



# **Al Qa'eda & Unconventional Weapons**

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# CBRNE Terrorism Risk Assessment

*Risk = Probability x Consequence*

*Probability = F [threat, likelihood]*

*Threat = F [motivation, capability, vulnerability]*

- **Intent**
- **Capability**
  - Theoretical Knowledge
  - Tacit Knowledge
  - Acquisition
  - Weaponization
- **Vulnerability**

# Intent

## Rhetoric – Fatwas and direct statements

- “Acquiring weapons [of mass destruction] for the defense of Muslims is a religious duty. If I have indeed acquired these weapons [nuclear, biological, chemical], then I thank God for enabling me to do so.” – UBL, *Jamal Isma'il*, December 1998
- “If America used chemical and nuclear weapons against us, then we may retort with chemical and nuclear weapons. We have the weapons as a deterrent.” – UBL, *Dawn*, 10 November 2001
- “We have the right to kill four million Americans, two million of them children.” – Abu Ghaith, “Why We Fight America,” June 2002
- If a bomb was dropped on them that would annihilate 10 million and burn their lands ... this is permissible.” – Sheikh Nasir bin Hamid al-Fahd, “A Treatise on the Legal Status of Using Weapons of Mass Destruction Against Infidels,” May 2003

# Intent

## Rhetoric – Fatwas and direct statements

- “As to the use of Sarin gas and nuclear [weapons], we will talk about them then, and the infidels will know what harms them. They spared no effort in their war on us in Afghanistan and left no weapon but used it. They should not therefore rule out the possibility that we will present them with our capabilities” – Abu Muhammad al-Ablaj, *Al-Majallah*, May 2003
- “If those engaged in jihad establish that the evil of the infidels can be repelled only by attacking them with weapons of mass destruction, they may be used even if they annihilate all the infidels.” – Mustafa Setmariam Nasar (a.k.a. Abu Mus’ab al-Suri)
- “The mujahideen must obtain them [WMD] with the help of those who possess them either buying them,” or by “producing primitive atomic bombs, which are called dirty bombs [RDD].” – Mustafa Setmariam Nasar, *El Pais*, June 2005

# Intent

## Failed, abandoned, and disrupted plots

- Radiological
  - Jose Padilla
  - UK (Dhiran Barot, Nadeem Tarmohammed, Qaisar Shaffi)
- Chemical
  - “Mubtakkar”
  - London choking agent ( $\text{OsO}_4$ )
- Biological
  - 2003 UK ricin
- Nuclear
  - 1998 & 2001 Sultan Bashir-ud-Din Mahmood, Pakistani nuclear scientists ... *allegedly intended for NYC*

# Al Qa'eda Improvised Device

- Primitive binary weapon for choking agents
- Little or no training for assembly and operation
- Some very basic chemistry knowledge for design



\* Fall 2003 US DHS Information Bulletin

# London Chemical Terrorism Plot



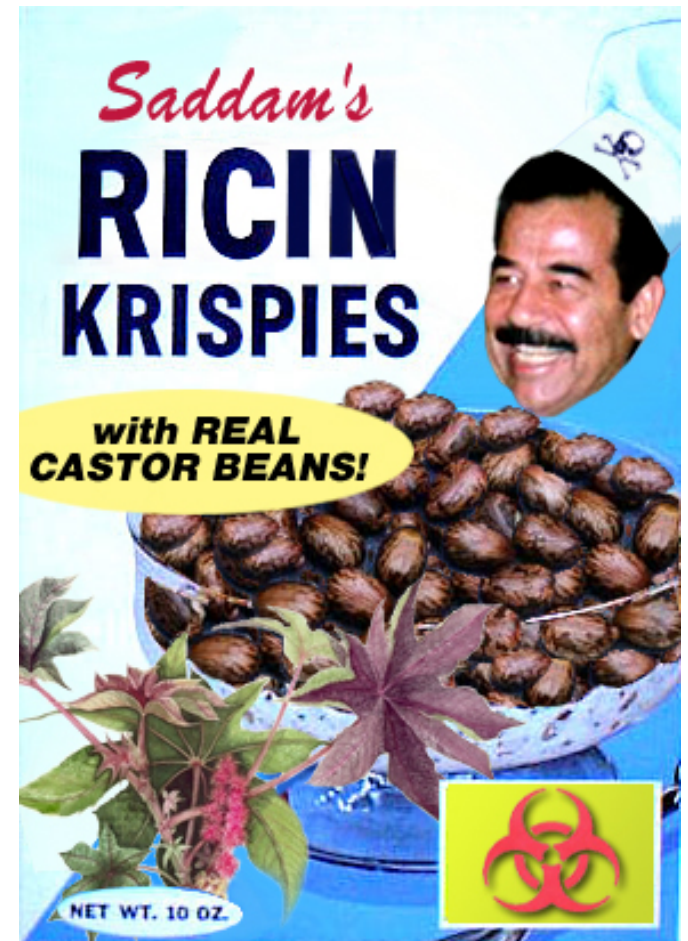
- April 2004
- 8 British citizens of Pakistani background tied to al Qaeda arrested
- Plot to detonate a chemical bomb with improvised choking agent in London underground
- Conventional explosives combined with **Osmium tetroxide** ( $\text{OsO}_4$ )

