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SPECIALIST CBRN DEFENCE CAPABILITIES

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NATO LETTER OF PROMULGATION

13 May 2014

1. The enclosed Allied Technical Publication ATP-3.8.1, Volume II, Edition A, SPECIALIST CBRN DEFENCE CAPABILITIES, which has been approved by the nations in the [TA], is promulgated herewith. The agreement of nations to use this publication is recorded in STANAG 2522.

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Director NATO Standardization Agency

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RECORD OF RESERVATIONS

CHAPTER	RECORD OF RESERVATION BY NATIONS
General	BGR, ESP, EST, GBR, HRV
1	FRA
2	LTU

Note: The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.

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RECORD OF SPECIFIC RESERVATIONS

[nation]	[detail of reservation]
BGR	1. Until the acquisition of equipment fro sampling, detection and identification of biological agents declared CBRN units from Bulgarian Armed Forces will carry out training and execute only tasks related to rapid hand-held antibody-based analysis. 2. The collective protection (COLPRO) requirements will be applied only by declared units using COLPRO provided by the lead nation during NATO-led operations.
ESP	Implementation in Army, Navy and Air Force units will not be completed until these units have the required material and personnel to achieve the capabilities.
EST	Will be implemented only if Estonian Defence Forces develop respective units and capabilities in the future.
FRA	France will implement STANAG 2522, Edition 2, with the following reservations: a) France does not recognize the notion of a “CBRN incident chain” referred to in paragraphs 1.2.4.1 and 1.2.4.3 of ATP 3.8.1, Volume II. In accordance with the MC 0603 draft CBRN concept, CBRN defence is conducted against a continuum of an aggressor’s actions, from acquisition to actually employing weapons of mass destruction. b) The document refers to STANAG 4632 on a deployable NBC analytical laboratory that France has not ratified. Therefore, France reserves the right to implement partially paragraph 2.6.3. c) In accordance with the Allied Command Operations (ACO) experimentation report and the setting up of a “reachback and coordination element ” within the Vyskov Center of Excellence, France does not recognize the “reachback and fusion element ” (paragraph 3.4). France actively supports the setting up of the “reachback and coordination element” and confirms the value of a CBRN intelligence fusion approach, but considers that this approach is part of the Intelligence function and is not covered by specialist CBRN defence. d) France does not wish for the “reachback and coordination element” to share and coordinate its results directly with international organizations such as the Organization for the Prohibition of Chemical Weapons (OPCW) and the International Atomic Energy Agency (IAEA), but wishes that this be done through the ACO

	(paragraph 3.4.1.2).
GBR	GBR considers that the production of this publication has been too swift and as a result, there are too many small errors and too much repetition with other CBRN publications. To prevent confusion for operations staff and potential conflicts with the new version of AJP3.8, GBR will only implement this STANAG on case-by-case basis and thus for specific operations.
HRV	Republic of Croatia is not able to implement all parts of STANAG 2522 due to the fact that current organization of CBRN defence is not matching requirements laid down in ATP-3.8.1 Edition A Volume II and capabilities listed in respective publication are not fully developed.
LTU	Lithuanian armed forces will implement all the tactics, techniques and procedures referred in ATP-3.8.1(A1). Although Lithuanian armed forces have no plans to procure or develop: - Biological detection and identification capability, as it is stated in para 2.2; - Toxic industrial material detection and identification capability, as it is stated in para 2.3.5; - Aerial survey capability, as it is stated in para 2.3.6; - Sampling capability, as it is stated in para 2.5; - Confirmed and unambiguous level identification capability, as it is stated in para 2.6.2; - CBRN Field Deployable Analytical Laboratory, as it is stated in para 2.6.3; - National CBRN reach back and fusion centre and scientific expertise capability, as it is stated in para 3.4; - Individual protection for CBRN defence specialists, as it is stated in para 4.2.

Note: The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.

Preface

NATO´s Comprehensive, Strategic-Level Policy for Preventing the Proliferation of Weapons of Mass Destruction and Defending Against Chemical, Biological, Radiological and Nuclear (CBRN) Threats, requires a fundamental new approach to CBRN defence. The policy mission statement states that: "with due respect to the primarily military mission of the Alliance, NATO will work actively to prevent the proliferation of WMD by State and non-State actors, to protect the Alliance from WMD threats should prevention fail, and be prepared for recovery efforts should the Alliance suffer a WMD attack or CBRN event, within its competencies and whenever it can bring added value, through a comprehensive political, military and civilian approach." [1]

Introduction

1. General. The successful planning, execution and support of specialist Chemical, Biological, Radiological and Nuclear (CBRN) defence capabilities within military operations requires a clearly expressed and widely available specialist CBRN defence tactical doctrine containing fundamental principles to guide military commanders in the use of specialist CBRN Defence capabilities. The use of this publication will lead to a better interaction with and effective use of specialist CBRN defence capabilities by supported units and staffs.

2. ATP-3.8.1, Volume II is one of three published volumes subordinated to AJP-3.8 (Allied Joint Doctrine for CBRN Defence). Volume I covers universal CBRN defence measures associated with operations. Volume II covers specialist CBRN defence capabilities, and Volume III provides standards for education, training and evaluation.

3. Although ATP-3.8.1, Volume II is intended for use by NATO forces, the doctrine is equally applicable to operations conducted by a coalition of NATO nations within the framework of a NATO-led NATO Response Force (NRF) operation, and a coalition of NATO nations and non-NATO nations within the framework of a Combined Joint Task Force (CJTF) or for European Union (EU) led operations using NATO assets and capabilities.

4. It is not intended that ATP-3.8.1, Volume II restricts the authority of a Joint Force Commander (JFC) and/or Component Commander (CC). The JFC / CC will, subject to the constraints imposed by the directives issued by higher authority, be expected to organise the assigned forces and to plan and execute operations in a manner intended to ensure unity of effort in accomplishing the mission. The publication is primarily intended for use by commanders and staffs at the tactical level but can be used at any level as a reference.

Aim

The aim of ATP-3.8.1, Volume II is

- to provide commanders and their staffs with principles in the use of specialised CBRN defence capabilities in the execution of their missions;
- to provide CBRN defence specialists with guidance for the planning and conduct of their missions and tasks.

[1] C-M(2009)0048(INV) - NATO´s Comprehensive, Strategic-Level Policy for Preventing the Proliferation of Weapons of Mass Destruction and Defending Against Chemical, Biological, Radiological and Nuclear (CBRN) Threats, 31 Mar 2009

Scope

1. General. ATP-3.8.1, Volume II contains principles, components, tasks and specific considerations fundamental to the planning, execution and support of NATO joint operations involving the use of specialised CBRN defence capabilities. This publication sets out the tasks that are carried out by CBRN defence specialists and the supported units at the tactical level including command and control (C2) responsibilities across the operational spectrum.

2. Specialist CBRN defence capabilities may be required to be used in conjunction with other civilian and military capabilities in all three pillars of the Comprehensive Policy[2]: Prevent, Protect and Recover.

3. To use this document effectively, the reader must understand the principles of CBRN defence as detailed in AJP-3.8 (Allied Joint Doctrine for CBRN Defence) and have knowledge of CBRN defence-related definitions as detailed in AAP-6 and AAP-21.

Limitations

1. General. ATP-3.8.1, Volume II does not cover actions to nullify or reduce the effectiveness of possible offensive use of CBRN weapons or devices by a potential adversary (active defence and/or counter-force operations). Instead it provides guidance on the specialist capabilities that support the prevent protect and recover pillars whilst providing a measured deterrence to CBRN use by a potential adversary.

2. Against the background of NATO provided specialist CBRN defence capabilities, participation and / or support by the EU or other international organisations or coalition involving allies is possible, if authorized by the North Atlantic Council (NAC).

Since ATP-3.8.1, Volume II is a living document; it needs to be reviewed and amended as required on a regular basis to ensure that it remains aligned with NATO´s latest policies, concepts and higher-level doctrines. The Joint Capability Development Group on CBRN Defence[3] will review, and amend as required, the contents periodically

[2] NATO Comprehensive Chemical, Biological, Radiological, Nuclear Defence Concept (Initial Draft), August 2011
[3] Name of the CBRN related working bodies, including Doctrine and Terminology Panel is not decided yet.

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CHAPTER 1 BASICS AND PRINCIPLES

1.1 Introduction

1.1.1 CBRN Threats and Hazards

1. The possible CBRN threat NATO troops may encounter in all types of missions, includes hazards arising from CBRN weapons and devices which is a potential opponent:

a. may have had in stockpiles for a long time,

b. may have acquired by proliferation, or

c. may have produced undetected by using “dual-use technologies”.

2. Environmental natural risk is often a reality in all operational theatre where NATO forces are deployed. There also exists a permanent hazard potential from both toxic industrial materials (TIM) which may be released by intention, or accidentally as collateral damage in combat action (e.g., targeting), and from natural sources like epidemics. These latter substances may well be as dangerous as chemical and biological warfare agents and radiological material.

3. A CBRN Incident may have a high impact on operations where the political strategic shock could be greater than the physical impact. Large scale CBRN attacks are not considered as the primary threat. Instead, small scale incidents initiated and conducted by terrorist networks utilizing improvised devices, releasing small amounts of chemical and biological agents and radiological materials are more likely.a.

1.1.2. Joint Operations

CBRN defence needs to embrace all components of the force within the Joint Operational Area (JOA) and address all aspects of CBRN threats.

1.1.3. Force Protection

Force protection (FP) includes all measures and means to minimize the vulnerability of personnel, facilities, materiel, operations and activities to threats and hazards in order to preserve freedom of action and operational effectiveness thereby contributing to mission success (see AJP-3.14). FP comprises a number of force capabilities and disciplines: Security, military engineering (MILENG) support to FP, air defence, health protection and CBRN defence. CBRN defence provides the required capability to ensure survivability in a CBRN environment and is therefore an integral part of overall FP. In order to ensure a high degree of survivability, especially when operating in austere CBRN environments, CBRN defence measures must be flexible, mobile, rapidly deployable and sustainable.

1.1.4. Applicability

The principles and fundamentals described in this document are applicable to all specialist CBRN defence capabilities and in particular to those that could be made available to NATO for both Article 5 and Non-Article 5 Crisis Response Operations (NA5CRO).

1.1.5. Principles

1. MC 586 states that the structure of Allied Forces is based on two main principles:

    a. Availability, which includes pre-declared level of commitment, force readiness and deployability / mobility; and

    b. Flexibility, which includes interoperability, sustainability and multinationality.

2. The principles of CBRN defence are described in AJP-3.8 (A):

    a. Assessment of the Threat,

    b. Risk Management,

    c. Interoperability,

    d. Prioritization,

    e. Flexibility.

1.1.6. The Components of CBRN Defence

1. The Components of CBRN defence are addressed and enabled prior to operations by the development of appropriate CBRN defence policy, concepts, doctrine, organisation, personnel, material, facilities, training and interoperability.

    a. Detection, Identification and Monitoring (DIM). This component detects and characterizes CBRN incidents, identifies the agents and hazards, delineates areas of contamination, and monitors the changes.

    b. CBRN Information Management. This component concerns the management of all forms of CBRN defence related information associated with threats. The operational communication and information systems (CIS) network is used to disseminate CBRN defence data and hazard prediction.

    c. Physical Protection. Individual protection and collective protection (COLPRO) are required so personnel can survive CBRN incidents and continue to operate in a CBRN hazard environment. Measures to protect facilities and equipment are also included.

    d. Hazard Management. Hazard management measures limit the impact of CBRN incidents and enable the force to recover operational effectiveness

and freedom of action after a CBRN incident. Hazard management is based on the principles of pre-hazard precautions and hazard control through avoidance, control of spread, exposure control and decontamination.

e. Medical Countermeasures and Support. This component serves to diminish the susceptibility of personnel to CBRN hazards and to determine if personnel have been exposed.

1.2 Missions and Capabilities

1.2.1 Missions

1. NATO must be able to conduct the full range of its missions, from high to low intensity combat, including missions designed to deter conflict, based on the coordinated employment of military and civilian instruments to achieve its objectives, with the greatest economy of effort.

2. Alliance Forces must be able to conduct missions and tasks, on a permanent or contingency basis, that can be considered as high intensity, low intensity and permanent task.

1.2.2 CBRN Defence Capability Levels

1. CBRN defence is a permanent task. CBRN defence capabilities enable Allied Forces to continue to conduct operations where EIH and CBRN threats exist.

2. CBRN defence is a NATO joint capability and is required across all services at the following three levels:

a. Basic CBRN defence capabilities. The basic components of CBRN defence, including individual protective equipment, must be available in adequate quantities before, during and after a CBRN incident to ensure the survivability of individual soldiers.

b. Enhanced CBRN defence capabilities for all-arms CBRN defence ensure the proper use of appropriate CBRN protection measures and the continuation of operations under either CBRN threat or in contaminated environments. Time is one essential factor for the success of CBRN defence measures, where the necessary CBRN defence tasks must be carried out quickly by appropriately trained selected personnel (usually at battalion, company or comparable level). These forces must be close to the scene of the incident and able to reach the affected unit swiftly. They must also be able to take the necessary initial measures with equipment that is geared towards the threat agent used.

c. Specialized CBRN defence capabilities ensure the qualified accomplishment of CBRN tasks by special CBRN defence units before, during and after a CBRN incident. With their special equipment and training, these forces have the highest capability level in the field of CBRN defence. CBRN expertise must be established at all Command Staff levels as they provide appropriate expert advice to commanders.

1.2.3 Specialized CBRN Defence Capabilities of a Combined Joint Task Force

1. The specialized CBRN defence capabilities of a CJTF are provided by individual contributing nations. The nature of these capabilities will depend on prior assessment of the CBRN risks which may be encountered in the JOA. Arrangements for the employment of sometimes scarce national assets to support the whole Combined Joint Force require early attention in the planning phase of an operation. The force needs to have the specialist CBRN defence capabilities described in the later chapters.

2. Specialized CBRN defence units provide support to commanders to enhance their warfighting capabilities or support contingency requirements. Most specialist CBRN defence units are 100% mobile. Basis of their allocation is the CBRN defence estimate IAW AJP-3.8. This basis of allocation is determined by the number and type of units being supported, the mission, and the size of the JOA.

3. Specialised CBRN defence capabilities can contribute not only to Article 5 and NA5CRO but also to missions such as

a. Non-Combatant Evacuation Operations (NEO).

b. Embargo Operations.

c. Initial Entry Operations.

d. Crisis Response Operations (including Peacekeeping).

e. Demonstrative Force Package Operations (The main focus of which is deterrence).

f. Consequence Management Operations (Humanitarian crisis situation and/or CBRN incidents).

g. Counter Terrorism Operations.

h. WMD/CBRN counter-proliferation.

1.2.4 Specialist CBRN Defence Tasks

1. NATO's Comprehensive, Strategic-Level Policy for Preventing the Proliferation of WMD and Defending Against CBRN Threats provides guidance to transform and expand NATO's CBRN Defence capabilities. CBRN defence has to focus on missions and tasks that will simultaneously prevent the proliferation of WMD while also defending against CBRN threats. The three pillar approach (prevent, protect, recover) described in NATO’s Comprehensive Strategic-Level CBRN Policy provides the conceptual framework for CBRN defence by describing a CBRN incident chain.

