

## **The Use of CBRN Weapons by Non-State Terrorists**

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### **Abstract**

Today's world faces challenges and threats of unprecedented scope, scale and complexity. In recent decades, the world has seen many changes, not only because of the complexity of world matters, but also because of the entrance of non-state actors in world politics. Chemical, biological, radiological, and nuclear (CBRN) weapons are a threat to the health and well-being of the international community. Given the real threat of a large-scale CBRN attack, defense against these weapons is both an international security and public health issue. In recent years, the goals and actions of non-state terrorists have changed in a way that makes the use of CBRN weapons more within the realm of possibility, while technological advances have made the possibility of a CBRN attack more feasible than in decades and centuries past. Advances in science and technology have made the threat of a CBRN attack a distinct possibility. This paper seeks to provide an overview of terrorism as a whole, as well as a current and future assessment of non-state actors and the use of CBRN weapons.

**Keywords:** CBRN, United States, terrorism, policy, warfare, anthrax

### **Introduction**

Terrorism is both a complex and simple phenomenon. The concept of terrorism is simple in that it almost always involves violence, but it is complex as there is no way to gauge which forms of violence should be classified as terrorism, and also because there are so many different types of organizations with varying objectives and strategies.

Bruce Hoffman explains that terrorism is both a political and violent phenomenon. Hoffman states,

Terrorism, in the most widely accepted contemporary usage of the term, is fundamentally and inherently political. It is also ineluctably about power: the pursuit of power, the acquisition of power, and the use of power to achieve political change. Terrorism is thus violence – or, equally important, the threat of violence used and directed in pursuit of, or in service of, a political aim (Hoffman 2006).

The U.S. Code and FBI definition of terrorism derived from it is that it is “unlawful use of force or violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof in furtherance of political or social objectives” (Hoffman 2006). Bruce Hoffman explains that the FBI's mission of mission of investigating and solving

crimes – both political (e.g., terrorism) and other give its definition of terrorism a broader focus than other agencies like the State Department (Hoffman 2006). Additionally, “the FBI definition also identifies a much broader category of terrorist targets than only “noncombatants,” specifying not only governments and their citizens but also inanimate objects, such as private and public property” (Hoffman 2006).

The method by which terrorism is carried out is also important to understanding the phenomenon. Bruce Hoffman states, “contrary to both popular belief and media depiction, most terrorism is neither crazed nor capricious” (Hoffman 2006). Instead, “terrorist attacks are generally both premeditated and carefully planned,” and the “terrorist act is specifically designed to communicate a message” (Hoffman 2006). Furthermore, terrorist attacks are typically “conceived and executed in a manner that simultaneously reflects the terrorist group’s particular aims and motivations, fits its resources and capabilities, and takes into account the “target audience” at which the act is directed” (Hoffman 2006). As such, different terrorist organizations utilize different tactics, targets, and weapons, all of which are “shaped by a group’s ideology, its internal organizational dynamics, and the personalities of its key members, as well as a variety of internal and external stimuli” (Hoffman 2006).

Since September 11, 2001, terrorism has been at the forefront of the world’s consciousness. This is largely due to the fact that the U.S. was considered to be the most powerful state in the world, yet it was the victim of the 9/11 terrorist attacks. As a result, the U.S. began to stress the importance of other states and the United Nations (UN) to accord high priority to counter-terrorism. Furthermore, the U.S. has the capacity and the institutional standing (UN Security Council membership, membership in the North Atlantic Treaty Organization and other organizations) to ensure that most of the international community joined it in attempting to suppress terrorism.

Tim Sweijs and Jaakko Kooroshy explain that chemical, biological, radiological, and nuclear (CBRN) weapons have been utilized throughout the twentieth century, citing the mustard gas used in World War I, the nuclear bombs dropped by the US on Japan at the end of World War II, and the chemical weapons used by Iraq against its own population in 1988 as examples (Sweijs & Kooroshy 2010). These weapons have revolutionized terrorism over the last century. As a result, states have dedicated “significant attention and resources to countering the proliferation of CBRN weapons and preparing for the potential effects of CBRN attacks” (Sweijs & Kooroshy 2010). The links between non-state terrorist actors and CBRN weapons will be explained below.

