

A failure to...

As civil and military CBRNE capabilities converge, William Finegan, a CBRN consultant, calls for a standardisation of language and thinking about the threat



DURING a recent US Department of Homeland Security (DHS) CBRNE field training exercise, I witnessed a breakdown in command. The confusion was founded in a failure of language which didn't permit the incident commander to define, let alone communicate, his strategic intent. In spite of adherence to NIMS standards and years of experience the absence of standardised terminology, combined with traditionally stovepiped legacy systems, led to what I perceived as indecision and operational paralysis.

Imagine for a moment that you also witnessed this response to "a terrorism CBRNE incident with unknown casualties". All hands arrive, perform a scene size-up, don appropriate PPE and get ready to go to work. The incident commander, a fire chief, orders his hazmat techs to "classify, identify and verify" the agent involved. The quick-thinking tactical leader of the hazmat teams requests that Explosive Ordnance Disposal (EOD) checks for the presence of an IED or secondary device. The EOD boss then requests a SWAT team clear the building of possible shooters before his team lumbers down range. The SWAT sergeant has his "six man stack" geared up, but waits on giving the order to make dynamic entry until he has an all-clear from the hazmat guys. Meanwhile, EMS is clamouring to enter the structure to perform triage. This is an example of a perfectly executed Operation Catch-

22. Without adequate language to characterise the threat, they were unable to define the mission, create a strategy and execute it tactically. They did everything to the best of their ability. CBRNE terrorism isn't a typical 911 response.

Terrorism is a form of Maoist insurgency; it is post-modern warfare. A leading military theorist, Col TX Hammes, USMC, defines its uniqueness with his term "Forth Generation Warfare" (4GW). In his analysis, the 4GW threat is as real for first responders as it is for any soldier or marine. The fact that many first responders may not recognise, or like, the fact that we (they) are at war cannot change the objective reality that war has been declared on us. During CBRNE terrorist events our first responders are called to become a new generation of sophisticated, highly technical and adaptive warriors with missions that differ significantly from old school warriors.

This is just one example of the globalisation of warfare, and the corresponding paradigm shift isn't limited to first responders. Our deployed military is learning the basics of emergency management and law enforcement patrol. To effectively control an insurgency, the unrestricted use of force has to be balanced with law enforcement's "force continuum" doctrine. Imagine trying to win "the hearts and minds" without having access to the term "force continuum." Without appropriate language and the

COMMUNICATE

A failure to... **COMMUNICATE**

understanding that comes with it, warriors would apply old paradigms and risk overpowering the local civilian populations. The resulting collateral damage would radicalise those populations, which in turn would support the insurgents' strategy. General Krulak, USMC found a balance with his "three block war" doctrine. The first block sees active combat. In the middle you engage in peacekeeping, and in the third you do national building. In order for first responders to create a parallel doctrine and resolve the dilemma of the domestic CBRNE incident, they need adequate language to guide them through the changing terrain.

First responders have effectively dealt with the addition of missions in the past. Part of their solution to those challenges included creating new language that provided standardised assumptions and a common operational perspective. For example, when they began systematically dealing with industrial chemical releases in the early 1970s, they called them hazardous materials, and from this came Hazardous Materials Technicians. At the same time, they began systematically dealing with medical emergencies which lead to the creation of Emergency Medical Technicians. The acronyms CBRNE and IED are examples of standardised language that defines part of the 4GW threat. The terms are common to the military and first responders because both recognize them as threats.

The term IED has become standardised and was readily accepted by both military and law enforcement Explosive Ordnance Disposal (EOD) Technicians because it communicated the strategic intent and tactical execution of terrorist. This "best practice" communicates standardised assumptions and gives all responders a common operational perspective. Similar standardised language would resolve the misunderstandings between hazmat techs and the military NBC communities.

The simple fact which seems to escape both communities is that the chemistry of toxic industrial chemicals (TICs) and chemical warfare agents (CWA) is identical, as is their effect on human physiology. The laws of chemistry and physics don't care if your uniform is blue, green or desert tan. The weapons that

terrorist will use are *both* toxic industrial chemicals *and* chemical warfare agents. They should be considered *toxic industrial chemical warfare agents* (TICWAs). When TICWAs have been weaponised by terrorists, they become improvised chemical devices (ICDs). Like CBRNE and IED, the acronym ICD and the assumptions that drive it have strategic and tactical implications for both the military and first responders.

This is a departure from the approach taken by organisations like the National Fire Protection Administration (NFPA). In an attempt to define terms, the NFPA Committee tasked with CBRNE personal protective equipment standards created and defined chemical terrorism agents (CTA), chemical warfare agents (CWA) and dual-use industrial chemicals (DUIC). The NFPA definitions are self-referential and confusing. For example, they define CTAs as CWAs and/or DUIC that are used by terrorists. DUICs are defined as highly toxic mass-casualty threats *and* they can be used by terrorists, while CWAs are defined as chemicals used on a battlefield to kill or incapacitate an enemy. The source of the NFPA's confusion lies in the failure to recognise that terrorism is 4GW. Since civilians are the targeted enemies of terrorists, and the battlefield is the home-front, then any chemical used by a terrorist would be, according to the NFPA definitions a CWA, a DUIC, and a CTA.

There is an example of the knowledge deficit regarding the similarities and differences of toxic industrial chemicals and chemical warfare agents. The NFPA 1994 committee has created personal protective equipment (PPE) testing standards against TICs and CWAs, (but not for CTAs or DUICs). To represent CWAs, they selected VX, L, HD and GB. They chose acrolein, acetonitrile and chlorine to characterise TICs. Ironically, the first CWA successfully used on the battlefields of the First World War was chlorine, and acrolein was introduced in January 1916 by the French who called it Papite. In fact, all three of their TICs were actually CWAs from the First World War.

