attribution is more likely.

2.4 The WMD acquisition and development efforts of non-state actors differ from traditional state programmes in their organisation, scale and resourcing. Many chemical and biological production facilities used by non-state actors, such as clandestine laboratories, can operate with limited infrastructure using common dual-use or improvised equipment. The activities of non-state actors can be connected and fuelled by cycles of exploitation, human trafficking and/or gender-based violence whether committed directly by the non-state actors seeking or possessing WMD or by other state or non-state actors under whose umbrella they operate. Detecting and disrupting non-state actor networks and facilities is a significant challenge for the joint force. Adversaries' acquisition and development efforts can be countered by attacking and subsequently defeating their network.

2.5 Proliferation-related risks remain chronic. Technological thresholds for WMD programmes are shrinking due to more advanced technology making WMD conceptualisation and production easier.

2.6 Detailed information about chemical, biological, radiological and nuclear weapons is contained in Annex B to this publication.

Section 2 – Weapons of Mass Destruction Activity Continuum

2.7 Globalisation facilitates the creation of new, innovative and sophisticated networks that enable both development and proliferation efforts. **WMD networks** consist of nodes, hubs and links among individuals, groups, organizations, and governmental entities that might promote or enable the development, possession, and proliferation of WMD and related

capabilities. These networks encompass ideas, materials, technologies, facilities, processes, products, and events. The evolution of weapons, materials, and technology, combined with the spread of knowledge and access to critical components, countering the WMD threat more difficult. Also, of significant concern are the dangers that arise from the potential convergence of violent extremism, political instability, and inadequate WMD security. Monitoring and countering WMD networks are essential in denying threats access to WMD technology, knowledge, materials, expertise, and weapons.

2.8 The **WMD activity continuum** is a generic representation of the complex but identifiable system with several steps that together constitute the progression from intent, through the start of a programme, to WMD use. This continuum represents key decision points by an adversary to acquire, develop, proliferate, or use WMD. It includes intent, infrastructure and expertise development, production, weaponisation, delivery system capabilities and use.

2.9 This WMD activity continuum is not a strict linear process. WMD technologies and capabilities may be systematically developed, or they may be acquired through theft, barter, or purchase to accelerate the WMD development process. Therefore, activities may be bypassed or shortened. In some cases, WMD activities may be concealed by industrial or agricultural production (dual-use facilities and equipment), camouflaged by academic institutions (aquiring knowledge on technology and materials), or hidden within clandestine facilities, making intelligence collection efforts difficult.

a. **Intent.** Desire or decision to develop and/or acquire WMD. If such a decision is made in secrecy by a small group of actors, organizations, or national leaders, it may be difficult to gather intelligence on the intent.

b. **Infrastructure.** Establishment of the basic physical (facilities and/or equipment) and organizational (systems, protocols, and processes) capabilities 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.** Building the expert technical skills or knowledge required to develop or acquire WMD. This includes building the knowledge base to support all activities in the continuum.

d. **Production.** Activities to manufacture WMD, including components and materials necessary to maintain WMD. Production can include the use of civil infrastructure to progress along the continuum without inciting international reaction.

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

f. **Delivery Systems.** Development of mechanisms to mate weapon packages with a system capable of delivering them to a specified target.

g. **Use.** Employing, or threatening to employ, WMD.

Section 3 – State Programmes

2.10 Nations receiving WMD technology aim to reduce their dependencies on foreign suppliers, and many have the long-term goal of becoming self-sufficient in development and production. The technological threshold for WMD programmes shrinks due to more advanced

technology making WMD production easier. However, it is still difficult for countries to pursue full spectrum WMD programmes to circumvent non-proliferation regimes.

2.11 States that were once recipients of WMD related technologies and materials may begin to domestically produce or export these 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 in noncompliance with international non-proliferation rules are a serious threat.

2.12 If state and regional instability increases in or around WMD possessor states, full control of weapons or critical weapons components may be jeopardised.

Section 4 – Non-State Programmes

2.13 Adversaries (e.g. terrorists, criminals, facilitators) and their networks may be involved in proliferation of WMD-related expertise, technologies and materials. This compounds the risks of acquisition of WMD by adversaries, who operate outside of international and state controls and are difficult to detect.

Section 5 – Proliferation Networks

2.14 Proliferation networks are the supporting infrastructure used to gain or transfer access to weapons, material, technology, and expertise. It is important to note that many of these networks are not organised specifically for the proliferation of WMD. In fact, many existing networks may be utilised out of convenience. As an additional consideration, some nodes within these networks may be unwitting partners. The threat is further complicated by the operations of multinational networks, potentially with the support of state resources. These global proliferation activities employ a combination of secrecy, dispersion, and fiscal resources.

2.15 The continual analysis of systems and networks will enable a better understanding of the complexity of the operating environment including all proliferation and associated networks embedded within that environment. Such analyses should look across the political, military, economic, social, information, and infrastructure environments to identify the nodes, links, centres of gravity, and potential vulnerabilities within these proliferation networks.

2.16 Proliferation networks are multifunctional and multidimensional. They consist of state and, increasingly, independent non-state actors with differing motivations and end states. They are dynamic, adaptive, and can be transnational, and they operate in secrecy to avoid detection and counteraction. Networks adapt to changes in their environment, learn, and acquire new knowledge through study. Many networks lie dormant when support is not required and become active when the WMD development process requires (e.g. executing financial activities when buying expertise or knowledge or executing logistic activities when moving or deploying a weapon). Networks may be limited in their duration and may be dissolved once their purposes are achieved. Many of these networks, whether focused solely on WMD proliferation or not, are comprised of several common functions. Key nodes in these networks can include:

a. **Leadership** activities provide motivation and the means to control activities of the WMD programme. This includes actions to provide strategic direction, coordinate the activities of other networks, facilitate the flow of information and resources throughout the networks, and provide the motivation to acquire WMD.

b. **Finance** activities secure and transfer the funding for a WMD programme. These activities may include state-owned or private-sector brokers, intermediaries, financial institutions, banking systems, and charities.

c. **Communications** activities provide the necessary information throughout the network. These activities link automated systems to delivery capabilities; establish rapid and reliable channels between WMD resources, expertise, and leadership; and bring required components together for coordination. Because of the importance of these programmes, great effort will be taken to protect communication channels.

d. **Logistics** activities acquire, produce, and transport the raw material, people, production materiel, and finished products. This function acquires missing components or technology, and may support the theft of WMD technology, components, or functional weapons. This facet includes a significant portion of the network, such as shipping companies, producers, import/export companies, and other means of conveyance.

e. **Intelligence, Surveillance, and Reconnaissance** activities acquire detailed target data and determine potential sources of WMD components, technology, and expertise.

f. **Security** activities protect all common functions. This activity allows the organization the ability to operate undetected or undisturbed while preparing for future operations.

Chapter 3 – Lines of Effort for Countering Weapons of Mass Destruction

3.1 **Introduction.** The following sections describe the countering weapons of mass destruction (CWMD) construct. The six CWMD lines of effort (LoE) and their respective tasks and sub-tasks are listed sequentially but need to be considered collaboratively. Figure 3.1 provides a notional depiction of the workforce and resources requirements for each of these six LoEs across the CWMD functional areas. While tasks within these LoE may be conducted individually or concurrently during an operation, collectively they support joint operations. The tasks are assigned to the LoE in which they have the greatest impact but may have effects when conducted in relation to other LoE. These tasks primarily support military operations; however, they may be accomplished by other authorities or stakeholders with the military in a supporting role. The CWMD construct serves as a method for logically grouping CWMD tasks to counter specific weapons of mass destruction (WMD) threats. These efforts are employed across all lines of operation (LoO) to support the attainment of the desired end state and objectives for CWMD. The CWMD construct is divided into the following six LoE:

- Defeat WMD development and acquisition;
- manage existing WMD threats;
- conduct force protection and consequence management;
- understand the operating environment, threats and vulnerabilities;
- maintain and expand CWMD technical expertise;
- cooperate with and support partners.

3.2 The following table 1 illustrates the three CWMD LoE and their associated tasks closely linked to the functional areas of prevent, protect and recover. It also depicts the three additional foundational LoE, and their associated tasks related to understanding the environment, threats and vulnerabilities; maintaining and expanding technical expertise; and cooperating with and supporting partners.

Countering WMD Functional Areas		
Prevent	**Protect**	**Recover**
Lines of Effort Related to the Countering WMD Functional Areas		
Defeat WMD Development and Acquisition • Dissuade Task • Deter Task • Delay Task • Disrupt Task • Deny Task	**Manage Existing WMD Threats** • Control Task • Defeat Task • Disable Task • Dispose Task	**Conduct Force Protection and Consequence Management** • Mitigate Task • Restore Task • Sustain Task • Support Task
Foundational Lines of Effort for Countering WMD		
Understand the Environment, Threats and Vulnerabilities Line of Effort: • Locate Task • Identify Task • Characterize Task • Assess Task • Attribute Task • Predict Task **Maintain and Expand Technical Expertise Line of Effort**: • Recruit Task • Develop Task • Retain Task **Cooperate with and Support Partners Line of Effort:** • Partner Task • Coordinate Task		

Table 1. Notional Countering WMD Lines of Effort and Associated Tasks.

3.3 Annex A of this document provides a notional list of CWMD responsibilities, and is intended to provide commanders and their staff as well as civil authorities of their role in this NATO wide effort during CWMD operations.

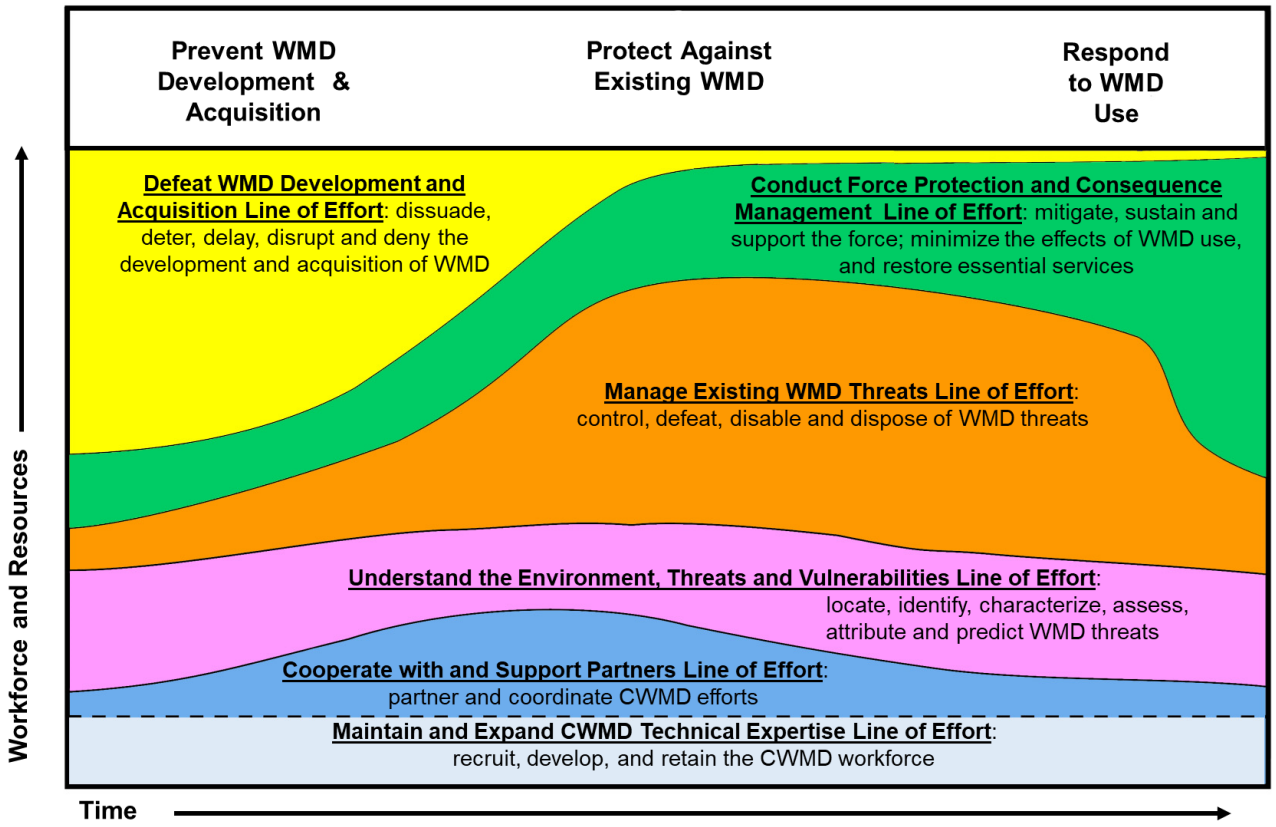

Figure 3.1 Notional workforce and resourcing requirements for each of the six LoE across the CWMD functional areas.

Section 1 – Defeat Weapons of Mass Destruction Development and Acquisition Line of Effort

3.4 **Introduction.** This LoE and its associated five tasks focus on various aspects of WMD non-proliferation. The goals are to significantly reduce and ideally prevent the conceptualization, development, and acquisition of WMD. These tasks primarily support military operations; however, they may be accomplished by other authorities or stakeholders with the military in a supporting role. These tasks are carried out to dissuade and deter adversaries from pursuing WMD development or acquisition; delay development of WMD programmes by adversaries; disrupt WMD programme development by targeting key nodes; and deny access to WMD technologies, materials and expertise. Correspondingly, the tasks aligned under this LoE are the Dissuade Task, Deter Task, Delay Task, Disrupt Task, and Deny Task. Each of these five tasks is further explained in the following subsections.

3.5 **Dissuade Task.** This task involves multi-national efforts and resources to prevent adversaries from deciding to start or continue development, ideation, acquisition, proliferation, and maintaining WMD capabilities. Military engagement, capacity building, force posturing and forward deployment, information integration, and demonstration of fielded CWMD capabilities all contribute and serve to dissuade development and acquisition of WMD. There is a strong relationship between the Dissuade Task, preventing development and acquisition, and the Deter Task, preventing use.

3.6 **Deter Task.** This task prevents an adversary from using WMD through the perception of cost imposition, benefit denial, or the consequences of action. The task is conducted to prevent WMD use by presenting a credible response through specific counteractions that would deny the effects an adversary intends to create by using WMD. Effective deterrence also supports the Dissuade Task by serving to call into question the utility of an adversary's decision to develop, maintain, or use WMD. Ideally, effective deterrence influences an adversary's decision-making processes without the need for military action. Military engagement, capacity building, force posturing and forward deployment, information integration, and demonstration of fielded CWMD capabilities all contribute and serve to deter use of WMD.

