NATO OTAN

Civil Emergency Planning

Plans civils d'urgence

Project on
Minimum Standards and Non-Binding Guidelines for
First Responders Regarding
Planning, Training, Procedure and Equipment
for Chemical, Biological, Radiological
and Nuclear (CBRN) Incidents

THE INTERNATIONAL CBRN TRAINING CURRICULUM

NATO Civil Emergency Planning
Civil Protection Committee

Foreword

The consequences of Chemical, Biological, Radiological and Nuclear (CBRN) emergencies may stretch national capabilities to their maximum extent. Responsibility for first response remains with individual nations. It is essential that nations build on their resources to respond and mitigate the consequences of an emergency situation to lives, property and the environment. Due to the nature of CBRN incidents, particularly their trans-national effects, co-operation between Euro-Atlantic Partnership Council (EAPC) nations is necessary. The development and adoption of Non-Binding Guidelines and Minimum Standards facilitates and improves national responses and mutual assistance.

The initiative to develop Non-Binding Guidelines and Minimum Standards for First Responders regarding planning, training, procedures and equipment for CBRN incidents, stems from the EAPC Seminar on responses to terrorism which was held in Warsaw in February 2002. It was subsequently included in the Civil Emergency Planning related section of the Weapons of Mass Destruction (WMD) Initiative Stocktaking Report adopted at the Reykjavik Ministerial in May 2002.

The purpose of the initiative is to provide general guidelines that EAPC nations may draw upon on a voluntary basis in order to enhance their preparedness to protect their civilian populations against CBRN risks. Such guidelines seek to improve understanding and interoperability between nations, thereby contributing to greater efficiency in the use and delivery of national and international assistance. The project fills a void at national and international level for consequence management planning, training, procedures and functional equipment for first responders. National legal responsibilities may be divided in substantially different ways; there can be no universal solution for CBRN-related civil emergency planning. Likewise, the mandates of first responders involved in emergency response may be formulated in substantially different ways from one nation to another. These guidelines are therefore generic in nature. They serve to establish a lowest common denominator through best practice and shared lessons learned.

Introduction

This booklet covers the international CBRN training programme, one of four work streams within the Non-Binding Guidelines and Minimum Standards project. The training programme provides a structure for a knowledge-based curriculum, including pilot training courses for current and prospective first responders. The purpose of such training is to ensure that first responders have a common knowledge base and a minimum level of preparedness when responding to CBRN incidents. Such training is designed to assist nations improve their civil emergency plans, complement national training systems and improve co-operation between first responders.
In developing the training system, a number of principles were agreed.

Training should be :

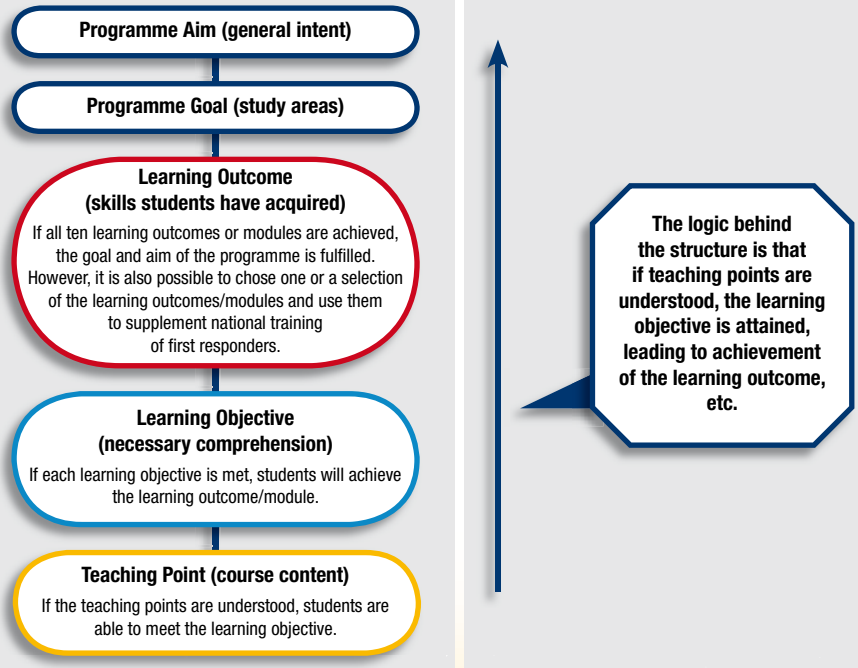
- Adaptable and flexible to accommodate different emergency management structures within the nations.
- Optional and used by nations to complement and complete national CBRN training programs as needed. It should not duplicate existing national training systems.
- Modular and focus on key functions of the immediate or short-term elements of the response. These modules can then be used in various combinations to meet the specific training needs of the nations.
- Dynamic and incorporate lessons learned and best practices from actual incidents.

