

The Challenges of
Modeling and Simulating
Terrorism and Counterterrorism

By

Guermantes E. Lailari, Lieutenant Colonel

United States Air Force

Abstract:

Author background: Lieutenant Colonel Guermantes Lailari is a career USAF officer. He has had assignments in Europe, Middle East, and in the US. He wrote his Master's Thesis on Israeli counter-terrorism policy, and has Masters Degrees in International Relations, Strategic Intelligence, and Military Operational Art and Science. He has lived and served over eight years in the Middle East and was the Director of the Middle East Orientation Course and the Director of the Dynamics of International Terrorism Course at the USAF Special Operations School. He has written and taught extensively on the Middle East, terrorism and counter-terrorism. He is currently assigned to the Air Staff at the Pentagon where he works with allies to enable coalition air, space, and cyberspace power to achieve mutual goals and interests.

This paper is written to present some of the challenges we face when attempting to create models and simulations of terrorism and counterterrorism. The Department of Defense (DoD) views modeling and simulation (M&S) as “a key enabler of DoD activities” and that “M&S tools, data, and services shall be visible and accessible within and across the DoD.”¹

The key point in M&S is the validation process. According to the *Department of Defense Dictionary of Military and Associated Terms*², validation is:

...the process of determining the degree to which a model or simulation is an accurate representation of the real world from the perspective of the intended uses of the model or simulation.³

With this in mind, this paper will attempt to portray the various assumptions about M & S, what it can bring to the fight and what it cannot (capabilities and limitations).

Definitions

Before examining these issues in detail, a common understanding of terminology is important to minimize confusion and maximize clarity. Below are some key terms and definitions that will be used throughout the paper:

- **model:** A schematic description of a system, theory, or phenomenon that accounts for its known or inferred properties and may be used for further study of its characteristics.⁴
- **simulation:** a method for implementing a model over time.⁵

¹ DoD Modeling and Simulation (M&S) Management, DoD Directive 5000.59, paras 4.1 and 4.2, 8 August 2007, <http://www.dtic.mil/whs/directives/corres/pdf/500059p.pdf>, accessed 29 June 2008.

² *Department of Defense Dictionary of Military and Associated Terms*, Joint Pub 1-02, 12 April 2001 (amended through 30 May 2008), http://www.dtic.mil/doctrine/jel/new_pubs/jp1_02.pdf, accessed 29 June 2008.

³ Validation, *Department of Defense Dictionary of Military and Associated Terms*, Joint Pub 1-02, 12 April 2001 (amended through 30 May 2008), http://www.dtic.mil/doctrine/jel/new_pubs/jp1_02.pdf, accessed 29 June 2008.

⁴ Model, <http://www.thefreedictionary.com/model>, accessed 5 July 2008

⁵ DoD Modeling and Simulation (M&S) Management, DoD Directive 5000.59, para E2.16, 8 August 2007, <http://www.dtic.mil/whs/directives/corres/pdf/500059p.pdf>, accessed 29 June 2008.

- **terrorism:** The calculated use of unlawful violence or threat of unlawful violence to inculcate fear; intended to coerce or to intimidate governments or societies in the pursuit of goals that are generally political, religious, or ideological.⁶
 - (US Code [Law]—The unlawful use of force and 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.
 - There are over 100 definitions of terrorism (governments, academics, etc)
- **terrorist group:** Any number of terrorists who assemble together, have a unifying relationship, or are organized for the purpose of committing an act or acts of violence or threatens violence in pursuit of their political, religious, or ideological objectives.⁷
- **counterterrorism:** Operations that include the offensive measures taken to prevent, deter, preempt, and respond to terrorism.⁸

Assumptions

Whenever using M & S as a tool, we are assuming that this tool and the reality it is attempting to simulate have a positive correlation. In other words, we assume that a future can be predicted to some degree using M&S. We also assume that when constructing the tool, the information used from the past is accurate, understandable, describable, and in some cases quantifiable. In other words, we take risk at *assuming* that the model will predict the future, or a future possibility fairly accurately. Furthermore, when a certain event doesn't occur, it is not always the case that the reason why it did not occur was because of an intervention or a non-action that was anticipated in the M&S. There could be other possible reasons why an event didn't occur. However, sometimes we are lucky and intelligence or other means can confirm whether or not the reason for the non-event; in this case we might get confirmation that the M&S was accurate or inaccurate.