### **Current Assessment of Non-State Terrorist Actors and the Use of CBRN Weapons**

Today’s world faces challenges and threats of unprecedented scope, scale and complexity. In recent decades, the world has seen many changes, not only because of the complexity of world matters, but also because of the entrance of non-state actors in world politics. The world’s challenges and threats are changing for many reasons, especially because of increased interaction in world politics, to include: relations not only between states, but also relations between international organizations and states, between the international organizations themselves, and the relationships between states, international organizations and the law.

The expansions described above occurred largely after the end of the Cold War. After the Soviet Union fell, opportunities for global cooperation were largely increased, making “the international law of the 21<sup>st</sup> century work from a fundamentally different starting point from that

which characterized much of the last century” (Dunoff, Ratner, & Wippman 2010). Globalization in the wake of the Cold War has only accelerated and intensified these challenges. Ku and Diehl state that over the past six decades, “the character of the international system and its conflicts has changed” (Ku & Diehl 2009). Many new actors have been added to the international scene, and number of actors carrying out unlawful activities has grown to include sub-national groups such as “terrorists, crime syndicates and narco-traffickers” (Ku & Diehl 2009). These actors have added a new dimension to conflicts between states and have greatly changed the international system even from what it was at the beginning of the 21<sup>st</sup> century.

In the years after September 11<sup>th</sup>, “many scholarly and policy analyses have focused on the causes and consequences of the new terrorism” (Blum, Asal, & Wilkenfeld 2005). This new terrorism is caused by the emergence of “religious and millenarian terrorists in contrast to the political terrorists who dominated the old terrorism” (Blum, Asal, & Wilkenfeld 2005). The emergence of stateless terrorists has removed the “restraints imposed by their territorially defined supporters” (Blum, Asal, & Wilkenfeld 2005). Additionally, stateless terrorists, like al Qaeda, call “not only the defeat of the enemy, but their annihilation” (Blum, Asal, & Wilkenfeld 2005). This leads to terrorist attacks classified as “mass casualty events,” such as September 11<sup>th</sup> (Blum, Asal, & Wilkenfeld 2005).

The use of CBRN weapons poses a great threat to the international community. Although CBRN weapons used thus far by terrorist groups and/or individuals not yet caused mass destruction, they have had considerable effect on the societies against which they were used. This shows that one of the main motivations behind the use of CBRN weapons is the psychological effect they have on the populations they target. Furthering this point, the effect of terrorist use of CBRN weapons is a force multiplier, in that the psychological impact of these weapons on the general population of a country is so great.

Sweijts and Kooroshy assess each aspect of CBRN weapons (chemical, biological, radiological and nuclear). This provides an individual assessment of the use and threat associated with each type of weapon. Chemical weapons are defined as “non-living, manufactured chemical agents combined with a dispersal mechanism that, when activated, produce incapacitating, damaging or lethal effects on human beings, animals or plants” (Sweijts & Kooroshy 2010). These weapons are difficult to design and build; and non-state terrorist actors face technological challenges in building such weapons. However, “the intent of non-state actors to use chemical weapons is certainly present” (Sweijts & Kooroshy 2010). There have been multiple chemical attacks by non-state actors – most notably the Tokyo Sarin gas attacks by Aum Shrinikyo in 1995. Additionally, the Monterey WMD terrorism database states that from “1988-2004, 207 of the 316 CBRN incidents recorded involved chemical weapons” (Sweijts & Kooroshy 2010).