*“chemical fallout” \**

\* Taylor and Wright, “Britain foils chemical bomb plot,” *The Advertiser* (Australia), 8 April 2004.

# Capability

- Theoretical Knowledge
- Tacit Knowledge
- Acquisition
  - Agents
  - Infrastructure
  - Money
- Weaponization



# Spread of Terrorist Manuals

*“distance learning”*

- **Al Qaeda Training Manual**

Aka “Military Studies in the Jihad Against the Tyrants”

Recovered May 2000 by Manchester LEO  
Information of varying quality on explosives, poisons & chemicals.

- **Jl handbook**

Recovered October 2003 by Philippine police

Extremely limited public disclosure

- **Fallujah “cookbook”**

Recovered November 2004 by U.S. and Iraqi troops

Documents reportedly containing recipes for chemical and biological weapons

Found with chemicals, batteries & switches (for IEDs)

- **Al-Firdaws (Paradise) Forum**

Nuclear, radiological, chemical and biological



Image Courtesy of the *Washington Times*

# Planting Dangerous Ideas



“ . . . we only became aware of them [biological weapons] when the enemy drew our attention to them by repeatedly expressing concern that they can be produced simply.”

Translated memo on computer disk allegedly written by Dr. Ayman al-Zawari (M.D.), 1999

**Bomb-making is tacit knowledge among terrorists.**

# Tacit Knowledge & Infrastructure

## – Al Qa’eda in Afghanistan & Pakistan

- Unnamed “scientist” – *widely presumed to be Abdur Rauf, a Pakistani microbiologist* – procured a “sterilizer, a respirator and an air-contamination detector,” as well as incubator and a centrifuge.
- Notes “a special confidential room” with thousands of samples of unspecific “biological substances.”
- Mentions attempts to buy anthrax vaccines.
- Describes 4 or 5-room improvised laboratory.
- Describes different training programs for senior workers versus technicians.
- “I did not find the required culture of B. anthrax, i.e. pathogenic. However, I have started correspondence with [name redacted] for the supply of the culture.”
- Abu Khabab, Egyptian chemical engineer (BS)

\* From letters recovered in late 2001 from Afghanistan, made public via FOIA request in 2005.

# CW - Al Qa'eda in Afghanistan

- Recovered “trace amounts of two common chemicals that can be used to produce a blister agent”\* [ $S_2Cl_2$  or  $S(C_2H_4OH)_2$ ]
- “Almost certainly [had] produced” HCN,  $Cl_2$  and phosgene\*
- Evidence of testing chemical agents on rabbits and dogs\*
- Basic information from open sources



\* From the Report to The President of the Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction (Unclassified), 31 March 2005.

