

Chapter VI

Situation Awareness through Feature Recognition

INTRODUCTION

To help establish response plans for protecting U.S. homeland security, a standardized set of scenarios that can function as a “common operating picture” has been developed under the leadership of the U.S. Homeland Security Council (HSC) and Department of Homeland Security (DHS), according to The New York Times (Lipton, 2005). The 15 developed scenarios help identify critical capabilities and procedures for response, define operational parameters for layer response capabilities, establish a foundation for resource decisions, and pave the way to identify needed technology enhancements. To ensure that emergency planning is adequate, each scenario generally reflects suspected terrorist capabilities and known tradecraft. Of the 15 scenarios, 12 refer to human-made intentional terror attacks, and 3 pertain to catastrophic natural disasters (i.e., influenza pandemic, magnitude 7.2 earthquake in a major city, and slow-moving category 5 hurricane hitting a major East Coast city). Of the 12 human-made terror attacks, 8 are biological or chemical strikes, including the release of a Sarin nerve agent in an office building, spraying aerosolized anthrax over five cities in two weeks, and spreading pneumonic plague in the bathrooms of an airport, sports arena, and train station. Two scenarios involve the use of nuclear and radiological dispersion devices in a large metropolitan area or regionally significant cities, and one suggests an explosion using improvised explosive devices. The scenarios also include a cyber attack that affects several parts of the nation’s finance infrastructure. Biologically or chemically related threats clearly have prompted heightened concern; an attack involving biological or chemical contagious pathogens, if it were to occur, would cause tremendous damage to the public.

A great deal of discussion and research surrounds these 15 scenarios. Some researchers use them as platforms and suggest a variety of response strategies (e.g., U.S. General Accounting Office [GAO], 2007; Relman & Olson, 2001); others consider them the worst-case scenarios and conduct risk assessments to evaluate their probability of occurrence to suggest resource allocations. Several researchers further argue that the threats of terrorist attacks involving chemical, biological, radiological, or nuclear materials (CBRN) may have a low probability in reality for various reasons, including the difficulty terrorists have obtaining some of required components of nuclear materials or highly infective strains of biological and chemical agents, as well as the significant technical and operational challenges to

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making chemical or biological agents of sufficient quality and quantity to kill or injure a large number of people (GAO, 2000; Powers & Ban, 2004). Such threat risk assessments can be described using the following equation:

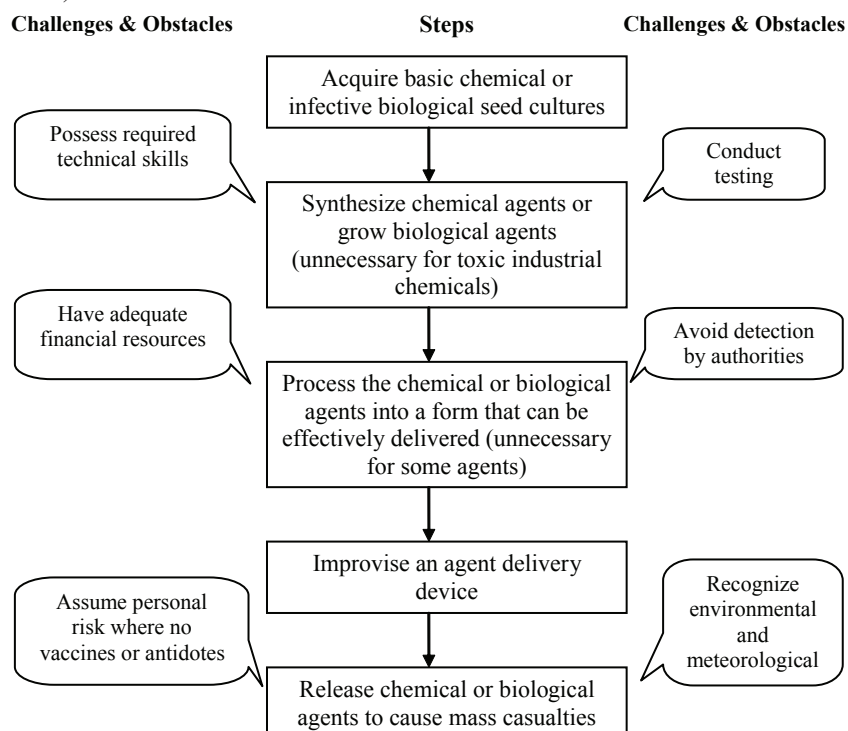
Intentions + Capabilities => Probable Threat Risk.

The threat risk thus is based on the motivation and capability of the perpetrators to carry out such attacks. The September 11 event demonstrated terrorists' intentions to cause maximum damage. Therefore, the level of potential threat risk relies on the magnitude of the capabilities, such as acquisition of materials and technical competency, that terrorists possess to carry out an attack. If the level of potential threat risk is obtained, this value can be interpreted using the following classification scheme (GAO, 1997):

- **Frequent:** (Indicating) an unexpected event is likely to occur frequently.
- **Probable:** An unexpected event will occur several times.
- **Occasional:** An unexpected event is likely to occur sometime.
- **Remote:** An unexpected event is unlikely but possible to occur.
- **Improbable:** An unexpected event is very much unlikely to occur.

CIA Director George Tenet testified before the U.S. Congress that terrorists currently rely on conventional explosives, but several groups (e.g., al-Qaida, the most familiar example) seek chemical, biologi-

Figure 6.1. Steps for terrorists to conduct chemical and biological terrorism and obstacles to overcome (Source: GAO, 2000)



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