2. The figure below shows the relationship between the comprehensive policy pillars and possible CBRN defence functions.

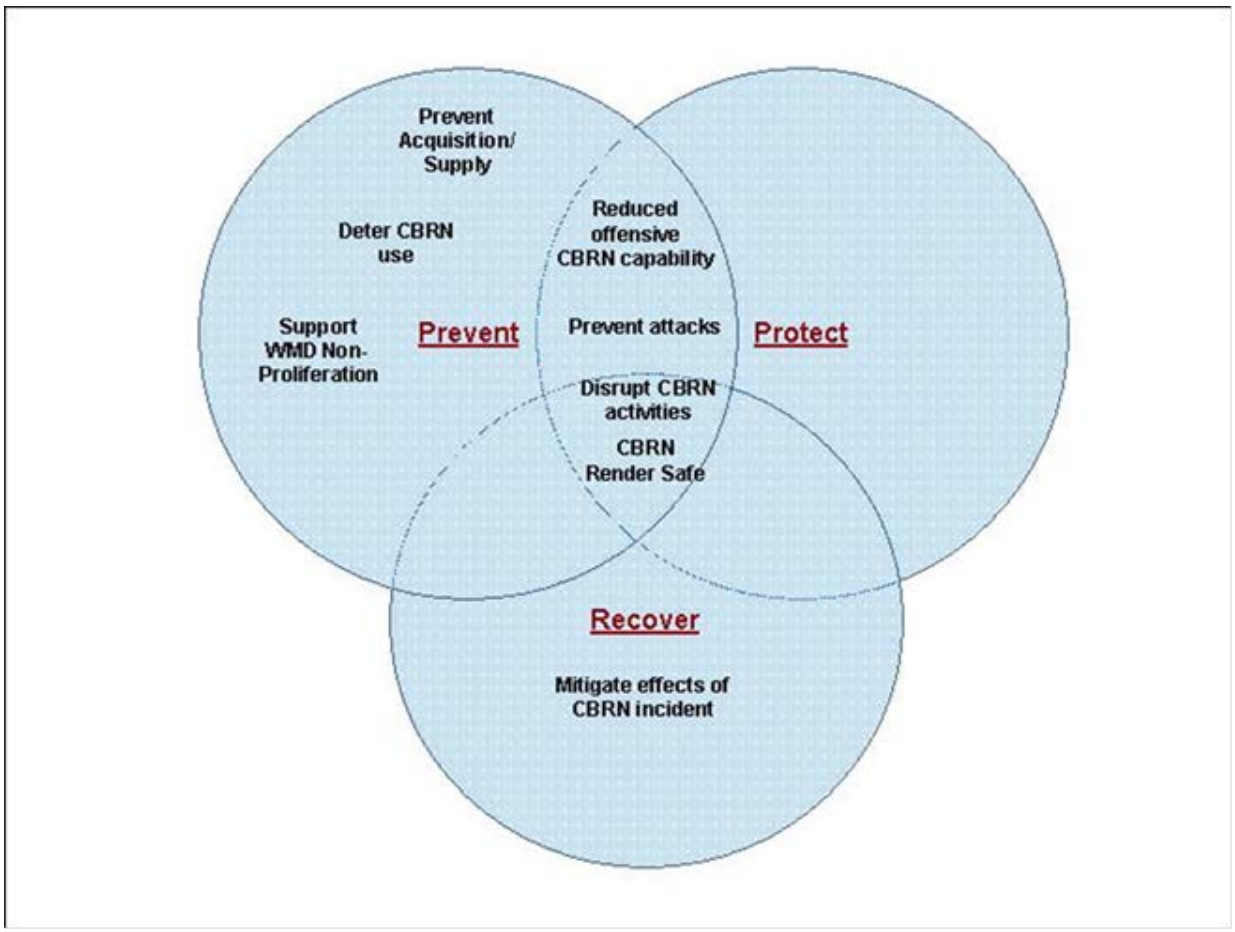

Figure 1 – 1. The Strategic Framework – CBRN Defence Functions

3. From an operational point of view the aim of CBRN defence will be to identify options and actively contribute to and support actions aimed to disrupting the CBRN Incident Chain as early as possible.

4. All CBRN defence capabilities and tasks are linked to the three pillars of NATO's Comprehensive Strategic-Level CBRN Policy.

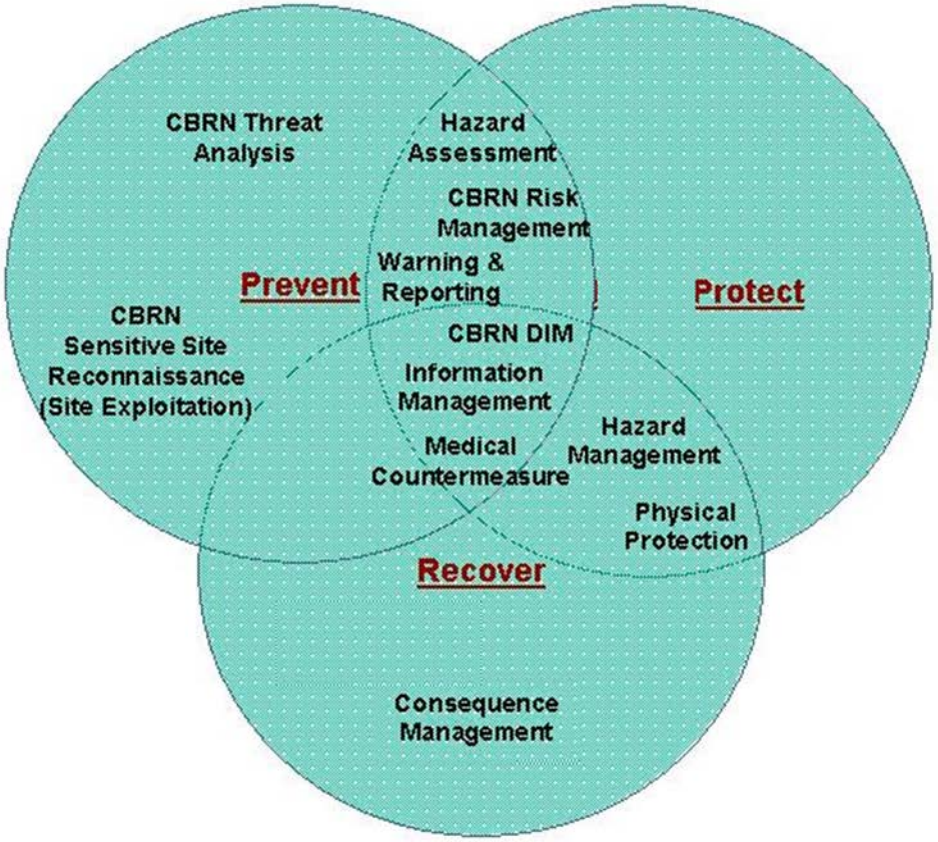

Figure 1 – 2. Operational/Tactical Framework - CBRN Defence Tasks

5. The following chapters will describe the tactical-level understanding and use of specialized CBRN defense capabilities. Basis for this approach are the fundamentals and principles identified above. The chapters also provide CBRN defence specialists with guidance for planning and conducting their tasks.

CHAPTER 2 DETECTION, IDENTIFICATION AND MONITORING

2.1 Introduction

2.1.1 General

1. The enabling CBRN defence component “detection, identification and monitoring” (DIM) is described in AJP-3.8 and ATP-3.8.1, Vol. I. While basic CBRN defence capabilities are limited, the following are performed by specialized CBRN defence assets:

a. CBRN reconnaissance and sensitive site reconnaissance, surveillance and surveys,

b. CBRN Monitoring,

c. Sampling of CBR substances,

d. CBRN identification,

The following sections will focus on these special features.

2. Specialist CBRN defence units have the capabilities to observe and collect information on CBRN threat indicators along with an ability to detect, identify and monitor of CBRN agents and EIH contamination. This collected information feeds into the CBRN information management system and forms the basis for timely, accurate and relevant CBRN advice**.**This chapter focuses on tasks and capabilities generally available within NATO.

3. The medical service is responsible for collecting specimens from humans and, if necessary, from small animals which are either dead or dying as a result of a suspected contamination (STANAG 4701).

2.2 Biological Detection and Identification

2.2.1 General

Biological warfare threats are much more difficult to predict and identify given the potential dual role of many laboratory and food processing facilities for both peaceful civilian as well as bio-warfare uses. A potential opponent may be assessed to have the capability to both produce and use biological agents, toxins, bacterias and viruses. Knowing the intent and not just the capability of an adversary is decisive, yet problematic. With the growing field of biotechnology progressing at an ever alarming pace, the capability for a field commander to have the threat assessment assets to determine the biological warfare threat in his area

of responsibility (AOR) becomes much more problematic than that of nuclear and chemical agents. Additionally, a very small amount of biological agent can cause catastrophic impact on a unit's ability to accomplish its mission. Such small quantities of toxic biological material can easily endanger the entire force depending on the contagiousness of the biological agent used.

2.2.2 Biological Agent Detection by Disease Surveillance

1. In addition to detection by CBRN-spezialists field detection of toxic biological materials, an potential adversary´s use of biological warfare agents can be potentially also be detected through the systematic, large scale and regular health monitoring of Joint Force personnel and, where possible and applicable, the local civilian population. Changes in health patterns can be targeted and analyzed for the early signs and symptoms of disease or illness induced by biological agents.

2. Usually the JTFHQ compiles the relevant information from all appropriate sources to create a comprehensive picture of existing biological contamination and associated impacts on humans, animals and plants. Lower echelon units will be unlikely to have access to all the necessary inputs, but they still play a crucial role in compiling a local biological picture to the extent they can, particularly when operating independently. Information sources will include those providing background information and those likely to detect a biological attack. Indicators from meteorological surveillance, medical / epidemiological surveillance and remote sensors can also be useful.

2.2.3 Prioritization

Since biological incidents can affect large areas and since numbers of biological detection systems available are limited, the JTFHQ needs to prioritise the employment of biological detectors according to the commander’s priorities.

2.2.4 Limitations

At the battalion level of all arms troops there are currently no detectors for individual soldiers or squads readily available to detect biological agents. Therefore biological sentries are not required. However, all personnel must be aware that an unusual outbreak of a disease maybe a result of a biological attack. This is also the business of the normal chain of command and the medical services. Some NATO countries possess special equipment and units, e.g. Biological Detection Companies, to provide point biological detection. These detection systems currently do not detect on the move, but can provide detection and identification of biological agent clouds that have moved through the areas. These units are normally positioned as determined by operational requirements by higher headquartersmust be requested through higher headquarters to be deployed down to AOR. Depending on how such biological detection units are deployed, they may still only provide a detect-to-treat versus a detect-to-warn capability for the force.

2.2.5 Assessment of Alarms

1. While some detection data will be clear and unambiguous, other indications of a CBRN release may be inconsistent or even contradictory. Especially in the case of biological agents, there is a need to assess the available information before translating an alarm into a command-endorsed warning of incidents. Within this process, detector outputs may be awarded a confidence level indicating a measure of the credibility of output from individual detectors or combinations of detectors. This credibility is ordinarily expressed as one of three three levels:

a. Indicative. This is an initial indication that does not ordinarily require the implementation of protective measures.

b. Presumptive. In the absence of any contradictory evidence, credibility to this level results in implementation of protective measures.

c. Definitive. Notwithstanding any contrary indications, credibility to this level results in the implementation of defensive counter measures.

d. Evidential. This is of a standard that will allow presentation to an international audience; it ordinarily applies to the SIBCRA process.

2.2.6 Special Consideration for Biological Identification

It may be difficult to confirm that an incident has taken place. Suspicious Biologicalbiological agents or/Agricultural Bio based EIHTIB Incidents are the most potentially complex incident and one that presents the most demanding potential tasksthus difficult to manage. If there is a suspicious outbreak of a human or animal disease, it will be essential to determine whether it was a natural incident or a deliberate attack. Since some biological agents occur naturally, a comparison of the quantity of agent found versus its natural abundance and the way of infection will be of vital importance in the assessment of a possible biological incident. Therefore the RDOIT and analytical laboratories are required for identifying and analysing biological agents, either in the operational theatre or out of it. Capability standards for the NATO Deployable CBR Analytical Laboratories (CBR-AL) are established in STANAG 4632. Section VI of this chapter will focus on such assets.CBRN defence elements could be used in reconnaissance and decontamination functions, or to cordon an area and enforce quarantines following medical advice.

2.3 CBRN Reconnaissance, Surveillance and Surveys

2.3.1 General

CBRN reconnaissance is a mission undertaken to obtain information by visual observation or other methods to confirm the presence or absence of CBRN hazards. CBRN reconnaissance efforts are designed and initiated to detect CBR contamination. CBRN reconnaissance needs to be supported by combat and service support surveillance and reconnaissance assets, such as sensors on unmanned platforms and airborne locating and detection sensors. Civilian partners, e.g. local emergency services and host nations` first responders, can also contribute to information useful for developing a more comprehensive CBRN operational picture. Biological detection and identification detailed

in Section 2 are a part of biological Reconnaissance, Surveillance and Surveys.CBRN surveillance, reconnaissance and survey may also include gathering of information on adversary use of CBRN weapons or devices, associated hazards, or meteorological data useful for CBRN hazards prediction.

2.3.2 CBRN Reconnaissance

1. Planning. Considerations for planning and preparing for CBRN reconnaissance are based on the mission as defined by the requesting unit. Missions, taskings, priorities, and command or support relationships are coordinated and established by the appropriate headquarters. Required actions in planning and preparing for CBRN reconnaissance operations are described in ATP-3.8.1, Vol. I.

2. Support. Operational environment reconnaissance includes:

a. The observation and reporting of local weather and terrain conditions.

b. Monitoring of potential TIH and natural hazard potential.

c. Detection and monitoring of CBRN hazards and contaminants.

d. The marking of CBRN contamination, the collection of materiel and environmental samples and remote detection.

a.

3. Fundamentals. CBRN reconnaissance operations are planned and performed with six fundamentals in mind:

a. **Ensure Continuous CBRN Reconnaissance.** CBRN reconnaissance is conducted before, during, and after all operations. Before an operation, CBRN reconnaissance focuses on filling gaps in information about the enemy, specific hazard considerations, and the terrain where the enemy may employ CBRN weapons and a TIM could be released. During an operation, CBRN reconnaissance focuses on providing the commander with updated CBRN information that verifies the enemy's composition, dispositions, and intentions as the battle progresses. This allows commanders to verify which course of action is being adopted by the enemy and determine if the plan is still valid. After an incident, CBRN reconnaissance focuses on maintaining contact with the source of contamination or hazard if known.

b. **Orient on the Objective.** CBRN reconnaissance operations are generally limited to those areas where the adversary is most likely to employ CBRN weapons or devices, or where a CBRN hazard (TIM incident) will most likely occur within the area of operations. It depends on the importance of an area to the conduct of operations.

c. **Report All Information Rapidly and Accurately.** CBRN reconnaissance is performed to obtain information. Commanders need this information to confirm or

make decisions. Negative reports tell as much as positive reports. Accurate reporting of locations is essential to avoiding CBRN hazards.

d. **Operate in a secured/controlled area.** While conducting CBRN reconnaissance the CBRN Recce Team is highly vulnerable to activities of a potential adversary. Therefore CBRN reconnaissance operations must include security measures allowing the CBRN Recce Team to work in a secured/controlled area.

e. **Develop the Situation Rapidly.** When a CBRN reconnaissance asset encounters an enemy force or hazard, it must quickly determine the threat it faces. For a new hazard, the reconnaissance asset must determine the type of hazard, dispositions, and assess the implications of that information. In most cases, the reconnaissance unit developing the situation uses actions on contact.

f. **Maximize the Capability of CBRN Reconnaissance Units.** When selecting a unit to conduct a CBRN reconnaissance task, the commander must consider the various capabilities and limitations of the unit. The mobility, survivability, sustainability and detection capabilities of each type of unit should be considered.

b.

4. The following tasks that are described and more detailed in the following sections:

a. CBRN surveillance,

b. CBRN field reconnaissance,

c. Sensitive site reconnaissance,

d. CBRN survey and

e. CBRN monitoring.

c.

2.3.3 CBRN Surveillance

CBRN surveillance conducted by specialist CBRN defence capabilities is the systematic observation of aerospace, surface or subsurface areas, places, persons, or things by visual, aural, electronic, photographic or other means for determining the presence or absence of CBRN hazards. Specialist CBRN reconnaissance assets can be given the mission to perform CBRN surveillance and observe specified areas which are crucial for the conduct of the operation. All indications of CBRN hazards must immediately be reported, so that the commander is kept informed and threatened units are properly warned.

d.

2.3.4 CBRN Field Reconnaissance

1. The purpose of CBRN field reconnaissance is to collect information to allow friendly forces / organisations to avoid contaminated areas. It is performed both in advance of and

in parallel with other operations, to provide information to the commander, allowing him to confirm or modify his concept of operations. It can be divided into three types:

a. CBRN route reconnaissance,

b. CBRN zone reconnaissance and

c. CBRN area reconnaissance.

2.3.5 Sensitive Site Reconnaissance

1. Sensitive site reconnaissance (SSR) is an investigation of specific locations of interest to the commander (e.g., a suspected insurgent chemical storage facility), or where hazards cannot be detected by normal military capability. The aim of SSR is to gather technical and scientific information concerning the adversary´s offensive CBRN capability as well as intelligence on potential TIH in the JOA and is part of the overall intelligence collection effort. Spezialized CBRN Defence units are in a supportive role for site characterization of CBRN substances (TIM sites) and CBRN weapon production, research and storage facilities.

2. Background characterisation is the key to the reconnaissance of TIH. Early inventory of production, research, and storage facilities facilitate planning and reconnaissance efforts. A primary role of SSR is for conducting background characterisations. Output from the SSR background characterisation is used to create a TIM database consisting of at least of the following information:

a. Location,

b. Name of the facility,

c. Name of the TIM,

d. Quantity,

e. Type and condition of the storage,

f. Potential Hazard Areas,

g. Precautions to be taken in case of incident at location or facility.

2.3.6 CBRN Survey

A CBRN survey is the directed effort to determine the nature and degree of CBRN hazards in an area of confirmed or suspected contamination, and to delineate the boundaries of the hazard area. This may include measuring the degree of radiation, the presence of biological or chemical hazards, and the sampling of items suspected of CBRN

contamination. It is likely to be carried out by specialist personnel using sensors and equipment designed for the task.

1.

a. Chemical Survey. Chemical surveys are conducted when the military commander requires detailed information on the size of the contaminated area. The focus of the survey is to determine the extent of contamination within the area of interest or along specific routes. The unit conducting the survey knows the general area of the contamination. It may also know the agent and delivery means. This will help in planning the survey. Time is a major factor in planning and conducting chemical surveys. Detection tests with various types of equipment take from a few seconds up to several minutes. When conducting chemical surveys, there are several possibilities to consider such as: what type of agent is known to be present, is there a chance of mixture, and how much time is available to conduct the survey.

b. Biological Survey. There are currently no established procedures for biological surveys.

c. Radiological Survey. Radiological surveys are conducted when the military commander requires detailed information on the size, extent and level of radiological contamination. There are two types of radiological surveys, aerial and ground:

(1) Aerial Survey. Aerial surveys are conducted rapidly over large areas. Radiation exposure levels for survey teams are considerably lower than during ground surveys. Aerial surveys can be employed in areas where dose rates are unacceptable and terrain is difficult. The disadvantages of aerial surveys are the decreased accuracy of dose rate readings and their dependence on weather.