⁶ Terrorism, *Department of Defense Dictionary of Military and Associated Terms*, Joint Pub 1-02, 12 April 2001 (amended through 30 May 2008), http://www.dtic.mil/doctrine/jel/new_pubs/jp1_02.pdf, accessed 29 June 2008.

⁷ Terrorist group, *Department of Defense Dictionary of Military and Associated Terms*, Joint Pub 1-02, 12 April 2001 (amended through 30 May 2008), http://www.dtic.mil/doctrine/jel/new_pubs/jp1_02.pdf, accessed 29 June 2008.

⁸ Counterterrorism, *Department of Defense Dictionary of Military and Associated Terms*, Joint Pub 1-02, 12 April 2001 (amended through 30 May 2008), http://www.dtic.mil/doctrine/jel/new_pubs/jp1_02.pdf, accessed 29 June 2008.

M&S can provide

This paper will not examine all the uses of M & S, but just note that M & S have been used successfully from aircraft flight simulators to healthcare uses (CPR dummies, cadavers, etc). The author has also been involved in a variety of terrorism and counterterrorism M&S projects sponsored by the DoD and has generally found that these events, if done correctly, can lead to accurate predictors of terrorist groups' and their state sponsors' strategy and tactics along with our own responses as well. Before we have a discussion on what M&S cannot provide, we have to explore what we are looking at.

Social Science

Human behavior, especially group behavior, has many dimensions due to the affect each individual has on the other compounded by the many influences from outside the group. Sociology has brought to this apparent chaos a social science that has shown that some behaviors can be modeled and predicted. One is example is Emile Durkheim's study of suicide in Europe which examined "religion, religious affiliation, marital status, military/civilian status, and economic conditions."⁹ His theory concluded that

...suicide is clearly related to the links people have with social groups. Too little commitment to groups and group norms was likely to produce egoistic suicide. Too much was likely to produce altruistic suicide. Commitment shaken by rapid social change was likely to increase the chances of anomic suicide.¹⁰

⁹ "Scientific Method and Emile Durkheim's Study of Suicide," University of Chicago, <http://cuip.uchicago.edu/~ldernbach/msw/xsdurkhn.pdf>, accessed 5 July 2008.

¹⁰ Ibid. The definitions of egoistic, altruistic, and anomic suicide are as follows:

Egoistic suicide is committed by people who are not strongly supported by membership in a cohesive social group. As outsiders, they depend more on themselves than on group goals and rules of conduct to sustain them in their lives. In times of stress, they feel isolated and helpless.

Altruistic suicide is committed by people who are deeply committed to group norms and goals and who see their own lives as unimportant. Basically, these suicides involved dying for a cause.

Anomic suicide is committed by people when society is in crisis or rapid change. In such times, customary norms may weaken or break down. With no clear standards of behavior to guide them, many people become confused, their usual goals lose meaning, and life seems aimless.

Altruistic suicide seems to fit the profile of the suicide bomber. By applying this sociological theory, counterterrorism experts can begin to attack the problem using a multi-discipline approach. M&S could help analyze this issue better.

Under sociology, social psychology, has become a well-developed social science. Simple experiments from social psychology have shown how easily people can become persuaded such as the Asch conformity experiments from the 1950's, Muzafer Sherif's Robbers' Cave experiment to explore hostility and aggression (1954), Leon Festinger's cognitive dissonance experiments (), and Albert Bandura's Bobo doll experiment demonstrating how aggression is learned by imitation (1961), to controversial experiments of Stanley Milgram at Yale (1961), Jane Elliott's third grade class experiment on discrimination (Riceville, Iowa, based on eye color) (1968-84),¹¹ and Philip Zimbardo's Stanford Prison experiment (1971).