3.7 **Delay Task.** This task supports efforts to hinder an adversary's development, acquisition, proliferation, or use of WMD; and includes physical, virtual and cognitive effects delivered directly against the adversary or in support of another authority. This task can include direct action against specific nodes in a WMD network or programme such as production facilities, computer networks, and transportation or financial nodes. Supporting efforts to delay key individuals may include financial sanctions, legal actions, or restriction of travel.

3.8 **Disrupt Task.** This task seeks to interrupt or interfere with an adversary's development, acquisition, or proliferation of WMD. Disruption can entail breaking or interrupting the command and/or enabling processes needed to proliferate or employ WMD. This task may be desired when offensive resources are limited; to comply with Rules of Engagement (ROE); or to create certain effects. Strategic Communications (StratCom) can contribute to disrupting adversary WMD proliferation or employment. Disruption is particularly well suited to target key nodes in an adversary's network, such as transportation, leadership, logistics, or financial nodes.

3.9 **Deny Task.** This task involves denying an adversary´s access to WMD technology, knowledge, materials, expertise, and weapons. Deny, in CWMD, also entails preventing an adversary from having command and control over, or access to, their WMD capabilities. Effective denial provides commanders freedom of action and freedom from the effects of WMD use.

Section 2 – Manage Existing Weapons of Mass Destruction Threats Line of Effort

3.10 **Introduction.** This LoE focuses on actions to contain and reduce risks posed by existing WMD capabilities to include related delivery systems and stockpiles. The LoE includes counter-proliferation operations to contain, reduce, reverse, neutralize, or destroy existing WMD and target the adversary's ability to assemble, stockpile, deliver, transfer, or employ WMD. The purpose of this LoE is to reduce such threats or – if not possible – minimise the impact of a potential WMD attack and chemical, biological, radiological and nuclear (CBRN) incident. This may require forces to remain on site for an extended period of time until relieved. These requirements mean that forces should expect to encounter WMD materials, equipment, and munitions; they may have to conduct sustained operations in a contaminated environment. Allies have developed specialised capabilities and formations to address the tasks associated with this CWMD LoE. Typically, the commander controls, defeats, disables, or disposes of individual WMD threats, as appropriate. These tasks may

be conducted utilising physical, virtual and cognitive effects that require specialised equipment and expertise. The commander may focus on controlling WMD programme elements and then transitioning control to a competent authority for final disposition as the situation/mission dictates.

3.11 **Control Task.** This task involves maintaining influence over a specified target to prevent its use by an adversary or to create conditions necessary for successful friendly operations. The commander may use a combination of efforts and resources to accomplish this task, including diversion, interception, isolation, seizure, securing and consolidation.

a. **Divert.** This sub-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 commander may use a combination of operations to accomplish this sub-task. In some cases, this may not require direct action, instead a show of force, the demonstration of a NATO presence, or a formal communication of Alliance concern will render the desired effect. Possible diversion actions include information activities, maritime interdiction operations (visit, board, search, and seize), or formal diplomatic engagements (démarche).

b. **Intercept.** Conventional forces and special operations forces (SOF) capabilities with support of CBRN assets may be necessary to stop the movement of CBRN substances, WMD components, means of delivery, WMD-related personnel, or functional weapons into or out of specified areas or nations. Such actions may require boarding, and search and detection capabilities to secure and seize shipments. Intercept operations will likely involve international organizations (IO). This sub-task may involve a combination of activities such as port inspections and checkpoints that would allow for NATO or IO inspections of suspicious cargos.

c. **Isolate.** Isolating and denying access to critical WMD programme components is intended to prevent adversaries from furthering WMD acquisition, development, proliferation, or utilisation. This sub-task includes conducting critical factors analyses of WMD programmes to identify capabilities, requirements, and vulnerabilities that can be acted upon. Isolation operations may require the coordination of conventional forces and host nations and IO, to include law enforcement and specialised technical capabilities. Isolation of WMD critical components may be necessary for follow-on CWMD activities and tasks. Isolating a target area to capture or destroy possible adversary forces and materials may require cordon and search. This sub-task is frequently applied during stability tasks for a variety of reasons, to include capturing persons, locating weapons caches, gathering operational information and intelligence, and securing key facilities and terrain. For deliberate targets, the cordon and search force is augmented with appropriate enablers. For dynamic targets, when a formation comes upon a WMD site, it isolates the site while awaiting specialised forces or expertise.

d. **Seize.** This sub-task involves taking possession of WMD capabilities (e.g. a designated area, building, transport, materials, or personnel) to deny adversary access. Seizing differs from securing because it requires offensive action to obtain control of the designated area or objective. Once a force seizes a WMD-related objective, it secures the objective and prepares it for potential follow-on activities such as exploitation, neutralization, redirection or destruction.

e. **Secure.** Preventing unauthorized access to sites or the removal of WMD-related technologies, materials, or personnel is necessary to prevent use, proliferation, looting, or compromising integrity of physical evidence. The secure sub-task allows characterisation and exploitation to begin. The requirement to secure sites is a crucial mission analysis consideration due to the potentially large force requirements and the balance of competing operation plan (OPLAN) priorities. A prioritised list of WMD-related sites is recommended and should be deconflicted with political level objectives, exploitation objectives, and other operations. The speed of advancement in offensive activities might lead to bypassing WMD sites to maximise movement. WMD sites left unsecured are a serious risk consideration. Bypassed sites become a target for the theft or loss of hazardous materials that could fall into adversaries' hands or being used to create adverse effects on own lines of communication in the area of operations.

f. **Consolidate.** Defeat, disablement or disposal often involves the consolidation of WMD materials in specified locations where operations take place. This requirement may also occur during the exploitation, transfer, disposal and destruction phases of dismantling activities. WMD material may also be removed to preserve evidence for further exploitation, and military responsibility could end here because of the transfer of authority to non-military control. Consolidation is always coordinated and authorized at the political level and conducted strictly according to approved CWMD specific ROE. A primary consideration during consolidation is to ensure security around the sensitive site, particularly in urban areas, thus preventing looting of or exposure to WMD related material. Specially trained units and aviation and transportation assets support commanders in consolidating WMD, CBRN materials, toxic industrial materials, and associated equipment. All materials removed from site must be treated in accordance with national evidentiary procedures.

The following paragraphs provide additional guidance related to controlling WMD targets.

- **Storage and Security of WMD Sites.** Requirements for storage and security of confiscated and/or captured material are subject to international treaties or agreements. At the earliest stages of planning and throughout execution, the commander needs to determine the most effective means to secure WMD-related sites (e.g. consolidation) and assess risk to mission if operational capabilities have to be diverted. It may be more human resources – and cost – effective to consolidate suspect material into one or a limited number of centralized sites. Proximity of storage to disablement or disposal facilities will reduce the risk of losing control of suspect material and facilitate the disablement or disposal process. The risks to non-CWMD operations due to the attrition of forces as units are tasked with securing WMD related sites should be considered at the earliest stages of planning.

- **Demilitarisation operations** may be subject to monitoring according to existing international treaties and agreements. Specific guidance from the political level is provided. The guidance is executed by the commander according to approved plans and policies. Consolidated WMD material is transported to a central destruction facility, where a monitoring and redirection authority assumes responsibility. If WMD material remains under a NATO nation's control, destruction is coordinated with CBRN Explosive Ordnance Disposal (EOD) assets. Consideration needs to be given to the

number, size, and type of material to be destroyed; exposure criteria; available assets; and control of the environment in which the destruction mission is accomplished. These factors may lead to material being consolidated at one or more sites within the host nation (HN) for more efficient destruction operations or to the material being shipped out of the country for destruction. Coordination with CBRN EOD assets, legal considerations and HN capabilities determine where and how disposal occurs.

3.12 **Defeat Task.** This task involves neutralizing or destroying existing WMD-related targets to ensure no WMD use. The commander may use a combination of physical, virtual and cognitive effects to conduct the task.

a. **Neutralise.** Neutralization includes efforts to render WMD capabilities ineffective or unusable against NATO or partner populations, territories or forces. Examples of related actions include making CBRN substances and materials harmless or making delivery systems unusable. When assigning sub-tasks to neutralize WMD, commanders specify the adversary's capability or material and the duration it should be rendered ineffective or unusable. Assets (including specialised units and equipment) required to neutralize a target vary according to the type and size of the target and desired effects.

b. **Destroy.** This sub-task involves destroying WMD capabilities so they cannot perform their intended function without being entirely rebuilt. It is carried out against specific targets within an adversary's programme. Appropriate weapon selection and hazard modelling & simulation (M&S) help the commander employ the right resources, understand the potential consequences of execution, and minimise collateral damage. Targets may provide valuable intelligence for exploitation or cause extensive secondary effects if destroyed. The commander needs to consider political and strategic objectives of such an operation, before deciding to destroy a WMD-related target. This sub-task is also applicable to the disable task.

3.13 **Disable Task.** The following sub-tasks are undertaken to exploit and degrade or destroy critical and at-risk components of a WMD programme. Critical components are those that pose a threat to Alliance forces, while at-risk components are those components of a WMD programme that are at risk of loss or proliferation. Disable tasks seek to ensure that these items are not used, lost, or proliferated. They also seek to reduce the risk of those capabilities being proliferated, lost, or stolen. If follow-on activities to complete WMD programme disposal are required, CWMD may transition to another authority for final disposition. Before conducting disabling tasks, the commander establishes control of the specified WMD threat.

a. **Exploit.** This sub-task seeks to maximise the value of intelligence gained from personnel, data, information, and materials obtained during CWMD. Technical exploitation activities should be integrated into CWMD due to the inherently strategic implications of WMD. Processing and exploitation of information, personnel, and/or materiel found during the conduct of CWMD may be conducted at various locations in conjunction with HN and IO, as required to produce timely, actionable intelligence. The exploitation of any WMD-related information has to be integrated into joint operations. Most of the exploitation of WMD-related material will come from CWMD (if conducted) or SOF operations. This information is collected and fused to increase the commander's operational picture and drive future exploitation actions. Planning for

exploitation of WMD sites takes into consideration the required coordination between subject matter experts collecting materials, transportation of these materials, and laboratory support to identification.

b. **Degrade.** Typically, destruction and disposal of a 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. Whatever the reason, the commander may need to accept that degradation is the best course of action given the circumstance. Degradation should ensure the adversary is not able to threaten Alliance forces, populations, and territories for a period of time. The commander should consider consequences stemming from degradation of WMD capabilities. Degrade can include the use of physical, virtual and cognitive effects to reduce the effectiveness or efficiency of adversary WMD capabilities. Psychological Operations can degrade the morale of an adversary. Weapons, munitions, and devices explicitly designed to incapacitate personnel and materiel can degrade operations by denying individuals and materiel access to or exit from WMD facilities.

3.14 **Dispose Task.** This task involves systematic efforts to get rid of the remnants (programme elements, facilities, personnel, surplus, dual-use capacity, confiscated/seized cargo, equipment, delivery systems) of an actor's WMD programme. 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 adversary's efforts and expertise towards peaceful productive activities; and monitoring to ensure expertise or programme elements are not re-constituted or reused in any illicit capacity. Typically, while the commander sets conditions for disposition of an adversary's WMD programme, final disposition will probably require a larger international effort.

a. **Reduce.** This sub-task seeks to diminish a potential threat, improve the security of the remnants, reduce costs of sustaining the programme elements, and eliminate excess capacity or capability. Reduction programmes and operations, such as demilitarisation of stockpiles, may be led by another authority or IO. NATO will coordinate activities to make certain they are mutually supporting and do not conflict.

b. **Dismantle.** Dismantling a WMD facility, stockpile, or programme is the process by which the programme is systematically reduced to a level that it can no longer operate for its intended purpose. Depending on the operating environment, the lead for this sub-task may transition to another authority.

c. **Redirect.** This sub-task involves repurposing facilities, expertise, and material associated with an adversary's WMD programme elements. This is especially acute when programme elements have a dual-use nature. Redirection of expertise includes retaining personnel with WMD expertise (e.g. scientists and engineers) for new, legitimate employment. Depending on the environment on the ground, the lead for this sub-task will mostly likely transition to another authority. The commander should be prepared to provide support as directed. The objective of redirecting is to use a WMD network system or component for a peaceful purpose. Transfer is likely to occur when dealing with dual-use components of a WMD network. Long-term security may be

required until responsibility can be properly transferred. When redirecting a WMD network component, commanders should consider the following:

- political and strategic guidance;
- the type of environment (hostile or non-permissive);
- additional assets required while conducting other operations;
- the transfer of responsibility to another lead authority;
- the conduct of decontamination operations; and
- the reconstitution of forces.

Redirection needs to be conducted in compliance with related treaties and agreements. Commanders should consider the following:

- prohibitions or special procedures for handling secured WMD, associated components, and support equipment;
- reporting, declaration, and notification requirements for NATO military activities; and
- constraints and restraints on NATO military actions, such as CWMD, military activities in direct support of CWMD, and military activities that may indirectly contribute to the accomplishment of the CWMD mission.

d. **Monitor.** This sub-task is intended to continually review and inspect programmes, personnel, and facilities to ensure that they are not producing WMD and that remnants are not being reconstituted or reused in any illicit capacity. The commander will be functioning in support of the responsible verification authority, which is an IO.

The following paragraphs provide additional guidance related to disposition of WMD targets.

- **Disposition of WMD networks.** Disposition is to destroy, dismantle, remove, transfer, or otherwise verifiably dispose of adversary WMD, CBRN substances, equipment, personnel, and infrastructure. WMD disposition tasks are usually conducted by specialised forces or civilian companies or organizations. Commanders may support disposition tasks in conjunction with their responsibilities to continue to secure a WMD site or in support of follow-on activities. When destroying a WMD site, commanders should consider the following:
  - political and strategic directives;
  - effects on the narrative;
  - StratCom;
  - the minimum safe distance for demolition or destruction and the element being destroyed;
  - the potential effects of dispersion of CBRN substances and potential health effects;
  - the successful demolition of munitions and CBRN substances;

- the use of EOD to conduct the demolition or disposal of munitions and chemical warfare agent, biological warfare agent or radiological material or even a partial yield of a nuclear device or weapon;
- the use of engineers to ensure that the site cannot be reused;
- the possible requirement for significant logistic support to destroy bunkers and tunnel or cave complexes because of the complexity of charges needed;
- the use of fixed-wing or rotary-wing aircraft sensor and armament capabilities for precision destruction;
- the use of projected munitions;
- security and defence requirements against adversaries who may attempt to prevent forces and other civilian agencies from destroying the WMD site;
- a safety assessment of site-marking requirements, wastes, and by-products that remain on site, including the potential for ground and surface water contamination; and
- the ability to assess the site or munitions to confirm the successful destruction or mitigation of contaminants outside the destruction zone.