(2) Ground Survey. Ground radiological surveys can be conducted by automated CBRN reconnaissance systems. These systems reduce dose rates received by personnel and must be used whenever possible. Disadvantages of ground surveys are lack of speed and flexibility, personnel receive higher doses, they require more personnel and equipment, and they place a greater burden on communications. However, ground surveys are normally independent of weather, provide more accurate information, and can be performed by all echelons within their areas of operations.

2. Tasking survey teams to conduct radiological surveys must include appropriate guidance in the following areas:

a. Purpose. To determine the presence and the extent of contamination. The purpose includes a specific area, location, or route to be surveyed.

b. Start and Completion Time. The times when the survey is to be conducted is given.

c. Conduct of the Survey. Specific instructions on how the survey is to be conducted and to which command the data is reported.

(1) For ground surveys, the route followed and location/interval of reading will be taken.

(2) For aerial surveys, the flight altitude, location/interval of readings.

d. Radiation Safety Precautions. Based on the operation exposure guidance (OEG) established by the commander, the turn back dose rate and turn back dose must be determined prior the task.

e. Communications. The data may be transmitted at the time of reading or summarized on a radiological data sheet.

f. Special Instructions. Special instructions on the conduct of the survey may include such items as:

(1) Marking of contaminated area if required.

(2) Security precautions to be taken if the survey is to be undertaken in or over a hostile area, such as a ground survey into enemy held terrain.

2.4 CBRN Monitoring

2.4.1 General

CBRN Monitoring is the continuous or periodic process of determining whether a CBRN hazard is present or not. CBRN hazards can be significantly affected by a number of factors including weather, terrain, and time of day and agent persistency / decay. Monitoring is conducted on personnel, equipment, or terrain to establish the presence of contaminants and to validate decontamination.

2.4.2 Monitoring Activities

1. Monitoring assists the commander in determining the protective posture of the force, specifically:

a. In areas of assessed risk, assurance that no hazard is present.

b. Estimation of the endurance of a hazard and hence the period for which protective measures must be sustained.

c. When quantification can be achieved, periodic relaxation of protective measures.

d. Validation of the continued effective functioning of COLPRO.

e. In the case of **radioactive** hazards, calculation of the total **dose** absorbed by personnel.

2. CBRN monitoring activities can be conducted on personnel, equipment, terrain, or facilities. If CBRN monitoring reveals that the hazard no longer exists, then the units may maintain or lower their PPE level. There are five types of monitoring:

a. Periodic Monitoring. Periodic monitoring consists of frequent checks of the environment for the arrival or presence of CBRN hazards. It assures that the unit area or ship is not contaminated. Periodic monitoring warns the units if or when contamination arrives or is initiated in cases such as:

(1) After the first use of CBRN in theater.

(2) When a unit is out of contact with higher HQ.

(3) When ordered by higher HQ.

(4) When continuous monitoring is terminated.

(5) SOPs and ship bills dictate the frequency of readings and provide detailed information on monitoring procedures.

b. Continuous Monitoring. Continuous monitoring involves checking for CBRN contamination in the environment on a continuous basis in a given period of time. Continuous monitoring is initiated or required:

(1) When a CBRN incident is observed, heard, or reported in the operational area.

(2) When a CBRN report is received and the unit is in the predicted area of contamination.

(3) When a change in the background is recorded during periodic monitoring.

(4) When ordered by the commander.

c. Direct Monitoring. Direct monitoring is the simplest, most precise monitoring technique. The CBRN monitor is used to get an unshielded (outside) reading of the suspected hazard. Direct readings are used when conditions and risk are acceptable. Direct monitoring is used:

(1) While monitoring for the initial detection or arrival of fallout.

(2) When in low dose rate areas.

(3) When determining unshielded (outside) ground dose rates for transmission or correlation factors.

(4) When verifying the contamination status of a new position.

(5) While moving through a contaminated area.

d. Indirect Monitoring. Indirect monitoring is used by a unit to measure radiation levels when dose rates are high enough to be read inside a shielded location. It lowers the risk of exposure to military personnel.

e. Exposure Monitoring. Risks of long-term health effects from exposure are assumed to be cumulative and are typically based on the total dose received. It is therefore important to maintain dose records of those exposed to hazard materials. Commanders also need to be aware of individual dose histories when planning future operations where radiation exposure is a possibility. Even after the completion of a military operation, long-term health monitoring may be required by national regulations for those personnel who have been exposed to hazard materials. Post-deployment assessments of internal doses may also be required.

2.5 Sampling of CBR Substances

2.5.1 General

1. In military operations, CBRN substances may be encountered in any of three ways:

a. in the case of a CBRN incident with CBRN weapons or improvised devices incorporating either CBRN agents or TIM;

b. as a result of an accidental or deliberate release or as consequences of counter-force activities, or natural occurrences;

c. in cases of verification of possession, for example following inspection carried out by appropriate organizations under international treaties or in terms of counter-proliferation actions.

2. In such CBRN incidents, sampling and identification of encountered CBRN agent(s) is of key importance for the determination of further action. That action may be strictly military operational, but it will often extend to a legal-political level. Typically, military action will require mitigation or elimination of the effects of the CBRN agent on the primary mission. B, C, or R agents will often trigger political action, because

a. use of these agents as a weapon conflicts with the international laws which represent common humanitarian values, and

b. the consequences may reach far beyond the scope of the primary military operational action.

2.5.2 Sampling Process

1. The position of the sampling process in the chain of actions that follow a CBRN incident is outlined in the following figure:

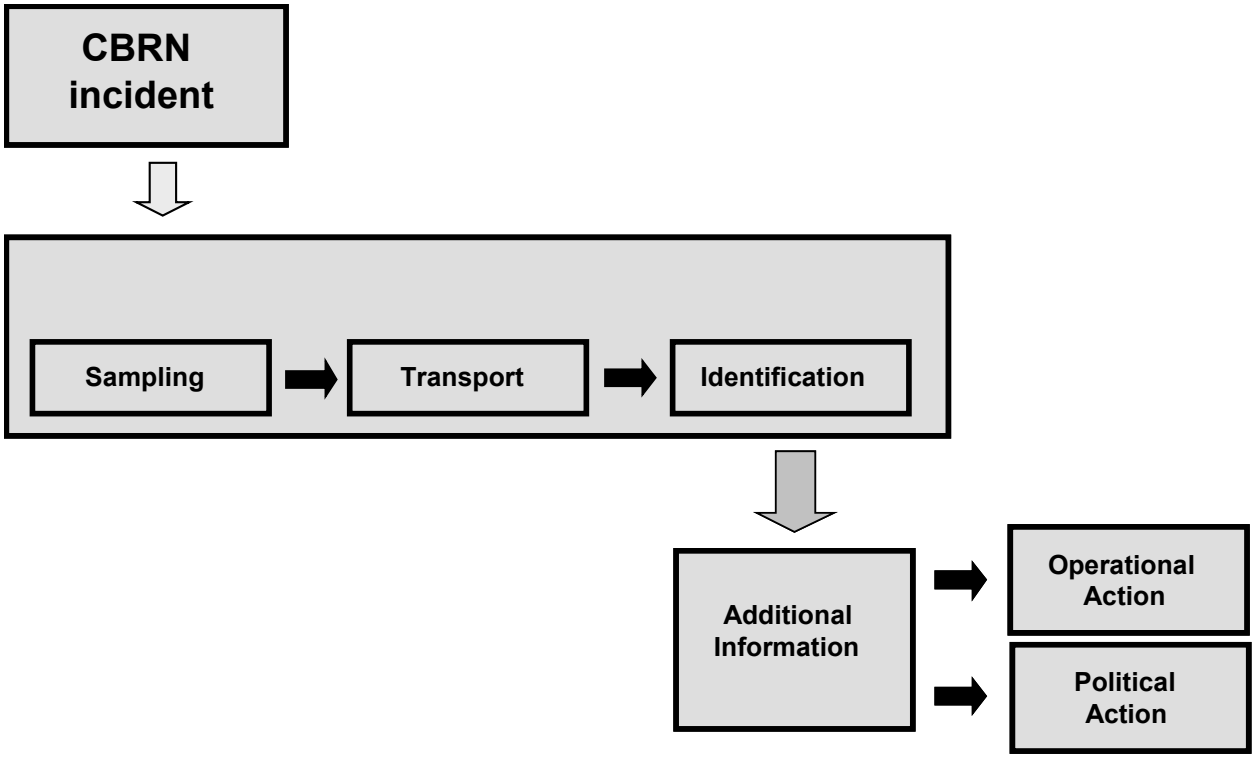

Figure 2 – 1. Sampling Process

2. Types of Sampling. Sampling is the retrieval for analysis of either material known or suspected to having been employed or that could be used in a CBRN incident, or material suspected to having been contaminated in such an incident. Sampling needs to be conducted by trained personnel with specific equipment to warrant a considered choice of samples, uniformity, viability, safety, and accountability in the sampling procedures. There are two types of sampling: field sampling and forensic sampling.

Type of Sampling	Transport of the sample	Level of identification	Follow-on Action
Forensic sampling	chain of custody	unambigous	strategic/ political
	SIBCRA PROCESS		
Field sampling	normal	provisional confirmed	tactical/ operational

Figure 2 – 2. Types of Sampling

a. **Field Sampling** is to allow the commander to make timely informed decisions concerning the positioning, operating posture, radiation exposure management, tempo and manoeuvre ability of his units and to select adapted protective measures (dress state, COLPRO activation, restriction of movement). Field sampling is conducted for tactical and/or operational purposes and it is also necessary to allow the medical services to provide the most appropriate health care, and guide the commander in selecting the most appropriate protective actions to implement for force health protection.

b. **Forensic Sampling.** For strategic and political/military, strategical and/or political purposes, there may also be a need to confirm, by forensically acceptable techniques, the unequivocal use of CBRN agents by an adversary or his intention to do so. Although such evidence is required quickly, the proof of use of these agents must be such that it cannot be refuted. This degree of certainty cannot be achieved by information obtained solely from the battlefield such as RADIAC detector responses or unusual numbers of casualties. In such cases, additional forensic sampling at the scene of incident may be required.

2.5.3 Sampling Operations

1. Sampling operations are particularly important, if a previously unknown agent is used, or if circumstances involve the suspected first use of a CBR agent by an adversary. Therefore, the collection of CBR samples and the background information must be as

detailed and comprehensive as possible to provide data for the intelligence analysts. Analysis and evaluation of the samples is done by laboratories.

2. The planning process and the completed analysis of samples involve detailed coordination and careful execution. The most valuable and reliable intelligence data regarding contaminated areas is obtained from well planned and coordinated CBRN reconnaissance. Personnel who conduct the sampling operations must be well trained and have the necessary specific equipment to properly carry out their sampling operations. Intelligence staffs and CBRN staff personnel must adequately plan and coordinate CBR sampling operations to ensure unit safety and high quality samples. Tasks include command and control, sampling, description of site, packaging, processing, transport, analysis and interpretation of the data.

3. The following considerations are used to determine which laboratory should analyse a sample:

a. Is the sample chemical, biological or radiological in content?

b. Is the sample content completely unknown?

c. Is the sample a possible combination of chemical and/or biological material and/or radioactive substances?

d. Is the sample a mix between CBRN substances and explosive substances?

4. The CBRN defence staff provides advice to the staff on the proper use and employment of assets qualified to conduct CBRN forensic or field sampling operations. The CBRN defence subject matter experts (SME) and intelligence analyst cooperatively determine CBRN related intelligence requirements within the area of concern and provide the commander with recommendations on which CBRN reconnaissance and survey assets to employ. If the CBRN defence staff needs advice or technical support for actions related to a CBR sampling requirement, it coordinates directly with the other relevant staff elements. If the requirement for the CBR sampling mission involves the interview of native witnesses or casualties, coordination with the civil-military staff might be necessary because it involves the civilian authorities.

2.5.4 Clinical Sampling

1. Clinical sampling (Sampling of tissues and fluids from humans and from animals, when needed) and subsequent analysis can provide valuable information on CBRN hazards that may not be obtained from environmental samples. CBRN-related adverse health effects may be diagnosed even when the original agents have been degraded, e.g., by the detection of metabolites or symptoms**.** The medical service is responsible for collecting specimens from humans and, if necessary, from small animals which are either dead or dying as a result of a suspected contamination. Special CBRN medical units (e.g. RDOIT and MRIIT) can be deployed to investigate an incident and to provide medical advice.

2. Medical diagnosis of CBRN exposure is essential to provide adequate therapy and thus, minimize the consequences of CBRN incidents. The information may also be used to protect other personnel from exposure, steer consequence management efforts and assist in the verification of CBRN events and exposure.

3. Clinical sampling has to be carried out by medical personnel. If available, on-site analysis of the sample should be carried out, but most of the sampled material will have to be transferred to reachback laboratories capable to provide state-of-the-art analysis and unambiguous results.

4. Clinical sampling, on-site analysis and sample preparation for transfer require considerable expertise to preserve the sample integrity, maintain the chain of custody and comply with all legal and safety regulations for shipment. Standard operation procedures should be implemented. Whenever possible, the medical personnel in theatre should be provided with expert advice from reachback facilities such as specialised institutes, laboratories and CBRN Medical Defence experts capable to deploy into theatre.

2.5.5 SIBCRA Process

1. The execution of SIBCRA process is described in the AEP 66. This handbook provides the technical basis for SIBCRA operations and it describes the personnel, training, equipment and procedures required to conduct SIBCRA missions. The term SIBCRA is used when refering to the process of collection (sampling), transportation and identification of suspected CBRN substances within the chain of custody.

2. Planning and Responsibilities. When planning a SIBCRA mission, the commander should be provided with early guidance on the following specific factors:

a. Activation and composition of SIBCRA teams (Specialist sampling teams reinforced as necessary by scientific and forensic experts);

b. Allocation of operational resources. Support units may be required to provide signals, medical assistance, EOD, security, escort, decontamination and other tasks. SIBCRA missions may result in contamination of equipment and vehicles;

c. Intended use of host nation assets. Planning may require inclusions for liaison with diplomats, fire brigade, police, medical and other host nation assets;

d. Media issues such as: rules for engaging the press/media with respect to SIBCRA missions, whether or not a media cell will be supported at the CBRN Staff, and setting a schedule for daily SIBCRA reports so that they meet press release timelines;

e. Whether or not secure communications will be required for SIBCRA operations;

f. Designation of logistical priorities with regard to handling and transport of samples and with regard to transport of SIBCRA teams;

g. Intended final disposition/ownership for hazardous materials collected as a result of SIBCRA operations.

h. Operational Exposure Guidance (OEG) for managing radiation doses in the case of SIRA missions.

3. SIBCRA Teams. SIBCRA teams are responsible for the collection and packaging of environmental CBR agent samples. The collection of specimens from humans and, if necessary, small animals (either dead or dying), as a result of any suspected contamination, requires the augmentation of these teams by other technical specialists. Uniformity, viability, safety, and accountability in sampling procedures must be ensured. The procedures for transport and handling of CBR samples and specimens are covered by national directives. Proper chain of custody has to be maintained and documented to establish forensic evidence, so that unambiguous identification by certified laboratories is achieveable.

a. In addition to field CBR sampling missions of CBRN survey teams, SIBCRA teams can provide technical information to enhance the recogniced CBRN picture. Knowing the agent, delivery system, and employment technique assists the commander in taking the appropriate offensive and defensive measures. Laboratory analysis provides identification of the sample or specimen, agent characteristics, toxicity, and persistency, hazards to personnel, possible decontamination procedures, and appropriate first aid procedures.

c. SIBCRA sampling teams will normally not carry out elaborate sampling surveys; their prime objective is to acquire samples which contain sufficient agent and/or degradation products for laboratory identification purposes. Normally, a CBRN survey team will have already determined the location of the agent. If sample surveys are required the SIBCRA team size will have to be increased to take into account the additional duties.

4. Assessment. The assessment of the nature and extent of a CBRN hazard may change as the SIBCRA mission continues and additional information is made available. The NATO operational commander and the local military commander may need to adjust the nature and scope of the resources allocated to the SIBCRA mission. In the same way, the scope of the SIBCRA mission may need to be adjusted by the commander if the overall operational situation changes. Continual liaison and reassessment between operational commanders, CBRN defence staffs and the CBRN reporting chain are important.

2.6 CBRN Identification

e.

2.6.1 General

Deployable CBRN identification capabilities can provide timely analysis and identification of CBR samples in theatre, including agent mixtures and various types of ionising radiation.