What all of this research and theory means is that academia, especially social psychologists, can help the M&S community to develop tools that are based on previous work in related areas. This would apply to a variety of social sciences that are often overlooked in game theory which is usually more constrained since the social-psycho-religious-political aspects are often removed or have limited impact on the process and the outcome, In fact, the US Army seems to be in agreement with applying social science to the challenges of counter terrorism given the US Army's desire to hire social scientists to go to Afghanistan to work with the Amry teams and the local population to make a win-win situation out of the current situation. The Army gets to understand the important issues of each community, the local community has a means to get help, and the social scientist gets to apply their knowledge to get Afghanistan moving out from under extremist Islamic ideology to a more congenial relationship with the West. This applies the knowledge to prevent the spread of terrorism. However, studying

¹¹ "A Class Divided," PBS Frontline, <http://www.teachersdomain.org/resources/osi04/soc/ush/civil/divided1/>, accessed 29 June 2008.

terrorism and terrorist groups would be another way that social scientists could also deny, disrupt, and/or destroy these groups. Next, we will examine the phenomenon of terrorism.

Terrorism as a tool

Terrorism is one of many tools available today to the state as well as to groups and even the individual, as seen by Ted Kaczynski, the unabomber.¹² These tools could be classified as violent methods to achieve political, religious, and ideological ends. However, it is the combination of the tool and the person or people who use it that makes the process of M & S difficult to construct. In effect, it is an attempt at politico-military gaming¹³ (strategic and operational) and terrorist attacks (tactical events) that usually have strategic effects which are used synergistically as part of means to achieve a goal or several goals.

Differences between Terrorist and Criminal Groups

Terrorist and criminal form groups which have defined/specific norms, roles, and relations—each having its own beliefs, self-regulations, initiation rites, and goals. Terrorist Groups (TGs) could be described as predominantly a politically violent group. Whereas a Criminal Group (CG), is principally more motivated by economic activity. Terrorist groups obviously need to have some wealth to conduct their activities (weapons procurement, training, recruitment, etc). Criminal groups also might have interests in politics (such as influencing law, etc). But their main interests are different, even though there are areas of overlap.

Similarities between Terrorist and Criminal Groups

¹² "Ted Kaczynski," http://en.wikipedia.org/wiki/Theodore_Kaczynski, accessed 29 June 2008.

¹³ Politico-military gaming: Simulation of situations involving the interaction of political, military, sociological, psychological, economic, scientific, and other appropriate factors. *Department of Defense Dictionary of Military and Associated Terms*, Joint Pub 1-02, 12 April 2001 (amended through 30 May 2008), http://www.dtic.mil/doctrine/jel/new_pubs/jp1_02.pdf, accessed 29 June 2008.

People joining a criminal or terrorism groups have similarities such as knowing that they are engaging in illegal activities. TGs could be described as groups with a political, social, and/or religious ideology, wanting to create or cause fear and terror, directly challenge the government, and use legal and illegal activities to enhance their political, social, and/or religious position. CGs typically are a illegal economic focused group, that desire to conduct business below a country's radar, influence others by money and/or violence, and indirectly challenge the government's authority by using corruption. Some of the overlap areas between the two groups are: (1) both conduct illegal activities to fund their organization, (2) have legitimate fronts to support the organization, (3) secretive group, (4) murder or threat of violence ensures complicity, etc. These issues should be further explored by social scientists to discover how they not only succeed in counter terrorism (and TGs), but how this could be applied to criminology (and CGs).