- **Dismantling WMD networks**. When dismantling a WMD site, commanders should consider the following:
  - political and strategic directives;
  - effects on the narrative;
  - StratCom;
  - the use of specialised assets to safely dismantle CBRN production, research, and development facilities;
  - the security and defence of complex bunkers and tunnels or cave entry and exit points; and
  - security and defence requirements against adversaries who may attempt to prevent the forces and other civilian agencies from dismantling the WMD site.
- Preparing WMD material for final disposition requires the use of protective packaging for safe containment and transportation. Commanders should use accessible storage facilities to safely store materials that are awaiting final disposition. Arrangements and agreements have to be made for safe storage, transporting and maintaining control of WMD material across various regions.

Section 3 – Conduct Force Protection and Consequence Management Line of Effort

3.15 **Introduction.** Force protection and CBRN consequence management (CM) require layered and integrated defensive measures to reduce the effectiveness of CBRN threats and hazards, protecting joint forces and the surrounding population, responding to CBRN incidents, sustaining operations in CBRN environments, and mitigating the effects if a release occurs. NATO CBRN defence is focused on the protection of forces, detection and avoidance

of CBRN threats and hazards and hazard management in case of contamination. CWMD increases the likelihood of forces entering and remaining in potentially contaminated environments, highlighting the need for protection and mitigation techniques. The purpose of this LoE is to allow forces to sustain effective operations and support Allies and Partners and their populations by responding to a CBRN incident and mitigating the consequences. These precautions act as a combat enabler, supporting joint forces' combat power and freedom of action in combat and crisis response. 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 adversary's employment of CBRN materials. These activities may support civil authorities and governments.

3.16 **Mitigate Task.** Mitigate is the ability to apply proactive measures or actions to reduce the probability of occurrence or the impact of a CBRN incident. This task focuses on maintaining the joint force's ability to continue military operations in a CBRN environment, and on minimizing or negating the vulnerability to, and effects of, CBRN incidents.

3.17 **Restore Task.** Restore is the ability to maintain or restore essential services and manage and mitigate problems resulting from WMD incidents. Immediate activities within the Restore task include immediate assistance to save lives, prevent human suffering, or mitigate great property damage. Longer-term activities include restoring personnel, equipment, facilities and community function to the state they were in prior to the CBRN incident. These activities will likely be conducted in support of civil authorities.

3.18 **Sustain Tasks.** Sustain is the ability to maintain response and recover operations from 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 operational readiness (e.g. thorough decontamination, medical treatment, and recuperation).

3.19 **Support Task.** In many scenarios, the commander may be tasked to support other authorities in the conduct of operations initiated to provide assistance when their own capabilities are insufficient to save lives and maintain essential government services. In the event of a CBRN incident where HN support for the local population is insufficient, the commander may be directed to lead relief operations.

Section 4 – Understand the Environment, Threats and Vulnerabilities Line of Effort

3.20 **Introduction**. Commanders need to locate, identify, characterize, assess, and predict threats against and vulnerabilities of their forces. This 'Understand the Environment, Threats and Vulnerabilities' LoE and its associated six defined tasks are employed to develop and maintain a comprehensive understanding of the WMD affecting or predicted to affect the force. This LoE is the iterative process of describing, analysing, assessing and evaluating actors, audiences, threats, and materials that may affect the joint operations area. This foundational LoE continues nonstop throughout the planning and the execution of any CWMD efforts and includes timely dissemination of the resulting intelligence. Commanders use a combination of assets and resources including surveillance, reconnaissance, intelligence specialists, inter-organizational experts, conventional forces, and SOF in support of this LoE. It is an essential enabler to planning, preparing, and executing CWMD. Each of the six CWMD tasks associated with this LoE are described in more detail below.

3.21 **Locate Task**. The commander uses a variety of means, including intelligence collection assets to locate WMD-associated system nodes and programme elements, to include production facilities, storage/stockpile sites, and key programme personnel. Developing robust information sharing relationships with HN and international partners, particularly related to identity data, is an essential component to this task.

3.22 **Identify Task**. Once a WMD-related element and capability is located, the intelligence staff, in coordination with subject matter experts (SME), scope, categorise, and prioritise the potential threat. Confirmation of a threat will lead to further analysis to characterise and then assess specific elements of the programme more effectively. Conventional forces should be made aware of the types of facilities, material, and munitions they may encounter so that individual protective equipment, security, and reporting are properly addressed.

3.23 **Characterise Task**. Prior to operations, the commander gains understanding of a WMD programme by mapping its individual components, its internal linkages, and its external associations through a variety of intelligence collection and analysis capabilities. This includes the types of weapons and the related materials, technology, and expertise associated with each WMD capability. The staff uses characterisation to inform assessment, attribution, and predictive analysis. During and after operations, characterisation 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, allows for overall characterisation of a WMD programme size, scope, type and state of achievement.

3.24 **Assess Task**. Analysis conducted in conjunction with larger Alliance efforts helps the commander determine the threat posed by an adversary's WMD programme. This task includes an assessment by the staff of its own vulnerabilities in relation to a specific actor's WMD capability. The commander may use available hazard predictions, measurement, M&S, systems, as well as NATO CBRN reachback to assess the level of threat that an opponent's WMD poses to his/her own forces and to the overall Alliance.

3.25 **Attribute Task**. Attribution is any effort to determine the origin of material, a weapon or device and/or those responsible for a CBRN incident. As a capability, it is often a focus of the response activity, however this task can also provide dissuasive and deterrent values if properly signalled to adversaries. The process derives forensics conclusions from the analysis of samples collected, law enforcement, and intelligence information. Forensic-enabled Technical Exploitation capabilities support the identification of CBRN sources and assists attribution. Joint forces directly support the attribution process through intelligence (e.g. site exploitation), sample collection and transfer, and operational analysis. These assets require training, certification, and specialised equipment and expertise, and in some cases, unique authorities that need to be requested by the commander prior to execution. These forces need to be identified early in the planning process.

3.26 **Predict Task**. Specialised technical capabilities are used to construct a Common Operational Picture presenting current and forecasted information on adversaries, friendly forces, neutral elements, the environment, and geospatial information. Commanders use intelligence, M&S, diagnostics, and analysis capabilities (including NATO CBRN reachback) to understand the current environment, identify and characterize anomalies, and continually assess the WMD threat and related networks to extrapolate possible future threats.

Section 5 – Maintain and Expand Countering Weapons of Mass Destruction Technical Expertise Line of Effort

3.27 **Introduction.** This foundational LoE focuses on developing and sustaining the CWMD intellectual capital provided by NATO nations. These knowledge and skill sets provide the necessary expertise for CWMD-related planning, research and development programming, exercising, system integration, analysis, reachback, mission execution, and assessments. Maintaining expertise requires long-term commitment to recruiting, developing, and retaining high quality personnel. Each of these tasks is introduced below.

3.28 **Recruit Task.** The first of these tasks is to attract academically trained military and civilian personnel into the NATO CWMD community who can build upon the efforts of their predecessors to further strengthen NATO's ability to effectively counter the spread of WMD among adversaries around the world.

3.29 **Develop Task.** The goal of the develop task is to provide opportunities for the NATO CWMD community to broaden its expertise and experience in CWMD through cooperative educational opportunities, exchange programs between nations, military exercises, etc.

3.30 **Retain Task**. The emphasis of this task is to ensure that the highest levels of CWMD expertise are retained by nations and not lost to more lucrative fields of science and engineering.

Section 6 – Cooperate with and Support Partners Line of Effort

3.31 **Introduction.** Cooperation with and support of Allies and partners enhances collective, regional, and national capabilities to receive timely indicators and warnings, track material of concern, secure WMD materials and stockpiles, respond to and defeat WMD threats, and manage the consequences of WMD attack. Commanders and their staffs should seek to strengthen existing partner relationships and support programmes to build the foundation for future partnering opportunities. The joint force command (JFC) Headquarters (HQ) will coordinate with national and local authorities, multinational partners, and non-governmental organizations (NGO) to ensure CWMD tasks are successfully conducted, to various degrees, during all phases of military operations. JFC HQ need to include partners in planning and execution processes as early as possible. Whenever conducting this foundational LoE, commanders should seek to leverage existing activities of Allies, such as inter-organizational and multinational education and training to strengthen relationships and improve regional capabilities and capacity to achieve objectives. Military activities need to be closely integrated with HN authorities, international organizations, NGO and partners.

3.32 **Partner Task.** National and Alliance security partnerships support the collective capability to respond to and defeat WMD threats and manage the consequences of CBRN incidents. Existing partnerships are maintained, and new relationships sought out, building partner capabilities and capacities in key areas that support deterrence and all other phases of operations.

3.33 **Coordinate Task.** The goal of this task is to promote and improve common threat awareness, interoperability, emergency preparedness, and WMD risk reduction. Actions that support this task include operations planning with partners and North Atlantic Council efforts that synchronise counter-proliferation efforts.

3.34 The following provides additional guidance related to cooperating with and supporting partners to enhance collective, regional, and national capabilities:

- **Shaping** establishes the conditions for CWMD tasks across the range of military operations. Shaping focuses on building defence partner capabilities and capacities and will create the relationships required to undertake military operations. Successful shaping activities can be an effective approach to CWMD compared to the consequences of adversary use of WMD.
- **Military engagement** is the routine contact and interaction between individuals or elements of the armed forces of Allies and those of another nation's armed forces, law enforcement agencies, or civilian authorities or agencies to build trust and confidence, share information, coordinate mutual activities, and maintain influence. Activities and initiatives could involve developing SME contacts; establishing programmes for regular senior official visits; expert and staff talks; (on a regular or ad hoc basis); sponsorship of, or attendance at, WMD/CBRN defence-related conferences; and bilateral programmes that establish and develop trustful contacts with targeted nations.
- **Unity of Effort.** The presence of multinational members strengthens the legitimacy of CWMD efforts and fosters greater cooperation in areas such as site and team security, site assessment, detection, decontamination, transportation, medical and veterinary services support, laboratory support, language support, legal advice, and intelligence. Unity of effort with a host nation requires clear guidelines to delineate criteria and objectives for transitions of responsibility at WMD sites.
- **Capacity Building.** A commander can leverage capacity building programmes to support their CWMD goals and objectives and integrate them into the OPLAN goals and objectives. Threats posed through criminal activity, terrorism, acquisition of WMD, negligence or intentional release of CBRN substances, and civil unrest affect all aspects of a nation's defence, resilience and development. Capacity building provides an existing structure to support the internal defence and development of a nation against the proliferation of WMD and commanders should integrate CWMD and CBRN CM considerations into defence capacity building programmes and activities.

Chapter 4 – Organizational and Command and Control Relations

Section 1 – General

4.1 Countering weapons of mass destruction (CWMD) operations require a comprehensive, synchronised response of NATO capabilities. Coordination between military and civilian capability providers is critical to the success of any CWMD operation. Since there are several different organizations that contribute to CWMD efforts, it is important to develop mutual awareness of their roles and capabilities to identify potential areas for cooperation.

4.2 Commanders should consider the capabilities and responsibilities of these organizations when defining command and control arrangements, information relationships and synchronising multilateral activities.

Section 2 – Organizations, Functions, Roles and Responsibilities

4.3 When planning or executing CWMD operations, the joint task force (JTF) headquarters (HQ) coordinates and cooperates with host nation (HN) authorities, civilian partners and international organizations (IO). Effective CWMD planning and execution requires common understanding from JTF and numerous CWMD stakeholders of their respective roles and authorities in order to establish unity of effort from all stakeholders, throughout all phases. Annex A provides notional roles and responsibilities.

4.4 Nations' conventional forces and special operations forces (SOF) regularly conduct operations and activities that contribute to CWMD efforts, either directly or indirectly. Additionally, specially designated forces trained to conduct strategic deterrence, joint intelligence surveillance and reconnaissance (JISR) or chemical, biological, radiological and nuclear (CBRN) consequence management operations also contribute to CWMD mission success. It remains the prerogative of the North Atlantic Council (NAC) at any time during the execution of a CWMD mission to either grant, revoke or retain Supreme Allied Command Europe (SACEUR) and subordinate commanders' access to military or political means and to change the scope of CWMD in light of political developments.

4.5 **Supreme Headquarters Allied Powers Europe and Subordinate Commands. Supreme Headquarters Allied Powers Europe** (SHAPE) and JTF HQ develop intelligence requirements, plans and synchronise CWMD missions, as approved or directed. They develop advanced and crisis response plans and incorporate CWMD intelligence collection activities and facilitate CWMD missions with requisite capability and capacity to create desired effects.

4.6 **NATO Chemical, Biological, Radiological and Nuclear Reachback[3].** This activity provides useable knowledge required by decision-makers at all levels during the planning, execution and operations assessment in accordance with NATO's Crisis Response System and NATO's Operations Planning Process. The pre-emptive focus of CWMD requires the use of investigative and analytical capabilities to identify potential weapons of mass destruction (WMD) targets, networks and threats before the commencement of planning or deployment of forces. NATO CBRN Reachback System provides required analytical expertise and

[3] See MC 0590/1 *CBRN Reachback Concept*.

knowledge to support integrated WMD-related intelligence, scientific and technical advice to commanders and to the larger operational and intelligence community.

4.7 Permanent exchange of information between SHAPE and NATO CBRN Reachback Element (RBE) in the course of horizon scanning and early involvement in strategic and prudent planning is required to understand the environment, threats and vulnerabilities.

4.8 **NATO Intelligence Fusion Centre.** The NATO Intelligence Fusion Centre (NIFC) mission is to provide SACEUR with timely, actionable, full spectrum network enabled military intelligence in support of the planning and execution of operations. The NIFC works as part of the NATO Intelligence Enterprise to identify critical gaps in WMD knowledge resulting from shortfalls in collection, analysis, or exploitation and then develop solutions to reduce or close these gaps. The NIFC does this by analysing, integrating, disseminating comprehensive multiple-source intelligence; and providing multiple-source intelligence support needed for the execution of CWMD plans and activities. The NIFC also provides WMD briefs, background information and analyses, as required.

