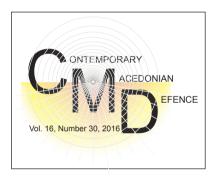
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ASSESSMENT OF THREAT TO NATIONAL SECURITY FROM CBRN TERRORISM

Gjorgji VELJOVSKI¹ Metodija DOJCHINOVSKI²

> **Abstract:** The main characteristic of modern day terrorism is the use of indiscriminate violence to accomplish its objectives. However, only recently in the past decades, the terrorist threat increased its level of horror with the increased possibility of terrorist groups and organizations to use chemical, biological, radiological and nuclear weapons (CBRN). Almost all member states of the United Nations agreed on controlling the development of nuclear energy and the prohibition of chemical and biological weapons. The international community has designed many mechanisms for arms control and proliferation of dangerous materials, like radiological waste or biological and chemical agents, which could be used to make weapons of mass destruction. The problem arises when it comes to non-state actors, such as terrorist groups and organizations. Despite the technological development and international laws, it is difficult to control their intentions. The mere perception that non-state actors, such as terrorist groups with unrestricted moral values, could obtain weapons made of chemical, biological, radiological or nuclear origin, keeps the global security makers vigilant and focused on its prevention. It is necessary to monitor their activities and ambitions to acquire such capabilities. There are just enough recorded terrorist attempts to obtain dangerous substances in order to prepare improvised weapons of mass destruction not to dismiss the threat as unrealistic. The purpose of this paper is to consider the facts of the level of threat to national security, acknowledging the technical constraints and opportunities for terrorists to develop and use such weapons. The assessment will take in consideration the existence of several sponsor states of terrorism that could facilitate the proliferation of these weapons to the third party actors.

Keywords: national security, chemical, biological, radiological and nuclear weapons, terrorism, non-state actors, sponsor states.

Introduction

Immediately after the attacks of September 11, 2001, the Western governments increased their vigilance for the possibility of terrorist use of chemical, biological, radiological and nuclear based weapons (CBRN). From today's perspective, knowing the reason for the invasion of Iraq and

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the fact that the coalition forces did not find any weapons of mass destruction, the question arises to what extent the threat is real for the non-state actors to develop, produce and obtain such weapons.

The reason why during the Cold War the superpowers never used unconventional weapons was due to the strategies of deterrence and massive response. Both sides have refrained because they were aware that the response would be overwhelming for either of the sides, or the fear of the so-called Mutual Assured Destruction. But the terrorists today have no home country so they do not fear punishment, meaning the strategy of the Western massive response has no special effect.³

When it comes to threat to national security from CBRN terrorism, it is estimated that the religious terrorist groups are more dangerous in a moral sense compared to the secular terrorist groups. Hence the fear that has emerged in the West in terms of "unstable" and "rogue" states that could develop and provide CBRN weapons to terrorist organizations. The prevention has become a priority for the West and counter-proliferation of weapons of mass destruction is one of the main missions of special operations forces. If there is a slightest doubt about facilities that may be used to develop such weapons, the West would not hesitate to use force once they have exhausted all mechanisms and verify the information.

The question remains - what is the possibility that a terrorist organization manages to produce, acquire, and use CBRN materials as weapons. The views are different and vary from those optimistic that the likelihood of such an attack is very small, to overblown paranoid views that terrorists could obtain such weapons and will not hesitate to use them. Despite the numerous incidents in the past four decades, the only serious terrorist attack using Sarin gas was conducted in the Tokyo subway in 1995, killing 12 and wounding 5000 people. There are many challenges and scientific technological constraints that the terrorist groups and organizations as non-state actors have to overcome to obtain such weapons. In order to apply the right amount of countermeasures, we need a realistic assessment of the possibility of such a scenario.