For clarity, the term “First Responders” refers to individuals and teams that are involved in activities which address the immediate and short-term effects of a CBRN emergency. This includes on-scene personnel from the police, fire brigades and health services acting to minimise the consequences of a CBRN-emergency. It also includes personnel in hospitals, crisis management institutions and those involved in detection, verification and warning.

THE CBRN CURRICULUM

1. The CBRN Curriculum is divided into ten learning outcomes (also referred to as modules).
2. The learning outcomes can be used individually. Instructors can tailor the different learning outcomes of the curriculum to meet the individual needs of the audience or to complement a national training course for first responders.
3. Each learning outcome is built upon a number of learning objectives. These objectives consist of various components that support the overall outcome.
4. The teaching point, while not exhaustive, provides the understanding to achieve the learning objectives.
5. Instructors may determine the exact content of each module and develop activities accordingly.
6. A colour code facilitates use of the curriculum.

Figure 1. Structure of the training curriculum



Programme Aim (general intent):

To provide current and prospective first responders with minimum knowhow for CBRN response so that they can include this understanding in improving civil emergency plans, complementing national training courses and improving civil-military cooperation during incidents.

Programme Goal (study areas):

To understand the context and potential consequences of CBRN incidents and the actions to take during first response.

Learning Outcome 1:

Comprehend the context of CBRN response in relation to current national and international security concerns.

Learning Outcome 2:

Comprehend awareness requirements in relation to CBRN response.

Learning Outcome 3:

Comprehend protection requirements in relation to CBRN response.

Learning Outcome 4:

Comprehend decontamination requirements in relation to CBRN response.

Learning Outcome 5:

Comprehend first aid requirements in relation to CBRN response.

Learning Outcome 6:

Comprehend detection requirements in relation to CBRN reponse.

Learning Outcome 7:

Comprehend command and control requirements in relation to CBRN incidents.

Learning Outcome 8:

Comprehend the implications of bilateral or multilateral assistance for local first responders.

Learning Outcome 9:

Comprehend the implications of civil-military cooperation during CBRN response.

Learning Outcome 10:

Comprehend the capabilities and limitations of local crisis / consequence management structures and key services.

On the following pages each Learning Outcome or Module (one per page) is illustrated together with Learning Objectives and Teaching Points. In order to distinguish Learning Outcomes, Learning Objectives and Teaching Points, the following colour code is used :

Learning Outcome
(skills students have acquired).

Learning Objective
(necessary comprehension).

Teaching Points
(course content).