4.9 **NATO Centralized Targeting Capacity:** The mission of the Centralized Targeting Capacity (CTC) is to produce target materiel, direct and coordinate target materiel production (TMP) across the Allied Command Operations in peacetime vigilance activities, support NATO TMP in crisis and conflict and engage with nations to coordinate national TMP in support of NATO. CTC coordinates with NIFC, NATO CBRN reachback support and associated forces as required.

4.10 **Task Force for Countering Weapons of Mass Destruction Operations.** If the operation dictates, a task force will be established to conduct CWMD operations. The task force should be joint in character, and able to plan and conduct CWMD across all phases of a crisis and conflict through a clearly established and accountable command and control (C2) structure. It operates with trained personnel and a combination of assets. Since surprises and intelligence gaps are likely, the task force structure needs to remain augmentable, tailorable, and employable independent from other components.

Section 3 – Command Relationships and Cross-organizational Coordination

4.11 CWMD activities can be global, regional, or local in scope. The area of interest is defined by the environment in which the WMD network exists, rather than by geographic boundaries. Operations against a WMD proliferation network may occur in several geographic area of operation (AOO) simultaneously. CWMD activities that occur in more than one theatre of operations are coordinated at SHAPE with specific command relationships established by the NAC.

4.12 Many critical CWMD activities and tasks are conducted with non-military instruments of power. These non-military efforts help shape an environment that precludes adversaries from obtaining or successfully employing WMD and may prevent the necessity of responding to a WMD attack.

4.13 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 pre-planned integration, of CWMD operations determine the requirements for specific CWMD C2 functions. Less complex CWMD operations may not require formation of a

separate C2 structure. The existing command structure, with limited staff and technical augmentation, may suffice. Increasing CWMD expertise within an existing standing joint force or component HQ increases the capacity to address WMD aspects of the mission. For a more complex effort, CWMD operations may require formation of a task force for CWMD.

4.14 Clearly defined command and control relationships for the task force are established during the planning process. This may include formal agreements with civil authorities.

4.15 A task force HQ will generally combine military functional and technical experts; be augmented by non-military personnel, as required, and has access to timely and accurate NATO CBRN RBE capability. When formed, a task force HQ may draw personnel from elements of an existing standing joint force; CWMD subject matter experts from other HQ formations and/or nations.

4.16 The supported command element (SHAPE, JTF, Nation, or Component) should consider augmenting their staffs with CWMD expertise. This augmentation may come from NATO Command Structure, NATO Force Structure, the NATO Pool of Experts or ad-hoc from Allies. This may require a CWMD cell to facilitate CWMD processes and tasks. A CWMD cell provides specialised, technical, subject matter expertise to boards and working groups. The CWMD cell collaborates with other staff cells, subordinate HQ, IO and partners as required, to develop CWMD situational awareness and support the planning, coordination, and synchronization of operations.

4.17 NATO-led operations will involve the use of HN sovereign land-, sea-, and airbases, harbours or civilian airports, facilities, and personnel. For crisis response and contingency plans, HN considerations, including CBRN defence, are the subject of significant peacetime planning in which operational, legal, financial, and personnel issues are addressed.

4.18 Emphasis is placed on indicators and warnings; actions to prepare Allied and HN military forces; and protection of threatened civilian populations, critical infrastructures, and facilities. The commander should coordinate the development of plans that are aligned with HN agreements for providing assistance following a CBRN incident, especially where those agreements may affect NATO military response.

Section 4 – Forces and Capabilities

4.19 CWMD is a highly interdisciplinary activity. Effective operations demand a fusion of operational capability, subject matter expertise, diplomatic, law enforcement and intelligence support. NATO forces need to be able to interpret and report on intelligence, analyse and respond to emerging information, and develop operational approaches on short notice and in hostile environments identifying the requirement for potential CWMD operations. This requires a sound degree of flexibility and coordination. Where collocation is impossible or unduly risky, forces need to have secure, interoperable, and reliable communication with experts and analysts in NATO nations or remotely located in theatre.

4.20 Force planning for CWMD efforts identifies and addresses all those activities performed by the supported commander and supporting commanders to select (source and tailor), prepare, integrate, and deploy the forces and capabilities required to accomplish CWMD activities for all phases of an operation. The forces and capabilities required will involve conventional forces, SOF, Stability Policing (SP), as well as CBRN-specific units. The

standing Combined Joint CBRN Defence Task Force could provide already available and certified CBRN defence specialist capabilities in support of CWMD operations.

4.21 A CWMD organization typically includes transportation (air and ground), logistics, medical, legal, law enforcement, communications, linguists, security, CBRN defence, countering improvised explosive devices and CBRN explosive ordnance disposal (EOD) capabilities. Similarly, connections with the intelligence community and scientists in NATO CBRN reachback analytical capabilities are required.

4.22 **Conventional Forces.** Many of the military tasks necessary for CWMD can be accomplished by conventional forces. Since the quantities of CWMD-capable forces are limited, commanders face the challenge of balancing the use of high-demand CWMD-capable units with assigned forces that can accomplish many of the CWMD-related tasks. However, these forces may be required elsewhere in other joint actions. Shortfalls in CWMD capabilities should be identified and additional CWMD specific capabilities should be planned and requested as early as possible.

4.23 **Joint Intelligence, Surveillance, and Reconnaissance.** JISR is an integrated intelligence and operations set of capabilities, which synchronises and integrates the planning and operations of all collection capabilities with the processing, exploitation, and dissemination of the resulting information in direct support of the planning, preparation, and execution of operations. JISR capabilities support CWMD operations by enabling the commander to locate, identify, characterize and assess WMD activities, capabilities, and program elements of adversaries and proliferation networks. Additionally, commanders can integrate JISR with emerging intelligence techniques to better identify, characterise, and monitor WMD actions.

4.24 **Information Operations.** Prior to the execution of CWMD operations, supporting information operations reinforce targeting of leadership, supply chains, scientific, medical and technical experts associated with illicit activities in an attempt to delay or disrupt progress in a WMD acquisition, development, or proliferation. During execution, information operations staffs integrate additional information-related capabilities in concert with other lines of operations to influence, disrupt, corrupt, or usurp decision making of adversaries.

4.25 **Chemical, Biological, Radiological and Nuclear Explosive Ordnance Disposal.** CBRN EOD units that are trained and qualified to operate on CBRN ordnance might be critical capabilities. These units can work in contaminated areas to secure or render safe the ordnance on site.

4.26 **Special Operations Forces.** SOF are uniquely qualified to conduct special reconnaissance, direct action, and military assistance operations that support CWMD efforts. The commander may use SOF independently or embedded with conventional forces, to perform tasks to control, defeat, or disable adversary's WMD capabilities. SOF has specialized capabilities, which could be critical in achieving CWMD objectives. The integration of these forces and specialised capabilities enables the commander to take full advantage of conventional forces and SOF core competencies.

4.27 **Chemical, Biological, Radiological and Nuclear Specialists.** CBRN specialists, to include medical CBRN specialists, contribute across the operations in a general supporting role. Specialists designated for use in support of CWMD operations cooperate closely with conventional forces and SOF.

4.28 **Detecting and Identifying Chemical, Biological, Radiological and Nuclear Substances and Chemical, Biological, Radiological and Nuclear Incidents.** Joint forces use active and passive detection and identification technologies as well as visual diagnosis and clinical assessment to initially identify and characterise CBRN substances or a CBRN incident. Detection may be accomplished or confirmed via JISR assets, specialised ground reconnaissance units, or laboratory analysis. Identification requires specialist CBRN defence or medical assets.

4.29 **Technical Exploitation.** In a broader context, the technical exploitation (TE) employs scientific methods and tools to assist the commander and the Alliance to attribute a CBRN incident. NATO nations will adhere to forensic evidentiary requirements whenever appropriate and required. Forensic capabilities for investigation and exploitation are not always a military capability and may be provided by law enforcement authorities. The attribution of WMD programmes requires a close relationship between military and civilian intelligence and national organizations. Legal requirements for the collection and preservation of evidence can affect the subsequent uses of information obtained through TE capabilities. Since CWMD and TE activities may happen simultaneously, legal requirements need to be included in planning and training.

4.30 **Weapons Intelligence Teams.** Weapons technical intelligence is a framework of technical and forensic capabilities and processes. This enables the commander to link technical and forensic information and material recovered from an incident site, with existing information and intelligence previously obtained to then better characterize, contribute to networks identification and predict future threats. Operations associated with weapons technical intelligence in a CBRN environment require specifically trained and equipped units and much more time for task execution.

4.31 **Threat and Hazard Modelling and Simulation.** Threat and hazard M&S capabilities assist the commander to assess threats and vulnerabilities, and predict possible consequences of a WMD attack or a CBRN incident.

4.32 **Stability Policing.** The reinforcement and/or temporary replacement of HN police forces through SP assets extends the reach of the Alliance within the policing remit, allowing to utilise this military capability as a conduit to and actor within law enforcement also within CWMD pursuing all three stated objectives. SP collects information and contributes with Police/Law Enforcement Intelligence, also about illicit activities related to WMD, to the Force's intelligence efforts. Investigating WMD-related crimes including trafficking of WMD materials; Conducting search and seize activities; preserving the crime scene and conducting forensic and biometrics activities; performing border control, critical site security and surveillance.

4.33 **Education, Training, Exercise and Evaluation.** The focus of NATO training, including exercises and evaluations, as well as national training programmes, is on achieving, maintaining, and enhancing effective military capabilities. CWMD is an activity characterized by interdisciplinary approach demands coherence and interoperability between national force contributions (e.g. intelligence specialists, CBRN specialists, inter-organizational experts, conventional forces, and SOF). NATO-led forces should be capable of fulfilling prescribed CWMD tasks and activities effectively and in accordance with NATO standards and requirements. Joint operational staff should be trained to plan, prepare and conduct CWMD operations. NATO-led forces and civilian personnel should be familiar with the essential

elements of their respective CWMD plans and procedures, including the necessary C2 organization and responsibilities, coordination and reporting arrangements.

Chapter 5 – Planning and Execution

Section 1 – General

5.1 In a world of constant, immediate communications, any single action may have consequences at all levels. Nowhere is this more evident than in joint operations involving weapons of mass destruction (WMD), where action or inaction at the tactical level may have profound strategic repercussions. Due to its complexity, successful countering weapons of mass destruction (CWMD) requires military, political, diplomatic, and economic capabilities.

Section 2 – Strategic-level Planning Considerations

5.2 Planning begins at the political and strategic level. Centralized planning and decentralized execution of CWMD activities is optimal to ensure that the right assets are provided at the right time and location to ensure creation of the desired effects. Theatre assets, including specialised technical experts drawn from Allies, are called on during the different phases of CWMD activities to support commanders and tactical units in the safe, effective and efficient execution of the mission. The key consideration for conducting CWMD activities in joint operations is in the translation of unique CWMD language into language common to the general forces.

5.3 CWMD activities can span any phase of an operation. Planners at all levels should consider CWMD early in the planning process to facilitate task-organizing of capabilities. The complex nature of CWMD and the inclusion of civil enablers make integrated planning critical.

5.4 Commanders at every level need to be aware of the strategic implications associated with any WMD threat and adapt their planning efforts accordingly. Many of the CWMD activities and tasks described in Chapter 3 are predominantly strategic in focus and therefore require the formation of appropriate synchronised plans at the national and alliance / international levels; and coordination with responsible civil international authorities to support achievement of mutual objectives. Examples of such CWMD tasks include those within the ‘Cooperate With and Support Partners’ Line of Effort (LoE) (partner and coordinate tasks); the various tasks within the ‘Defeat WMD Development and Acquisition’ LoE, and the ‘retain task’ within the ‘Maintain and Expand CWMD Technical Expertise’ LoE.

5.5 Strategic planning considerations for CWMD should be implemented within NATO’s operations planning process described in MC 0133/5 *NATO’s Operations Planning*, AJP-5 *Allied Joint Doctrine for Planning of Operations*, the Allied Command Operations (ACO) *Comprehensive Operations Planning Directive*, and the *NATO Crisis Response Systems Manual*.

Section 3 – Legal Considerations

5.6 The commander always needs to consider the legal issues inherent in CWMD. National and international law affect CWMD. Planners have to involve legal staffs early in the mission analysis and planning phase and throughout execution thereafter to identify key legal

issues. As substances contained in WMD or resulting from initial disablement are transferred to members of NATO, international and national environmental protection directives and regulation have to be duly considered.

5.7 **International Law and Agreements.** International law (including treaties and agreements to which Allies are parties) prescribe certain rights and obligations that affect joint operations. These legal requirements may pose constraints and restraints. Treaties and control regimes set global norms against the proliferation of WMD-related precursors, WMD, and their means of delivery, dual-use products, and weapons manufacturing equipment. For further guidance on legal support, refer to Bi-Strategic Command Directive 15-23 *Policy on Legal Support* and Annex C.

5.8 **Legal Advice.** The legal advisor needs to be involved early and throughout the planning process, including mission analysis and course of action development, to make the commander aware of potential CWMD related legal issues and should remain involved throughout execution to identify key issues and work to resolve them. This may also include consultation with multinational partners, host nation (HN) governments, and international and intergovernmental organizations, such as the United Nations and its subsidiary bodies, the Organisation for Security and Cooperation in Europe, the International Atomic Energy Agency (IAEA), the Comprehensive Nuclear-Test-Ban Treaty Organization, and the Organisation for the Prohibition of Chemical Weapons (OPCW).

5.9 The legal advisor should develop a legal staff estimate during mission analysis that accounts for WMD-related legal issues associated with joint operations. The legal staff estimate should reflect the description of legal support required for the mission as developed during the planning process. Legal advisor involvement in prosecuting time sensitive targets such as WMD assets and rules of engagement (ROE) development is essential. The legal advisor can advise the commander and the staff of potential associated issues, such as legal consequences of execution and harmful environmental impacts, collateral damage, or other WMD-related legal issues that should be considered in the targeting process.

Section 4 – Operational-level Planning and Operations Execution

5.10 Commanders have to balance the requirements of current operations with the requirements to conduct CWMD operations. Subject matter expert (SME) and/or chemical, biological, radiological and nuclear (CBRN) reachback can provide an analysis of the potential consequences of engaging WMD targets, or adversary use of WMD, which may present hazards to infrastructure, populations, Lines of Communication (LOC), or other vital areas or cause freedom of action restrictions.

