How Serious is the “WMD Terrorism” Threat?: Terrorist Motivations and Capabilities for Using Chemical, Biological, Radiological, and Nuclear Weapons

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September 28, 2005
WMD Terrorism
OF COURSE I'M LISTENING. I'M IN A HEIGHTENED STATE OF ALERT.
Hype

CAN WE WATCH SOMETHING BESIDES THE NEWS?
Hype

- Security condition upgrades
- Government warnings

How far we have come … from 1950s 'Duck & Cover' to 2003 'Duct tape & Cover your windows'
Hype or Threat?

• Media want to inform us but inevitably sensationalize things.

• After Sept 11, government officials don’t want to be accused of being complacent or not warning public, so tend to dwell on worst-case scenarios.
Conflating Events?
Conflating Events Again?
New Cases

Prague, Czech Republic  23 May 2003
Anthrax bacteria
On 23 May 2003, police arrested a 30-year-old man suspected of extortion relating to threatened cyanide poisonings.

Wellington, New Zealand  28 Mar 2003
Cyanide
On 28 March 2003, in Wellington, New Zealand, two letters arrived at the New Zealand Herald containing cyanide-laced letters; it made threats against cinema and water supplies in New Zealand, as well as food and beverage supplies.

Boise, United States  14 Mar 2003
Anthrax bacteria
On 14 March 2003, the governor’s wing of the Statehouse in Boise, Idaho, received a letter containing a suspicious white powder.

Wellington, New Zealand  4 Mar 2003
Cyanide
On 4 March 2003, in Wellington, New Zealand, the New Zealand Herald received a letter threatening cyanide attacks in Wellington and Auckland.

Wellington, New Zealand  21 Feb 2003
Cyanide
On 21 February 2003, police in New Zealand intercepted a letter containing cyanide crystals sent to the British diplomatic mission in Wellington.

Little Rock, United States  19 Feb 2003
Anthrax bacteria
On 3 March 2003, FBI agents arrested Bertier Rey Riddle in Oklahoma, Arkansas on suspicion that he sent an envelope to the FBI field office in Little Rock that claimed to contain ricin.

Bandar Seri Begawan, Brunei  11 Feb 2003
Anthrax bacteria
On 11 February 2003, Chief of Mission Robert Tons at the U.S. embassy in Brunei opened a letter containing a white powder labeled "anthrax.

New York, United States  11 Feb 2003
Anthrax bacteria
On 11 February 2003, a secretary at the Manhattan offices of ESPN opened a letter which spilled a white powderly substance on her hands.

Chicago, United States  3 Feb 2003
Unknown
On 3 February 2003, the Federal Bureau of Investigation (FBI) office in Rockford, Illinois received an anonymous letter stating that a woman in Schaumburg possessed a "deadly biological agent" and was going to kill thousands by releasing it into the Chicago area.

Los Angeles, United States  Feb 2003
Anthrax bacteria
On 13 March 2003, Stanley Chester Jaroszinski Jr.
<table>
<thead>
<tr>
<th>Year</th>
<th>Excluding Hoaxes</th>
<th>Hoaxes</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>1999</td>
<td>53</td>
<td>76</td>
<td>129</td>
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<td>2000</td>
<td>77</td>
<td>27</td>
<td>104</td>
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<tr>
<td>2001</td>
<td>68</td>
<td>239</td>
<td>307</td>
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<tr>
<td>2002</td>
<td>56</td>
<td>68</td>
<td>124</td>
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<tr>
<td>2003</td>
<td>54</td>
<td>41</td>
<td>95</td>
</tr>
<tr>
<td>2004</td>
<td>28</td>
<td>17</td>
<td>45</td>
</tr>
<tr>
<td>2005</td>
<td>37</td>
<td>32</td>
<td>69</td>
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</tbody>
</table>
The Empirical Record

CBRN Weapon Type Distribution (all incidents)
The Empirical Record

CBRN Weapon Type Distribution
(hoaxes / threats excluded)
The Empirical Record

Weapon Type Distribution (Use only)

- Biological: 50
- Chemical: 200
- Combination: 15
- Radiological: 25
- Unknown: 10