1. Comprehend the context of CBRN response in relation to current national and international security concerns.

Comprehend the significant changes in the current security environment and its implications for first responders.	Describe the evolving security environment since the Cold War and give examples of factors that have had an impact on the security environment e.g. free trade, free movement, the information society, expertise available on the internet, organized crime, globalisation, interdependencies, cross border effects, proliferation, illegal trafficking, copycat effects, low-probability/high-consequence attacks, poverty, fundamentalism, organisation of high visibility events (sports, summit meetings), media.
Comprehend the extent to which modern society depends on critical infrastructure and implications for first responders.	Describe modern society's dependency on electricity, software, the Internet, backups for communication, transport, water systems, health care, and food supply. What are the possible targets for terrorist attacks?
Comprehend the fundamental aims of terrorism.	List the typical elements of terrorism e.g. fear, economic impact, perception, media and publicity, symbolic value, political means, hoaxes attracting people to a scene when a secondary incident occurs. Not all groups use CBRN agents : likelihood of their use is estimated in accordance with national risk assessment.
Appreciate typical or likely means of terrorism.	Distinguish between a conventional explosion, cyber or CBRN attack, improvised explosive devices (IED), radio frequency weapons (RF), laser, combinations of the above. Simple mode of attack deployed in a novel way, possible secondary attacks, electronic magnetic pulse, commandeer tankers to block routes, parcels, letters with powder, human carrier, food and water supply chain.
Appreciate the likely consequences of CBRN incidents.	Describe the potential consequences of CBRN incidents including: mass casualties, difficult access, difficult response and recovery, high media interest, potential for media crises, political sensitivities, fear and anxiety, psycho-somatic reactions, civil disobedience, psychological impact, looting, overburdening of health facilities by persons with imaginary symptoms, economic impact due to changed buying behaviour, pressure on law enforcement and central authorities.

2. Comprehend the awareness requirements in relation to CBRN response.

- Obtain an overview and assess the general risk of the incident.
  - Explain how to observe, feel, hear, detect typical agents by telltale signs. Dispersion methods. Agent characteristics (smell, colored residue, dead foliage, dead insects and animals). Area affected. First responders should be aware of factors like : spasms, drooling, presence of a credible threat, suspicious objects, presence of a device or explosion. Observe indicators as to type of attack. Nature of device. Wind direction and weather conditions. Plume : consistency and drift direction. Presence, number and orientation of victims or casualties. Types of injury, symptoms. Witness statements or observations. Suggested safe access route, arrival or staging area.
  - Recognise indicators for a chemical, biological or radiologial/nuclear incident. Have there been calls to alert centers that indicate a CBRN incident? Determine whether it is a deliberate or accidental incident (possibly leading to security precautions and investigation steps). Have there been threats against buildings, an area or installations? Are there updates from the alert centre on suspected terrorist acts? Radio frequency indicators include unexplained bio-effects (sickness), malfunctioning electronic equipment. Laser indicators include dazzle effects such as impaired vision and blindness. Radioactive devices cause delayed biological effects on humans and animals.
  - Awareness of targets : installations which are most likely to attract media coverage.
- Determine the kinds of mechanisms.
  - Define the typical agent mechanisms, radiation, fire, explosion, skin rupture, breathing, burning, corrosiveness, paralysis, loss of focus, pinpoint pupils, salivation, loss of balance, headaches. Awareness of delayed effects (neutralize and remove).
  - Describe detection and possible identification steps using ones eyes.
- Operate detection equipment used by local units.
  - Operate equipment and exercise its use in a realistic scenario.
- Comprehend the command decisions to be taken (On site commanders and command centres).
  - Distances, tactics (downstream effluents, depressurisation), zones, avenues of approach, assessment of situation, secondary devices. Is this an act of terrorism?
- Appreciate potential consequences for follow up operations.
  - Describe typical impact on recovery of environment, investigation, evidence preservation dependent on type of incident, restoration, costs, seal off for forensic investigation, sampling, relocate evidence for further investigation (duration).
- Determine timelines.
  - Describe signs and factors to determine when the incident happened, rise in temperature, fires in storage areas, gas tanks, viscosity of substance (flow speed). Implications of signs and factors for safety of responders. Consider air time in breathing apparatus for rescue personnel. Illustrate timeframe and next steps. List possible next effects / forecast what will have happened by a given time.
- Gather key information from the scene.
  - Define essential information needed for continuing the response, media operations and command and control; number of casualties, leakages, gas, foams, labeling, markings, people leaving the scene, population density, wind direction, environmental impact, situation reports, and indicators of possible agents.
- Comprehend the possible alert mechanisms that may be available for the public.
  - Describe the steps to alarm, alert and secure (cordon) the contaminated area, car loudspeakers, sirens (if available at the scene), radio data system. Consider alternatives such as church bells, car horns, improvised alert mechanisms such as banging two pieces of metal together (take distance to hot zone in to consideration).