Guiding Principles of Terrorist versus Criminal groups

Members of both groups have a intense sense of loyalty to the group, often to the leader(s). Both groups have rules that guide their behavior within the group that are unique to each group which are accepted by their respective members. Behaviors that are not accepted have severe consequences and the reverse is true for behaviors that are accepted, they are reinforced with rewards. For behaviors that are disloyal to the group, severe results up to death are often used to enforce rules and keep others in line.

Certain actions are not within the normal spectrum of behavior of criminal groups such as political assassination, although they have used it in the past. However, political assassinations or random acts of violence are the norms of terrorist groups.

Newer terrorist groups, especially Middle East radical Islamic groups understood that their political power base needs the support of the people they claim to represent. So, most of

the Muslim Brotherhood derived groups have an important support structures to enable these groups to exist—through trade unions, professional unions, and religious groups; for example some mosques are known to have radical leaders and/or members.

Acts of Terror/Typology

Examples where terrorist group actions are highly likely are descriptive actions that they intend to carry out a certain type of activity, such as an attack.

Some examples were:

- German Red Army Faction assassination of Chief executive of the Deutsche Bank, Alfred Herrhausen, 11 November 1989
- World Trade Center (1993 and 2001), although this example is one where one group, followers of Umar Abd al-Rahman, failed in the task and another group, Al Qaida, took up the task)
- Assassination attempts. Musharrif has had numerous reported attempts on his life, all unsuccessful, thus far. But one could predict that other attacks will occur until he is dead, at least until he remains in office.

By examining the terrorist attacks over a period of time, certain patterns emerge....

New targets can be extrapolated from this list such as:

- National symbols: business buildings, Embassies, Pentagon, National Capitol, etc.
- Infrastructure: trains, buses, pipe lines, etc.

Why does a certain group choose a specific target?

Discussion capability and intent & revolutionary and evolutionary capabilities...

(Note--I will expand below in better detail and clean this up)

Threat

- Intent: What are the goals & motivations
- Capabilities: What is the trend?
- Capabilities + Intent = Threat

- Threat: Won't just go away, can't wish it away

Future

- Intent:
 - Religion
 - Nationalism
 - Religion + Nationalism
 - Single Issue (Environment, Narco-terrorism...)
 - Lone Wolves (Ted K, Anthrax, Columbine, etc)
- Capability
 - Technology (new, existence, expertise, etc)
 - Access (supplies, logistics, etc)
 - Delivery (networks, training, recruits, etc)

Future Capabilities

- Technology always improving
- Ubiquitous
 - Money
 - Creativity
- Evolution
Revolutionary (Technology Transfer, etc)

Evolutionary

- Bomb:
 - Explosives
 - Trigger
 - Fuze
 - Primary Explosive
- Off the Shelf Technology
 - On Deutsche Bank chief Alfred Herrhausen was killed with a highly complex bomb when his car triggered a photo sensor (IR), in Bad Homburg on 30 Nov 1989.
 - Some attacks in Iraq are using non-electric methods to trigger bombs (pressure contact, water trigger, etc) so that we cannot counter them electronically
 - JIEDDO \$ billion: FY05: \$1.3440, FY06: \$3.4871, FY07: \$4.3, FY08: 4.4 (proposed)

Technology Transfer

- Large tank → large buried bomb
 - Israeli tanks have fallen victim to this in Gaza & during 2006 Summer War with Hezbollah
- Hezbollah:
 - Iranian: Chinese C802, UAVs, Zilzal rockets
 - Russian: Kornet ATGMs, Katyusha rockets
- AQ: SA-7's, might have US Stinger missiles

Revolution—Technology and Politics

- IR Detector
- Cell Phone trigger
- Homicide/Suicide Bombers
 - Assassination of political leaders
 - Mass casualty
- Attacks to influence elections
 - Terrorist attacks in Israel prior to elections
 - Madrid train attacks (3/11/04) 3 days before
 - Italian election Apr 06, terrorist threats only
- Loss of Freedoms (+security, -civil rights)