# Al-Abud Network

- Formed late 2003, in response to OIF by Jaysh Muhammed (JM)
- Recruited an “inexperienced Baghdad chemist”
- Unsuccessful attempts to produce tabun & nitrogen mustard agents
  - Precursors obtained from “chemical suk district” and “farmers” who looted state companies
- Instead, focused on “napalm” & “sodium fluoride acetate” (Compound 1080)
- Mortars obtained from JM contacts

# Fallujah Chemical Lab



Courtesy USMC

# Al Qa'eda in Iraq - Chlorine

- At least 15 incidents (Oct 06 to June 07)
  - “Signature tactic” for insurgents in AQ-linked groups in Al Anbar province
- Typical scenario – mortar shells & chlorine tanks (100-lb to 1-ton)
- Most civilian fatalities due to explosives
- Over 300 US service members affected
  - 65 US service members sickened during 3 Jun 07 attack in Diyala
- Intent to have impact beyond concussion and blast injuries
  - Terrorize civilians
  - Complicate military operations

# Vulnerability – Attacks on Chemical Plants

- EPA: “a worst-case release” affect one million people located near one of the 123 identified facilities (1996)
- Army Surgeon General: the worst-case scenario would result in “up to 2.4 million people killed or injured – close to the number estimated by chemical companies themselves” (2003)
- White House Homeland Security Council:
  - Scenario 6 Chemical Attack – Toxic Industrial Chemicals
- DHS: “at present, about 600 facilities could potentially threaten between 100,000 and a million people. About 2,000 facilities could potentially threaten between 10,000 and 100,000 people” (2003)

# Why Has AQ Not Used CBRN?

- Norms
  - Challenges from within the Islamist community
- Successes of the GWOT
  - Disruption
- *Perception* of target hardening/decreased (or less) vulnerability
  - Resurgence & spread of polio to 20 predominantly Muslim states post-Kano edict
- Success in conventional weapons and improvised explosives
- Difficulty of obtaining and weaponizing agents
- Waiting for an Opportunity - “Patience”
- Wild Card – decentralized cells

# Norms

- Muhammed Khalil al-Hakaymah's "Toward a New Strategy" warns against excessive violence and civilian targeting – lessen popular support for mujahideen. (September 2006)
- Sheikh Salman Al Oudah "My brother Osama, how much blood has been spilt? How many innocent people, children, elderly, and women have been killed ... in the name of al Qa'eda?" (2007)
- Sayyid Iman Al Sharif ("Dr. Fadl") "Jihad ... was blemished with grave Sharia violations during recent years ... [Now] there are those who kill hundreds, including women and children, Muslims and non-Muslims in the name of Jihad!" (2007)

# Why Has AQ Not Used CBRN?

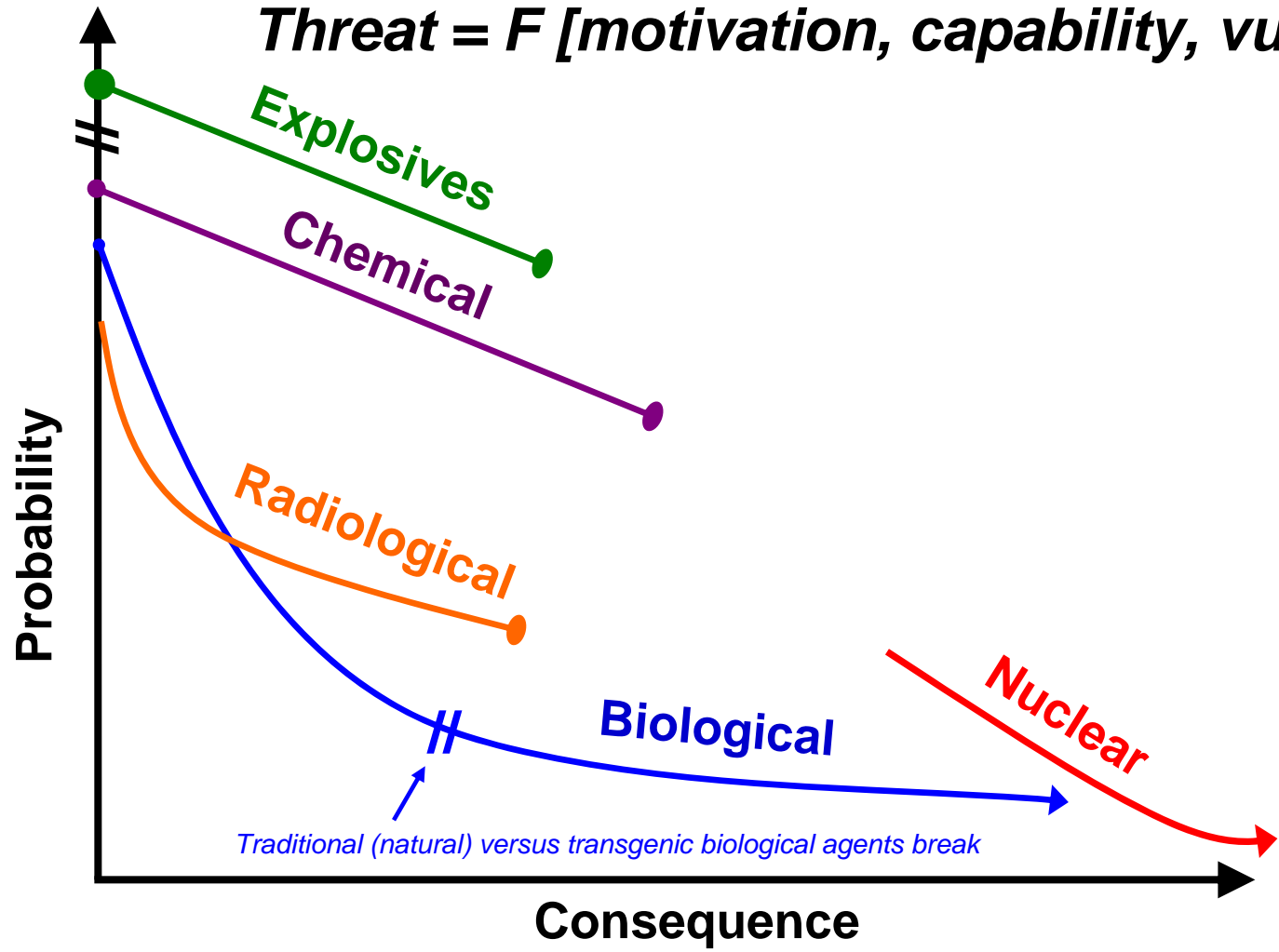
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# CBRNE Terrorism Risk Assessment