5.11 Before initiating operations against suspected WMD sites, commanders should implement risk management that considers protection, downwind hazards, and other potential consequences and risks for the employment of forces and the treatment of identified risks. Risk assessment includes coordination with enablers and experts to systematically identify potential hazards in order to understand the risk. Technical analysis and guidance from the CBRN and explosive ordnance disposal (EOD) staff are needed to make risk decisions on protection of manoeuvre forces and CBRN defence forces, attaching CBRN

specialists and medical elements to the movement and transportation teams at the ports of debarkation (POD), when the potential for encountering a WMD site exists. Topics to be considered during risk assessments include, but are not limited to the:

- possibility of encountering substances or concentration levels that exceed the limits of national radiological/chemical doses/volumes (fixed by national law) or the level of protection offered by individual protective equipment (IPE) and mobile collective protection;
- availability and readiness of rescue and extraction assets;
- transfer of contamination outside of the facility or site;
- location of the facility or site (underground);
- weather and terrain conditions;
- effects and use of munitions; and
- permissive or non-permissive environment.

5.12 When assessing adversary WMD capabilities planners should consider adversary patterns; doctrine; tactics, techniques, and procedures; time; and available resources (human resources, equipment, and materials). Additionally, the effects of terrain, weather and equipment performance should also always be considered. Intelligence, Military Police, CBRN defence, CBRN EOD, medical support, and civil-military cooperation (CIMIC) staff elements provide assessments of the possible effects of WMD on the population and own forces. This assessment facilitates protection and information collection planning, which allows the staff to refine vulnerability assessments of friendly and threat capabilities. CBRN SME can assist planners, operations and intelligence personnel with the analysis of information pertaining to WMD.

5.13 **CWMD Force Planning.** Force planning for CWMD activities identifies and addresses all those activities performed by the commander to select, prepare, integrate, and deploy the forces and capabilities required to accomplish CWMD activities for all phases of an operation. The forces and capabilities required might involve conventional forces to include CBRN defence-specific units and special operations forces.

5.14 **Force Deployment.** Operations in areas potentially targeted by an adversary possessing WMD always need to incorporate appropriate active and passive CBRN defence as part of their force protection measures to deny the adversary the effective use of WMD. Vulnerability analyses of key POD, reception and staging areas, onward movement, and integration sites, to include proximity of toxic industrial materials (TIM) storage facilities/sites, should be conducted well ahead of any operation to ensure adequate CBRN defence assets are available for these areas throughout the operations. To ensure the continuation of deployment, sustainment, and redeployment support following WMD attack, planners need to have alternate ports of debarkation and logistic installations equipped with appropriate logistic assets designated. They also need to identify and resource decontamination sites for strategic transportation assets, and coordinate diplomatic clearances for the international movement of previously contaminated airlift aircraft, ships, and cargo. Another issue that

participating units need to have resolved is a local evacuation plan, should an emergency or unexpected situation occur.

5.15 Operational orders should provide clear guidance to participating units concerning the capture, seizure, and disposition of equipment, material, personnel, and documents, including automation equipment and personal electronic devices. Such orders should include direction for the intra-theatre movement of specialised personnel and equipment and coordinate the transportation of CBRN-related material for identification, storage, protection, dismantlement, destruction, or disposal. Specific CWMD activities required at each site and the priority assigned to them depend on:

- WMD facility size and type;
- state of the WMD facility (destroyed, damaged, flawed, perfect condition);
- nature and scope of exploitation, disposition, and monitoring and redirection requirements;
- environment or level of uncertainty (hostile, non-permissive);
- time available;
- technical and medical experts and advisors available;
- transportation assets available; and
- manoeuvre forces available.

5.16 In many cases, final responsibility for sites cannot be established until after they have been secured by manoeuvre forces and evaluated by technical experts. Plans and orders may need to describe designated lines of authority for transitioning the site. However, when planning to seize and secure a WMD site, planners should be aware that such site will have to remain under the force's control until its final disposition or transfer.

5.17 The staff needs to assess facilities that are capable of dual-use to produce CBRN materials that could be employed as WMD or to create intentional or accidental hazard areas. Commercial chemical manufacturing facilities, pharmaceutical companies, human and animal hospitals, universities, research institutions, and nuclear power plants are potential sources for CBRN hazards. CBRN staff and enablers continuously update the WMD/CBRN layer of the common operational picture based on changes in the situation (mission variables). Additionally, new information result from information collection (such as WMD network, site, threat, and hazard information), geospatial analysis and engineer data generation.

5.18 **Joint Intelligence, Surveillance and Reconnaissance.** CWMD requires actionable information, including adversary vulnerabilities, patterns of life, routines, camouflage, concealment and deception measures, operations security (OPSEC) and the prediction of adversary anti access and area denial measures. Space-based resources are important to support situational awareness, to monitor protection indicators, to provide warning of ballistic missile launches or force movements threatening POD, logistics and command and control

nodes and LOC (ISR), to provide the communications links to remote forces (SATCOM), and to provide meteorological information (Environmental Monitoring) that could affect operations.

5.19 Intelligence analysis should identify networks and assess each node in the network within a system-of-systems analysis. It is important to identify centres of gravity and critical vulnerabilities of each network and individual node to efficiently counter WMD use with the lowest possible impact on operations, population, forces and environment. Triggers have to be identified for each of the delivery means that enable the commander to execute targeting avoiding or mitigating unwanted effects, before the WMD can be used successfully.

5.20 **International Operations.** Many of the technical skills required to support CWMD operations are low density and very costly to establish and maintain. The large demand for CBRN EOD, technical experts, intelligence, and scientific support can only be met by a limited number of Allies. There are, however, a number of supporting roles for which low density CWMD specialised forces are not required. Such roles include, but are not limited to, site and team security, transportation, medical and veterinary services support, and language support. The presence of international partners increases the legitimacy of CWMD efforts and fosters greater cooperation in the overarching CWMD challenge. Special consideration is given to the classification level of intelligence supporting CWMD. NATO has security agreements with some partner nations in place that set the conditions for the sharing of high- level intelligence. Others are denied access by caveats. A systematic process has to be implemented to determine classification and releasability guidance for international partners with whom there is no security agreement. Additionally, during the integration of international partners into operations, commanders and planners need to identify operational restrictions due to WMD-related laws, policies, treaties, and agreements specific to those forces.

5.21 **Enforcement of sanctions** in the context of NATO CWMD military operations consist of operations that employ coercive measures to interdict the movement of certain types of designated items (including WMD and dual-use equipment) into or out of a nation or specified area. Many of the activities and actions the commander can employ to support these efforts support larger international goals and end state. These operations are military in nature and serve both political and military purposes. The political objective is to compel a country or group to conform to the objectives of the initiating body, while the military objective focuses on establishing a barrier that is selective, allowing only authorized goods to enter or exit. Depending on the geography, sanction enforcement normally involves some combination of air, maritime and land forces. Assigned forces should be capable of complementary mutual support and communications interoperability. The commander may also be asked to support the enforcement of WMD-related sanctions as part of United Nations Security Council resolutions.

5.22 **Civil-Military Cooperation.** Any Ally or Partner nation, as a sovereign state is responsible for the civil environment, as the non-military part of the operating environment. CIMIC personnel can enable, facilitate and conduct Civil-Military Interaction (CMI) with civil environment structures and actors as appropriate and authorized, in order to support coordination and de-confliction of military operations and non-military activities. The assistance of the local population is imperative in CWMD. By conducting CMI should address actions necessary to minimise HN or civilian population interference in CWMD;

synchronisation of messages relating to CWMD; and integration of the various non-military actors and HN authorities into operations where their support is necessary.

5.23 It is important to note that most non-NATO participants in CWMD have a different lexicon for CWMD matters. When conducting CWMD activities in concert with participants external to the joint force, it is important to understand the differences between NATO mission objectives, end state, and transition criteria and those of HN's agencies and services, and non-military actors. Although appropriate non-military actors may participate in defining the problem and working collaboratively with the commander, ultimately their goals and objectives are independent of NATO's goals and objectives.

5.24 Joint forces should, where possible and appropriate, cooperate with the local population. The local population can assist in determining the location and function of WMD facilities; identification and location of key personnel employed at WMD or dual-use sites; identification of local environmental hazards; identification and location of individuals that are not part of the populace; and assistance in identifying potential WMD sites.

5.25 **Operations Security.** OPSEC is the process that gives a military operation or exercise appropriate security, using passive or active means, to deny an adversary knowledge of the essential elements of friendly information, or indicators of them. Procedures for the handling, processing, and exploitation of WMD and CBRN substances will be situation dependent and should carefully consider OPSEC requirements. Intelligence support also considers the requirement for identifying, tracking, and targeting key leadership and scientific personnel associated with the adversary's WMD programmes or proliferation networks.

5.26 **Site assessment** feeds intelligence collection and, in turn, may create the demand for more information requirements. Specialist CBRN reconnaissance assets have increased capabilities to meet the information requirement demands. Sensible use and integration with available resources of basic and enhanced CBRN defence maximises information collection abilities. Specialist CBRN reconnaissance teams can be used to provide initial assessments to determine a need for further exploitation or to make immediate mission recommendations.

5.27 **Targeting** is the process of selecting and prioritizing targets and matching the appropriate response to them, taking into account operational requirements and capabilities. The joint targeting process links strategic-level direction and guidance with tactical targeting activities through the operational-level targeting cycle in a focused and systemic manner to create specific effects to achieve military objectives and attain the end state.[4] Although the initial effect of conventional munitions on a WMD-related target may cause some collateral damage, secondary effects could include a release or dispersal of chemical warfare agent, biological warfare agent, or radiological material or even a partial yield of a nuclear device or weapon into the environment. For this reason, WMD-related targets are usually placed on the restricted target list. Facilities or infrastructure containing CBRN, the destruction of which may cause unnecessary suffering or damage to civilian persons or property that are excessive in relation to direct military advantage, are listed on the no-strike list (NSL). Engagement of NSL entities may violate international law, the Law of Armed Conflict,

[4] See AJP-3.9 Allied Joint Doctrine for Joint Targeting

agreements, conventions, NATO policies or ROE. WMD-related targets, which are part of the NSL, must not be attacked.

5.28 **Prosecution of WMD Targets.** The engagement of targets involved in the production, storage, and delivery of WMD present the commander with significant challenges. The risks of catastrophic, long term, human and environmental impact as a consequence of engaging these targets needs to be carefully considered. The commander has available to overcome the challenges associated with this target set, including careful construction of ROE; physical, virtual and cognitive engagement options; and nodal analysis of the target to exploit vulnerabilities that minimise the potential for contaminant release into the environment. One of the operational decisions is the Type of Attack. Course of action (COA) analysis should consider both covert and overt operations. Since covert[5] and overt planning incorporate different planning criteria, this decision needs to be made early in the planning cycle.

5.29 **Target Selection.** To reach the desired effect, planners and targeting experts, supported by CBRN defence, medical and intelligence staff, can recommend engagement priorities in accordance with the commander's priorities. If the actual WMD facility is to be struck, the target will be further refined to determine what parts of the facility to strike, and with what kind of weapon systems and tactics, in order to accomplish the mission while avoiding or minimizing inadvertent contamination or release. In some instances, a commander may want to destroy supporting infrastructure without attacking the part that stores the CBRN substances to either deny the adversary access to WMD or immobilise it.

5.30 **Deliberate Targets.** The comprehensive intelligence and analysis of potential WMD sites should be collaboratively developed across the command and disseminated as part of the intelligence assessments. Forces require information of known and suspected WMD sites in their operational area to incorporate into their intelligence assessment. Information on suspected WMD sites should be requested and developed well in advance of anticipated operations. Extensive coordination may be necessary to obtain the information. The location and nature of sensitive sites may initiate or stem from commander's critical information requirements. The initial target folder development for WMD sites often takes place at the operational level, and planners should ensure dissemination to units that are preparing for WMD site seizure and secure missions. The target folder includes identified or potential collateral damage concerns or collateral effects associated with the target. Targeting staff should continually update target folders as data is collected to reflect the most recent information regarding target status.

5.31 **Time sensitive Targets.** When WMD sites are discovered, commanders have to ensure that friendly forces, the civilian population and objects are protected, and simultaneously plan for their evacuation or removal from the vicinity of military objectives. The discovery of a WMD site is of immediate interest to the North Atlantic Council and to Supreme Allied Commander Europe. The discovering unit should provide an immediate

[5] A covert operation is an operation that is planned and conducted so as to conceal the identity or permit plausible deniability of the executor. Regardless of whether these NATO-led operations as part of a COA analysis are overt or covert, they will always fully comply with the legal limitations including applicable Human Rights Law and the *Law of Armed Conflict*.

report with as much detail as possible. Furthermore, the discovery unit conducts careful mission analysis to assist the commander in assessing the risk to the unit, mission, the civilian population and civilian objects. In addition to the threats posed by site contents, the site may be highly contaminated, booby-trapped, mined, severely damaged, or protected by explosive devices. Planners consider the operational situation and ensure that adequate security elements are available. A particularly dangerous period occurs when the adversary abandons a sensitive site and friendly forces are not in the position to secure it. The civilian population may enter the site for various reasons. In doing so, they may expose themselves to great risk, endangering the population and friendly forces near the site. Commanders have to also understand that the assessed site may be tied to a larger network.

5.32 **Minimizing Collateral Damage.** WMD-related targets carry unique engagement considerations. Although the initial effect of conventional munitions on a WMD-related target may cause little collateral damage, secondary effects could include a release or dispersal of chemical warfare agent, biological warfare agent, or radiological material or even an imperfect detonation of an improvised nuclear device or a nuclear weapon. Commanders should seek to minimize collateral damage consistent with the international laws, political and strategic guidance, and plan for follow-on CBRN consequence management (CM) operations to mitigate the potential effects of a WMD attack, as necessary.

5.33 **Consequences of Execution Planning.** Planners have to complete a detailed consequence of execution analysis to determine the potential release of hazards when engaging adversary WMD storage sites, weapon systems, or production facilities. Joint forces throughout the joint operations area (JOA) need to be advised of the predicted hazard area and given enough time to take appropriate protective measures. Effects on local civilians and critical infrastructure need to be anticipated and planned for as well. This planning needs to be done not only for WMD sites, but also for targets known or suspected to contain TIM. To protect forces and civilian populations, CBRN CM planning should include both immediate and long-term effects of dispersed CBRN substances.