Revolution—Finance

- Attacks to influence stock market
 - Sell before an attack, buy soon after
 - Sell high, buy low (foreknowledge is key)
 - Attacks to influence oil prices
 - WTC was also a business attack
 - Persistent terrorism affects:
 - Tourism (Egypt, Israel, Jordan, Indonesia, Iraq...)
 - Population psychology (fear, loss of breadwinners)
 - Media perception
 - Cost of Defense (vs other important areas)
 - Increased taxes

Revolutionary—WMD

- Cyber: Banking system collapse
- Chemical
 - Bhopal disaster (3 Dec 84): 20,000 killed & 500,000 injured
- Biological
 - Bubonic plague (1300's 75 million killed)
 - Pandemic Flu (1918-9, 25 million killed)
 - Anthrax
- Nuclear
 - Radiological Dispersion Device
 - (RDD) Chechen Rebels
 - Steal a "loose nuke," cause a Chernobyl, etc
- Combination event
 - Container ship explosion: chlorine, liquefied petroleum gas (LPG) carrier (55 Hiroshimas), large oil tanker, etc
 - Dam collapse: Banqiao Dam (China, 1975)
 - Failure of the dam caused ~26,000 died from flooding & another 145,000 died during epidemics and famine.

Re-Attack Targets Missed in 9/11

- Remember WTC 1993 attack?
- 9/11 Part 2: White House/Congress?
 - Greater security checks at airports
- Vatican

Re-Attack Targets Missed UK

- Multiple plane attack (UK, summer 2006)
 - Max 3 oz fluids today
- London Internet Hub (11 Mar 07: Al Qaeda plan)
 - AQ planned to blow up Telehouse Europe, which houses Europe's biggest "web hotel"
 - Handles most of the Internet information that passes in and out of Britain, including London's businesses and stock exchange
- Bacton complex of gas terminals on the Norfolk coast

Oil Sources

- Saudi Arabia, date?
- 7 Oct 02: Attack on French oil tanker (Yemen)
- 15 Sep 06: Two oil refinery/storage sites attacked simultaneously, same method in Yemen

Embassies—Same Profile

- 83-84: US Embassy (/Marines (241k), & French Embassy () attacked in Lebanon
- Mar 92: Israeli Embassy, Buenos Aires (29k/242i)
- 7 Aug 98: East Africa US Embassy Attacks
 - Dar es Salaam, Tanzania
 - Nairobi, Kenya
- Jan 02: Planned attack US Embassy, Yemen
- 6 Dec 04: Attack on US Consulate, Jeddah
- Continue attacks on US/coalition Embassies
- Israeli Embassies worldwide
- Dec 01: Singapore JI/AQ Plot Discovered
- Targets:
 - US, Australia, UK, & Israeli Embassies
 - Commercial buildings housing US firms
 - Other potential targets:
 - Water pipelines, Singapore Airport, radar station, Ministry of Defense buildings
 - USAF jets flying in/out, US Naval ships

Retribution Attacks

- Israeli Army HQ
- Argentine Israelite Mutual Association (AMAI): Jul 94, Jewish cultural center attacked by a truck bomb killing 85

Mass Transit

- Buses and Bus Stations
 - Multiple bus bombings in Israel
- Trains and Train Stations
 - Madrid attack 3/11/04, 190 KIA/2000 injured
- Ships and Ports
 - Yemen attacks:
 - French Oil tanker Oct 02 & USS Cole Oct 00
- Planes and Airports
 - 9/11, LAX
- London Bombings 7 Jul 05 0850 (rush hour) 56 killed, 700 injured
 - Three subway trains and one bus bomb (0947)
 - UK hosting the G8 Summit that day
 - Day after London was chosen to host the 2012 Summer Olympics
 - Two days after the beginning of the trial of fundamentalist cleric Abu Hamza al-Masri
 - Shortly after the UK had assumed the rotating presidency of the Council of the European Union
- London Bombings Part II
 - 21 July 2005 4/5 attempted bombings two weeks after the 7 July 2005 London attack
 - The 3 subway explosions occurred 12:26-45; the bus bomb 13:30 around midday during lunch time traffic
 - Only the detonators of the bombs exploded; only one minor injury was reported
 - Similar to 7/7 London attack:
 - Rucksacks were involved;
 - Three Underground explosions were roughly simultaneous while the bus explosion was an hour later.
 - Four explosion locations were dispersed