3. Comprehend the protection requirements in relation to CBRN response.

- Protection of persons involved (first responders, victims).
  - Explain and demonstrate how to use personal protective gear and conduct a routine after-check.
  - Use simulants, live agents training if possible.
  - Explain how to ensure physical security (secondary actions), such as following safety rules: in ordinary circumstances only authorised personnel allowed in hot zone. Victims handed over to ambulance transport once decontaminated. Treat all suspect weapons as actual weapons until declared safe. Never touch, move or otherwise disturb an object suspected of being a weapon. Leave object in the environment in which it was found (dark, light, cold, hot). Do not operate radios, mobiles or other electronic devices within exclusion zone of a suspected weapon - communicate from safe distance or area. Evacuate all personnel from vicinity of suspected weapon depending on its type. Evacuate upwind and uphill if a chemical, biological or radiaological agent is suspected. Establish cordon at minimum evacuation distance from the object. Establish Command Centre in a shielded position. Be aware of possible secondary devices - check routes, access corridors, waiting areas etc. Be aware of geography, terrain, building structures, enclosed spaces and targets.
- Comprehend what command decisions should be taken (On site commanders and command centers).
  - Distances, tactics (leakages, downstream effluents, depressurisation), zones (decide who enters hot zone), avenues of approach, assessment of situation, secondary devices. Establish whether incident is an act of terrorism.
- Manage access and exit of the zone.
  - Describe ways to check for contamination, primary triage.
  - Describe how to set up an inner, outer, collection and decontamination area to facilitate the control of contamination, describe the activities that take place in the different areas (some simultaneous).
- «Hot» zone management.
  - Describe hot zone management, the incident site. Size and scope of exclusion zones may need to be wider if an act of terrorism is suspected. Only essential authorised equipped and trained personnel allowed in the hot zone. Cost-benefit assessment. Awareness that Improvised Explosive Devise can be concealed in containers or spaces. Search for secondary devices.
- Control spill or dissemination.
  - Describe how to reduce spill and treating spilled materials, leakage and further dissemination in different circumstances, in order to reduce size of the response operation: stop fans and ventilation, close doors, solid, gas, viscosity, equipment to be used, recondensation of leaking gasses, depressurisation of pressurised tanks.

4. Comprehend the decontamination requirements in relation to CBRN response.

Decontaminate victims, first responders, vehicles and equipment in various situations.

Describe requirements and methods for decontaminating first responders, self-decontamination, vehicles, buildings and equipment according to agent. Absorbents. Zones, set up, triage. If an agent is only harzardous after long term exposure, do not delay life saving actions to victims in order to protect the first responder. However, consider the possibility of contamination and provide adequate (emergency) decontamination for the victim and the rescuer. Water spillage, heat to 130 degree. Issues regarding diesel and water. Clothes for first responders, drainage system, control measurement (indicator paper).

Describe requirements and techniques for decontaminatiing population groups. Zones, set up, triage. Different approaches to decontamination, variables (choice dependent on agent, distance, triage techniques, order of victims, first aid to «clean» victims by thorough decontamination, transport, number of victims). Categorise victims into: walk and stand, stretcher, need for first responders. Remove clothes (cut in order not to inhale), wash depending on the agent, treatment. Breathing apparatus should be the last equipment to be removed. Use of water, cloths, control measurement (indicator paper). Discuss cultural-, criminal- (handcuffed), religious-, weather-implications for decontamination.

Define thresholds, techniques and requirements for mass decontamination using examples and lessons learned, crowd control, direction, keeping people warm, hosing with water, awareness of exit points.

Comprehend the typical follow up requirements.

Describe typical follow up requirements, clothes, water downstream, consider where decontamination is possible, drainage (environment agency assistance), medical follow up.

5. Comprehend the first aid requirements in relation to CBRN incidents.

- Conduct CBRN related basic first aid.
  - Describe and illustrate basic first aid steps and actions relevant to CBRN incidents. Pre-, during- and post psychological support for first responders. Manage expectations, make clear to first responders the limitations of rescue and treatment. Avoid unrealistic expectations.
- Comprehend the psychological effects of exposure to CBRN incidents.
  - Explain the typical psychological effects of exposure to CBRN agents for both first responders and victims, debriefing under as normal circumstances as possible, phantom sicknesses, symptoms, need for information, follow up recommendations.