5.34 **Countering Asymmetric Threats.** Non-state actors may use asymmetric means to employ WMD to circumvent NATO strengths and exploit weaknesses. As such CWMD planning must consider countering asymmetric threats (CAT) activities when engaging human networks, especially in concealed WMD programme nodes. CWMD forces may utilise deliberate and dynamic targeting to address such unique operating environments. CAT activities enhance the targeting process by providing options to analyse the available information and provide the commander with greater situational and target awareness for making decisions on who and how to target a node, programme, or network.

5.35 Interacting with and engaging networks require the use of physical, virtual and cognitive effects to support, influence, or neutralize network members, cells, or an entire network. As part of this effort, commanders select, prioritize, and match effective means of interacting with friendly networks, influencing the neutral network, and neutralizing threat networks. This process enables the prosecution of targets to capitalise on and exploit targets of opportunity. The staff uses intelligence products to determine threat actors and supporting networks present in the JOA and throughout targeting. The staff also determines those actors

and network activities outside of the JOA that may have important links to the networks within the JOA.

5.36 **Supporting Efforts.** Information operations, electronic warfare, cyberspace operations, psychological operations, deception, and operational security are each useful and necessary in CWMD.

5.37 **Logistics.** Logistic staffs need to be fully engaged for both feasibility and responsiveness to any changes in plans. Additionally, logistics planners need to be aware of airframe size limitations, ship and aircraft decontamination constraints, and the effects of CBRN contamination on transportation assets and international mobility operations. Due to the threat of cross contamination of transportation assets, operations into contaminated airports/seaports of debarkation, and transportation nodes could be significantly degraded. The retrograde of contaminated cargo will be restricted to “mission critical cargo”. Planners also need to ensure proper transient/overflight clearances are obtained when transporting contaminated materials and equipment, including the contaminated transporting vessel. The CWMD-related logistic requirements of the HN and all nations involved need to be addressed. Additionally, the respective logistic burden to be assumed by them in support of CWMD have to be considered with respect to their unique requirements and capabilities.

5.38 **Contaminated Facilities, Equipment, and Remains.** The impact of CBRN contamination on logistics is substantial. Procedures for the temporary or permanent disposition of equipment and materiel that cannot be decontaminated, or that do not meet agreed upon clearance standards, have to be addressed during planning. Similarly, the disposition of contaminated human remains requires logistic planning to meet health-based clearance requirements for decontamination, safety requirements for transportation, and environmental/diplomatic/legal requirements for temporary interment in theatre. It may be more cost-effective to appropriately secure, mark and abandon contaminated facilities than to decontaminate and rebuild. To preserve inter theatre mobility capabilities, limit the movement of contaminated cargo to “mission critical” items.

5.39 **Strategic Communications.** A proactive strategic communications (StratCom) campaign will address CWMD activities, incorporate the media strategy into all phases of the operation, and keep everyone on message. Products and themes should be synchronised and support NATO objectives. StratCom should work with HN and non-military actors to quickly and effectively communicate risk and response information to the public in order to avoid confusion and hysteria. The StratCom advisors at all levels of command play a major role in coordinating public information activities to ensure consistency of messages, and in keeping HN and non-military actors informed on the capability and intent of the CWMD efforts.

5.40 The chain of command for StratCom activities has to be clearly defined and in consonance with political guidance. This is especially true regarding the release of internal and external WMD-related information. The release of information on WMD and CWMD may require non-NATO LOC and authority.

5.41 The pursuit of WMD attracts international media attention. An essential component of a successful StratCom plan includes provisions for delivering updates on the progress of CWMD efforts in a way that will not interfere with intelligence gathering and other tasks.

Regular media events can provide timely and accurate information to address the progress of CWMD operations. Pre-arranged news information materials (e.g. fact sheets, background papers, general news release on CWMD) can be made available for immediate release, as necessary.

5.42 **Communications Synchronisation.** Establishing productive relationships with partners, particularly media organizations, is an inherent element of the commander's communication efforts. Staffs should cooperate with Supreme Headquarters Allied Powers Europe, NATO Headquarters and relevant counterparts to orchestrate and communicate themes, messages, images, engagements and actions. Commanders may use their public affairs staff and information operations capabilities to work with partners to quickly and effectively communicate risk and response information to the public in order to create a favourable operating environment and avoid confusion and hysteria.

5.43 **Meteorological and Oceanographic Support.** Meteorological and oceanographic (METOC) products and information are key components of modelling and simulation analysis used to accurately predict possible WMD effects. METOC products are integral to target planning during CWMD, and to predict hazard areas and estimate casualties during operations.

5.44 **Medical Planning and Logistics.** Medical planning is predicated on the assessment and characterization of an adversary's WMD programme. The predicted impact of WMD use informs logistical planning to ensure adequate personnel and equipment, facilities, infrastructure, preventive medicine, bio surveillance, medical treatment, behavioural health or combat and operational stress control, and decontamination assets are available to safeguard the force and manage consequences.

5.45 **Medical Support.** Medical and health issues have an operational impact on many other areas regardless of whether CWMD is the commander's primary mission or operations are conducted in a potentially CBRN environment. Key planning factors include:

- medical support requirements to address CWMD objectives;
- requirements for specialised rescue and evacuation capabilities in CBRN environments;
- requirements for a comprehensive health surveillance programme;
- requirements for treatment and after care capabilities for contaminated and injured casualties including combination injuries (mechanical trauma and CBRN-specific health impairments); and
- requirements for appropriate available IPE and prophylaxis for probable WMD threats.

5.46 **Environmental Considerations.** Environmental recovery actions will address contamination and hazard management measures from a CBRN incident. Associated environmental plans will consider and ensure compliance with all applicable HN obligations, international treaties and agreements, which participating Allies are a signatory, and national laws.

5.47 One of the key environmental issues that needs to be addressed is the determination of the standard to which the environment will be decontaminated or "cleaned." This standard will be a key planning factor in both CWMD and CBRN CM operations. Commanders have to identify the appropriate organizations and authorities to be involved in determining appropriate clearance criteria (e.g. clean standards) following a CBRN release and incorporate into the planning. Where available/appropriate, identify and incorporate the specific clearance criteria including technical assets/resources (e.g. laboratories) necessary to verify.

5.48 Another environmental consideration is the necessity to address the transportation of WMD material within, or outside, the JOA. This includes operations to transition forces out of theatre. International health regulations require the identification of potential health risks (such as the movement of contaminated/contagious personnel, cargo, or conveyances) to transited and destination countries.

5.49 **Transitions** can occur when the mission requirements are satisfied, the forces have been relieved, or the continued presence in the area becomes unnecessary or presents unacceptable risk to forces or the populace. This change in the mission may be a result of the interrelationship of the other instruments of national power, such as a transfer to HN security forces. The handover process with HN forces can be a complicated and time-consuming process. Language barriers and a lack of tactical communications interoperability can be mitigated with prior planning. Examples of scenarios for transition during joint operations involving a sensitive site include the following:

a. The site is assessed or exploited, and no evidence of WMD is found to warrant further investigation or evidence collection is complete and the commander receives approval from chain of command.

b. Forces are relieved in place by another authority, or site security can be transferred to another authority, such as HN military.

c. The formation transitions to close an incident site. CBRN consequence management conducted on an incident site may be transitioned to HN personnel to close. Otherwise, efforts are made to mark the area to reduce residual threats to personnel or civilians in the area.

5.50 Planning should include the transfer of responsibility (as soon as possible) to a designated agency or organization that is responsible for conducting advanced technical and monitoring and redirection activities. A rapid handover (transfer of authority) of the destruction mission is essential to releasing the limited CWMD specialised assets for other missions. Transition forces have to be capable of providing ongoing security mission command and sustainment to forces conducting these advanced tasks for the duration of the mission.

5.51 Designated agencies (e.g. IAEA or OPCW) may assume the lead for monitoring and redirection activities. The capability to monitor and redirect requires planning and technical expertise to help commanders with the long-term disposition of WMD production sites and related activities.

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Annex A - Notional Countering Weapons of Mass Destruction Responsibilities

The following table is provided to give nations and their civil authorities, NATO commanders and their staffs, and operational planners with a notional analysis of who has the lead responsibility for each of the various countering weapons of mass destruction (CWMD) tasks within the six CWMD lines of effort and who serves in a supporting role.

Task	Summary description	Civil authorities*	CBRN defence forces	Other military forces	Intelligence Enterprise
Legend: **++ primary responsibility (no consideration of tasking authority)** **+ supporting role** **No specific role** *** not including non-governmental organizations**					
Defeat WMD Development and Acquisition Lines of Effort (LoE): **Purpose:** *"to prevent or complicate conceptualisation, development, acquisition, and proliferation of WMD"*					
Dissuade Task	Discourage adversaries from pursuing WMD development or acquisition.	++	+	+	
Deter Task	Prevent an adversary from using WMD through the perception of cost imposition, benefit denial, or the consequences of restraint.	++	+	+	
Delay Task	Hinder an adversary's development, acquisition, proliferation, or use of WMD; includes lethal and nonlethal capabilities employed directly against the adversary or in support of another authority.	++		++	+
Disrupt Task	Interrupt or interfere with an adversary's development, acquisition, or proliferation of WMD.	++		++	+
Deny Task	Deny adversaries access to WMD technology, knowledge, materials, expertise, and weapons.	++		++	+

Task	Summary description	Civil authorities*	CBRN defence forces	Other military forces	Intelligence Enterprise
Manage Existing WMD Threats LoE:					
Purpose: *"to reduce WMD-related threats or – if not possible – minimize the impact of a potential WMD attack on forces or a mission"*					
Control Task	Maintain physical influence over a specified area to prevent its use by an enemy or to create conditions necessary for successful friendly operations; may require synchronization with select CBRN-trained personnel and supporting elements.				
Divert Sub-Task	Change the intended course or destination of shipments of WMD, related technologies, materials, expertise, and/or means of delivery either willingly or by force.	+	+	+	
Intercept Sub-Task	Stop the movement of CBRN substances, WMD components, means of delivery, WMD-related personnel, or functional weapons into or out of specified areas or nations.	+	+	+	
Isolate Sub-Task	Isolate and deny access to critical WMD programme components.	+	+	+	
Seize Sub-Task	Take possession of WMD capabilities (e.g. designated area, building, transport, materials, or personnel) to deny an adversary access to WMD capabilities; requires offensive action to obtain control of the designated area or objective.	+	++	+	
Secure Sub-Task	Prevent unauthorized access to sites or the removal of WMD-related technologies, materials, or personnel to prevent use, proliferation, looting, or compromising integrity of physical evidence.	+	+	++	
Consolidate Sub-Task	Move WMD materials to specified locations for defeat, disablement or disposal operations to take place	+	+	+	
Defeat Task	Neutralize or destroy existing WMD to ensure no WMD use				
Neutralize Sub-Task	Render WMD capabilities ineffective or unusable. Examples include making CBRN substances and materials harmless or making delivery systems unusable.	+	++	+	
Destroy Sub-Task	Destroy WMD capabilities so they cannot perform their intended function without being entirely rebuilt; such actions require a significant amount of pre-strike planning and authorisation prior to execution.	+	++	+	

Task	Summary description	Civil authorities*	CBRN defence forces	Other military forces	Intelligence Enterprise
Disable Task	Exploit and degrade or destroy critical and at-risk components of a WMD programme; disable tasks seek to ensure that these items are not used, lost, or proliferated.				
Exploit Sub-Task	Maximise the value of intelligence gained from personnel, data, information, and materials obtained during CWMD operations.	+	+	+	
Degrade Sub-Task	Use lethal and nonlethal means to reduce the effectiveness or efficiency of adversary WMD capabilities.		+	++	
Dispose Task	Get rid of the remnants (programme elements, facilities, personnel, surplus, dual-use capacity, confiscated/seized cargo, equipment, delivery systems) of an actor's WMD programme.				
Reduce Sub-Task	Diminish a potential threat, improve the security of the remnants, reduce costs of sustaining the programme elements, and eliminate excess capacity or capability; includes demilitarisation of stockpiles.	+	+	+	
Dismantle Sub-Task	Dismantle a WMD facility, stockpile, or programme; programme is systematically reduced to a level that it can no longer operate for its intended purpose.	+	+	+	
Redirect Sub-Task	Repurpose facilities, expertise, and material associated with an adversary's WMD programme elements; redirection of expertise includes retaining personnel with WMD expertise (e.g. scientists and engineers) for new, legitimate employment.	+	+	+	
Monitor Sub-Task	Continually review and inspect programmes, personnel, and facilities to ensure that they are not producing WMD and that remnants are not being reconstituted or reused in any illicit capacity.	+	+	+	

Task	Summary description	Civil authorities*	CBRN defence forces	Other military forces	Intelligence Enterprise
Conduct Force Protection and Consequence Management LoE **Purpose:** *"to reduce the effectiveness of CBRN threats, allowing to protect joint forces and the surrounding population, respond to CBRN incidents, sustain operations in CBRN environments, and mitigate the effects if a release occurs"*					
Mitigate Task	Maintain the joint force's ability to continue military operations in a CBRN environment; minimizing or negating the vulnerability to, and effects of, CBRN attacks		++	++	
Restore Task	Maintain or restore essential services and manage and mitigate problems resulting from WMD incidents.	++	+	+	
Sustain Task	Support operations in a CBRN environment and conduct recovery/reconstitution operations to regenerate unit operational readiness (e.g. thorough decontamination, medical treatment, and recuperation).		++	+	
Support Task	Support other authorities in the conduct of operations initiated to provide assistance when their own capabilities are insufficient to save lives and maintain essential government services.	+	+	+	
Understand the Environment, Threats and Vulnerabilities LoE: **Purpose:** "to *develop and maintain a comprehensive understanding of the WMD adversaries and materials that affect the force"*					
Locate Task	Locate WMD-associated system nodes and programme elements, to include production facilities, storage/stockpile sites, and key programme personnel.	+	+	+	++
Identify Task	Scope, categorise, and prioritise the potential threat posed by a WMD target.	+	++	+	++
Characterize Task	Map individual components, internal linkages, and external associations of a WMD programme through a variety of intelligence collection and analysis capabilities.	+	++	+	++
Assess Task	Conduct analyses to help the commander determine the threat posed by an adversary' WMD programme; includes assessment of own vulnerabilities to threat.	+	++	++	+
Attribute Task	Determine the origin of the material or weapon as well as those responsible for a CBRN incident.	++	+	+	+
Predict Task	Construct a COP presenting current and forecasted information on adversaries, friendly forces, neutral elements, the environment, and geospatial information.	+	++	+	++

Task	Summary description	Civil authorities*	CBRN defence forces	Other military forces	Intelligence Enterprise
Maintain and Expand CWMD Technical Expertise LoE **Purpose:** *"nurturing and sustaining CWMD intellectual capital"*					
Recruit Task	Recruit highly academically trained military and civilian personnel into the NATO CWMD community	++	+	+	
Develop Task	Provide opportunities for new recruits to the NATO CWMD community to broaden their expertise and experience in CWMD through educational opportunities, exchange programs between nations, military exercises, etc.	+	+	+	
Retain Task	Ensure that the highest levels of CWMD expertise are maintained by nations	++			
Cooperate With and Support Partners LoE **Purpose:** *"to enhance collective, regional and national capabilities to receive timely indicators and warnings, track material of concern, secure WMD materials and stockpiles, respond to and defeat WMD threats, and manage the consequences of attack"*					
Partner Task	Develop and maintain security partnerships in key areas that support the collective capability to respond to and defeat WMD threats and manage the consequences of potential attacks.	++			
Coordinate Task	Promote and improve common threat awareness, interoperability, response preparedness, and WMD risk reduction	++			

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Annex B – Weapons of Mass Destruction Background, Materials and Technologies

Section 1 – Nuclear Weapons

B.1 **Nuclear weapons**[6] utilise the physical process of fission or a combination of fission and fusion. Both fission and fusion are accompanied with great releases of energy. The energy produced by nuclear weapons is released in the form of heat (thermal radiation), light, a strong pressure wave (blast), an electromagnetic pulse, and ionizing radiation. The radioactive products in a fallout cause radioactive contamination.