Multi-Sites

- Delhi attack 29/10/05, 61 KIA/92 injured
 - Two days after the Dwali Festival (Hindu, Sikh, Jain)
 - 1 railway station: 18 KIA, 60 injured
 - 1 market: 43 KIA, 28 injured
 - 1 bus: 0 KIA, 4 injured
- Bangladesh Multiple Bombings (17 Aug 05)
 - 500 bombs in 300 locations in 63/64 districts ½ hr
 - 2 KIA, 50 injured, 50+ arrested

Still on the Al Qaeda's List

- Sears Tower in Chicago
- Bridges in San Francisco and Manhattan
- International Airports (LAX, etc)
- Israeli Embassy in Washington, DC
- White House

- US Embassies: Kabul (30 Jul 2002), Baghdad, Riyadh, Europe (London, Amsterdam, Rome...)
- Coalition Embassies: Italian Embassy, Lebanon

New Target Potentials?

- Symbolic
- Mass Casualty
- Asymmetric
 - Economic impact
 - Diplomatic/Political impact
 - Information Warfare

Counter Terrorism

- Tactical
 - Higher security; capture or kill terrorists
 - Capabilities will always provide challenges
- Operational
 - Disable illegitimate networks; enable others
- Strategic
 - Counter propaganda
 - Need to decrease intent; will not eliminate it
 - Increase deterrence; decrease radicalism

Future Capabilities

Technology is always improving. Challenge is that current modeling focuses on current capabilities and sometimes looks at future capabilities. Some capabilities cannot be anticipated because they are revolutionary capabilities that just happen. On the other hand evolutionary capabilities are more likely to be predicted and accurately since they make a logical progression from its precedents.

Expect the Unexpected

Terrorist groups are full of creative people with often a simple focus: cause havoc. From assassinations, hijackings, and suicide attacks, to the 9/11 attacks, why are we constantly surprised? Do we assume that terrorists are confined to certain methods and that we must protect our society based on the *past* attacks? Terrorist groups are not large armies that are trained to fight in a certain way. Although terrorist attacks using the same tools make terrorism *easier* to

anticipate and hopefully prevent or mitigate, the terrorist knows that in order for them to accomplish their goals, they have to constantly keep their enemy off-balance. One way to do that is to be innovative in thinking up ways/methods to cause terror. One common factor between terrorists and military forces is the importance of surprise. Although most Americans thought that the 9/11 attacks used surprising methods, most terrorism experts knew that using airplanes as weapons was not new. Israel has been a target for this kind of attack since at least September 1986 when Pan Am Flight #73 was hijacked by Palestinians in Pakistan who, unbeknownst to the passengers, wanted to crash the airplane into Tel Aviv.

Spontaneous Attacks

These are attacks that occur on the spur of the moment, without advance notice/intelligence.

One example of this was:

“On July 1989, a 25-year-old member of Islamic Jihad from Gaza boarded the Route 405 bus from Tel Aviv to Jerusalem. During the trip, the terrorist quickly walked up to the driver and pulled the wheel to the right, driving the bus into the abyss – 16 people were murdered in this disaster. The attack’s nature and modus operandi constituted a complete surprise for intelligence and security officials. We were “surprised” by the boldness and simplicity of the idea.”¹⁴

Yet, this was not the first time a terrorist had attacked a bus, nor was it the last. In fact, on 11 Mar 1978, terrorists from Lebanon managed to sneak into northern Tel Aviv by sea and hijack a bus and kill 35 people and injure 70.¹⁵ But this was well-planned. A terrorist can be inspired, much like a copy cat, to take matters into their own hands with minimal preparation. Some recent examples:

¹⁴ Elad, Moshe, “Why we were surprised,” Ynet News, 2 Jul 08, <http://www.ynetnews.com/articles/0,7340,L-3563322,00.html>, accessed 5 Jul 08.