While the production of weapons of mass destruction is a complex process, procurement through various channels of transnational crime is a real possibility that should not be excluded. The existence of "unstable" and "rogue" states is part of the equation of the possibility that terrorist organizations may reach some kind of CBRN based weapons. While many authors exclude the production and acquisition of nuclear weapons as impossible, there is still a threat of obtaining chemical, biological and especially radiological weapons. The motive of groups and organizations to use such weapons is sufficient for the international community and security systems to worry that it is a real danger.

Challenges and limitations of CBRN terrorism

Although in the past 15 years, both democratic and republican administrations in the US government identified the possibility of terrorist use of CBRN weapons as the biggest threat to US national security, there are many sceptics that believe that such threat is practically zero.⁵ Most of the authors agree that the non-state actors could not even come close to producing or obtaining CBRN capability, especially nuclear.

³ Derek D. Smith. (2006). Deterring America: Rogue States and the Proliferation of Weapons of Mass Destruction. Cambridge University Press, 3.

⁴ Benjamin Cole. (2011). The changing face of terrorism: How real is the threat from biological, chemical and nuclear weapons? Tauris. London, 17.

⁵ Graham Allison, forwarding Rolf Mowatt-Larssen. (2010). Al Qaeda Weapons of Mass Destruction threat: Hype or reality?. Belfer Center for Science and International Affairs. Harvard Kennedy School

In order to understand the extent of the possibility of a terrorist organization developing CBRN weapons, it is necessary to be acquainted with the complexity and cost of such a process. Experts who are more versed in the process of how to obtain such technology, consider it very difficult even if such a project is state sponsored. There are many examples that even with the necessary state efforts, it takes decades to develop and produce CBRN weapons. Thus, it is a valid assumption that it is a particularly difficult and complex task for the non-state actors, such as terrorist organizations, to achieve this.

Because it is almost impossible to steal CBRN weapons from a state that possesses it, the terrorists will have to develop it themselves. Producing chemical weapons is probably easiest of all, assuming some developed state provides the necessary facilities. Developing usable biological weapons is harder, and the most difficult is the nuclear weapons. This means that the terrorist organizations seeking to develop CBRN weapons must have some developed state sponsor behind them to make it possible.

To develop CBRN weapons, above all it is necessary to have scientific knowledge related to chemistry, physics and biology. Although today, there is raw theoretical information easily accessible online, it is not sufficient to produce CBRN weapons. In developing such technology, there is a complex process of testing and experimentation, and many details needed to get to the final product are simply not found in the books. Even if the terrorists try to make improvised CBRN weapon from commercially available chemicals and insecticides or radiological waste, they will still need a professional scientific help.

It took the Japanese cult Aum Shinrijko two years to produce 30 litres of Sarin gas, having 300 engineers in their ranks and lots of money. The only way to accelerate the process is an expert with a personal experience in the preparation of such agents recruited to help manufacturing. When it comes to development of nuclear weapons, it is far more complicated and impossible for the non-state actors. The North Korean nuclear program due to seclusion dragged for years and still did not achieve the desired results. Those countries that have nuclear weapons spent decades and billions of dollars on research, testing and experimentation to come up with a final product.

Regarding biological weapons, it is easier to develop bacteria and toxins than viruses, but still complicated to turn them into weapons. In 1991, it was determined that Saddam Hussein's engineers spent years working on biological weapons and still failed to make it.⁷ The biggest obstacle for countries that made usable biological weapons was how to make it stable after it is put in the ammunition.

Materials to make nuclear weapons are so delicate and well kept by the states that it is certainly out of the terrorist reach. The process is so complex and requires

⁶ Benjamin Cole. (2011). The changing face of terrorism: How real is the threat from biological, chemical and nuclear weapons? Tauris. London, 42.