6. Comprehend the detection requirements in relation to CBRN incidents.

- Comprehend the basic principles of detection.
  - Describe means and methods for detection of all agents. Knowledge of telltale indicators, explosive meter, oxygen, CO2 meter, gas, CWA-detectors, portable library of chemical agents, indicator paper, wind measuring, thermometer, binoculars, knowledge of available resources.
- Ability to use most common equipment.
  - Explain, operate (calibration of equipment, fitting batteries) and exercise the use of the most common detection equipment (national, regional, local use).
- Comprehend similarities between detection techniques.
  - Describe and compare different detection means and procedures within a region (between neighboring nations, etc).

7. Comprehend the command and control requirements in relation to CBRN incidents.

Awareness of typical difficulties encountered during coordination.

- Describe a model for inter-team coordination during international assistance. Compare this model with the national model. Lessons learned from recent exercises or incidents.

  Point out potential problem areas: lack of procedures for cross border cooperation in civilian field, glossary, terminology, who has command, at what level of administrative structure, who is responsible for what, communication systems, coordination, who pays for what as situation develops (e.g. hot-warm-cold zone).

  Awareness of rules for warning and alert stemming from agreements with international organisations, LEMA, OSOC. Support to national authorities: illustrate with examples where international assistance would be needed : EADRCC (NATO HQ Brussels), MIC (EU Brussels), BITCHAZ (Lux), IAEA (Vienna), OPCW (Hague), WHO (Geneva), UN-OCHA (Geneva). Contact the international organisations: what are the teaching points per agency, points of contact.
- Demonstrate how to implement inter-agency and inter-authority coordination building on national experiences.
- Describe the mandates of various services / agencies involved in CBRN response.

Awareness of typical difficulties encountered during crisis communication.

- Illustrate different models for inter-team communication during international assistance, practical exercise using protection mask, terminology, frequency, secondary device, staging area.
- Describe inter-agency communication procedures and preparedness using national or international examples.
- Describe the basic principles of crisis communication.
- Describe ideas behind building relations with the media, facilitate provision of information to the media. Help media obtain footage, spokesperson, provide factual information, avoid speculation.
- Describe how to communicate most effectively to the public using current crisis communication principles.

8. Comprehend the implications of bilateral or multilateral assistance for local first responders.

Pre-empt inter-team problems likely to arise during international CBRN response.

Describe problems likely to arise during international CBRN response. Different procedures. Different standards. Different understanding of procedures. Different equipment. Language difficulties. Glossary. Different command structures. Different communication frequencies. Unclear lines of command. Unclear assignment of responsibilities. National standards of security and environment protection that also apply when abroad in support of other nations. Border crossing with equipment. Bilateral agreements, memoranda of understanding, problems of interoperability.

9. Comprehend the implications of civil-military cooperation during CBRN response.

Pre-empt multi-disciplinary problems likely to arise during civil-military cooperation in response to a CBRN incident.

Describe problems likely to arise during civil-military cooperation. Expectations. Culture. Civil. Military environment. Diverging agendas. Different mandates. Different needs for information and at different times. Unclear lines of command. Unclear assignment of responsibilities. Exercises, adopting similar procedures, holding frequent meetings, strict regulations for when and how military can assist civilian authorities, often more complicated if military assists abroad. Military readiness time typically longer than for civil authorities.

10. Comprehend the capabilities and limitations of local crisis / consequence management structures and key services.

Understand what to expect from agencies relevant to a CBRN incident.

Describe key elements of national / local consequence management structures including the police, firefighters, health services, hospitals, military, civil defense (if applicable), emergency management authorities, public information, specialist teams such as counter terrorist units or investigation. Response time of the various services. Build a short/limited scenario to stimulate discussion. Describe national and local contingency plans.

Notes

Notes

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0661-07 NATO GRAPHIC & PRINTING