¹⁵ Mandel, Roi. “30-year anniversary of vicious terrorist attack marked,” 9 March 2008, Ynet News, <http://www.ynetnews.com/articles/0,7340,L-3516966,00.html>, accessed 5 Jul 08.

- On 6 March 2008, an armed Palestinian from East Jerusalem walked into a Jewish seminary with a machine gun and killed 8 unarmed students before a guard shot him.¹⁶
- On 2 July 2008, a Palestinian worker from East Jerusalem, at a construction site in West Jerusalem, took a bulldozer and used it to crush people and cars nearby. 4 people were killed and 30 others were injured in the attack which ended when the terrorist was shot by an off duty soldier who was able to jump on the bulldozer.¹⁷

Targets Identified

Dhiren Barot, an Al Qaeda associate, planned to attack the following targets in 2000: US targets-- International Monetary Fund buildings, the International Bank (World Bank) in Washington, the New York stock exchange and the Prudential and Citigroup buildings;¹⁸ and British targets--The Ritz and The Savoy, and railway stations such as London's Waterloo, Paddington and King's Cross, a plan to blow up a subway car as it passed through a tunnel below the River Thames, and planned to use a six-man team to blow up limousines crammed with gas cylinders underneath parking garages. This is *a list from one person* of "unfulfilled" targets. Furthermore, "Barot also wrote in documents that he wanted to add napalm and nails to the limousine bombs to 'heighten the terror and chaos.' He also considered adding radioactive material...but decided a dirty bomb

¹⁶ Zino, Avraham. "8 killed in Jerusalem terror attack," Ynet News, 9 March 2008, <http://www.ynetnews.com/articles/0,7340,L-3515985,00.html>, accessed 5 July 2008.

¹⁷ Weiss, Efrat, "3 killed as Palestinian bulldozer driver goes on killing spree in Jerusalem," Ynet News, 2 Jul 08, <http://www.ynetnews.com/articles/0,7340,L-3562991,00.html>, accessed 5 July 2008.

¹⁸ "Planned 'dirty bomb' in London tube," Ynet News, 6 Oct 2006, <http://www.ynetnews.com/articles/0,7340,L-3324604,00.html>, accessed 5 July 2008.

should be used in a separate attack.”¹⁹ Sheikh Omar and his inspired group had also planned similar attacks in the New York area in 1993. For example, they planned to “to set off five bombs in 10 minutes, blowing up the United Nations, the Lincoln and Holland tunnels, the George Washington Bridge and a federal building housing the FBI.”²⁰

Unknown Terrorists Attacks

Sometimes a terrorist group prefers not to announce that it conducted a certain attack. This has occurred many times in the past. One fairly recent example was the September and October 2001 anthrax attacks against news media and Congress, which occurred closely after the 9/11 attacks. No one has been found responsible nor taken responsibility for the anthrax attacks where five people died from inhalation anthrax and over 20 persons were sickened.²¹

Terrorism experts say tracing the perpetrator of an anonymous terrorist attack - whether it uses germs, poison gas, explosives or radioactive material - is critical if those responsible are to face punishment or retaliation.²²

Also, by not finding the perpetrator(s), the population of a state becomes less confident of the ability of the government to protect them and thus, potentially can lose faith in the government. By not identifying responsibility for the act, the terrorist group loses the popularity that it thinks it could gain from the act. Other times, the terrorist group does not want to declare its responsibility since the act might have not achieved their goal and killed and maimed the wrong people. For example, Zarkawi's Al Qaeda in Iraq's attack in Amman, Jordan (10 November 2005), was declared the next day to be their act. However, the back blow to the attack of a

¹⁹ AP, “Muslim convert sentenced over US, Britain bomb plots,” Ynet News, 11 July 2006, <http://www.ynetnews.com/articles/0,7340,L-3325172,00.html>, accessed 5 July 08.