[Bar chart showing the distribution of weapon types]
Incidents With > 5 Fatalities

biological
chemical
The Empirical Record: Casualties

Casualties vs. Weapon Type

- **Biological**: 1,080 injuries, 21 fatalities
- **Chemical**: 1,506 injuries, 6,633 fatalities
- **Nuclear**: 0 injuries, 0 fatalities
- **Radiological**: 0 injuries, 75 fatalities

Legend: 
- **Injuries**
- **Fatalities**
Distribution by Event Type

Distribution - Event Type
1975 - September 2000 (814 cases)

- Attempted Acquisition
- False Case
- Hoax / Prank / Threat
- Plot Only
- Possession
- Threat with Possession
- Use of Agent

Type 2: Criminally Motivated
Type 1: Politically / Ideologically Motivated
False case: Not Applicable
The Empirical Record: Geography

Chemical Incident Distribution
<table>
<thead>
<tr>
<th>Group Type</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>all</td>
<td>458</td>
<td>100 %</td>
</tr>
<tr>
<td>Biological</td>
<td>10</td>
<td>2 %</td>
</tr>
<tr>
<td>Chemical</td>
<td>36</td>
<td>7 %</td>
</tr>
<tr>
<td>Combination</td>
<td>79</td>
<td>15 %</td>
</tr>
<tr>
<td>Nuclear</td>
<td>7</td>
<td>1 %</td>
</tr>
<tr>
<td>Radiological</td>
<td>54</td>
<td>10 %</td>
</tr>
<tr>
<td>Unknown</td>
<td>157</td>
<td>29 %</td>
</tr>
<tr>
<td>Criminal Organization</td>
<td>10</td>
<td>2 %</td>
</tr>
<tr>
<td>Left-wing</td>
<td>36</td>
<td>7 %</td>
</tr>
<tr>
<td>Lone actor (s)</td>
<td>79</td>
<td>15 %</td>
</tr>
<tr>
<td>N/A</td>
<td>7</td>
<td>1 %</td>
</tr>
<tr>
<td>Nationalists / Separatists</td>
<td>100</td>
<td>18 %</td>
</tr>
<tr>
<td>Religious (cults)</td>
<td>40</td>
<td>7 %</td>
</tr>
<tr>
<td>Religious (fundamentalists)</td>
<td>54</td>
<td>10 %</td>
</tr>
<tr>
<td>Right-wing</td>
<td>26</td>
<td>5 %</td>
</tr>
<tr>
<td>Single-issue</td>
<td>33</td>
<td>6 %</td>
</tr>
<tr>
<td>Total</td>
<td>542</td>
<td>100 %</td>
</tr>
<tr>
<td>Motive</td>
<td>Biological</td>
<td>Chemical</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>------------</td>
<td>----------</td>
</tr>
<tr>
<td>False Case</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To Act Because of an Ideology/Belief System</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To Act on a Personal/Professional Grudge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To Establish Ethno-Nationalist Sovereignty</td>
<td></td>
<td></td>
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<tr>
<td>To Express Abortion-Related Sentiment</td>
<td></td>
<td></td>
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<tr>
<td>To Extort Money/Pure Financial Gain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To Fulfill Individualized Objective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To Protest Treatment of Animals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To Support Other Single-Issue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Delivery Type for CBRN Attacks

Number of Attacks

Delivery Type

- Water Supply
- Ventilation System
- Unknown
- Reaction Device
- N/A
- Mail/Letter/Package
- Jug/Jar/Canister
- Injection/Projectile
- Food/Drink
- Explosive Device
- Consumer Product
- Tampering
- Casual/Personal/Direct Contact
- Aerosol/Spray
Key Motivational Factors

Relevant determinants of terrorist behavior:

Factors Relating to the Nature of the Group
- Ideology
- Organizational Structure
- Organizational Dynamics
- Organizational Lifecycle Status
- Demographics
- Resources
- Operational Capabilities

Factors External to the Group
- Historical Events
- Relations with External Actors (media; other extremists; state apparatus; targeted audience; non-targeted audience; supporters)
- Security Environment
- (Potential) Target Characteristics

Factors Relating to Decision-Making
- General Planning Characteristics (risk thresholds; time horizons)
- Perceptual Filter
- Operational Objectives
Who makes the Decisions?