2.6.2 Identification

1. Identification (CBRN) is the determination of the identity of an agent or material that is related to a CBRN incident. In the case of biological detection and identification, it may be difficult to confirm that an incident has taken place. Since biological agents often occur in nature, the assessment of the identified agent and quantity found compared with the naturally occurring organisms, will be of vital importance for the assessment of a possible biological incident. NATO maintains a three level hierarchical of identification with varying degrees of reliability:

a. **Provisional level identification (presumptive)** provides for immediate needs only. This is typically done in the field by non-specialist force elements and allows commanders to estimate the hazard and adjust plans.

b. **Confirmed level identification** which is permanent and unlikely to change. This is usually done by deployable (field) or national laboratories using at least two different technologies, and is based on agreed scientific analysis.

c. **Unambiguous level identification (forensic)** where classification is beyond doubt. This is a very detailed analysis that is completed at a number of national certified laboratories using a variety of techniques, all of which identify the same agent(s). It may support further action including long term remediation and forensic and political processes.

2.6.3 CBRN Field Deployable Analytical Laboratory

1. The CBRN Field Deployable Analytical Laboratory (CBRN-AL) is a capability which ensures the identification of CBRN agents/materials and will be used by CBRN defence specialists.

2. The CBRN-AL will provide expert analysis, identification capabilities of CBRN agents/materials and scientific advice in field in support of the whole range of NATO operations, assisting in theatre-level assessment of CBRN threat, in order to enable operational commanders/leaders to make timely decisions on appropriate courses of action.

3. The CBR-AL analyzes environmental samples such as solids, liquids, air, vegetation and soil. For analyzation of biological human and animal samples special equipment and expertise are required.

4. The CBR-AL as a deployable field unit should also have the capacity to manage unknown/mixed samples and to eliminate residual hazards, allowing further safe transportation to national fixed laboratories. It must be supported by a pre-determined national reach-back laboratory capability.

5. The CBRN-AL will be able to analyse different kinds of samples including samples taken and prepared in accordance with AEP-10 (SICA - Sampling and Identification of Chemical Agents) and AEP-49 (SIRA - Sampling and Identification of Radiological Agents).

6. Special tasks for the CBR-AL are:

f. Provide appropriate environmental control and containment of samples potentially containing CBRN hazards.

g. Conduct data processing and analysis and provide results to a nominated operational interface as a basis for operational decisions.

h. Split and prepare samples for transport to reference laboratories in accordance with International Air Transportation Association (IATA) rules and other applicable regulations.

2.6.4 Special consideration for Sampling and identification of biological agents

1. Biological warfare threats are much more difficult to predict and identify given the potential dual role of many laboratory and food processing facilities for both peaceful civilian as well as bio-warfare uses. A potential opponent may be assessed to have the capability to both produce and use biological agents, toxins, bacterias and viruses. Knowing the intent and not just the capability of an adversary is decisive, yet problematic. With the growing field of biotechnology progressing at an ever alarming pace, the capability for a field commander to have the threat assessment assets to determine the biological warfare threat in his area of responsibility (AOR) becomes much more problematic than that of nuclear and chemical agents. Additionally, a very small amount of biological agent can cause catastrophic impact on a unit's ability to accomplish its mission. Such small quantities of toxic biological material can easily endanger the entire force depending on the contagiousness of the biological agent used.

2. Sampling and identification of biological agents needs to be conducted by trained personnel and with specific equipment to warrant a considered choice of samples,

uniformity, viability, safety, and accountability in the sampling procedures. Detailed procedures for sampling and identifying biological agents are covered in STANAG 4701[4].

[4] This reference is currently a study. The validation has to be reviewed/confirmed before this document will be forwarded for ratification.

CHAPTER 3 CBRN INFORMATION MANAGEMENT

3.1 Introduction

3.1.1 General

1. CBRN Information Management is an integrated and comprehensive process which enables the Joint Forces Commander to consider all CBRN related informations as sufficient and appropriate in all subsequent stages of an operation, especially within the Operational Planning Process (OPP). The result of this process can lead in the deployment or redeployment of CBRN defence capabilities and is therefore a determining component of CBRN defence.

2. CBRN Information Management has CBRN Warning and Reporting as a central element but also includes the processes and communications across a wide range of CBRN related areas:

a. For obtaining information from other disciplines (e.g., Medical, ISTAR etc.),

b. For providing CBRN information and advice across the broader tactical, operational and strategic levels both international external to government departments,

c. For obtaining and managing CBRN Reach Back,

d. For enacting command, control and co-ordination of Reconnaissance and Survey, Search, Hazard Management and Protection.

3.1.2 CBRN Information System

1. CBRN Information Management includes a systematic collection, provision, exchange and assessment of CBRN related information with the aim to ensure

a. that all military command levels and other authorities reiceive appropriate advice in all areas of CBRN defence in order to take necessary pre-, during- and post-incident actions,

b. that own forces and other authorities are timely alerted and informed on CBRN incidents and their resulting contamination,

c. that the common operational picture (COP) includes all relevant CBRN information.

2. The outcome of the CBRN Information Management process will direct the CBRN Intelligence efforts and is essential for CBRN and medical countermeasures, physical protection measures and CBRN incident response and recovery measures.

3. It is essential that CBRN defence information, particularly critical issues such as safety matters and warning messages, is communicated rapidly both up and down the chain of command and horizontally with other units, agencies and civilian authorities. In the following sections are described the enabling elements of the CBRN Information Management process.

3.2 CBRN Warning & Reporting

3.2.1 General

1. CBRN Warning and Reporting (W&R) is an integral part of the overall CBRN Information Management but all CBRN Components are involved with CBRN Information Management to different degrees. A well managed, trained and prepared CBRN W&R capability is required to ensure timely interpretation and dissemination of data on CBRN incidents and the resulting hazard areas.

2. CBRN W&R is the process by which reports of CBRN incidents are forwarded to warn of the resulting hazards and predicted hazard areas. The process is coordinated by a hierarchical structure of CBRN centres. This regime is detailed in ATP-3.8.1, Vol. I and ATP-45. CBRN W&R enables the rapid collection, evaluation and dissemination of data that characterizes CBRN incidents. The dissemination of datas and the prediction of hazards are enabled by Communication and Information Systems (CIS).

3.2.2 Organization

1. The CBRN W&R organization, covering the Alliance' territory will be activated in accordance with the NATO Crisis Response System (NCRS). Such an organization can also be initiated by a NATO Commander as required and specified in the relevant Operational Plan (OPLAN). In Out Of Area (OOA) operations, the W&R organization will be inherent to the deployed Force. Links to NATO and/or national elements should be considered when evaluating Information exchange Requirements (IER) for an operation.

2. In order to organize reporting and define responsibilities, the following CBRN W&R areas, zones and centres for a Joint Force are to be established:

a. CBRN Zone of Observation. A geographical sub-division of a CBRN Area of Observation.

b. CBRN Area of Observation. A geographical area, normally based on the boundaries of a nation state or theatre of operations, within which CBRN W&R is conducted under the supervision of a CBRN ACC. A single area of observation may be divided into a number of subordinate Zones of Observation.

c. CBRN Centres. An organizational entity holding responsibility for CBRN W&R within a hierarchical structure comprising, in descending order, CBRN ACCs, CBRN ZCCs, CBRN Collection Centres (CBRN CCs) and CBRN SCCs. Ordinarily, CBRN ACCs and CBRN ZCCs are geographically dependent, whereas CBRN CCs and CBRN SCCs are integral to military formations.

3. The J3 CBRN defence staff plans, establishes and maintains, with J6 CIS a CBRN W&R network the respective capability for the timely reporting of CBRN incidents and warning of their consequences within the Joint Force, to other forces and the Joint Force Command and Strategic Commands. An effective CBRN W&R System is the prerequisite for a qualified advice for all military command levels.

4. CBRN defence capabilities - such as specialized sensors, detection systems, and CBRN W&R networks - must be fully integrated into the overall C2 system to make the best use of available resources.

5. A well managed, trained and prepared CBRN W&R capability is required to ensure timely interpretation and dissemination of accurate data on CBRN incidents and the resulting hazard areas.

3.3 CBRN Defence Advice

3.3.1 General

1. The purpose of CBRN Defense Advice is to ensure that all military command levels and other authorities receive appropriate advice in all areas of CBRN. CBRN Defence Advice must be available from the onset of the operational planning process and integrated into command and control structures and processes at all times and at all levels of command and control. The detailed organization of the CBRN defence, including subject matter experts at the different staff levels, should be included in the command SOPs and adjusted to fit the operational environment and specific mission/task assigned.

CBRN defence advice includes:

a. CBRN estimate based on qualified CBRN hazard prediction procedures[5],

b. CBRN risk analysis, threat assessment and vulnerability analysis,

c. Forecasting of CBRN effects based on modelling and simulation,

d. Management and Command and Control of CBRN defence assets,

2. Establishment and revision of CBRN Threat Levels, NBC Dress State and recovery measures and CBRN medical countermeasures.

3.3.2 CBRN Hazard and Threat Assessment

1. Threat assessments are based on accurate and timely all source intelligence. Threat assessments must be conducted and continuously reviewed so that the appropriate CBRN defence capabilities and protective measures can be selected and adjusted as required. Intelligence sharing among Allies and non-NATO entities is essential to produce actionable intelligence.

2. Effective command and control (C2) of the CBRN situation can only be maintained when CBRN information is an integrated part of the common operational picture (COP).

3. The result of the CBRN/EIH IPOE is the CBRN threat assessment. The CBRN threat assessment must be kept under constant review and regularly updated. This is so that the capabilities needed to counter possible CBRN hazards are constantly evaluated to ensure that contingent capability match the evolving intelligence picture/threat level. The force will then be well placed to meet and deal such possible hazards whilst avoiding unnecessary degradation of operational performance.

[5] In compliance with ATP-45

4. With the threat assessment and the vulnerability assessment completed, the commander conducts a risk assessment and develops the CBRN defence plan. The CBRN threat assessment determines the CBRN threat level.

3.4 CBRN Reach Back and Fusion (CBRN RB&F)

3.4.1 General

1. NATO forces require analytical and scientific expertise (such as collection, analysis, evaluation, recommendation and assessments) to ensure the availability of reliable information and CBRN products for NATO designated commanders on short notice. It includes timely delivery of all source, fused CBRN expertise to support situational awareness, intelligence analysis, operational planning and operations (see MC 0590, CBRN Reach Back and Fusion Concept). In order to facilitate their mission, specialist CBRN defence assets require ready access to a CBRN RB&F System, via an assigned RB&F Element (currently under experimental phase) as the leading node. Through the CBRN RB&F Element the system provides access to authoritative information, including but not limited to industrial, academic, government and military scientific information and data, related to WMD, MET/GEO, CBRN databases, CBRN defence capabilities, means of delivery, etc.

2. The CBRN RB&F Element shares and coordinates the resulting CBRN information and data with NATO bodies, medical and CBRN and other related military or civilian organizations, such as:

a. the NATO WMD Non Proliferation Centre;

b. the Multinational Medical Analysis Centre;

c. the Euro-Atlantic Disaster Response Coordination Centre (EADRCC);

d. International Atomic Energy Agency (IAEA);

e. Organisation for the Prohibition of Chemical Weapons (OPCW);

f. Intelligence Fusion Centre (IFC);

g. Centres Of Excellence (COEs);

h. NMIOTC;

i. national reference laboratories;

j. “pool” of experts;

k. national research, scientific and industry bodies dealing with CBRN matters;

l. national CBRN Reach Back Centres;

m. the Joint CBRN Defence Task Force including Joint Assessment Team (JAT).

3. In support of prevention of proliferation of WMD and related CBRN threats and their possible use, timely and reliable exchange of information and intelligence is a key enabler for all prevention efforts. Therefore, all source collection and processing of WMD and CBRN threats and hazards information have to be coordinated between Intelligence analysts and CBRN defence SMEs to enable the Intelligence branch to produce and disseminate "CBRN-related intelligence assessment". The information and the relevant assessment resulting from CBRN RB&F Element will be, when appropriate, communicated to NATO Intelligence. The relationship between RB&F element and NATO Intelligence is described in the following figure:

4. The **Joint Intelligence Process** should support understanding (analysis) and assessment as well as the planning, execution and support of all operations by provision of timely, tailored and accurate intelligence in relation with the commander's mission. The joint intelligence process should allow a rapid flow of intelligence from all available sources to, from, and within the JOA. It will provide the framework for the delivery of intelligence, and should therefore be flexible and tailored to the demands and circumstances of the operation. It needs to be secure, robust, and include an operational framework, both within and beyond the JOA.

3.4.2 National CBRN Reach Back Capabilities

1. Reach back consultation with national experts will often be essential, particularly if new agents or TIM are involved. These contacts should be established prior to commitment to ensure lines of communication are established.

2. CBRN defence operational elements will often need to consult national or international scientific or medical experts. If new agents or threats are encountered, it will probably be necessary to provide expert consultation to the personnel in theatre. Deployed CBRN defence assets should have contacts with the CBRN Reach Back and Fusion Element. The Joint Staff is responsible at the strategic level for organizing and co-ordinating with agencies and services. It can be authorized to direct contact between the CBRN defence units/elements and national scientific experts as well as civilian scientists and medical specialists (Pool of Experts). National expertise is routinely available from within the defence science community, from other government departments and from some civil institutions. The reachback capability could also include Allied medical and scientific agencies. Where Allied consultation is appropriate, the commander will co-ordinate the reachback link to the necessary expertise.

3. The CBR-AL as a deployable field unit lacks the technical capability to develop analytical methods for agents yet unknown and, therefore, must be supported by a pre-determined national reach back laboratory capability.

3.4.3 CBRN Joint Assessment Team

1. The CBRN Joint Assessment Team (CBRN-JAT) could be considered as specific type of reachback capability. It is a very high readiness, multinational, multi-functional, interdisciplinary pool of experts, formed using force generation procedures, capable of deploying as a stand-alone, mission tailored specific team for a limited period.

2. CBRN-JAT is capable of providing CBRN scientific and operational assessment and advice to NATO commanders and their staffs during the planning and conduct of operations.
The CBRN-JAT is capable of:

a. Providing timely assessment of CBRN threats and their operational impact.

b. Advising NATO commanders on the prevention, protection and recovery from the affect of CBRN events and toxic industrial material releases, from state and/or non-state actors.

c. Liaison and coordination with NATO Civil Emergency Planning (CEP) organisation, and national/civilian authorities.

d. Integrating into a CBRN warning and reporting system (CBRN W&R)

3. CBRN-JAT is not and should not be recognised as an additional CBRN augmentation to HQ to which is attached (see Annex E).

CHAPTER 4 PHYSICAL PROTECTION

4.1 Introduction

4.1.1 General

1. When protective measures against CBRN threats are not implemented because of a perceived low-likelihood of that threat materialising, the result is to maximise the vulnerability to that threat. In case of CBRN threats, commanders should be aware of the significant or potentially catastrophic impact especially if a CBRN incident occurs to unprotected units. Commanders, with the assistance of their CBRN defence specialists, should be aware of hazards arising from CBRN incidents in order to plan and conduct operations under the influence of such hazards.

2. The enabling CBRN defence component "Physical Protection" consists of Individual Protection, Collective Protection and Equipment and Materiel Protection[6]. Whilst individual protection with its protective clothing and/or personal equipment is a responsibility of each single soldier of all-arms, COLPRO and equipment/materiel protection is a common matter which must be initiated and organized by the responsible commander and its staff.

4.1.2 Standards

1. Commanders and its staff should be aware of

a. the CBRN defence organization and the physical protection equipment (e.g., filters and protection suits) and systems (e.g., COLPRO) available;
b. the effectiveness of existing IPE and respirators against certain threats, including many TIMs;
c. the effects of CBRN incidents on operations of their units/formations;
d. the different eligibility of units for operations in a CBRN environment;
e. the effects of wearing CBRN IPE for an extended period of time and understand what measures can be taken to mitigate those effects on the combat effectiveness and well being of his forces;
f. the available medical prophylactic countermeasures and the operational, ethical and legal impact of their use.

4.2 Individual Protection for CBRN Defence Specialists

4.2.1 General

1. The standard individual protection of all soldiers enables personnel to survive CBRN incidents and to continue to operate in a CBRN environment to a limited extent. Individual protection for CBRN specialists must be designed for their special tasks.

2. Requirements. Standard military and industrial air purifying masks are not designed to protect against all industrial chemicals. In some cases, a lack of oxygen occurs with the release of industrial hazards and self contained breathing apparatus (SCBA) are required. In the case of a TIM hazard, the protective mask should only be used for emergency protection and immediate evacuation from the hazard area. IPE is

[6] See AJP-3.8, Chapter 3, Section IV and ATP-3.8.1, Vol. I

also not designed for handling industrial hazards. IPE does not provide protection against gamma-radiation. Prior to any activity (other than evacuation) in a radiologically contaminated area, subject matter experts must be consulted on the appropriate CBRN defence measures. The appropriate IPE must also be used during reconnaissance and survey missions.

4.2.2 Protection for Operations Inside or in Proximity of a TIM Contaminated Area

1. Forces operating inside or in the proximity of a TIM contaminated area are normally, but not limited to reconnaissance or rescue. These forces should be afforded the following protection:

a. **Respirator and Eye Protection.** Appropriate respiratory protection in accordance with the type of TIM has to be chosen when individuals must operate in the contaminated area. In most extreme cases (oxygen deficient or high levels of TIM concentration in the air), SCBA will be necessary[7].

b. **Skin Protection.** While operating in a contaminated area, individuals should wear appropriate equipment certified by appropriate national authorities to provide protection against the identified TIM. For a TIC incident, the selected protective equipment must prevent hazardous liquid or vapours from causing injury to the individual due to their inherent toxicity, corrosivity, and/or flammability.