²⁰ “Omar Abdel Rahman,” http://en.wikipedia.org/wiki/Omar_Abdel-Rahman, accessed 7 July 2008.

²¹ “Anthrax Info – U.S. Anthrax Attacks 2001,” George Washington University, http://www.gwu.edu/~cih/anthraxinfo/public/publicthreat_attacks.htm, accessed 5 July 2008.

²² Shane, Scott. “CIA funded research on chemicals in supplies,” Baltimore Sun, 12 March 2003, <http://www.anthraxinvestigation.com/balt-sun.html>, accessed 5 July 2005.

wedding reception of Jordanians was severe and unforgiving. This might have been an example where they might have been better off not declaring their responsibility. Even Al Qaeda's leadership censored Zarkawi for this act.

Technology

This leads to a discussion about capability and intent. The capability to kill thousands of people will continue to rise as technology increases the ability of terrorists to gain access to weapons of mass destruction and/or technologies that can cause the same effect. For example, nuclear technology has become dramatically more available due to the end of the Cold War.

The theft of nuclear technology or information makes it a particularly troublesome issue to address, and even more dangerous to international security. On the black market, non-state actors can purchase nuclear technology at a fraction of the cost of what a state would have to pay through normal channels. Also, delivery methods have become much less expensive. Long-range ballistic missiles are no longer needed to deliver WMDs to their targets. Terrorists can easily employ cargo trucks, containers, or, in the case of biological or chemical weapons, small boxes, to use WMDs. A low-tech delivery method along with easily acquirable WMDs could rapidly and easily cause thousands of deaths in populated areas. "With much effort and financial aid, a group could acquire only "100 lbs. of highly enriched uranium, some neutron-reflecting material, a gun barrel measuring a few inches in diameter, and some high explosives" to create the same destruction the Hiroshima bomb caused.²³

Even cheaper and less complicated options are available, such as finding a radiological source and using a dispersion device (simple explosive) to cause a less physical effect, but nevertheless a similar psychological effect. This was almost accomplished by Chechen rebels in November 1995, when they placed a 30 pound container of radioactive cesium in a park.²⁴ Luckily, instead of blowing it up, they informed the authorities. With these weapons, the possibility for an

²³ "Topic C: Measures to Prevent Terrorists from Acquiring Weapons of Mass Destruction," Counter Terrorism Committee – United Nations, http://www.mmun.org/documents/2008/topic_guides/ctcc.pdf, accessed 5 July 2008.

²⁴ "Radiological Dispersal Devices," National Defense University, Number 136, March 1998, <http://www.ndu.edu/inss/strforum/SF136/forum136.html>, accessed 7 July 2008.

anonymous terrorist attack could occur, such as we have seen from the fall 2001 anthrax attacks. Even though we might determine the source of the nuclear material, the group responsible could be very difficult to determine, even if it was a state actor, due to the possibility of theft and the proliferation of knowledge.

Deterrence

Although another group will look at deterrence, this subject needs to be mentioned in this paper due to the fact that a key aspect of countering terrorism is deterrence. Especially when discussing WMD attacks, if deterrence fails and the attack is anonymous, then what does a state actor do? This is a key question asked in the UN's Counter Terrorism Committee:

How do you hold terrorists accountable for their actions? How do you punish an anonymous terrorist attack involving WMDs? Whom do you hold accountable, for example, against whom do you impose sanctions?²⁵

²⁵ "Topic C: Measures to Prevent Terrorists from Acquiring Weapons of Mass Destruction," Counter Terrorism Committee – United Nations, http://www.mmun.org/documents/2008/topic_guides/ctcc.pdf, accessed 5 July 2008.