Biological warfare agents are defined as “microorganisms such as viruses or bacteria that infect humans, livestock or crops and cause an incapacitating or fatal disease” (Sweijts & Kooroshy 2010). Non-state actors are most likely to commit biological terrorism, due to the fact that “advanced biotechnology is growing in an increasingly important part of the global economy” (Sweijts & Kooroshy 2010). Sweijts and Kooroshy explain that over 25 non-state actors have “shown concerted interest in acquiring biological weapons, with at least eight of them known to have been successful” (Sweijts & Kooroshy 2010). The 2001 anthrax attacks in the United States is a key example of this type of attack. If successfully deployed, “a terrorist attack with biological weapons could have devastating consequences, with 10 grams of anthrax spores being theoretically able to kill as many people as a ton of the nerve gas sarin, and 30 kg as

many people as a nuclear bomb of the size used in Hiroshima” (Sweijts & Kooroshy, 17, 2010). As such, the international community must be vigilant in ensuring that non-state terrorists do not acquire and deploy biological weapons.

Radiological weapons “combine radioactive material with a means of dispersing it among a target population, resulting in the inhalation or ingestion of, or immersion with, radioactive material” (Sweijts & Kooroshy 2010). These weapons are less destructive than nuclear weapons, but still have the capability to cause “cause considerable casualties, widespread panic and disruption, as well as sizeable economic damage” (Sweijts & Kooroshy 2010). Radiological weapons have become the non-state terrorist weapon of choice in that they are easy to acquire and transport. Radiological weapons are often referred to as “dirty bombs.” If utilized, “the amount of casualties would be relatively low,” but the repercussions “are likely to be severe due to the large scale disruption of public life, an enormous stress on the health care system, extremely expensive clean-up operations, and the likelihood of a sizeable psychological impact” (Sweijts & Kooroshy 2010).

Sweijts and Kooroshy explain that there are a number of reports of non-state actors “intending and attempting to acquire nuclear weapons” (Sweijts & Kooroshy 2010). These “catastrophic terrorists...have the intention to wreak massive havoc on societies” – and despite the fact that most non-state actors “would face significant obstacles in building a nuclear bomb, some experts stress that they in principle would be able to build an improvised nuclear device, if not a fully fledged nuclear weapon, if they are able to obtain enough weapons-grade uranium or plutonium” (Sweijts & Kooroshy 2010). Additionally, the authors assert that it is entirely feasible that state actors would provide a nuclear weapon to a non-state actor, simply out of fear of using the nuclear weapons themselves. As such, nuclear weapons are both a method of choice and a goal for non-state terrorist actors.

Though the psychological effects of CBRN weapons were briefly explained above, it is important to elaborate on this topic. Jessica Stern explains that the threat of CBRN weapons gives a terrorist group many advantages. Stern explains that there are many psychological factors that go along with the use of such weapons (Stern 1999). It is important to note the psychological aspect of terrorism – something that is vital to the success of a terrorist group. Terrorist groups use this to their advantage both by the choice of weapon and by a “willingness to cause mass casualties” (Blum, Asal, & Wilkenfeld 2005). Stern explains that because they evoke such horror, CBRN weapons “seem to be ideal for terrorists, who seek to inspire fear in targeted populations” (Stern 1999). Furthermore, these weapons result in panic (Stern 1999) and evoke “moral dread and visceral revulsion out of proportion to their lethality” (Stern 1999). The fact that a CBRN attack could occur with little to no warning adds to the psychological effects of these weapons. For terrorist groups, generating fear is a key element of the group’s success. The threat of CBRN weapons of weapons of mass destruction (WMD) is critical to developing fear. Stern explains that the idea that terrorist groups are “capable of more lethal acts of violence than they have actually committed” adds to the fear aspect of WMD as psychological weapon (Stern 1999).

At present, the assumption among governing officials and analysts is that if terrorists are able to acquire CBRN/WMD, they will do so and will use them. The fact that terrorist groups have conducted both chemical and biological attacks (such as the anthrax attacks in the United States in the fall of 2001) shows that the threat is one that must be considered, despite the fact that the attacks have had low casualty counts.