⁷ Ibid., 46.

so much time, that we can assume that there is not a terrorist organization that would lose so much time on developing a nuclear bomb. The threat of terrorist organizations to self-develop a nuclear device in the near future is unrealistic. However, there are radioactive materials like plutonium and depleted uranium that the terrorists could somehow acquire. Although the effects would be smaller, it is possible to inflict great damage if combined in the form of a "dirty bomb." Theoretically, a team of a few physicists who do have knowledge and enough material, which can be up to a ton, could make a so-called "crude" nuclear bomb, but still not having nearly the effect of a real nuclear bomb.⁸

The "dirty bombs" are radiological weapons and a lot easier to produce than nuclear weapons. Unlike nuclear weapons, where the damage is inflicted with the explosion, the radiological weapons achieve the effects by contaminating the environment. The "dirty bombs" are actually ordinary bombs which scatter radioactive material into the environment. Some of the isotopes that could be used to make a radiological bomb are commercially used in hospitals. Vulnerability is identified to national security in the possibility of a terrorist organization attacking and stealing radiological materials during transport. Furthermore, any country that possesses nuclear plants has raw nuclear material.

Unstable or rogue states would unlikely voluntarily give CBRN weapons to terrorists, because it would certainly become a target of attack for the West. It is more likely that terrorists could steal CBRN weapons from states with weaker security control. According to the data of the International Atomic Energy Agency, from 1993 to 2006 there were 1080 incidents categorized as attempts to smuggle nuclear materials, and 67% of the missing or stolen materials have never been found. After the collapse of the Soviet Union, there have been about 700 registered attempts to steal nuclear materials, and in 1998 the Russian intelligence revealed a plan for stealing 18 kilograms of uranium from the nuclear power plant Chelyabinsk that was scheduled to be sold on the black market. Between 2002 and 2004, international experts gathered 105 kilograms of uranium from several countries as Uzbekistan, Bulgaria, Libya, Romania and the Czech Republic.

The irony for the terrorists is that while the nuclear weapons are the most difficult to produce, if obtained, they would be easiest to use. On the other hand, the chemical weapons are easier to improvise, but not as simple to use because in order to achieve mass casualties, one needs to expose the target to it for a longer time. Perhaps that is why it is unlikely that the terrorists would want to waste time on CBRN weapons,

⁸ Ibid., 38.

⁹ Benjamin Cole. (2011). The changing face of terrorism: How real is the threat from biological, chemical and nuclear weapons? Tauris. London, 49.

¹⁰ David Baker. (2006). Biological, nuclear, and chemical weapons: Fighting terrorism. Rourke Publishing LLC. USA, 36.

¹¹ Ibid., 37.

there is no guarantee to make it work, and even if they do, it is quite difficult to deploy it on the target.

Because the probability of non-state actors to develop and produce CBRN weapons on their own is very low, terrorist organizations and groups are in constant pursuit of sponsor states that could provide those weapons as a final product. This threat is actually the closest to reality because there are many "unstable" and "rogue" states in the world that used to have or still have programs to develop chemical, biological, and even nuclear weapons.

According to the US government, the states that sponsor terrorism are those for which there is strong evidence they provide assistance or support to terrorist groups and organizations. In the period from 1979 to 1993, countries found on the list of states considered as sponsoring terrorism were Libya, Iraq, Iran, Yemen, Syria, Cuba, North Korea and Sudan. Today, still remaining on the list are Syria, Iran and Sudan. It is obvious that six out of eight countries on the list are also associated with religious extremism. Hence their interest and effort to develop, produce or obtain CBRN weapons. For some, like Syria and Libya it is known that besides production of large quantities of such weapons, they have also used it in practice.

Assessment of the possibility of terrorist use of CBRN weapons

The pressure from the West does not stop due to the fear that some terrorist organizations and groups could obtain CBRN weapons from a state sponsor. Although Libya was removed from the list in 2006, it is worrying that 10 years after the termination of the program and initiating the process of destroying the chemical weapons, the process is still not finished. There is a suspicion that some of these weapons in early 2015 fell in the hands of the opposition rebel groups.