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# Conclusions

- **Chemical**
  - Been used
  - Path from “street chemistry” of IEDs to improvised chemical devices is very short
- **Biological**
  - More difficult than rhetoric
- **Radiological**
  - The puzzle
- **Nuclear**



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AND POLICY



**extra slides**

# Conclusions

- Chemical terrorism is likely to be a crime of opportunity & familiarity with chemicals
  - expands agents of concerns from ~50 associated with traditional CW to thousands of known chemicals
- Two divergent issues
  - traditional CW agents dispersed via improvised methods
  - improvised agents & delivery methods
- The probability of attack is high
  - (consequence of an improvised nuclear or mass-effect bio event is much higher)*
- Danzig “reload” phenomenon: equivalent to or higher than BW
- Increasing interest by radical Islamists in exploiting **fairly sophisticated** chemistry for terrorist purposes
- **Path from “street chemistry” of IEDs to improvised devices is very short**

# Final Thoughts

*(as opposed to explicit recommendations)*

- Do not leap from threat assessment to policy recs
- Incorporate into broader, holistic assessments of CBRNE terrorist weapons and terrorist targets
  - should contribute to policy decisions about research funding, countermeasures, risk communication and emergency response
  - not a 'turf war'**
- Integrate with robust technical evaluations of CBRNE risks
- Integrate into the dialogue of emergency responders and experimental researchers
- Homegrown terrorists
  - Cannot ignore, particularly if another domestic incident occurs
- Detecting and controlling capacity to produce ICDs may be unfeasible ∴ best threat reduction policy may be to reduce vulnerability & motivation

# Disruption via GWOT

- GWOT Has Decisively Limited Environmental and Strategic Context al-Qaeda Operates In Al-Qaeda remains principal focus of concern about imported terrorist threats to the United States
- Attacks on Taliban in Afghanistan have led to loss of al-Qaeda safe haven
  - Scattering core of leadership to locales in Middle East and throughout Central, South, Southeast Asia
- Unremitting campaign has led to capture/elimination of many al-Qaeda's critical field commanders and functionaries
- Focus on staunching international flow of money has denuded group's ability to plan and execute large-scale, complex attacks

# Outline

- Why No CBRN attacks? \*
- Framework Variables
  - Intent
  - Knowledge
    - Theoretical
    - Tacit
    - Weaponization
  - Infrastructure
  - Materials acquisition
  - Vulnerability
- Explanations
- Conclusions