B.2 **Understanding the Nuclear Threat.** Nuclear weapons derive their explosive power from the energy released during either fission or fusion, respectively a combination of both nuclear reactions. Fission is a process in which the nucleus of an atom splits into two or more nuclei and releases energy and other fission products (neutrons, alpha and beta particles, etc.). The neutrons with the relevant energy released by fission can, in turn, cause the fission of other fissile materials. Fissile materials in a nuclear weapon – weapons grade uranium or plutonium – need to achieve a supercritical state for a nuclear detonation to occur. Fusion is a process in which nuclei (generally light nuclei such as tritium and deuterium), combine and release energy, helium nuclei, and neutrons.

B.3 **Single Stage Fission Weapons**

a. **Gun-assembled.** A gun-assembled device contains two or more pieces of fissile material, each a subcritical mass, brought together very rapidly to form a supercritical mass. A nuclear detonation results from a self-sustaining chain reaction of exponentially increasing numbers of fission events within that mass. The supercritical mass can be minimized with reflectors keeping neutrons within the nuclear explosive's mass.

b. **Implosion-assembled.** Usually a spherical device in which a quantity of fissile material with a geometry that constitutes a subcritical mass can have its volume reduced suddenly by compression (a step typically accomplished by the use of chemical explosives) to form a supercritical mass at a much higher density. A nuclear detonation results from a chain reaction of exponentially increasing numbers of fission events within that mass.

c. **Boosted Weapons.** A boosted weapon is a fission nuclear weapon whose fission output is increased by thermonuclear neutrons from the fusion of deuterium and tritium gas introduced into the pit. The efficiency of the bomb is increased by enhancing the number of fissions by the neutrons resulting from the fusion, and not by the fusion as such.

[6] A complete assembly (i.e. implosion type, gun type, or thermonuclear type), in its intended ultimate configuration which, upon completion of the prescribed arming, fusing and firing sequence, is capable of producing the intended nuclear reaction and release of energy.

B.4 **Thermonuclear Weapons.** Weapons in which very high temperatures are used to bring about the fusion of light nuclei such as those of hydrogen isotopes (e.g., deuterium and tritium) with the accompanying release of energy. The high temperatures required are obtained by means of fission.

B.5 **Delivery Options.** Nuclear weapons have been adapted for delivery by gravity bomb mortar, artillery shell, land mine, depth charge, torpedo, bomb, and missile. However, significant weapon design understanding is needed to produce a nuclear device that is both small enough and light enough to be delivered by such systems with reduced payload capacity. Given their significant destructive power, nuclear weapons need not be optimally employed to cause a significant impact. While nuclear weapons have been designed for stand-off delivery at specific altitudes and other conditions, they could simply be loaded onto a ship or truck, transported to the target, and detonated.

B.6 **Nuclear Weapons Development.** Developing special nuclear material for nuclear weapons may occur in two pathways. However, in both pathways, the process begins in the same manner, the mining of uranium ore, and ends with the conversion of it into weapons grade fissile material, either weapons grade uranium or plutonium, to a form useful in weapons production. Nuclear weapons will likely originate from a state programme. Non-state actors do not currently have the capability to independently develop a nuclear weapon. Non-state actor attempts to develop a nuclear weapon will rely heavily on leveraging the efforts of a state nuclear programme, whether wittingly or unwittingly.

B.7 **Nuclear Weapons Effects.** When detonated, a nuclear weapon will release its energy as blast, thermal radiation, and ionizing radiation. Air blast is the primary effect of endo-atmospheric nuclear explosions, accounting for up to 50% of a detonation’s energy. Blast is the primary damage mechanism for nuclear employment and the only damage mechanism that can be accurately modelled. The interaction of the Gamma rays at high altitudes with surrounding air molecules produces a secondary effect known as electromagnetic pulse (EMP). The pulse can couple with electrical or electronic systems to produce damaging current and voltage surges. The EMP fields are dependent upon the yield of the weapon, weapon design and the height of burst. Nuclear generated EMP is a potential threat to unshielded electronics and electrical systems. High altitude EMP, in particular, can briefly cover many thousands of square kilometres of the earth’s surface with a potentially damaging electromagnetic field. The primary hazards for unshielded personnel are mechanical injuries by the blast wave, burns by the thermal radiation, and deterministic as well as stochastic damages by the initial and/or delayed ionizing radiation, which are dependent on the yield of the weapon, 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 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 kilometres (radioactive contamination) depending on the weapon characteristics, method of delivery and environment.

Section 2 – Radiological Weapons

B.8 **Radiological weapons and devices** are designed to use radioactivity with the intent to kill and cause disruption and include radiological dispersal devices (RDD) and radiological exposure devices (RED). A RDD is a conventional explosive device with the addition of radioactive material that will be spread at the time of detonation. Victims may suffer mechanical trauma, as by any explosive device, and may become contaminated with radioactivity. External contamination always includes the possibility of incorporation of radioactivity into the body. All radionuclides available may be used for the construction of an RDD (industrial or medical sources, nuclides used in research, spent reactor fuel, radioactive waste, etc.). A RED is a radioactive source which is placed in a location where people could be exposed. Besides physical injuries, RDDs and REDs are expected to cause fear, panic, chaos and disruption.

B.9 **Radiological weapons** are not considered to be militarily useful for a state sponsored military but may be desirable for non-state actors and terrorist organizations. They can render large areas of property useless for an extended period, unless costly remediation is undertaken. Regardless of the poor availability of the radioactive material and independently on the amount of radiation dispersed, the presence of increased radiation may have a significant psychological and economic impact.

B.10 **Delivery.** Several options exist for the delivery of radiological weapons. A conventional high-explosive bomb placed near a radioactive source, sometimes called a dirty bomb, could be used to disperse radioactive particles. A commercial mobile sprayer such as crop-dusting aircraft could be used to spread radioactive particles. Radioactive contamination could also be spread via a food chain, water sources, or ventilation systems, relying on a fomite (inanimate object) rather than a weapons system. A RED might simply consist of a radioactive source placed in a public area to expose people passing by it and could be placed in any area where a target population is present. Due to the nature of such weapons, radiological material would not necessarily have to be effectively disseminated to cause significant casualties and panic.

B.11 **Radiological Weapons and Sources**

- **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.
- **Radiological Dispersal Device Candidate Materials.** Radioactive materials that make the best candidates for use in an RDD are those that are used in medicine, industry, and research because they are more accessible. RDD candidates should have an intermediate half-life and initial activity to achieve desired exposure. The key factor is also a physical status of easily dispersible (powder, liquid). Such a phase enables even internal contamination of humans which is irreversible and much more dangerous than only external exposure to ionizing radiation. All of the candidate isotopes that pose the greatest security risk for an RDD are produced for industrial, medical and research applications of radiation.

Section 3 – Biological Weapons

B.12 A **biological weapon** is an item of material which projects, disperses, or disseminates a biological agent including arthropod vectors. The use of biological weapons can lead to produce either disease or affect the body's normal functioning. The major classes of biological agents are bacteria, viruses, toxins and fungi. The vast majority are naturally occurring, although some research has been executed into making natural occurring toxins and pathogens more potent or resistant to vaccines and medicines.

B.13 A **biological agent**, either natural or man-made, is a microorganism or toxin that causes disease in human, plants and animals or that causes the deterioration of material (examples: bacteria, fungus, parasite, virus). Biological weapons, toxins excepted, differ from chemical, nuclear, and radiological threats in that small amounts of infectious agents are self-replicating and capable of spreading from person to person, animal to person, through vectors (such as insects or rodents), and food and water. A **biological warfare agent** (BWA) is an infectious substance, or a toxin confirmed to have been modified, processed or weaponised to be deliberately used to cause disease or death in humans, animals, plants, or material deterioration.

B.14 **Understanding the Biological Threat.** The knowledge to develop a biological capability has become increasingly widespread with the evolution of biotechnology and has become readily obtainable by both state and non-state actors. In the wrong hands, this knowledge can lead to the development of biological weapons. Deliberately or accidentally released biological weapons against an unprotected population can have as much effect as weapons designed to create mass casualties.

B.15 **Pathogens.** Pathogens are disease causing agents that directly attack human tissue and biological processes. Pathogens are further divided into noncontagious and contagious. When biological threats are contagious, planning needs to account for possible restrictions of movement to include quarantine, social distancing, and isolation. In addition to known threats, the commander should be alert for emerging or novel threats.

B.16 **Bacteria.** Bacteria are small free-living organisms, most of which may be grown on solid or liquid culture media. The organisms have a structure consisting of nuclear material, cytoplasm, and cell membrane. They reproduce by simple division.

B.17 **Viruses.** Viruses are organisms that require other living cells (animal or bacteria) in which to replicate. They produce diseases which do not respond to antibiotics, but which may be responsive to antiviral compounds, of which there are few available, and those that are available are of limited operational use.

B.18 **Toxins.** Toxins are non-living poisonous substances that are produced naturally by living organisms (e.g. plants, animals, insects, bacteria, fungi) but may also be synthetically manufactured.

B.19 **Fungi.** Fungi are simple organisms widespread in nature. Most fungi form spores and are free-living forms that are found in soil. Fungal diseases may respond to various antifungal drugs. Although some fungi are capable of causing disease in humans, they are unlikely to be used as a BWA. Endemic fungi may cause wound infections if gross contamination occurs.

B.20 **Novel or Emerging Threats.** Current changes in science and technology may contribute to actors of concern finding ways to employ irregular, disruptive, and potentially catastrophic agents as threats in the future. The exploitation of bio regulators and modulators (peptides), which can potentially cause physiological effects (disrupt or damage nervous system, alter moods), represents a potential vector for development of novel threats. Emerging disease outbreaks such as severe acute respiratory syndrome (SARS) and hantavirus pulmonary syndrome may be difficult to distinguish from the intentional introduction of infectious diseases by terrorist groups. Other pathogens such as novel emerging pathogens or modified agents that can cause fatal diseases in humans and animals could be used to create panic within the civilian populace.

B.21 **Employment.** Because the primary route of infection for most biological warfare agents is inhalation, various systems and techniques have been developed to disseminate solid or liquid biological warfare agents as an aerosol. Such systems have included spray tanks attached to aircraft or cruise missiles and bombs with bomblets that can explosively disseminate BWA. Ventilation systems could be contaminated and mass gathering locations could be targeted for an aerosol attack.

B.22 There are numerous means of disseminating BWA - from human vectors to remotely piloted aircraft. In 2001, anthrax deliberately mailed to media offices and the US Congress killed five people and infected 22. Other means of dispersing biological warfare agents include contamination of food or water supplies, contaminated object (e.g. dish, clothing, or vehicle tires), injection of animals, or through vectors.

B.23 Due to their nature as living organisms, BWA, other than those in spore form, need to be employed shortly after production in order to be a viable weapon. Some agents, such as *Bacillus anthracis,* the causative agent of anthrax, are unique in producing spores that can be desiccated, milled to a roughly five micrometre diameter particulate powder, and then loaded in weapons for dispersal. Once desiccated, anthrax spores remain viable for years under the right conditions. Loss of accountability of frozen aliquots of an amount of bacterial or viral agents can pose significant hazards as small samples can be cultured to produce amounts large enough to cause mass casualties.

B.24 **Biological Warfare 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. are soldiers 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, isolation, restriction of movement (social distancing) 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 severe nuisance (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.

B.25 **Determining Deliberate Use.** Disease outbreaks have to be aggressively addressed to save lives, but it is also imperative to discern whether an outbreak is deliberate, accidental,

or naturally occurring. Forensics provides 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 incidents 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; a large number of dead animals or insects in the area; 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.

B.26 **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, weaponisation, storage, deployment/employment, and demilitarization. These stages can run in parallel as a capability is upgraded, or circumvented as capability is contracted, outsourced, imported, or stolen. Additionally, production times may be relatively short within the lifecycle as some bacteria can double in number every twenty minutes. Large stockpiles could be produced within a few years in a modest-sized pharmaceutical plant before it is repurposed for another use.

B.27 **Production.** Fermenters may be employed to grow large amounts of certain bacteria, but BWA are not stored in bulk containers or in munitions. BWA would most likely be stored in small quantities of a few millilitres 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.

B.28 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.

Section 4 – Chemical Weapons

B.29 A **chemical weapon**[7] is a fully engineered assembly designed for employment by the armed forces of a nation state to cause the release of a chemical agent onto a chosen target. Chemical weapons are intended for release of chemical warfare agents (CWA).

[7] *The Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction* defines “Chemical Weapons” as the following, together or separately:

B.30 **Understanding the Chemical Threat.** A CWA is a chemical used, or intended to be used, as a weapon to harm humans, animals and/or plants, to deteriorate materials or to restrict freedom of action. The term excludes riot control agents, herbicides and substances generating smoke and flame. The knowledge required to develop a chemical weapons capability is obtainable by both state and non-state actors. When the intent and capability to develop chemical weapons are combined, they become a threat. The acquisition and development of chemical weapons encapsulates several activities that would culminate in an ability to use or proliferate. Due to the ubiquitous and dual-use nature of chemical production capabilities, the expertise, materials, technology, infrastructure, facilities, and means of delivery may be difficult to attribute to actors of concern or link to an intent to develop chemical weapons.