Despite the fact that CBRN attacks have not been incredibly successful, CBRN weapons are a “transnational threat” (Clinton 2011). Clinton explains numerous instances of the use of CBRN weapons, including attacks in Tokyo in the 1990s, in which a cult group (Aum Shinrikyo) sprayed “a liquid containing anthrax spores into the air and unleashed sarin gas into the subway” (Clinton 2011). In 2001, the United States found evidence in Afghanistan that al Qaeda was “seeking the ability to conduct bioweapons attacks. Additionally, less than a year before Clinton’s December 2011 remarks, “al Qaeda in the Arabian Peninsula made a call to arms for brothers with degrees in microbiology or chemistry to develop a weapon of mass destruction” (Clinton 2011).

At present, the threat of CBRN attacks cannot be ignored. An attack or “mass outbreak could cripple an already fragile global economy by cutting off the movement of people, goods, and sparking food shortages” (Clinton 2011). Another issue that results from CBRN attacks is that victims can “easily travel from one country to another” without being aware that they have been affected (Clinton 2011).

### **Future Forecast**

The threat of CBRN terrorist attacks is very real. At the December 2011 Biological and Toxin Weapons Convention Review Conference, former Secretary of State Hillary Rodham Clinton explained that the “nature of the problem is evolving” (Clinton 2011). Secretary Clinton explained:

Advances in science and technology make it possible to both prevent and cure more diseases, but also easier for states and non-state actors to develop biological weapons. A crude, but effective, terrorist weapon can be made by using a small sample of any number of widely available pathogens, inexpensive equipment, and college-level chemistry and biology. Even as it becomes easier to develop these weapons, it remains extremely difficult...to detect them, because almost any biological research can serve dual purposes. The same equipment and technical knowledge used for legitimate research to save lives can also be used to manufacture deadly diseases (Clinton 2011).

Tim Sweijs and Jaakko Kooroshy assert that many conclusions can be drawn about the future use of CBRN weapons “with respect to future developments in the field of science and technology, materials, intentions and capabilities” (Sweijs & Kooroshy 2010). These developments will only increase the threat of a CBRN attack. In the area of science and technology, Sweijs and Kooroshy cite “an increasing convergence of chemistry and biology; tremendous advances in understanding and manipulating genes, cells, and organisms; and developments in field of nanotechnology that may revolutionize dispersal methods” as indicators of an increased threat of attack (Sweijs & Kooroshy 2010).

Second, Sweijs and Kooroshy explain that access to materials will also increase the threat. They explain that the increased “availability of CBRN materials; potential to engineer materials from scratch; and a growth in the number of dual use materials and technology that may pose major challenges to non proliferation regimes” (Sweijs & Kooroshy 2010). Next, Sweijs and Kooroshy focus on intentions. Most importantly, there is “a persistent intention on

the part of non-state actors to acquire (new types of) CBRN capabilities and in some cases an explicit desire to use these capabilities” (Sweijts & Kooroshy 2010).

Finally, Sweijts and Kooroshy discuss capabilities, stating that at present, there are “fewer hurdles to non-state actor CBRN acquisition” (Sweijts & Kooroshy 2010). This further illustrates the idea that “in the 21<sup>st</sup> century, CBRN materials may be utilized and deployed as weapons in novel ways, both at the battlefield and in the civil domain, in times of war as well as in times of peace” (Sweijts & Kooroshy 2010).

Given the observations above, the international community must assume that terrorist groups seek to harm innocent citizens with CBRN weapons. Clinton states that the international community must improve its domestic and international defenses by improving our public health systems so that they “can quickly diagnose outbreaks, whatever their source, and mobilize the right medical resources and personnel. By making any one country more secure, we make the international community more secure at the same time” (Clinton 2011).

### **Implications for Counter-Terrorism Policy and Operations**

With the instability around the world, and many governments unable to control within their borders, the United States government needs to have as much information and influence abroad as possible. Even before September 11, 2001, the FBI was sending more agents overseas as part of domestic counter-terror operations. Terrorism takes many different forms, and one of the differences focuses on the level of preparation on the part of the terrorist. Some acts of terrorism are conducted more or less spontaneously, while others require extensive planning and forethought. As such, different types of terrorist attacks pose distinct challenges for states that are trying to combat terrorism.