2. The following table describes as an example the mission oriented requirements:

[7] Without positive identification of the hazard, it is recommended that the minimum personal protective be protective suit and SCBA.

		Specialized CBRN Defence Forces											
	Threat	C			B			R			N		
	Mission	Routine Tasks	CBRN Recce	Decontamination	Routine Tasks	CBRN Recce	Decontamination	Routine Tasks	CBRN Recce	Decontamination	Routine Tasks	CBRN Recce	Decontamination
Protective suit	impermeable CBRN suit		X	X		X	X			X			X
	Overgarment + semipermeable suit		X			X			X				
	Overgarment	X			X			X			X		
Respiratory	SCBA		X	X		X							
	TIC-Filter		X										
	Standard	X		X	X		X	X	X	X	X		X
	Particle Filter											X	

Figure 4 – 1. Example of Individual Protection Equipment

4.3 Collective Protection

4.3.1 General

1. The primary purpose of COLPRO is to allow the continued performance of operational functions, but it may also be used to provide rest and recuperation. COLPRO facilities offer a means of countering the psychological and physiological effects that result from the extended use of IPE. COLPRO is essential to the operations of all units/elements that must remain for extended periods in a contaminated area. In addition, there are some operational functions that are impossible to perform effectively while wearing IPE in a contaminated area, that can however be performed in a collective protection facility.

2. Categories of COLPRO. Collective protection can be provided by a tent or other facility which provides a positive overpressure so that contaminants cannot get in, has an air handling capability that filters out all contaminants, and is continuously monitored to ensure that the facilities are clean. Heating and air conditioning are also often vital. There are four major types of collective protection facilities:

i.

a. **Fixed.** Fixed COLPRO is defined as COLPRO systems integral to static facilities. These may be hardened against EMP and blast, semi-hardened or totally unhardened.

b. **Mobile**. Mobile COLPRO systems are integral to land, sea or air platforms. Some vehicles and ships have built-in COLPRO. While entrance and exit drills remain a matter of concern and must be considered in the context of contamination control area (CCA) procedures, in principle, personnel inside can work in relative comfort, even while in a contaminated area.

c. **Transportable**. Transportable COLPRO are stand-alone systems capable of being deployed into an area of operations. They will usually be unhardened, but may be capable of erection within buildings or other enclosures. These systems can also be used within ships and to adapt existing buildings.

d. **Hybrid.** Hybrid COLPRO in equipment / vehicles may have partial COLPRO systems (e.g., filters) built in, but are not meant to be a specialist capability.

3. Principles of Employment. The principles on the use of COLPRO are pointed out in ATP-70 and ATP-3.8.1, Vol. I, Chapter 9.

4.3.2 Use of COLPRO by specialist CBRN defence forces

1. COLPRO is essential for specialist CBRN defence forces that must remain for extended periods in a contaminated area, e.g. for CBRN reconnaissance tasks. The wearing of full IPE over extended periods of time causes serious psychological and physiological degradation commensurate with ambient temperature and work rate. Certain operational tasks, e.g. for analysis of CBRN substances in field laboratories, cannot be performed satisfactorily by personnel wearing full IPE.

2. Most CBRN reconnaissance vehicles have internal overpressure and collective protection and can perform most of their functions closed down. Where this is the case, closed down vehicles can be linked (either by radio or land line) and operate effectively for a limited period.

3. Operating Procedures. The detailed operating procedures for any collective protection facility will depend on the precise nature of the equipment in use, and the configuration of the facility. These are outlined in ATP-70, Chapter 5 and must be specified in SOPs.

4.3.3 Specialist CBRN units in support to COLPRO systems

1. Requirements for CBRN specialist support. The reliability and effectiveness of any CBRN COLPRO facility will depend upon the proper set-up, operation and maintenance of it and its ancillary equipment. The safety of the Toxic Free Area (TFA) and its habitability will be only as good as the users´ level of knowledge, training and efficiency. CBRN defence specialists should train and exercise the procedures for the particular facility. Associated common training must include appropriate awareness of the danger of introducing hazards into the TFA, especially during entry/exit. Specialist training on

required contamination control, decontamination and filter exchange procedures is required to ensure proper set-up and management of the COLPRO.

2. Each installation Commander must assess COLPRO requirements based upon the likely threats and mission requirements. The CBRN defence staff provides expert advice on the requirement of COLPRO facilities to minimize the impact of CBRN incidents.

3. Depending on the categorie of the COLPRO facility a significant number of personnel is required. Especially in high traffic COLPRO shelters personnel to operate the air handling facilities, to change filters and to provide dressing, showering and monitoring assistance is of importance.Full time staffs of five personnel are the typical number required to run a single facility (two in the Liquid Hazard Area, one in the Particle Hazard Area, one in the Vapour Hazard Area and a monitor). These individuals will need to rest and recover in a clean environment, and so limit the capacity of the operation.

4. Each COLPRO shelter will be operated by a shelter commander. The staff to operate the shelter will normally come from specialist CBRN units/elements, augmented by personnel from all arms units.

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CHAPTER 5 HAZARD MANAGEMENT

5.1 Introduction

5.1.1 General

1. Hazard management is defined as a combination of preparatory and responsive measures designed to limit the vulnerability of forces to CBRN hazards and to avoid, contain and control exposure to. Hazard management protect friendly forces through hazard avoidance, maintain the forces´operational tempo through hazard containment and exposure control, and restore operational capability through decontamination. Hazard Management is needed to limit the effects on personnel, material and the impact on operations from CBRN hazards.

2. CBRN defence specialists are the commander's key advisors in implementing hazard management measures. Hazard Management limits the impact of CBRN hazards. Hazard management is based on the principles of pre-hazard precautions, hazard control through avoidance, control of hazard spread, control and management of individual exposures, and decontamination. Hazard management needs to be an integral part of all operational planning and, as much as possible, be prepared for well in advance.

5.2 Hazard Precaution and Control

5.2.1 General

1. Pre-hazard precautions are needed to minimize the possibility of forces being targeted by CBRN weapons and devices, and should CBRN incidents occur, CBRN effects are minimized by the precautionary measures taken. These measures need to be considered and prepared for during the operational planning process, and if the threat warrants, implemented before the incident occurs.

2. CBRN defence staffs provide commanders and personnel guidance on personnel, equipment, vehicle, and supply protective measures. Protective measures for vehicles, equipment and supplies must be implemented prior to a conflict, before, and after a CBRN incident to minimize equipment damage, casualties, and the requirement for decontamination.

3. CBRN defence specialists should provide commanders guidance in protecting other critical assets. General precautions can be taken to protect food and water from CBRN hazards such as leaving supplies inside facilities, vehicles, or other assets that can provide overheard protection. Supplies should not be left unpacked or opened and they need to be stored under cover. Proper storage is a logistic responsibility and the CBRN defence specialist should coordinate with logistic personnel in protecting critical assets.

5.2.2 Hazard Control Measures

1. Hazard control measures need to be implemented immediately after a CBRN incident occurred. Hazard control consists of the implementation of the planned hazard avoidance, the control of the spread of the hazard, the exposure management and the decontamination measures. CBRN defence specialists should provide guidance to units in how to distinguish and separate contaminated and the non-contaminated resources (personnel, units, equipment) and terrain. The amount of contaminated assets must be forwarded to higher levels of command. This essential information has to be provided as rapidly as possible in order to enable the commander to decide on the best appropriate hazard control measures to be implemented. Hazard control encompasses also protective measures to be implemented by “non-contaminated” units before the arrival of the hazard.

2. Hazard avoidance measures are taken to avoid the hazards if possible through bypassing contaminated areas, covering assets, keeping personnel inside or undercover until hazard is reduced, or staying upwind of the attack area. Hazard avoidance is defined as the employment of policies, doctrines, procedures and equipment to detect, identify, predict, warn and report the hazards of CBRN contamination in order to avoid or minimise the immediate and residual effects of CBRN contamination. Successful hazard avoidance will reduce, and sometimes eliminate subsequent requirements for protection and contamination control and will prevent operations from being disrupted.

3. Avoiding contamination is accomplished by surveillance, detection and monitoring of weather, terrain and CBRN hazards using all available resources from automated sensors to individual sentries by CBRN specialists. Critical to the achievement of the commander’s intent, a detailed survey by CBRN specialists will be needed to confirm the location, characteristics and possible duration of CBRN hazards.

4. After a CBRN incident CBRN defence specialists must provide commanders accurate and timely CBRN hazard information and recommendations to reduce the risk and impact on mission operations. The commander can balance the risks against the operational priorities.

5. CBRN defence specialists provide the ability to recognize the presence or absence of CBRN hazards in the air, on water, land, personnel, equipment, and facilities, at short and long range, when possible. In planning for hazard avoidance, the commander must include an assessment of the capabilities of available detection systems, the presence or absence of contamination, and CBRN assets available.

5.3 CBRN Hardening

5.3.1 General

1. CBRN hardening is the design or modification of equipment, structures or materiel to ensure continued functionality following exposure to chemical, biological or residual radiation hazards by reducing the retention or adsorption of contaminants, increasing the ability to decontamination such facilities, or allowing their continued employment by

personnel wearing individual protective equipment. The hardening of material is a component of pre-hazard precautions. Such hardening minimizes the effects of a CBRN incident.

2. All mission essential platforms and equipment at risk of becoming contaminated need to be hardened as set out in STANAG 4521. Commanders need to be aware of any CBRN survivability weaknesses in their equipment and adopt appropriate protection or handling precautions. Most CBRN defence specialised units have hardened equipment, which enables it to operate under CBRN conditions. CBRN defence specialists are able to advise the commander and the staff on special considerations regarding protection of materiel and equipment. The resilience of materiel, equipment and facilities against decontamination is of special importance.

5.4 Decontamination

5.4.1 General

1. The aim of decontamination is to neutralise or eliminate contamination entirely or at least to the extent that the operation can be continued without individual protection. The following four levels of decontamination are recognized: Immediate decontamination done by the individuals upon becoming contaminated and in order to save lives, minimize casualties and limit spread of contamination, operational decontamination done by the individual or unit on specific parts of operationally essential equipment and thorough decontamination conducted by specialized CBRN defence forces. Clearance decontamination is concerned with the decontamination of equipment and/or personnel on temporary or permanent removal from an operation to a standard sufficient to allow unrestricted transportation, maintenance, employment and disposal. Clearance decontamination is a national responsibility and according to national regulations.

2. **Principles:** The following principles guide decontamination planning:

a. As soon as possible,

a. Only where needed,

b. As close to the point of contamination as possible,

c. Establish decontamination priorities.

3. **Requirements.** Due to the fact that after an operational decontamination performance at unit level a residual hazard is still present, operational decontamination has to be followed by thorough decontamination performed by specialist CBRN units. All units/elements should be capable of conducting their own operational decontamination.

5.4.2 Thorough Decontamination

1. Forces need specialized CBRN defence capabilities to perform thorough decontamination. In some special cases, this may be extended to include limited terrain decontamination, particularly at fixed installations and critical transport nodes.

2. Thorough decontamination is carried out to reduce contamination on personnel, equipment, materiel and/or working areas, with the primary aim of restoring normal operational tempo. Thorough decontamination may include terrain decontamination beyond the scope of operational decontamination.

5.4.3 Clearance Decontamination

1. This level of decontamination applies in case of temporary or permanent disengagement from a mission. Clearance decontamination is likely to be beyond the resources and capability of the CJTF, and the support of specialised external organisations and scientific centres may be may be needed. Clearance decontamination is likely to be expensive in time and resources, because there is a need to comply with national and international standards for cross-border movement. The primary role of the CBRN specialist in clearance decontamination is to serve as necessary as a conduit for relevant information between reachback centers and the JFC when decisions concerning clearance decontamination are required.

2. Clearance decontamination is performed on personnel, equipment, materiel and terrain (including infrastructure) with the primary aim of enabling unrestricted use, handling, operation, and release from military control of contaminated items, subject to the approval of national civilian authorities. Where there is a requirement for repatriation or for the temporary or permanent removal of equipment and/or personnel from an operation, clearance decontamination must be conducted to a standard sufficient to allow, with additional safety measures where required, transportation or disposal.

5.4.4 Casualty Decontamination

Contaminated casualties are evacuated through the medical chain. Casualties should be triaged prior to decontamination by qualified personnel to separate contaminated casualties from clean casualties. This is a responsibility of medical personnel. The management and treatment of contaminated casualties will vary with the operational situation and the nature of the contaminant. Coordination between specialized CBRN defence units and medical units must be pre-planned. It is a staff responsibility to develop a coordinated plan for the management of contaminated casualties/personnel that can be put into effect immediately.

5.5 CBRN EOD

5.5.1 General

1. CBRN devices, whether manufactured or improvised, with or without explosive components, constitute a real and permanent threat to NATO military operations, the deployed forces, the population and the operational environment. CBRN EOD is an important task from the point of view of survivability, force protection, freedom of movement, protection of lines of communication, Counter Improvised Explosive Devices (C-IED) intelligence and civil-military co-operation support. CBRN EOD assets are employed to counter confirmed or suspected Explosive Ordnance (EO) and CBRN hazards such as:

a. Munitions and devices, which are the subject of CBRN EOD activities, include combinations of suspected and confirmed explosive or non-explosive devices, e.g. non-explosive Improvised Spraying Device (ISD) or non-Improvised Dispersal Device (IDD) that may contain CBRN agents and/or TIM.

b. Such munitions and devices may be encountered in a safe or CBRN contaminated environment.

2. STANAG 2609 defines principles for structuring and conducting multinational CBRN EOD operations across the spectrum of multi-national operations and for any size force.

5.5.2 Command and Control

1. CBRN EOD activities are of a hazardous and complex nature, requiring therefore a high level of co-ordination between all parties involved, specific safety rules, additional specific education, high degree of training and use of specialized equipment. This is of particular importance if non-military assets are involved. The conduct of CBRN EOD Ops typically involves several nations supporting the same operation at different levels, providing similar capabilities, and usually using different manpower and equipment. Therefore, it is not sufficient to focus only on capabilities and resources. Embedded CBRN EOD Ops also requires a clearly defined and effective C2 organization. Each operation may require different command, control and communication structures, but basic guiding principles can be applied to each operation.

2. Responsibilities. CBRN EOD tasks are seldom completed autonomously due to the high risk during these types of operations and the need to establish large danger areas to account for the possibility of negative effects on the mission, population, infrastructure and environment. It is imperative to work as a team.

5.5.3 Threat, Vulnerability and Risk Analysis

To be prepared to take appropriate action and to enhance safety, it is of fundamental importance to undertake a realistic threat and vulnerability analysis followed by the preparation of a clear risk management plan. Threat analysis should include the evaluation of all hazards including those caused by meteorological conditions, explosive ordnance (EO), enemy forces and irregular parties including their capabilities and tactics, environmental, industrial and other hazards to personnel and materiel. An important precondition is the establishment of a fully functional information management system.

Accurate threat analysis is key to enable adequate pre-incident precautions and if necessary, pre-positioning of assets or reduction of readiness category.

5.5.4 Planning

To avoid unacceptable delays and confusion it is imperative to establish a CBRN EOD response plan. Therefore the best and most effective approach is to establish a CBRN EOD response package. Depending on the situation and the risk analysis, an appropriate arrangement of participating teams, capabilities, notice to move (NTM) regulations and alert procedures must be established. In this context the MNEODCC and MNCBRNCC have a crucial role. Therefore, special CBRN EOD-relevant SOPs must be issued for each operation. STANAG 2282 contains a proposed list of headings for the minimum contents of such SOPs. Close co-operation between multinational and national staff elements, including their legal advisers, is of essential importance in the preparation of these SOPs.

5.5.5 Render Safe

The rendering safe of a CBRN device is an inherently dangerous task. Due to the multitude of hazards, the specialists involved are responsible for providing EOD technical and inputs to the overall multidisciplinary threat, vulnerability and risk analysis in order to determine the course of action. The final decisions are to be based upon an accurate overall threat assessment, understanding of EOD and CBRN actions and effective and relevant training.

5.5.6 Support Missions

1. CBRN EOD operators will participate in the following activities only as a support element and will not operate autonomously:

a. **Search Operations**: These operations are usually conducted by Search specialists. However, the CBRN EOD Operator may be given responsibility for specific search tasks such as a suspect vehicle (naval, ground or air) or the immediate area of a device. Other areas may be searched at the Operator’s discretion, based upon the TVRA and the specific circumstances.

b. **Sampling and Identification** of Biological, Chemical and Radiological Agents (SIBCRA): This is a function of SIBCRA specialists.

c. **Final disposal of the agent or TIM**: Although the treatment of the agent or TIM is not the function of a EOD team, they may be requested to use an EOD technique to dispose of the agent or TIM, e.g. high order detonation. The application of these techniques needs to be in accordance with the rules of engagement (ROE). Due attention is to be given to international laws and conventions.

