

Myths and misses #3

Send for the cavalry...

In the third of four articles, Lieutenant-Colonel Rick Barker dispels some common misconceptions about CBRN Defence

This penultimate column will look at two misconceptions. The first is the sometimes-held belief that the military is ever at the ready to respond in force to CBRN incidents. The second is less commonplace – the notion that one can escape the consequences of an approaching gas cloud by climbing above it.

The history of CBRN is replete with examples of military attacks and means of protection against them; indeed, modern CBRN was born in the trenches of the First World War. The horrific accounts of the scale and suffering of those attacks are surely etched in the memories of all who work in CBRN today. From the rudimentary gas masks that troops used in that conflict to the sophisticated devices available today to sense, warn, protect and decontaminate, the militaries of

the world have prompted the development and served as primary users of much CBRN defence equipment. It is thus understandable that many regard the military as an obvious agent for crisis management and consequence management in dealing with a CBRN incident. For a variety of reasons, military support often falls short of this ideal.

Many factors make the military an attractive source of CBRN response: the highly-developed command and control structure, the often-unique equipment it has, and the manpower it can bring to bear upon a situation. The other side of the coin carries just as many counter-arguments. Some nations have statutes limiting the degree to which armed forces may act in domestic situations, and units are often located far from potential CBRN targets. The fact that military personnel are trained to engage in high-intensity combat operations means troops are not always well-suited to peacetime situations dealing with fellow citizens. Military protective equipment has been optimised for historical battlefield threats, rather

than those likely to be faced in domestic situations. This is in the process of changing, but compromises have to be made. Another consideration is that the spectre of gas-masked soldiers on the streets can increase the sense of panic amongst the populace.

So what can the military contribute to the domestic mission? Civilian responders are normally well equipped to respond to critical post-incident tasks, but do not necessarily carry the full suite of capabilities that the military can offer to the full spectrum – from pre-event through crisis management to post-event. Capabilities such as a full sensor suite, a warning and reporting system and collective protection are more often in military hands than those of civilian authorities. Sheer manpower is another feature of the armed forces that can contribute effectively, particularly in consequence management, but this is invariable due to the many other commitments that affect military availability.

The key enabling factor in military support to civilian agencies is,



'The author's wife kindly subjects him to a CBRN agent to prove his contention...' ©Rick Barker

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understandably, that of pre-planning. Without a thorough grasp of each other's capabilities and limitations, the military-civilian partnership cannot hope to realise its potential.

Capabilities include not just a list of equipment and personnel available but also a clear comprehension of how quickly these assets can be put into action and how long this support can be sustained. Limitations comprise such factors as the compatibility of communications systems, the time required to move military forces to the incident and even the process of requesting and gaining approval for the support.

One aspect that cannot be overemphasised is the value of exercises. A well-conceived exercise plan, evolving from tabletop sessions right through to full-scale, realistic scenarios, will identify most shortfalls of interoperability, hopefully

sufficiently in advance of any real event to allow for them to be addressed.

Military-civilian exercises are something that Nato is aggressively pursuing to this end.

The second misconception described in this column is one that arises occasionally among newcomers to the CBRN world who observe that clouds of contamination are normally heavier than air. "Can I climb a tree or a set of stairs to escape an approaching dispersion," they ask? Probably not a good idea... A simple way to determine whether a gas is inclined to rise or fall in the atmosphere is to calculate its atomic weight and compare it to that of air. For example, chlorine (Cl_2) has a molecular weight of about 71, while air weighs in at approximately 29; thus, chlorine is more than twice as dense as air and will tend to hug the ground when released. If not, chlorine would not have been effective against

troops "dug in" their trenches during the First World War.

Of course, we usually fall short of ideal, stable atmospheric conditions and, if the gas in question has been heated by its release, the weight differential is less. This fact, coupled with a variety of factors that cause vertical movements in the lower atmosphere, means a good deal of mixing occurs (see Myths and Misses #1) and gases tend to be distributed higher than the theoretical model would suggest. Thus, climbing a tree to escape an approaching gas cloud would not offer refuge but might mean that the fall from its branches puts you out of your misery a little faster. The keys to immediate survival during a CBRN event are knowledge, protection and avoidance but, for the latter, horizontal escape is a much safer course than a vertical one. In other words, take flight not height.

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