One way the United States can assist in this effort is by increasing the amount of intelligence personnel abroad in order to continue to combat the use of CBRN weapons by non-state terrorist actors. The FBI can assist in this matter. Currently, its geographic coverage “extends to all countries in the world with the exception of Cuba, Iran, Libya, and North Korea – countries with which the United States has no formal diplomatic relations (U.S. Department of Justice 2004). The problem lies in our ability to monitor the situations in the countries listed above, as well as in unstable nations such as Syria, Afghanistan, Iran, and Pakistan without negatively affecting our foreign relations and without instigating more problems in these already volatile nations.

The international community must take steps to continue to predict, prevent, and defend against CBRN terrorist threats. According to Renee de Nevers, amending the Geneva Conventions may be a step in the right direction. de Nevers explains that the Geneva Conventions were established with a “singular vision of war in mind, one fought primarily by the regular armies of established states, reflecting the nature of conflict that had evolved in Europe from the Napoleonic wars to World War II” (de Nevers 2006). These types of wars are the exception in today’s world, and the Bush administration asserted that “that the nature of the terrorist threat has created a new kind of war, to which the Geneva Conventions do not apply and which, in some respects, renders them obsolete” (de Nevers 2006). Clearly, it is time that the conventions are expanded once more. Much changed in the 85 years between 1864 and 1949 and the world has changed significantly in the 63 years since the last expansion of the conventions.

Terrorism has added many challenges to the nature of war. The current language of the Geneva Conventions does apply to prisoners in the war on terrorism for two reasons, the most important being that that “al Qaeda is a non-state actor and therefore cannot be party to an international agreement” (de Nevers 2006). Additionally, al Qaeda is a non-state actor that is likely to develop and utilize CBRN weapons. As a result, it makes sense to revisit the conventions. Amending the conventions may help mitigate future terrorist attacks.

The varying goals and objectives of terrorist organizations throughout the world require different means of mitigation and response to terrorist attacks. We must continue to evaluate the causes of and responses to terrorist attacks in order to more fully develop the means to respond effectively. The international community must work together to expand its resources to address the threat of terrorism. Predicting and successfully mitigating terrorist attacks is not always possible. As such, legal sanctions against states and groups that sponsor terrorism will certainly assist in this effort.

## **Conclusion**

Terrorism is a complex phenomenon with many contributing factors. We must be cognizant of the fact that terrorist groups are constantly evolving and review and edit our understanding and definition of terrorism accordingly in order to classify the causes behind it. The goals and objectives of terrorist groups differ throughout the world. Access to media, news networks, and technology will continue to shape the way in which insurgent groups gather recruits and enable them to reach larger audiences. This will no doubt contribute to the challenge of eradicating terrorism both in the U.S. and abroad.

In order to further develop defense against CBRN weapons, Clinton suggests that all countries that participate in the Biological and Toxin Weapons Convention must work to “bolster international confidence that all countries are living up to our obligations under the Convention”. Furthering this point, Clinton suggests that under the Bio-Transparency and Openness Initiative, countries should attend an “international forum on health and security to exchange views on biological threats and discuss the evolution of U.S. bioresearch programs”. It is imperative that the international community work together to “promote dialogue through exchanges among scientists from the United States and elsewhere” (Clinton 2011).

Second, Clinton suggests that we must “strengthen each country’s ability to detect and respond to outbreaks and improve international coordination”. The ability to prevent, detect, and fight “every kind of biological danger, whether it’s a pandemic like H1N1, or a terrorist threat, or a terrible disease” is essential to eradicating the threat of CBRN attacks (Clinton 2011). Finally, the international community must work together to “maximize the benefits of scientific research and minimize the risks” in areas such as gene synthesis – a scientific development that “has many benefits for research, but it could also potentially be used to assemble the components of a deadly organism” (Clinton 2011). The international community must find a way to “balance the need for scientific freedom and innovation with the necessity of guarding against such risks” (Clinton 2011).

Eliminating the threat of CBRN attacks will not be easy. The international community must work together to facilitate “open conversations among governments, the scientific community, and other stakeholders” (Clinton 2011). International discussion and development is necessary to address the issue of CBRN attacks.

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