While optimists claim that CBRN weapons can hardly fall into the hands of terrorists, no one goes to the extreme to exclude such a possibility, especially after the terrorists attack with mass casualties on September 11, 2001. Although terrorists are logistically limited, they are not limited by the lack of vision and creativity to use CBRN weapons. ¹² The reason why the terrorists would not hesitate to use weapons for mass casualties is the fact that such an attack, even on a tactical level, would complicate the military operations of the Western armies, thus having highly disruptive effects. ¹³ That is why these weapons are also referred to as "weapons of mass disruption" or "weapons of terror." ¹⁴

Most of the analysts in the 20th century assumed that the terrorist organizations would not dare to use CBRN weapons. It was believed that if they did, they would lose political support or sympathies from their specific target group. But, with the

¹² David Santoro. (2010). Treating Weapons Proliferation: An Oncological Approach to the Spread of Nuclear, Biological, and Chemical Technology. Palgrave Macmillan, 112.

¹³ Ibid., 60.

¹⁴ Ibid., 60.

emergence of Al-Qaeda and the Islamic State today, this is no longer valid. There is a new trend of terrorism today, and although its nature has remained the same, the goals have changed substantially. Today's religious extremists are different from the groups and organizations in the 70s and 80s, who had exclusively ethno-nationalist and ideological motives, as neo-Nazi and racist groups in the United States. Today's religious terrorism is a greater threat in terms of causing mass casualties.

There are three factors that after the end of the Cold War significantly contributed to increased concerns about the possibility of terrorist attacks with CBRN weapons. First, because of the uncertainty of securing such weapons after the collapse of the Soviet Union, second, the emergence of the new kind of terrorism, and third, the United States emerging as a new target for terrorism in the Middle East.¹⁶

With the collapse of the Soviet Union, there was a widespread concern in the West about the nuclear waste and materials which were suspected to be circulating in some former Soviet republics. Such a scenario was closely monitored by the West, demanding from Russia to prove that it has an insight and control of potentially dangerous substances. At the same time, such a Western attitude may have been aimed at discrediting the capacity of the Russian government to manage effectively in the transition period. During the 90s, the West also projected the idea that the former Soviet scientists offered their skills in countries seeking development of nuclear weapons, such as Iran. However, it was never proved that any Soviet scientis was engaged in making any kind of weapons of mass destruction for the nationalist or religious groups.¹⁷

Besides organized groups, the attempts to obtain chemical and biological agents to be used for deadly attacks were perpetrated by individuals who have nothing to do with ideological organizations. This threat is lower because of the lack of organizational capacity, but on the other hand the seriousness to prevent such attacks is greater because there are more such actors in the security environment. Individuals who would obtain such agents tend to have lower moral restriction because they do not answer to anyone. This is due to the scientific and technological development, especially the increased role of the computer technology, and the Internet is making the exchange of information incomparably greater.

The increased use of computers provided the non-state actors and individuals with more detailed insight into the composition and methods of producing substances that could be used as a weapon, i.e. making "dirty bombs". Terrorists with fake bank accounts and profiles are attempting through cyberspace to contact legitimate laboratories and researchers in various scientific institutions. So far such attempts have failed because

¹⁵ Andrew Hubback. (1997). Apocalypse when? The global threat of religious cults. Conflict Studies No. 300. Research Institute for the Study of Conflict and Terrorism, 5.

¹⁶ Andrew O'Heil. (2003). Terrorist use of weapons of mass destruction: how serious is the threat?. Australian Journal of International Affairs, Vol.57, No.1, 100.

¹⁷ Benjamin Cole. (2011). The changing face of terrorism: How real is the threat from biological, chemical and nuclear weapons? Tauris. London, 35.

the security measures are high and the identities of all who are trying to contact the scientific institutions are thoroughly checked.¹⁸

Since one of the indirect methods of terrorism is spreading fear through propaganda, terrorists are constantly projecting information that they intend to attack with CBRN weapons. Because of the numerous traces, and evidence that they have a great interest in possessing devastating weapons, the concern that it is possible is growing in the West. This may be good because it keeps the West vigilant, increasing the safety measures in the past two decades. On the other hand, the West may spend perhaps more resources than they actually need, favouring the terrorist tactics of defocusing the West and causing financial damage similar to cyber terrorism.