Decision to carry out attack X

- Individual terrorist
- Sub-group
- Organization Leadership
- All members (democracy)

Committee
- Individual terrorist
- Individual terrorist

Individual terrorist

Committee
- Individual terrorist
- Individual terrorist
- Individual terrorist

Sub-groups
Main questions:

– Do terrorists currently have the capability to engage in true WMD attacks?

– Is the capability of terrorists with regard to WMD increasing?

– If terrorists’ WMD capabilities are increasing, what is the rate of this change?
Capabilities

Broad Trends

– Terrorist capabilities in general are increasing
– Societal changes can increase vulnerabilities and facilitate terrorist capabilities
Capabilities

• Organizational Capabilities
• Logistical Resources
• Financial Resources
• Knowledge/Skill Acquisition
  – C,B,R, and N differ
• Initial Production of Agent
  – C,B,R, and N differ
• Weaponization of Agent
  – C,B,R, and N differ
Desiderata

- Insiders
- State sponsorship
- Attacks on Facilities
CBRN Terrorism Risk Plane

\[ \text{RISK} = \text{Probability} \times \text{Consequence} \]
Terrorists and Technology

• Traditionally, terrorists have tended in their use of weapons and tactics to be both:
  – Conservative
    • “Path of least resistance” – terrorists generally seek to use the easiest, cheapest, tried-and-true methods
  – Imitative
    • Terrorists often utilize the successful tactics and weapons types of other groups (albeit with some localization, e.g. Mao to Carlos Marighella)

• Why?
  – Most groups have limited resources and there are costs associated with identifying, researching and implementing new technologies, in terms of time, finances, personnel etc.
  – There are also often uncertainties about the reliability of any new technology in terms of achieving desired effects.
  – Soft targets vulnerable to traditional weapons are plentiful.
Terrorists and Technology

• BUT, there are exceptions to the above (may be becoming more common) where terrorists will seek new technologies:

A. **Specific ideological orientation towards innovating technologically**
   • Examples: Aum Shinrikyo sending operatives to explore the documents of Nikola Tesla in hopes of building an earthquake generating machine; in some groups ideology may drive members to push the technological envelope, such as in a conceivably violent version of the Raelian cult (who pursue human cloning and worship extraterrestrials).

B. **Existing methods insufficient to achieve aims**
   • For example, when current weapons do not (or are perceived to not) result in enough casualties, publicity, or psychological impact.
   • New means are needed to circumvent protective measures.

C. **Perceived competition**
   • Perceive the need to ‘stand out from the crowd’ and remain relevant.

D. **Group has very high level of resources**
   • Allows opportunity to engage in long-term development and explore different tools (two examples: Aum and Al Qa’ida).

E. **Costs associated with adopting new technology are lowered**
   • For example, the electronic privacy movement has enabled groups with very little resources, such as radical environmental extremists, to use the latest encryption and steganographic tools.
   • Advent of commercial biotech “kits” and commercial modified PCR.
   • Group recruiting members with advanced technical capabilities.
The Future: More CBRN?

E. If costs associated with adopting new technology are lowered…
Hype or Threat?
Bad News ...

- Terrorism trends are ominous
- Significant increase in number of incidents
- Al Qa`ida – sustained enemy
- Other groups: cults, militias, lone actors?

More threat assessment is necessary
Bad News …

*September 11* – confirmed that terrorists will seek to inflict mass casualties

*Anthrax attacks* – showed that the capability to get the agents is there (almost)
But Some Good News

• Very few incidents involving warfare agents
• More difficult to cause mass casualties with WMD than often assumed – difference between AGENTS and WEAPONS!
The threat must be countered before this becomes easier to accomplish.
The Bottom Line

• Threat of CBRN terrorism is real, but often distorted by hype.

• Remain mindful of more boring (but deadly threats): terrorism using conventional weapons is still likely to be prominent.

• ‘Don’t Panic’: Terrorists want us to panic – that’s why it’s called TERRORism.
The End