5.6 Burial and Waste Management

5.6.1 General

The waste products from the removal of hazards from contaminated forces, or the removal of contaminated covers, need to be contained and marked. Waste sites will need to be restored once operations are complete. A part of CBRN decontamination operations is the management of resulting waste. Appropriate in-theatre policy and disposal instructions need to be established to ensure the responsible handling of waste.

5.6.2 Decontaminants

Most decontaminants are still toxic, potential causing environmental hazards and in some cases would not have neutralized the contaminant, therefore effluent run-off may be hazardous, and may only move the contamination from one place to another. Effluent from decontamination operations should be controlled so as not to contaminate the environment, and pose a hazard to friendly forces. A major factor in the selection of decontamination sites is natural drainage and the ability to control the effluent without major engineer effort.

5.6.3 Contaminated Waste

Contaminated waste such as clothing, equipment, and personal filters and vehicle filters, which cannot be practically decontaminated, should be disposed of in a controlled manner. Additionally the follow-on effects of CBRN residuals must be considered. It may be removed, burned or buried, however burning may produce a vapour hazard, and burial may affect the drinkable or portable water. Contaminated waste that must be moved for subsequent disposal must be sealed in containers, and marked as hazardous waste.

5.6.4 Contaminated Human Remains

The possibility of mass fatalities and contaminated human remains will complicate burial procedures in a CBRN environment. Decisions about in-theatre burial sites and/or repatriation of the dead will be emotive and will probably need to be made at the political-military level. Where the capabilities exist, human remains will need to be decontaminated and handled in a conventional manner. However, if they cannot be decontaminated, they will need to be buried using emergency burial procedures as close to the place of death as possible or at the site of recovery and the site clearly marked. The handling of contaminated human remains is a logistic function and there will be a requirement for in-theatre emergency burial procedures in accordance with STANAG 2070.

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CHAPTER 6 MEDICAL COUNTERMEASURES AND SUPPORT

6.1 Introduction

6.1.1 General

1. Medical countermeasures serve to diminish the susceptibility of personnel to CBRN hazards (pre-exposure medical measures) and to treat the CBRN and conventional injuries. The treatment and evacuation of conventional casualties in a CBRN environment must also be considered within any CBRN force protection and response plan. The medical staffs are responsible for advising the commander on medical countermeasures and support.

2. Unit-level Health Service Support (HSS) consists of combat medic, evacuation or Role 1 Medical Treatment Facility (MTF) level operations. To provide adequate HSS, definitive planning and coordination is required. This includes provisions for health monitoring, treatment, evacuation, and hospitalization. AMedP-6 to 8 contain additional guidance for use in planning for HSS operations in an CBRN environment. Medical Support beyond Role 1 capabilities will be provided by the JFC.

3. Special emphasis will be put on preventive medicine as part of Medical Force Protection.

6.1.2 Medical Response

An integrated force medical response is needed for effective defence against CBRN incidents. Medical countermeasures, both pre- and post-exposure, in the form of prophylaxis and treatment of weapon and agent effects exist to mitigating possible operational impacts. Implementation of immediate treatment and management procedures are especially important for patients with contamination and/or incorporation of radionuclides and poisons and patients with highly infectious or contagious diseases. In case of an infectious disease medical responses should include post-exposure, pre-symptomatic diagnosis, mass treatment protocols, mass casualty and psychiatric care, medical evacuation, restriction of movement, disposal of contagious and infectious remains and the integration of host nation medical capabilities. Accurate and complete individual medical records need to be generated and maintained to assist in the long-term medical screening of all personnel.

6.2 Pre-Exposure Medical Countermeasures

6.2.1 General

Commanders and staffs need to make decisions, on advice from the medical staff, about the timely and appropriate administration of prophylactic or preventive compounds (immunisation, medication) as well as other measures (skin barrier sprays or repellents). These need to be issued to personnel under national guidelines.

6.2.2 Medical Intelligence

The timeliness and accuracy of intelligence, including warnings of pending attacks, can directly enhance the success of medical countermeasures. It is important that commanders gather information from epidemiological and environmental threat assessments associated with specific geographical locations. These activities need to begin prior to deployment and continue on arrival in-theatre. A key component of the MFP is the need to establish and maintain a medical surveillance program that provides a database on actual medical hazards in their respective tactical AOR details of personnel exposed to the medical hazards and the treatments provided.

6.2.3 Preparatory Countermeasures

Preparatory countermeasures to the effects of CBRN agents on humans include medical prophylaxis and medical pre-treatments. Commanders need to be aware of the constraints associated with national guidelines relating to the immunisation of forces. Commanders need to ensure that these actions are carried out, on advice from the medical services, before any exposure to high-risk CBRN conditions.

6.3 Post-Exposure Prophylactic Medical Countermeasures

6.3.1 General

1. The use of medical countermeasures to mitigate the effects of CBRN hazards include:

a. The scrupulous application of field hygiene measures during operations.

b. Pre- and Post-exposure vaccinations, with or without the simultaneous use of antibiotics.

c. Restriction of movement and surveillance of possible direct and indirect victims of transmissible agents, to include decontamination and disinfecting of exposed body surfaces.

6.4 Treatment Medical Countermeasures

6.4.1 General

The treatment and evacuation of contaminated and of conventional casualties in a CBRN environment must be considered. The medical staffs are responsible for advising the commander on medical countermeasures and support. The treatment of casualties (including conventional casualties) needs to continue under CBRN conditions. This can be achieved through the siting of medical facilities inside cover to provide a degree of ballistic protection and to avoid direct contamination by CBRN weapons. COLPRO can be added to minimize the threat from chemical vapour. In hazard areas CBRN casualty bags with air blowers can be used to isolate casualties inside and minimize collateral contamination within medical treatment facilities.

6.4.2 Evacuation

CBRN casualties require specialist medical support during evacuation. Additionally conventional casualties require appropriate protection when being evacuated through a CBRN environment. Thorough decontamination is required for all contaminated casualties. Guidance on casualty treatment is given in STANAGs 2461, 2873 and 2879.

6.5 Medical CBRN Diagnosis

6.5.1 General

In case of confirmed or suspected CBRN incidents and when available, the deployment of medical CBRN defence experts should be considered. Those expert teams, including specialised technical personnel will be small in numbers. Thus, their primary task is not to provide medical treatment to a (potentially large) number of casualties, this responsibility remains with the deployed medical treatment facilities. Instead of, the expert team, supported by its reachback facility, will conduct medical diagnosis and medical verification of CBRN-related health effects, advice the medical personnel on therapeutic management and provide information to the senior medical officer, the commander of the deployed force and, if required, to superior commands and political decision-makers.

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CHAPTER 7 ROLE OF CBRN DEFENCE CAPABILITIES IN THE PREVENTION PILLAR

7.1 Introduction

7.1.1 General

The military's role is to contribute to the prevention against the aquisation of WMD and CBRN materials and to the deterrence against the use of WMD and CBRN devices. Strong CBRN defence capabilities will be a strong deterrence, which shows potential proliferators the futility of pursing WMD as a viable threat against the Alliance by raising their expected costs while diminishing their expected gains. NATO will continue to add value to non-proliferation efforts by fostering the development of Allied capabilities to impede or stop the trafficking of WMD, related materials and their means of delivery.

7.1.2 Mission

1. In order to conduct appropriate actions to counter the proliferation of WMD, including CBRN agents and materials and their means of delivery, the CBRN defence staff together with specialized CBRN defence units/elements and intelligence assets are able:

a. To perform CBRN information gathering and intelligence analysis, including environmental surveillance and survey and CBRN forensic sampling.

b. To establish the CBRN Common Operational Picture.

c. To provide advice to strategic, operational and tactical level commanders and their staff on all CBRN defence specialized related to the deterring and preventing the use of CBRN weapons and devices and if deterrence and prevention fails providing advice on protection and recovering from the effects of a CBRN incident.

7.2 CBRN defence contribution to prevention

7.2.1 General

In order to prevent a CBRN incident all necessary actions must be taken to ensure the coordination and interaction between military and civil authorities.

7.2.2 Demonstration of CBRN defence capabilities

Prepardness, joint strength and overt deployment of CBRN defence capabilities minimise any advantage a potential adversary might gain from using CBRN materials. These same actions simultaneously will reduce both the likelihood of CBRN weapon use and vulnerability to any CBRN incident. In order to influence and

deter potential adversaries, these protective capabilities of the specialized CBRN defence units must be credible, demonstrable and transparent. Therefore, the civil – military interaction and cooperation must be developed and constantly improved by conducting common training and other activities.

7.2.3 CBRN capabilities in support of Non-Proliferation of WMD and Arms Control

1. Specialized CBRN defence units are able to provide a broad spectrum of capabilities in support of Non-Proliferation of WMD and Arms Control. The following tasks could be considered to conduct CBRN **render safe**[8] operations such as (not exhaustive list):

a. To provide CBRN related information for the assessment of weapons programmes, delivery systems and stockpiles,

b. To locate, characterize and secure CBRN substances,

c. To render harmless treatening CBRN substances and contaminated materiel,

d. To remove or otherwise safely and verifiably destroy, dispose of threatening CBRN substances and contaminated materiel,

e. To decontaminate personnel and equipment involved in verification tasks.

7.2.4 Target Reconnaissance

The only offensive measure which forms part of CBRN protection is target reconnaissance as part of the current Counter-IED approach. CBRN reconnaissance requirements and assets should be coordinated as part of the overall intelligence, surveillance and reconnaissance effort.

7.2.5 CBRN related Intelligence

Timely and reliable intelligence is a key enabler for all prevention efforts. The input of CBRN subject matter experts (SMEs) to the intelligence cycle is essential for the success of any prevention activities. While at the tactical level, the focus is on on-going operations, at the operational and strategic level, support to prevention is the main effort. The training of intelligence analysts and CBRN technical experts has to be enhanced in order to facilitate mutual understanding of both groups.

[8] The term render safe is under consideration to be resolved

7.2.6 Critical Infrastructure Protection

Disruptions or destruction of critical infrastructures can significantly affect security, therefore it is important to ensure that all critical infrastructures are viable and resilient to disasters and attacks. Critical infrastructure (CI) include those facilities, services and information systems which are so vital to a nation that their incapacity or destruction would have a debilitating impact on national security, national economy, public health and safety and the effective functioning of the government. Measures to prevent disruption or destruction of critical infrastructure are therefore of critical importance. Such measures may include developing and/or strengthening specialized CBRN defence capabilities for vulnerability reduction like stand-off detection, CBRN hardening or CBRN COLPRO systems.

7.3 CBRN Operations in a maritime environment

7.3.1 General

NATO will foster the development of Allied capabilities that imped the trafficking of WMD, related materials and their means of delivery, including those able to locate, identify and secure illicit CBRN material transiting at sea.[9] Ships may, on occasion, be tasked to participate in Maritime Interdiction Operations (MIO) where intelligence suggests that CBRN weapons, agents and components may be found. The prosecution of a MIO involving CBRN weapons, agents and associated components is beyond the capability of normal ship´s force Visit, Board, Search, and Seizure (VBSS) teams Additional details concerning special CBRN teams formed for use in tandem with embarked special operations forces (SOF) during CBRN-related MIO events are provided in Chapter 9 of STANAG 1455.

7.3.2 Considerations

An example of how specific nations are addressing the problem of maritime trafficking of WMD and related materials is shown in the recent development of composite “Naval CBRN Teams” (also known as “Special Operation Forces CBRN Teams” or “Joint CBRN Teams”). A Naval CBRN Team is not a permanent unit but nations must be able to set up such a team when it is necessary for specific maritime operation. The main task of a naval CBRN team is to be prepared at all times to support the prevention of transport and deployment of WMD. These teams receive special training to locate, identify and secure illicit CBRN material transiting at sea. They have MIO capability IAW ATP-71 as well as basic detection, identification and reach back capability. The functions of a naval CBRN team can be performed in different formats. The team composition described below is should be considered as an example that can be tailored as appropriate.

[9] MC 0588, MC Concept for Maritime Security Operations (MSO), 21 April 2011

7.3.3 Mission

1. The mission of a naval CBRN team include:

a. boarding the suspected vessels and securing the area,

b. conducting basic detection, identification and operational sampling operations,

c. disposing any explosive devices under CBRN threat, (manufactured or improvised (IED)), and also disabling booby traps attached to containers or cargo, etc.,

d. decontaminating the vessels in cases of leakage or exposure of CBRN material.

7.3.4 Composition

1. The following are potential elements of a composite naval CBRN team:

a. CBRN Security Team

b. CBRN EOD Team

c. CBRN Defence Team(s)

Members of all units should be in excellent physical condition and have the proper knowledge of CBRN defence fundamentals as described in ATP-3.8.1, Vol. III.

The area of expertise and capability of each unit is as described below.

2. CBRN Security Team

CBRN Security Teams are composed of special operation force (SOF) personnel trained to board a vessel and secure it while under WMD/CBRN threat. The CBRN Security Team boards the vessel first to make a safe and secure operation area for follow-on CBRN EOD and CBRN Defence Team personnel to work. All CBRN Security Team members are equipped with combat equipment and appropriate IPE. Except for the WMD threat and the usage of IPE, the team´s basic boarding concept is described in ATP-71, Chapter 5. The primary duties of such a team are as follows:

a. To board a vessel under CBRN/WMD threat;

b. To conduct fast roping with basic CBRN detection capability;

c. To give a first CBRN report (low risk/high risk, clear) back to the command ship.

3. CBRN EOD Team

The CBRN EOD Team provides EOD capability to the composite naval CBRN team in case where the discovered illicit CBRN hazard includes manufactured ordnance or improvised explosive devices (IED). These maritime CBRN EOD teams can also be tasked to render safe any CBRN hazards including unexploded ordnance (UXO) found in harbors or shores. The capabilities of such a team are as follows:

a. To identify an Explosive Ordnance (Explosive Ordnance Reconnaissance -EOR);

b. To operate under CBRN threat with IPE;

c. To dispose/render safe CB (Chemical and Biological) Ordnance;

d. To dispose /render Safe IED/UXO under CBRN threat;

e. To disable booby traps, which can be attached to any cargo or container on vessel.

4. CBRN Defence Team

The CBRN Defence Team is the element which has all other CBRN defence related expertise required by the tasking naval force. They can be operable at sea during a MIO, but also on land to support any naval base's CBRN defence operations. During a CBRN/WMD threat in a MIO, after getting "safe and secure" from the boarding SOF element (CBRN security team), the CBRN Defence Team's DIM and sampling members are transferred to the suspected vessel and conduct basic detection and identification procedures and operational sampling. CBRN Defence Team members also require basic EOD training in case they discover unexploded ordonance during survey operations. After the operation, all elements of the naval CBRN team units are decontaminated by the CBRN Defence Team. In case of leakage or exposure of CBRN or TIM substances on the boarded vessel, the CBRN Defence team conducts decontamination procedures. The team should include a medical expert familiar with CBRN and TIM hazard medical treatments in order to provide necessary first aid to naval CBRN team members during their operation. The capabilities of such a team are as follows:

a. To identify explosive ordnance (EOR capability);

b. To detect, identify and monitor CBRN agents including TIMs;

c. To conduct CBRN surveys;

d. To provide warning & reporting of hazards;

e. To decontaminate personnel and contaminated vessels/areas;

f. To conduct operational sampling;

g. To transfer the samples to a CBRN analytical laboratory.

7.3.5 Training

The “Naval CBRN teams” need a specific and coordinated training in order to get all capabilities working together and supporting each other to fulfill such a demanding task. Through their expertise, NATO Educational Training Facilities may provide upon request a valuable support to Nations by providing training not only in Maritime Interdiction Operations but also in CBRN defence operations specializing in locating, identifying and securing illicit CBRN material transiting at sea.

CHAPTER 8 ROLE OF CBRN DEFENCE CAPABILITIES IN THE RECOVERY PILLAR

8.1 Introduction

8.1.1 General

When efforts to prevent or defend against a CBRN attack or incident do not succeed, NATO must be fully prepared to recover from the consequences of CBRN use against our populations, territory and forces whether by hostile States or by terrorists, and similarly to assist our partners, if requested.

8.1.2 Mission

In order to conduct subsequent CBRN Consequence Management operations the CBRN defence staff together with specialized CBRN defence units/elements should use all their CBRN capabilities in order to support military and civil authorities in managing a CBRN incident.

8.2 CBRN Consequence Management Operations

8.2.1 General

Civil Emergency Planning is a national responsibility and civil assets remain under national control at all times. The magnitude and duration of a disaster situation may extend beyond the capacity of the affected country and its repercussions may reach far beyond national borders. A single or cascading event may affect more than one nation, or create a situation that is beyond the capability of a single nation to deal with. Response to CBRN incident is unlikely to be conducted in isolation. No single civil or military capability, agency or military unit possesses the capacity and expertise to act unilaterally on many complex issues that may arise in response to CBRN incidents.

8.2.2 Principle

1. NATO members will be prepared to lend, within existing means and capacities, their CBRN consequence management capabilities to national authorities, if required.[10]

2. NATO forces may also be tasked to support civil authorities in situations where a deliberate or unintentional release of a CBRN substance has occurred. The joint force may be required to render technical support to identify, assess, transfer, and dispose of a contaminant or conduct decontamination operations. The requirement to

[10] IMSM-598-03 – NATO Military Policy on Consequence Management, 17 July 2003.