Following the statements of politicians in the United States from the 90s, it seems that the CBRN threat for national security is exaggerated. In their rhetoric, they frequently warned that a CBRN attack by terrorists is not only possible, but inevitable, and that such probability is increasing every day. Although such attack has never occurred, perhaps these concerns contributed to increased vigilance and control over the institutions that produce and store chemical and biological agents, and also increased control of goods across the national borders.

There is an argument that the terrorists would not use CBRN weapons as feared. The main reason is the fear of a much larger military response from the West, but also undermining their political agenda to achieve their goal. In fact, causing mass casualties would not be useful to the terrorists.¹⁹ But is this valid for today's kind of terrorism with such terrorist groups like the Islamic State that not only commit mass executions of innocent victims, but they record it and put it online to project terror. The question remains if such terrorists, with unprecedented fanaticism, primarily religiously motivated, will hesitate to use CBRN weapons if they have it?

Since nuclear materials are well controlled and stored in countries that have it, that would be the main source from which the terrorists could try to obtain them.²⁰ There is the danger of unstable or rogue states deliberately or inadvertently facilitating such terrorists' attempt. Monitoring the activities of the countries that are potential sponsors of terrorist organizations is an important mechanism to prevent CBRN weapons falling into the hands of terrorists.

To procure, steal, buy, transport and turn nuclear materials into weapons, is a long and complicated process with multiple stages. There are many procedures that the terrorists must attend to. This is beneficial for the national security of the countries

¹⁸ David Baker. (2006). Biological, nuclear, and chemical weapons: Fighting terrorism. Rourke Publishing LLC. USA, 34.

¹⁹ Benjamin Cole. (2011). The changing face of terrorism: How real is the threat from biological, chemical and nuclear weapons? Tauris. London, 22.

²⁰ Thomas Graham Jr. Keith A. Hansen. (2009) Preventing Catastrophe. The Use and Misuse of Intelligence in Efforts to Halt the Proliferation of Weapons of Mass Destruction. Stanford security studies. Stanford University Press, California, 20.

because the process can be stopped at several points, making it extremely difficult, first to obtain such material, and second to turn it into a weapon. To disrupt the whole attempt it is sufficient to stop the process anywhere, for example, increasing the control of the nuclear waste from the nuclear plant.

The former US Defence Secretary Donald Rumsfeld warned that there are terrorist organizations that have cooperation and understanding with the countries that possess weapons of mass destruction, and that one day it will be inevitable that they will provide it to terrorists, who will not hesitate to use it.²¹ It is especially worrisome that the religiously motivated terrorist organizations like Al Qaeda would not hesitate to use such weapons if they obtain some.²²

However, while the United States spent billions of dollars to protect themselves from terrorists who would use weapons of mass destruction, statistics show that it is more likely that the domestic terrorists conduct such attacks than someone from the outside. So far, more serious threat to the United States in particular are the extreme left and extreme right-wing groups than the terrorist organizations like Al-Qaeda.²³ Scepticism about the possibility that terrorists could use CBRN weapons increased after the invasion of Iraq in 2003 when weapons of mass destruction, which served as a pretext for invasion against Saddam Hussein, were never found.²⁴

The critics go as far as saying that the projection of fear of a terrorist attack using CBRN weapons that the Western countries generated for themselves, actually motivates terrorists to desire such weapons. In any case, it is better to cure and prevent rather than respond, because an armed action against a terrorist attack using CBRN weapons would be very complicated in today's operational environment. Even if the state sponsoring terrorists that conducted CBRN attack is determined, designating military targets to respond would be very complex.