In September 1941, the Nazi's used Zylon B, a form of hydrocyanic acid, to kill Soviet prisoners of war in Auschwitz Birkenau. This was the first use of CWAs in the Holocaust. In addition to the Nazi's other techniques, an estimated 1.5 million

people were murdered in the Auschwitz Birkenau and Majdanek camps using high concentrations of Zylon B. It is still manufactured and sold in Eastern Europe for use as a pesticide.

In 1938, four German chemists created another pesticide, isopropyl methylphosphonofluoridate (CAS 107-44-8). When it was found to be too toxic for commercial use, it was further purified and modified to increase its toxicity well beyond levels that would be tolerable in industry. This TIC became a CWA and was named Sarin after its creators, Schrader, Ambos, Rudriger, and von der Linde. It was subsequently classified as the chemical warfare agent GB.

Knowledge of the use of chemical weapons spread to the Middle East before the Second World War. They were first used by Britain in Palestine during the second Battle of Gaza in the First World War. The British used them again in Iraq (mustard) in the 1920s. The Spanish used them in Morocco against the Rif rebels in 1925. Mussolini authorised the Italian Army to use CWAs in Libya (mustard) in the 1930, and Italy used mustard again in Ethiopia in the 1936.

After the Second World War, Arab Muslims began using CWAs against each other. The Egyptian military used phosgene in the 1963-67 North Yemeni Civil War. Iraq used mustard extensively against Iran in the 1980-88 Iran-Iraq War. It is reported that Libya used Iranian supplied CWAs against Chadian troops in 1987-88.

Five decades after the Nazis had invented it, on March 20, 1995 the apocalyptic cult Aum Shinrikyo deployed Sarin in the Tokyo subway, killing 12 people and sending thousands to hospital. This is the only example of a terrorist organisation successfully weaponising and deploying any chemical as a weapon of mass destruction. Terrorists must improvise their weapons by using locally available materiel because they lack logistical support. With this in mind, The Dictionary of Military and Associated Terms (JCS Pub 1-02) "improvise" two definitions: improvised explosive devices (IED), and improvised nuclear device (IND).

◆ **Improved explosive device (IED)** A device placed or fabricated in an

improvised manner incorporating destructive, lethal, noxious, pyrotechnic, or incendiary chemicals and designed to destroy, incapacitate, harass, or distract. It may incorporate military stores, but is normally devised from non-military components.

◆ **Improved nuclear device (IND)** A device incorporating radioactive materials designed to result in the dispersal of radioactive material or in the formation of nuclear-yield reaction. Such devices may be fabricated in a completely improvised manner or may be an improvised modification to a US or foreign nuclear weapon.

These definitions address the Nuclear and Explosive in CBRNE. That leaves chemical, biological and radiological undefined. Building on the structure of the JCS definition, I would propose we add the following four definitions:

◆ **Improved chemical device (ICD)** A device incorporating the toxic attributes of chemical materials designed to result in the dispersal of these toxic chemical materials for the purpose of creating a primary patho-physiological toxic effect (morbidity and mortality), or secondary psychological effect (causing fear and behaviour modification) on a larger population. Such devices may be fabricated in a completely improvised manner or may be an improvised modification to a US or foreign weapon.

◆ **Improved biological device (IBD)** A device incorporating biological materials designed to result in the dispersal of vector-borne biological material for the purpose of creating a primary patho-physiological toxic effect (morbidity and mortality), or secondary psychological effect (causing fear and behaviour modification) on a larger population. Such devices are fabricated in a completely improvised manner.

◆ **Improved radioactive device (IRD or "dirty bomb")** A device incorporating radioactive materials designed to result in the dispersal of radioactive material for the purpose of area denial and economic damage, and/or for the purpose of creating a primary patho-physiological toxic effect



"Now what have we here? New devices, new threats, new language?" © DoD

A failure to... **COMMUNICATE**

(morbidity and mortality), or secondary psychological effect (causing fear and behaviour modification) on a larger population. Such devices may be fabricated in a completely improvised manner or may be an improvised modification to a US or foreign nuclear weapon.

Finally, recognising the widespread use of arson in the Parisian intifada, and its appearance in movies, it would be prudent to consider the use of fire as a weapon and include a modern definition of the Molotov cocktail.

◆ **Improved incendiary device (IID, arson or Molotov Cocktail)** A device leveraging exothermic chemical reactions designed to result in the rapid spread of fire for the purpose of creating

a primary patho-physiological effect (morbidity and mortality), or secondary psychological effect (causing fear and behaviour modification) on a larger population. May also be used with the intent of gaining a tactical advantage. Such devices may be fabricated in a completely improvised manner or may be an improvised modification to a US or foreign weapon.

In November 2004, Iraqi and coalition forces raided an insurgent lab and recovered IED ingredients including sodium, potassium and ammonium nitrate, nitric and sulphuric acid, and black powder. They also recovered CWA ingredients including potassium cyanide and hydrochloric acid, magnesium and acetone. Documents were also found in Afghanistan with directions for the

production of mustard, Sarin and VX. While we found the precursors for CWAs, we need to remember that terrorists cannot deploy them by using old-school Soviet massed artillery barrages. They weren't going to make traditional military chemical weapons.

Did we find our grandfathers' CWAs, hazmat TICs or something altogether new-ICDs? The terms ICD, IBD, IRD and IID are designed to help coalition military forces and first responder communicate the reality of CBRNE events. In the final analysis it doesn't matter if you are responsible for protecting Main Street USA, Piccadilly Circus, a checkpoint on Route Irish, or on a winding road in Afghanistan; we should all have the ability to communicate using a standardised terminology based on well founded assumptions.



A standardised language will better improve cooperation and our understanding of the threat © DoD.