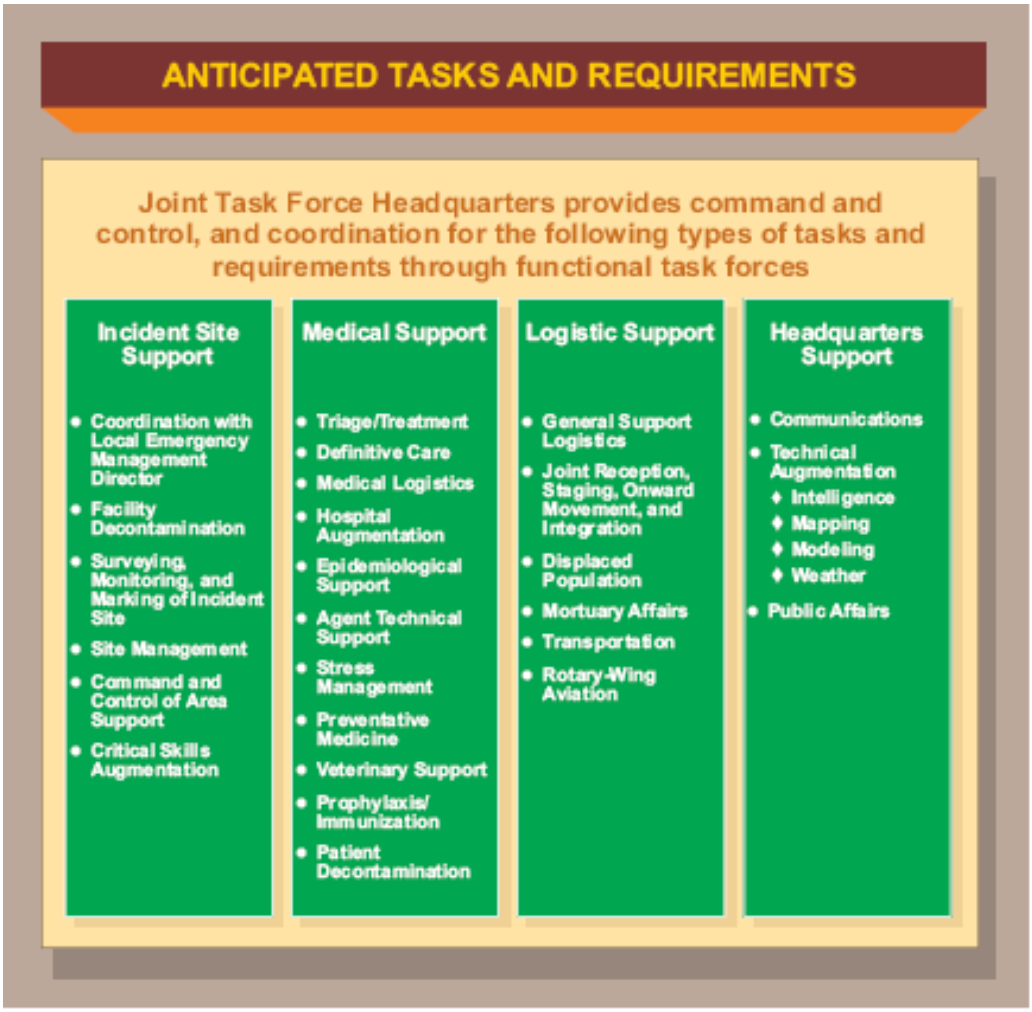
carry out CBRN Consequence Management (CBRN CM) is likely to be as the result of specific tasking from the strategic level, and will therefore be a mission in its own right.

3. The host nation may be unwilling, or unable to take the lead role in consequence management efforts, and may therefore call for assistance from joint force. Request for consequence management assistance need to be send to a NATO headquarter. The NATO International Staff Euro-Atlantic Disaster Response and Coordination Centre (NATO IS EADRCC) is to respond to requests for assistance from the stricken nations and/or from relevant international organizations.

4. NATO members will provide their skills and knowledge as they have developed it for military operations. Nevertheless, in Consequence Management Operations alignment of existing capabilities could be required.

8.2.3 CBRN-related Consequence Management Tasks

CBRN CM tasks are conducted during the operations process. Potential CBRN CM tasks are in the figure below:



8.2.4 Training

A proper training in accordance with ATP-3.8.1, Volume III (CBRN Defence Standards for Education, Training and Evaluation) is a prerequisite for military forces, especially for CBRN specialists to assist in CBRN CM Ops. Despite this fact, the cooperation with civilian authorities and organisations has to be trained in order to set up a functioning combined organisation. Both sides, the civilian and the military have to work interoperable.

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ANNEX A GLOSSARY OF ABBREVIATIONS

This Annex defines terms which are currently not standardised within NATO and therefore not be found in AAP-6. The following definitions serve for the purpose of this STANAG and **are necessary** for its explicitness and text reduction.

AAP	Allied Administrative Publication
ACLANT	Allied Command Atlantic
ACC	Area Control Centre
ADCON	Administration Control
AEODP	Allied Explosive Ordnance Disposal Publication
AEP	Allied Engineering Publication
AFU	Air Filtration Unit
AJF	Allied Joint Force
AJMedP	Allied Joint Medical Publication
AJP	Allied Joint Publication
ALARA	As Low As Reasonably Achievable
AMCC	Allied Movement Co-ordination Centre
AMedP	Allied Medical Publication
AO	Area of Operations
AOR	Area of Responsibility
ATP	Allied Tactical Publication
BIDS	Biological Identification and Detection System
C2	Command and Control
C3	Command, Control and Communication
C2IS	Command and Control Information Systems
CB	Chemical and Biological
CBR	Chemical, Biological and Radiological
CBR-AL	Chemical, Biological and Radiological Analytical Laboratory
CBRN	Chemical, Biological, Radiological and Nuclear
CBRN-Bn	Chemical, Biological, Radiological, Nuclear Batallion
CBRND	Chemical, Biological, Radiological and Nuclear Defence
CBRN-JAT	CBRN Joint Assessment Team
CC	Component Commander
CBRN CC	CBRN Collection Centre
CBRNDCC	CBRN Defence Control Centre
CCA	Contamination Control Area
C-IED	Counter-Improvised Explosive Devices
CIMIC	Civil-Military Co-operation
CI	Critical Infrastructure
CIS	Communications and Information Systems

CJTF	Combined Joint Task Force
CJTF	Commander Joint Task Force
CM	Consequence Management
COLPRO	CBRN Collective Protection
CONOPS	Concept of Operations
CP	Committee on Proliferation
CRO	NATO Non-Article 5 Crisis Response Operations
CT	Counter Terrorism
DGP	Defence Group on Proliferation
DIM	Detection, Identification and Monitoring
DJTF	Deployed Joint Task Force
DU	Depleted Uranium
EADRCC	Euro-Atlantic Disaster Response Coordination Centre
EOD	Explosive Ordnance Disposal
EU	European Union
FP	Force Protection
HAZCHEM	Hazardous Chemicals
HAZMAT	Hazardous Material
HNS	Host Nation Support
HQ	Headquarters
HSS	Health Service Support
IATA	International Air Transportation Association
IAW	in accordance with
IDD	Improvised Dispersal Device
IC	Incident Commander
IEDD	Improvised Explosive Device Disposal
IFC	Intelligence Fusion Centre
IPB	Intelligence Preparation of the Battlespace
IPE	Individual Protective Equipment
IPOE	Intelligence Preparation of the Operational Environment
ISTAR	Intelligence, Surveillance, Target Acquisition and Reconnaissance
ISD	Improvised Spraying Device
JAT	Joint Assessment Team
JFHQ	Joint Force Headquarters
JOA	Joint Operations Area
JTFHQ	Joint Task Force Headquarters
LHA	Liquid Hazard Area
LLR	Low Level Radiation

LN	Lead Nation
MCM	Medical Countermeasures
MJLC	Military Joint Load Control
MSR	Main Supply Routes
MTF	Medical Treatment Facility
NAC	North Atlantic Council
NATO	North Atlantic Treaty Organisation
NATO HQ	NATO Headquarters
NCRS	NATO Crisis Response System
NEO	Non-Combat Evacuation Operations
NGO	Non-Governmental Organisation
NRF	NATO Response Force
NSE	National Support Element
OEG	Operational Exposure Guidance
OIG	Officer in charge
OOA	Out of Area
OPCOM	Operational Command
OPCON	Operational Control
OPLAN	Operation Plan
PfP	Partners for Peace
PHA	Particle Hazard Area
PPE	Physical Protection Equipment
PSO	Peace Support Operations
RADIAC	Radioactivity, Detection, Identification and Computation
CBRN RB&F	CBRN Reach Back and Fusion
RDOIT	Rapid Deployable Outbreak Investigation Team
ROE	Rules of Engagement
SACEUR	Supreme Allied Commander Europe
SCBA	Self Contained Breathing Apparatus
SCC	Sub-Collection Centre
SHAPE	Supreme Headquarters Allied Powers Europe
SIBCA	Sampling and Identification of Biological and Chemical Agents
SIBCRA	Sampling and Identification of Biological, Chemical and Radiological Agents
SIRA	Sampling and Identification of Radiological Agents
SME	Subject Matter Expert
SOP	Standing Operating Procedure
SSR	Sensitive Site Reconnaissance
STANAG	Standardisation Agreement

TACOM	Tactical Command
TACON	Tactical Control
TAOR	Tactical Area of Responsibility
TCN	Troop Contributing Nations
TFA	Toxic Free Area
TIB	Toxic Industrial Biological
TIC	Toxic Industrial Chemical
TIH	Toxic Industrial Hazard
TIM	Toxic Industrial Materials
TIR	Toxic Industrial Radiological
TOA	Transfer of Authority
TVRA	Threat, vulnerability and risk assessment
UAV	Unmanned Aerial Vehicle
UN	United Nations
VHA	Vapour Hazard Area
WMD	Weapons of Mass Destruction
W&R	Warning and Reporting
ZCC	Zone Control Centre

ANNEX B GLOSSARY OF TERMS AND DEFINITIONS

This Annex defines terms which are used for the purpose of this document and which are not included in the NATO database.

CBRN Render Safe[11]**.** Operations which am to systematically locate, secure, characterize, eliminate or dispose WMD, CBRN weapons, CBRN devices and CBRN materials and / or potential adversary's capability to research, develop, test, produce, stockpile, deploy, or employ such weapons, devices and materials.

CBRN Incident chain (to be defined)

Contamination Control Area (CCA). In collective chemical, biological, radiological and nuclear protection, an area before the toxic free area in which personnel can remove contaminated individual protective equipment with reduced risk, and where equipment and supplies can be decontaminated.
Note: The contamination control area includes the airlock(s), vapour hazard area, changing booth(s) and liquid hazard area.

Liquid Hazard Area (LHA). In collective chemical, biological, radiological and nuclear protection, that part of a contamination control area, which is reached directly from the entrance where personnel carry out decontamination.
Note: In this area, liquid chemicals and/or biological infectious agents may still exist.

Toxic Free Area (TFA). That area of collective chemical, biological, radiological and nuclear protection, which is airtight, pressurized, fed with clean filtered air and designed to be toxic free, where personnel do not need to wear individual protective equipment.

Toxic Industrial Material (TIM). A generic term for toxic or radioactive substances in solid, liquid, aerosolized or gaseous form.

Notes:
1. These may be used, or stored for use, for industrial, commercial, medical, military or domestic purposes.
2. Toxic industrial material may be chemical, biological or radioactive and described as toxic industrial chemical, toxic industrial biological or toxic industrial radiological.

Vapour Hazard Area (VHA). In collective chemical, biological, radiological and nuclear protection, that part of a contamination control area, between the liquid hazard area and the airlock area, where only chemical vapour hazard exists.

[11] (the term render safe is under consideration to be resolved)

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ANNEX C *REFERENCES PUBLICATIONS (as of 23rd Oct 2012)*

Refs, Pubs, STANAGs,	TITLE
C-M(2011) 0022	POLITICAL GUIDANCE
C/M(2009)0048	NATO´S COMPREHENSIVE, STRATEGIC-LEVEL POLICY FOR PREVENTING THE PROLIFERATION OF WEAPONS OF MASS DESTRUCTION (WMD) AND DEFENDING AGAINST CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR (CBRN) THREATS
DIMS/BUS-0138-2009	IMPLEMENTATION OF NATO´S COMPREHENSIVE, STRATEGIC-LEVEL POLICY FOR PREVENTING THE PROLIFERATION OF WEAPONS OF MASS DESTRUCTION (WMD) AND DEFENDING AGAINST CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR (CBRN) THREATS
IMSM-598-03	NATO MILITARY POLICY ON CONSEQUENCE MANAGEMENT
SG(2010)0311	NATO'S NEW STRATEGIC CONCEPT: REPORT OF THE GROUP OF EXPERTS
MC 400/3(NC)	MILITARY COMMITTEE GUIDANCE FOR THE MILITARY IMPLEMENTATION OF NATO´S STRATEGIC CONCEPT
MC 0586	MC POLICY FOR ALLIED FORCES AND THEIR USE IN OPERATIONS
MC 511(NC)	GUIDANCE FOR MILITARY OPERATIONS IN A CBRN ENVIRONMENT, INCLUDING THE POTENTIAL MILITARY CONTRIBUTION TO NATO´ S RESPONSE TO THE PROLIFERATION OF WMD
MC 0603	NATO COMPREHENSIVE CBRN DEFENCE CONCEPT **(Draft)**
MC 0590	NATO CBRN REACH BACK AND FUSION CONCEPT
SHCPPWMD/AA/10	BI-SC CONCEPT FOR THE JOINT PREVENTION OF TRAFFICKING CBRN MATERIAL IN THE MARITIME ENVIRONMENT
ACT 3000 TC-70	STRATEGIC LEVEL ANALYSIS OF CBRN DEFENCE CAPABILITIES

Refs, Pubs, STANAGs,	TITLE
MCM-0105-2007	CONSIDERATION ON FUTURE CBRN DEFENCE CAPABILITIES
MCM-0085-2010	MILITARY CONCEPT FOR NATO STRATEGIC COMMUNICATIONS
C-M (2005) 0052-AS1	RENDER SAFE
2070	EMERGENCY WAR BURIAL PROCEDURES
2190, AJP-2	JOINT INTELLIGENCE, COUNTER-INTELLIGENCE AND SECURITY DOCTRINE
2282, ATP-72	INTERSERVICE EOD OPERATIONS ON MULTINATIONAL DEPLOYMENTS
2490, AJP-3	ALLIED JOINT OPERATIONS
2509, AJP-9	NATO CIVIL-MILITARY CO-OPERATION (CIMIC) DOCTRINE
2451, AJP-3.8	ALLIED JOINT DOCTRINE FOR CBRN DEFENCE
2528, AJP-3.14	ALLIED JOINT DOCTRINE FOR FORCE PROTECTION
2295, AJP-3.15	ALLIED DOCTRINE FOR JOINT COUNTER IMPROVISED EXPLOSIVE DEVICES (C-IED)
2521, ATP-3.8.1, Vol I	CBRN DEFENCE ON OPERATIONS
2520, ATP-3.8.1, Vol. III	CBRN DEFENCE STANDARDS FOR EDUCATION, TRAINING AND EVALUATION
1455, ATP-71	ALLIED MARITIME INTERDICTION OPERATIONS

Refs, Pubs, STANAGs,	TITLE
2047	EMERGENCY ALARMS OF HAZARD OR ATTACK (CBRN AND AIR ATTACK ONLY)
2083	COMMANDER'S GUIDE ON THE EFFECTS FROM NUCLEAR RADIATION EXPOSURE OF GROUPS DURING WAR
2103, ATP-45	WARNING AND REPORTING AND HAZARD PREDICTION OF CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR INCIDENTS (OPERATORS MANUAL)
2126	FIRST AID DRESSINGS, FIRST AID KITS AND EMERGENCY MEDICAL CARE KITS
2143	EXPLOSIVE ORDNANCE RECONNAISSANCE/ EXPLOSIVE ORDNANCE DISPOSAL (EOR/EOD)
2242	POLICY FOR THE CHEMOPROPHYLAXIS AND IMMUNOTHERAPY OF NATO PERSONNEL AGAINST BIOLOGICAL WARFARE AGENTS
2352	CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR (CBRN) DEFENCE EQUIPMENT - OPERATIONAL GUIDELINES
2358	FIRST-AID AND HYGIENE TRAINING IN CBRN OPERATIONS
2461, AMedP-6 Vol. I	NATO HANDBOOK ON THE MEDICAL ASPECTS OF CBRN DEFENSIVE OPERATIONS (NUCLEAR)
2462, AMedP-6 Vol. II	NATO HANDBOOK ON THE MEDICAL ASPECTS OF CBRN DEFENSIVE OPERATIONS (BIOLOGICAL)
2463, AMedP-6 Vol. III	NATO HANDBOOK ON THE MEDICAL ASPECTS OF CBRN DEFENSIVE OPERATIONS (CHEMICAL)
2473	COMMANDER'S GUIDE TO RADIATION EXPOSURES IN NON-ARTICLE 5 CRISIS RESPONSE OPERATIONS
2474	DETERMINATION AND RECORDING OF IONISING RADIATION EXPOSURE FOR MEDICAL PURPOSES