Conclusion

Although the only recorded, organized terrorist attack with CBRN weapons was the attack with Sarin gas in the Tokyo subway, there are still attempts to develop, acquire and ambitions to use it. Religious terrorism as a new trend is a particular threat because it has no moral restrictions. The probability of a terrorist organization to develop or obtain some kind of CBRN weapons depends primarily on the operational environment in which it operates. Due to

²¹ Derek D. Smith. (2006). Deterring America: Rogue States and the Proliferation of Weapons of Mass Destruction. Cambridge University Press, 157.

²² Nuclear Black Markets: Pakistan, A. Q. Khan and the Rise of Proliferation Networks: A Net Assessment. (2007). London: Strategic Dossier of the IISS, 107.

²³ Rachel Oswald. (2013 April 17). Despite WMD Fears, Terrorists Still Focused on Conventional Attacks. Global Security Newswire, National Journal. http://www.nti.org/gsn/article/despite-wmd-fears-terrorists-still-focused-conventional-attacks/

²⁴ Rolf Mowatt-Larssen. (2010). Al Qaeda Weapons of Mass Destruction threat: Hype or reality?. Belfer Center for Science and International Affairs. Harvard Kennedy School, 8.

technological limitations, it is necessary to have assistance from a state that sponsors terrorism. Another possibility is through acquiring scientists and engineers who already have experience in making such weapons. There was a strong suspicion that the former Soviet engineers offered their services to countries that were trying to develop weapons of mass destruction. It is quite possible that in the future, discontented, individual actors with scientific knowledge in chemistry, physics and biology, may offer their services in exchange for personal gain.

However, at the moment, the level of threat of a terrorist attack using CBRN based weapons is very low. It is highly unlikely they will get to facilities to create such capacities, primarily because the US and its partners have high awareness of the danger, and thus control the proliferation of such materials. Because of Al Qaeda threats related to CBRN weapons, and the indiscriminate attacks on September 11, 2001, the United States managed to destroy most of the key leadership of Al Qaeda.

Furthermore, from a technological point of view, it is not impossible that terrorist groups might develop some kind of improvised CBRN weapon, with the exception of nuclear, which is beyond the capabilities even for the states. It takes much time and money and for now it contributes to discouragement of such attempts. However, there is overwhelming evidence that terrorist groups and organizations show interest to obtain chemical and biological based weapons. Since their strategy is fear mongering, coercion and applying the highest possible damage, CBRN weapons are a great terrorists' tool and it would be unwise to assume that they will stop acquiring such capabilities.

The prevention would not be complete if the likelihood of CBRN terrorism is completely overruled. Especially making radiological weapons is far more likely because it can be made of nuclear materials that are used in nuclear power plants. On the other hand, the likelihood of obtaining biological or chemical materials is much greater and therefore a lot more serious than the nuclear. In particular, the methods of disseminating biological weapons are different. With today's trend of suicide bombers or terrorists who have no problem sacrificing for the ideology they represent, the possibility of simply using oneself as a bio-weapon should not be overruled. Infected terrorists could quite undetectably infect passengers at an international airport from where the virus could be spread in multiple directions.

The international community has identified the existence of "rogue" and "unstable" countries as a specific type of threat to global security, especially those which used to have or still have programs for development and production of weapons of mass destruction. There is an ongoing process of destroying weapons of mass destruction in Libya and Syria. The international community closely monitors the activities regarding the nuclear power programs in Iran and North Korea. The most realistic scenario is a terrorist organization obtaining CBRN weapons through purchase from undemocratic countries as a finished product.

Finally, one should not exclude the possibility that the terrorists might use the threat of CBRN weapons to justify their consistency in the eyes of their supporters while also holding the opponents tensed, focused and most importantly, to get them spare more financial resources and personnel to increase security at all levels. It can be argued that the very perception of threat from terrorist attacks with CBRN based weapons inflicts damage to the West.

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