B.31 **Categories of Agents**

a. **Traditional Agents.** These chemical warfare agents include blister (H and L series), nerve (G and V series), blood, and choking agents. Many traditional blood and choking agents (e.g. hydrogen cyanide and phosgene) have common industrial uses and are not defined as chemical weapons by the Chemical Weapons Convention (CWC) when used for those purposes.

b. **Non-traditional Agents.** Non-traditional agents (NTA) are chemicals and biochemical researched or developed with potential application or intent as chemical warfare agents, but which do not fall in the category of traditional CWA as per the CWC. NTA differ from traditional blister and nerve agents. NTA exist in four primary forms: solid, dusty, liquid, and aerosol. Each class of NTA has its own set of distinguishing characteristics. While NTA possess some of the same properties as traditional chemical agents (e.g. nerve agents), typically these properties are enhanced when compared to traditional CWA; increased toxicity, garment penetration, and extremely low volatility.

c. **Toxic Industrial Chemicals.** Toxic industrial chemical (TIC) are toxic substances typically found in solid, liquid, or gaseous form that are manufactured, used, transported, or stored for industrial, medical, or commercial purposes. Some TIC, such as particular pesticides, are highly toxic. Others are routinely transported and stored in very large quantities (e.g. potential releases can occur through industrial or transportation accidents and can have significant impacts on joint operations. Additionally, releases can occur collaterally or result from a malevolent act. Some TIC can be turned into a CBRN device. Within a theatre of operations, identifying major

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(a) Toxic chemicals and their precursors, except where intended for purposes not prohibited under this Convention, as long as the types and quantities are consistent with such purposes;
(b) Munitions and devices, specifically designed to cause death or other harm through the toxic properties of those toxic chemicals specified in subparagraph (a), which would be released as a result of the employment of such munitions and devices;
(c) Any equipment specifically designed for use directly in connection with the employment of munitions and devices specified in subparagraph (b).

TIC industrial operations, storage sites, transportation routes, and HN security measures is necessary to manage this threat.

d. **Riot Control Agents and Incapacitants.** A riot control agent (RCA) is a chemical not listed in a schedule of the Chemical Weapons Convention that can rapidly produce sensory irritation or disabling physical effects that disappear shortly after termination of exposure. An incapacitating agent is an agent that produces temporary physical and/or mental disabling conditions which may persist for hours or days after exposure has ceased. RCA are normally extremely irritating and in wide use by law enforcement, which is permitted by CWC. Incapacitants are substances that affect the higher regulatory functions of the central nervous system and are often abused drugs. The effects of these substances may be quite severe depending on the amount of exposure an individual receives. These RCA fit into a special class of NTA.

B.32 **Delivery.** Missiles, bombs, mines, and spray tanks could be used to produce vapours and aerosols or spread toxic liquids. CWA can be incorporated into improvised explosive devices or other improvised dispersing devices. Because many CWA pose both an inhalational hazard and a percutaneous hazard (they can be absorbed through the skin), they do not need to be aerosolized to inflict casualties and contaminate areas. Widespread immediate lethal effects require a high concentration and desired rate of action of agent in the target area. Engagements of this nature are enhanced by favourable weather factors (wind, air stability, temperature, humidity, and precipitation) and confined spaces (e.g. transportation terminals and building interiors). Persistent chemical agents can be employed for denial of terrain, facilities, material, and logistics to reduce operations tempo and degrade the mission. Non-traditional employment (e.g. contamination of food or water supplies or aerosol generation at a mass gathering location) is possible and could be used to target particular populations.

B.33 **Chemical Warfare Agent Effects.** Most CWA 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 operations tempo. Mass casualties could overwhelm medical facilities or spread contamination denying continued use of those facilities. Command and Control 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 would hamper the flow of logistics and reduce sortie generation.

B.34 **Chemical Weapons Development Lifecycle.** The lifecycle of a chemical weapon capability runs on a continuum from research through production, weaponisation, 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 weaponisation processes. Production times are often relatively short within the life cycle. Large stockpiles can be produced within a few years in a modest-sized chemical plant before it is re-purposed to another use. Agents are usually stored in munitions or in bulk containers. 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 specialised units qualified to handle agents and fill munitions. The task of controlling chemical warfare agent identification is further complicated through countries' use of binary compounds. Binary compounds have significantly extended storage life. Frequently, the agent has to 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 (Verification Annex, Part IV (A), Section C, paragraph 13). Munitions buried prior to CWC entry into force may remain buried; but if recovered, have to 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 ocean dumping prior to the CWC Treaty 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.

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Annex C - Treaties, Resolutions, Activities and Legal Considerations

C.1 It is important to underline that United Nations Security Council (UNSC) Resolutions are binding for all United Nations (UN) member states; however, the authorizations to act, if included in a resolution are not automatically executed by NATO. The North Atlantic Council will decide on a case-by-case basis on the respective support of UNSC Resolution goals or use existing operational frameworks that can support UNSC Resolutions. NATO-led operations to prevent or counter a threat would require either a sufficiently imminent threat to justify self-defence, a UN mandate to act, or the consent of the host nation (HN).

C.2 **Weapons of Mass Destruction proliferation.** The responsibilities regarding prevention of weapons of mass destruction (WMD) proliferation lie with the States. Various international treaties, agreements, and UNSC Resolutions obligate member States to prevent WMD proliferation.

C.3 **NATO's response to any Weapons of Mass Destruction crisis**. Actions taken by the Alliance in response to any WMD crisis are affected by international law, including customary international law**,** the domestic laws of contributing States and the domestic laws of any State where troops or facilities are based or that could be affected by these actions.

C.4 Existing treaties and conventions are respected by NATO member states individually, consistent with international law and their respective national legal obligations.

C.5 Unless operations are justified by the inherent right of self-defence pursuant to the UN Charter or the consent of the HN, UNSC Resolutions form NATO's international legal basis for conducting countering weapons of mass destruction (CWMD).

C.6 Non-NATO States may have differing interpretations of rights and obligations under international law. NATO-led operations will require sensitivity, cooperation, and negotiation when working with partners.

C.7 The following lists of treaties, agreements and UNSC resolutions give an overview of current legal instruments and frameworks regarding WMD. This non-exhaustive list of cornerstone treaties and UNSC Resolutions provides a reference for officers responsible for planning and execution of CWMD activities.

C.8 Moreover, depending on the situation, legal advisers will also have to take into consideration, among others, international environmental law, international law of the sea, international air law and specific national laws and regulations regarding WMD, hazardous materials**,** and environment protection.

C.9 **Treaties, conventions and agreements**

International treaties are binding on States which have ratified the respective treaties.

a. *The Convention on the Prohibition of the Development, Production, and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction* (commonly

referred to as the Biological and Toxins Weapons Convention) dated 10 April 1972 prohibits development, production, stockpiling or otherwise acquisition or retention of microbial or other biological agents or toxins that have no justification for prophylactic, protective or other peaceful purposes and of weapons, equipment or means of delivery designed to use such agents or toxins for hostile purposes or in armed conflict. It supplements the 1925 Protocol for the prohibition of the Use in War of Asphyxiating, Poisonous or other Gases and of Bacteriological Methods of Warfare (Geneva Protocol).

b. *The Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction* (commonly referred to as the Chemical Weapons Convention or CWC) dated 13 January 1993 prohibits possession, development, or transfer of chemical weapons and limits transfer of dual-use technology used to make chemical weapons to states that are not parties to the CWC.

c. *Treaty on the Prohibition of Nuclear Weapons*: adopted in 2017 is the first legally binding international agreement to comprehensively prohibit nuclear weapons. It entered into legal force on 22 January 2021 after signature and ratification by 50 nations. As of 29 June 2022, 86 signatories and 66 states have ratified this treaty. No NATO members are party to the treaty and therefore are not bound by its terms, which do not represent customary law.

d. Nuclear test ban treaties. Previous treaties have restricted nuclear testing, including the 1963 *Partial Test Ban Treaty* that barred explosions in the atmosphere, in space and under water; the *Comprehensive Nuclear Test Ban Treaty*, which would ban all nuclear explosions, opened for signature in 1996, has not entered into force.

e. 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. These include Antarctica (*The Antarctic Treaty* dated 01 December 1959), Latin America (T*reaty of Tlatelolco* dated 14 February 1967), South Pacific (*Treaty of Rarotonga* dated 06 August 1985), South East Asia (Treaty of Bangkok dated 15 December 1995), Africa (*Treaty of Pelindaba* dated 11 April 1996) and Central Asia (*Treaty of Semipalatinsk* dated 08 September 2006).

f. Other areas that can be considered nuclear weapon free zones: Outer Space (*The Outer Space Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space including the Moon and Other Celestial Bodies*, dated 27 January 1967), the stationing of WMD in orbit, on the moon or other celestial bodies is prohibited. The seabed (*Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Sea-bed and the Ocean Floor and in the Subsoil thereof*, dated 11 February 1971).

C.10 **UNSC Resolutions**

Acting under Chapter VII of the UN Charter, the UNSC adopted Resolutions 1540, 1673, 1810, 1977, 2055, and 2325, which require member States to "detect, deter, prevent, and combat, including through international cooperation, when necessary, the illicit trafficking and brokering[8]" of WMD and delivery systems to non-State actors.

UNSC Resolutions 1695 and 1718, 1874, 2087, 2094, 2270, 2321, 2371, 2375, and 2397 require member States, in accordance with their national legal authorities and legislation and consistent with international law, to prevent proliferation of WMD and missile technology to and from North Korea.

In accordance with UNSC Resolution 2231, Annex B, member States might be required to prevent proliferation of nuclear and missile technology to and from Iran.

UNSC Resolution 2118 endorses special procedures for the expeditious destruction of the Syrian Arab Republic's chemical weapons programme and decides that "all Member States shall prohibit the procurement of chemical weapons, related equipment, goods and technology or assistance from the Syrian Arab Republic by their nationals, or using their flagged vessels or aircraft, whether or not originating in the territory of the Syrian Arab Republic[9]

C.11 **Other initiatives and regimes of control**

a. Nuclear suppliers group (NSG): established in 1974, NSG is a multinational regime of control group of nuclear supplier countries which aims at to controlling proliferation of nuclear weapons. Thus, it also seeks to controls transfer of nuclear civilian technologies, in order to avoid their redirection to military programmes.

b. Australia group: established in 1985 after an initiative from Australia, it aims at countering biological and chemical proliferation, by controlling transfer of precursors, pathogens, dual-use goods and related technologies. It is currently composed of 43 willing nations or organizations. It displays a list of WMD related dual-use goods that is periodically refreshed.

c. Although not legally binding, the *Missile Technology Control Regime* (MTCR) established in April 1987 seeks to limit the risk of proliferation of WMD by controlling exports of goods and technologies that could contribute to delivery systems (other than manned aircraft) for such weapons. In 2002, the MTCR was supplemented by the *International Code of Conduct against Ballistic Missile Proliferation*, also known as the *Hague Code of Conduct*, which calls for restraint and care in the proliferation of ballistic missile systems capable of delivering WMD.

d. Wassenaar arrangement is a multilateral regime of control of exportation of conventional weapons and strategic dual-use devices. Composed of 42 members, it

[8] UNSC Resolution 1540 (2004), Operative Clause 3 (c)
[9] UNSC Resolution 2118 (2013), Operative Clause 20

lists about 80% of all dual-use goods, dispatched in nine different categories. This list is reviewed on a 4-years basis.

e. Proliferation Security Initiative (PSI) was launched in 2003 and now gathers about 60 nations. PSI aims at preventing transfer of WMD related goods. However, it suffers from the same gaps as arms control regimes:

- no treaty;
- lack of formal responsibility of parties;
- reliance on a political will to abide by the principles of PSI; and
- lack of universality.

f. International partnership against impunity was launched by France in January 2018 and currently includes 40 nations and the European Union. It aims at supporting Organization for the Prohibition of Chemical Weapons by contributing to publishing the identities of actors responsible for the use of chemical warfare agents and fostering adoption of sanctions against them.

Lexicon

Part 1 Acronyms and Abbreviations

ACO	Allied Command Operations
AOO	area of operations
BWA	biological warfare agent
CAT	countering asymmetric threats
CBRN	chemical, biological, radiological and nuclear
CIMIC	civil-military cooperation
CM	consequence management
CMI	civil-military interaction
CTC	Centralized Targeting Capacity
CWA	chemical warfare agent
CWC	Chemical Weapons Convention
CWMD	countering weapons of mass destruction
C2	command and control
EMP	electromagnetic pulse
EOD	explosive ordnance disposal
HN	host nation
HQ	headquarters
IAEA	International Atomic Energy Agency
IO	international organization
IPE	individual protective equipment
JFC	joint force command
JISR	joint intelligence, surveillance and reconnaissance
JOA	joint operations area

JTF	joint task force
LoC	lines of communication
LoE	lines/line of effort
LoO	lines of operation
METOC	meteorological and oceanographic
MTCR	Missile Technology Control Regime
M&S	modelling & simulation
NAC	North Atlantic Council
NGO	non-governmental organization
NIFC	NATO Intelligence Fusion Centre
NSG	nuclear suppliers group
NSL	no-strike list
NTA	non-traditional agent
OPCW	Organisation for the Prohibition of Chemical Weapons
OPLAN	operation plan
OPSEC	operations security
POD	port of debarkation
PSI	Proliferation Security Initiative
RBE	Reachback Element
RCA	riot control agent
RDD	radiological dispersal device
RED	radiological exposure device
ROE	rules of engagement
SARS	severe acute respiratory syndrome
SHAPE	Supreme Headquarters Allied Powers Europe
SME	subject matter expert

SOF	special operations forces
SP	stability policing
StratCom	strategic communication
TE	technical exploitation
TIC	toxic industrial chemical
TIM	toxic industrial material
TMP	target materiel production
UN	United Nations
UNSC	United Nations Security Council
WMD	weapons of mass destruction

Part 2 Terms and Definitions

Weapon of Mass Destruction
A weapon that is able to cause widespread devastation and loss of life.
(NATO Agreed)

Weapons of Mass Destruction Non-Proliferation
The measures taken to prevent the proliferation of weapons of mass destruction or should prevention fail, to reverse such proliferation by any means other than the use of military force.
(NATO Agreed).

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