Refs, Pubs, STANAGs,	TITLE
2475, AMedP-8 Vol. I	PLANNING GUIDE FOR THE ESTIMATION OF CBRN BATTLE CASUALTIES (NUCLEAR)
2476, AMedP-8 Vol. II	MEDICAL PLANNING GUIDE OF CBRN BATTLE CASUALTIES (BIOLOGICAL)
2477, AMedP-8 Vol. III	PLANNING GUIDE FOR THE ESTIMATION OF CBRN BATTLE CASUALTIES (CHEMICAL)
2478	MEDICAL SUPPORT FOR NUCLEAR,BIOLOGICAL AND CHEMICAL ENVIRONMENTS
2491	POLICY FOR THE IMMUNISATION OF NATO PERSONNEL AGAINST BIOLOGICAL WARFARE AGENTS
2499, ATP-65	THE EFFECT OF WEARING CBRN INDIVIDUAL PROTECTIVE EQUIPMENT ON INDIVIDUAL AND UNIT PERFORMANCE DURING MILITARY OPERATIONS
2515, ATP-70	COLLECTIVE PROTECTION IN A NUCLEAR, CHEMICAL AND BIOLOGICAL ENVIRONMENT (COLPRO)
2529	RAPIDLY DEPLOYABLE OUTBREAK INVESTIGATION TEAM (RDOIT) FOR SUSPECTED USE OF BIOLOGICAL WARFARE AGENTS
2609, AEODP-8	INTERSERVICE CHEMICAL BIOLOGICAL RADIOLOGICAL NUCLEAR EXPLOSIVE ORDNANCE DISPOSAL OPERATIONS (CBRN EOD) ON MULTINATIONAL DEPLOYMENTS
2871	FIRST-AID MATERIEL FOR CHEMICAL INJURIES
2873, AMedP-7	CONCEPT OF OPERATIONS OF MEDICAL SUPPORT IN CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR ENVIRONMENTS
2954	TRAINING OF MEDICAL PERSONNEL FOR CBRN DEFENCE OPERATIONS
2957	INTERNATIONAL SYSTEM (SI) UNITS USED BY ARMED FORCES IN THE NUCLEAR FIELD

Refs, Pubs, STANAGs,	TITLE
4521, AEP-7	NUCLEAR, BIOLOGICAL AND CHEMICAL (NBC) DEFENCE FACTORS IN THE DESIGN, TESTING AND ACCEPTANCE OF MILITARY EQUIPMENT
4632	DEPLOYABLE CBRN ANALYTICAL LABORATORY
4634, AEP-54	COLLECTIVE PROTECTION (COLPRO) IN A CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR (CBRN) ENVIRONMENT
4701, AEP-66	SAMPLING AND IDENTIFICATION OF BIOLOGICAL, CHEMICAL AND RADIOLOGICAL AGENTS (SIBCRA-HANDBOOK)
5048	THE MINIMUM SCALE OF CONNECTIVITY FOR COMMUNICATIONS AND INFORMATION SYSTEMS FOR NATO LAND FORCES
AAP-3	DIRECTIVES FOR THE DEVELOPMENT AND PRODUCTION OF NATO STANDARDIZATION AGREEMENTS (STANAGs) AND ALLIED PUBLICATIONS (APs)
3680, AAP-6	NATO GLOSSARY OF TERMS AND DEFINITIONS (ENGLISH AND FRENCH)
AAP-15	NATO GLOSSARY OF ABBREVIATIONS USED IN NATO DOCUMENTS AND PUBLICATIONS

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ANNEX D THE COMBINED JOINT CBRN DEFENCE TASK FORCE

1. Introduction

To address the availability of national assets, multinational CBRN defence capabilities deployed in support of a Commander Joint Task Force should when ever possible, be favoured as a possible option. An example is the Combined Joint CBRN Defence Task Force (CJ-CBRND-TF) with its Multinational CBRN Defence Battalion (CBRN-Bn).

2. Mission

On order, the CJ-CBRND-TF conducts CBRN defence operations in support of a designated NATO command to ensure Alliance freedom of action. The CJ-CBRND-TF is a high readiness, joint and combined, multi-functional task force capable of deploying as a whole, or to task organize as a mission-tailored force. The CJ-CBRND-TF will be capable of providing C-, B- and R-defense operations in support of any NATO formation. It will provide CBRN defence specialist capabilities, timely assessments, and advice to deployed NATO commanders and their staff across the full spectrum of operations.

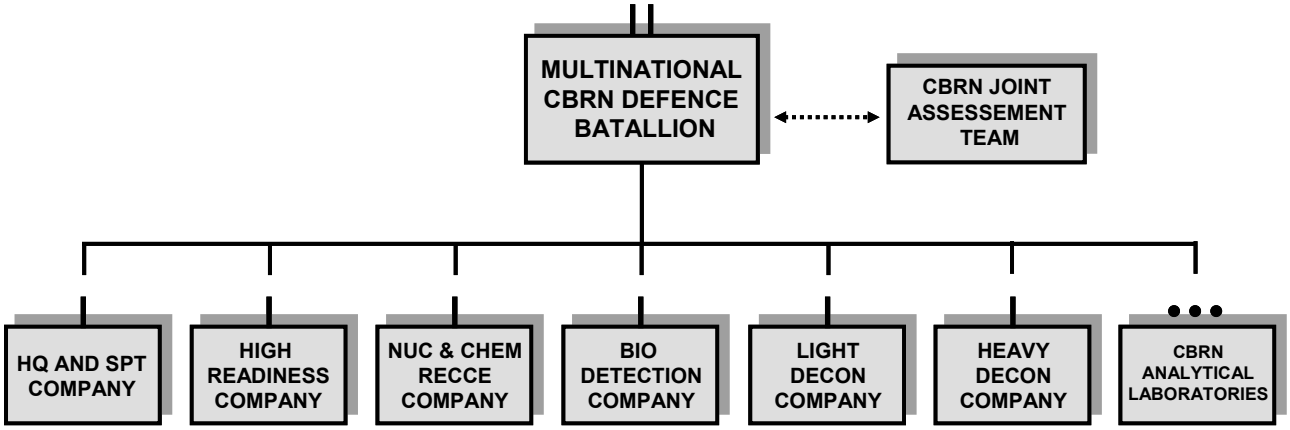
3. Readiness

Capabilities of the CJ-CBRND-TF will be held at 5 to 30 days graduated readiness and, when directed, prepare for deployment. The level of readiness within its structure is to be comparable with the requirements of the NRF and emerging NATO operations. To ensure and enhance burden sharing is achieved, it is to be a multinational unit. However, adherence to this approach must not impair CJ-CBRND-TF´s military capabilities.

While the overall structure is to be based on a pre-determined and designated structure, due to the varying threats that the Alliance may be countering, it is not a “one size fits all” solution to emerging crisis situations. It will be tailored for specific missions. The CJ-CBRND-TF will be capable of providing an initial CBRN defence capability that prepares the theatre for follow-on CBRN Defence capabilities while providing CBRN defence specialized support to all other initial entry forces and commands.

4. Structure

The following picture shows the basic structure of the **CJ-CBRND-TF**.



The CJ-CBRND-TF will fulfill tasks in support of a NATO force with specific CBRN defense tasks. The CJ-CBRND-TF supports the full range of tasks outlined in the render safe concept[12] with means, capabilities and agreed NATO standards.

5. Tasks

Key CBRN defence tasks of the CJ-CBRND-TF are:

a. Conduct CBRN Reconnaissance (including CBRN Surveillance and Survey).

b. Conduct CBRN Point and Stand-off Detection and Monitoring.

c. Identify CBRN substances and agents up to a confirmed level.

d. Conduct Decontamination Operations of personnel, materiel and critical infrastructure.

e. Provide timely CBRN Assessment and Advice, utilizing CBRN Reach Back capabilities.

6. CBRN Joint Assessment Team (CBRN JAT)

Due to its specific mission, the CBRN-JAT is a separate, but complementary capability to the CBRN-Bn. The CBRN-JAT will deploy independently of, but with support from, the CBRN-Bn.

On request from a NATO Commander, SACEUR will request TOA for the deployment of the CBRN-JAT.

[12] C-M(2005)0052-AS1, RENDER SAFE, 6 Jun 2005

The CBRN-JAT is an advisory team. It will normally be placed at the TACOM to the appropriate Theatre or CJTF after transfer of authority of the battalion is given to SACEUR. For purposes of administration and support the Commander CBRN-Bn will retain Administration Control (ADCON) of the CBRN-JAT.

The CBRN-JAT does not duplicate, nor replace, existing CBRN Defence staff capabilities; it supplements them.

The CBRN-JAT is able to operate across the full spectrum of land, air and maritime operations. These operations may range from local security tasks in a relatively benign area all the way across the operational spectrum to collective defence. Crisis response operations may range from peace support operations to Alliance combat operations.

The CBRN-JAT, as an assessment and advisory team, will not command any units, but will require the support of in-theatre CBRN Defence assets to conduct its task. A permanent staff element, provided by the lead nation, and collocated with the CBRN-Bn HQ, will plan and coordinate the support for each CBRN-JAT mission.

The CBRN-JAT will normally co-locate with the requesting NATO HQ to make the most of established structures and procedures in the Joint Area of Operations. A permanent element will co-ordinate the necessary support arrangements with the supported NATO HQ.

When deployed with the CBR-AL, the CBRN-JAT will provide the operational interface to the CJTF for the laboratory analysis results.

When deployed in support of CM operations, the CBRN-JAT will be required to liaise and coordinate with NATO Civil Emergency Planning organisations.

During the planning phase and the conduct of an operation, provide timely assessments and advice to NATO commanders and their staffs who are operating with a CBRN threat or in a CBRN environment. In detail:

1. Advise NATO commanders, in coordination with HQ CBRN Staff, on CBRN defence operations and protective measures to deter and defend against the effects of CBRN incidents, from state and/or non-state actors.

2. If requested, and in coordination with the Euro-Atlantic Disaster Response Coordination Centre (EADRCC), the CBRN-JAT provide expert advice to national authorities in managing the consequences to civilian populations and infrastructure of potential or actual CBRN attacks from state and/or non-state aggressors.

3. Provide assessments and advice in support of NATO-led Counter Terrorist (CT) operations to counter an imminent CBRN threat.

4. Advise on and assist in assigned CBRN Defence staffs to develop or review operational CBRN defence plans for operations in a CBRN environment, including asymmetrical/terrorist CBRN threats.

5. Advise on and assist in assessing CBRN defence requirements for a deployed force and recommend allocation of scarce CBRN defence resources.

6. Advise on and assist in preparations and actions necessary to minimise the impact of TIH on operations including environmental health hazards.

Military supporting tasks of the JAT in a post-CBRN incident is to advise and assist NATO CBRN staff, and if requested civilian authorities, in post incident hazard management operations to mitigate the effects of contamination.

7. C2 and CIS requirement for the CJ-CBRND-TF

The C2 of the specialist CBRN defence units/elements and in particular the CBRN-Bn must be configured to permit timely deployment, flexible force packaging and ensure the ability to react to a wide spectrum of missions. It must also provide the requisite level of expertise and capability to the supported commander. The CBRN-Bn C2 must also reflect NRF C2 plans and requirements.

The deployment of the CBRN-Bn into and out of the area of operations will require the joint coordination of the Deployed Joint Task Force (DJTF) HQ, SHAPE Allied Movement Co-ordination Centre (AMCC), lead nation and TCNs to integrate, coordinate and deconflict movement plans. The deployment of the battalion will be monitored and co-ordinated by SHAPE AMCC.

The CBRN-Bn will deploy under the command of a NATO operational HQ. The C2 parameters for the CBRN-Bn are based on the requirement to support high readiness units and the need to tailor CBRN forces (force package) to meet a wide spectrum of operations. The battalion C2 is structured around a number of C2 nodes that are capable of providing C2 for a number of units and adapting to the C2 requirements of the supported command. To ensure speedy deployment and flexibility of employment the size and composition of the C2 footprint will be mission dependent. Special command relationships will be required when the battalion or its subordinate units are deployed in support of a national operation.

The C2 of the CBRN Battalion will be based around a number of deployable battalion and Company level C2 nodes. To permit timely force packaging, C2 nodes will be based on the force generated battalion and company HQs for the CBRN battalion rotation. These HQ elements should be capable of commanding multifunctional CBRN units.

To ensure only necessary CBRN C2 is deployed for a mission, the size of the battalion C2 footprint will be mission dependent. Configuring the appropriate C2

nodes will be determined by examination of the mission, size of CBRN components deployed, dispersion of CBRN assets within JOA and supported command C2 structure.

The commander of the CBRN-Bn will then determine the CBRN C2 plan and allocate the appropriate CBRN C2 nodes to command and control the CBRN assets. The communications and Information Systems (CIS) plan may limit the desired C2 plan.

As a minimum, the battalion will always deploy a liaison team to the Deployed Joint Task Force (DJTF) or theatre HQ, in order to coordinate deployment and support for the deployed CBRN units from the battalion.

For planning purposes, a battalion level C2 node can command and control 2 – 7 CBRN companies. A company level C2 node can command and control 2 – 6 CBRN platoons.

The CBR-AL will always deploy with a C2 element provided by the CBRN Battalion lead nation. This will serve as the C2 node for the laboratories. The CBR-AL C2 will be TACOM to the subordinate supported command. While not ideal, the C2 node for the CBR-AL can be provided by a generic CBRN C2 node.

CIS which bear, handle and distribute information, provide the commander with the ability to manage the available information (AJP-3). During an CBRN incident, a large amount of information will be generated. Data can be generated from CBRN sensors and observers, from the general intelligence, surveillance target acquisition and reconnaissance (ISTAR) capability of the CJTF and from laboratory analysis and medical data. Additional data will be generated when this CBRN data is collected, integrated and analysed by the CJTF CBRN W&R capability. Where technically feasible, CBRN CIS needs to be integrated within the overall NATO operational automated information systems. This will ensure the rapid transmission of information and reduce the need to duplicate CIS capability. The aim is a common operational picture including the recognized CBRN situation.

CIS link the CJTF together and provide the necessary information for commanders' estimates at all operational and tactical levels. However, most CIS equipment is likely to be unhardened and needs to be protected against the electromagnetic pulse from nuclear weapons effects and from surface CBRN contamination.

J3 CBRN will need to advise the CJTF, and J6 CIS, at the outset on who needs which level and what quantity of CBRN information so that it is published within the CJTF's CIS plan. The crucial issue to be addressed by the CBRN information plan and understood throughout the CJTF is: “who needs what CBRN information, when, where, how and in what form”, rather than “what information can be acquired”. The CBRN information management plan requires close coordination with other plans.

The CBRN CIS will provide the capability to:

Employ CBRN warning technology which will collect, analyse, identify, locate, report and disseminate CBRN and TIM threats and hazards.

Develop “what - if” situations for contingency and operational planning.

Provide access to and dissemination of information held within higher formations, pertaining to the local CBRN situation.

Such a system is to be located in C2 centres at the appropriate operational and tactical level and employed by CBRN specialists and other designated personnel.

8. Simulation

The CJTF CIS capability can be used to insert CBRN incident data at operational CBRN defence sensors and the CBRN W&R chain to simulate CBRN scenarios. This can provide a simple but realistic opportunity to train and exercise the CJTF at all levels.

The provision of deployable CIS from the Battalion HQ ‘to’ and ‘through’ its sub-units is the responsibility of the CBRN-Bn lead nation (STANAG 5048). CIS from Company level C2 nodes is the responsibility of the framework nation.

Internal communication within the various elements and teams is a national responsibility. The proper means of external communication between the laboratory parts, the CBRN-JAT, the battalion HQ and to other units is the responsibility of the commander of the CBRN-Bn. The CBRN Def Battalion HQ, in coordination with the supported NATO Commander’s staff, will establish a communications plan.

The CBR-AL C2 element is to be capable of linking into deployed and fixed NATO CIS and communications infrastructure (including secure). If required, the CBRN-Bn lead nation is to provide additional CIS. The C2 element must be able to report rapidly to the JAT or nominated ‘reachback facility; communications is to be secure. It must have access to open sources i.e. Internet and subject matter experts. The HQ is also responsible for communications to the 5 elements of CBR-AL. Internal communication within the elements and teams is a national responsibility; for example, communication between members of a sampling team.

For CIS purposes the CBRN-JAT is a stand-alone capability. It must be equipped so that it can operate with only minimal CIS support from the supported NATO HQ.

Robust, mobile and compatible/interoperable CIS is vital for the success of CBRN-JAT missions. For a NATO led operation the available strategic NATO CIS, the supported NATO Commander CIS, the CBRN-Bn and the CBRN-JAT integrated CIS will be used to provide the necessary C2 services.

When NATO acts in a supporting role, for example during CM operations, special CIS plans will be developed to ensure the CBRN-JAT has the correct CIS to achieve its mission.

Overall responsibility for ensuring the CBRN-JAT has the required CIS support rests with the lead nation of the CBRN-Bn in coordination with the supported command.

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