



Università di Roma Tor Vergata

INTERNATIONAL CBRNe MASTER COURSES

Chemical, Biological, Radiological, Nuclear and explosive
Department of Industrial Engineering and School of Medicine and Surgery

2nd International CBRNe Workshop
Rome, 20 November 2015

CBRNe Islamic State Hoax or Reality?



BrigGEN (ret'd) Ioannis Galatas, MD, MSc, MC (Army)

Consultant in Allergy & Clinical Immunology

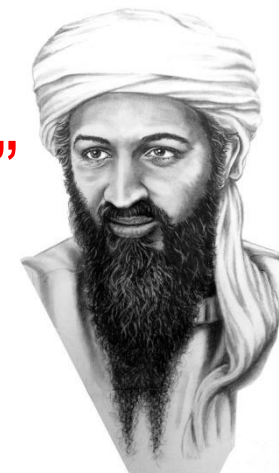
CBRNE Instructor & Planner

Senior Asymmetric Threats Analyst @ KEMEA

Athens, Greece

1998

Osama bin Laden: **“acquisition of WMD is a religious duty”**

**2003**

Fatwa by radical Saudi cleric Nasir bin Hamd al-Fahd:
“it is legitimate to use WMDs to kill millions”

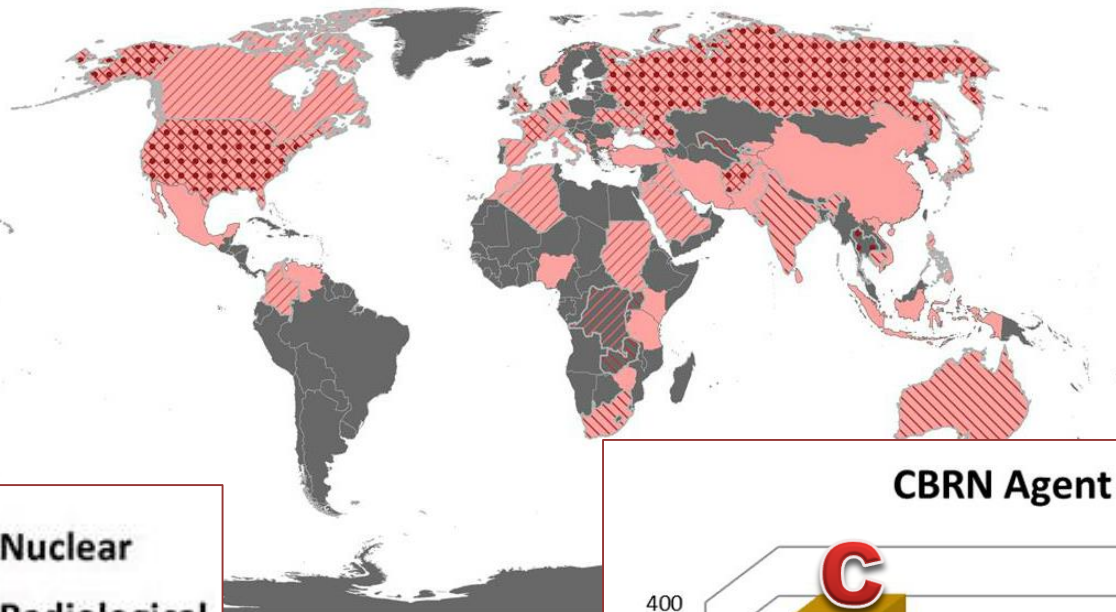
2011

Late al-Qa'ida ideologue Anwar al-Awlaki: **“permission to use poisons and other WMDs in densely populated areas”**

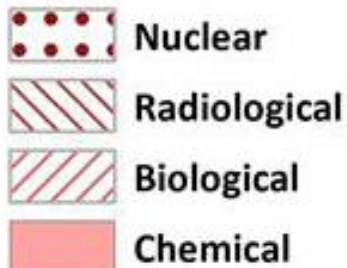
Past TWO DECADES
al-Qaeda and its affiliates

over 50 reported attempts
to acquire, produce or deploy
CBRN weapons

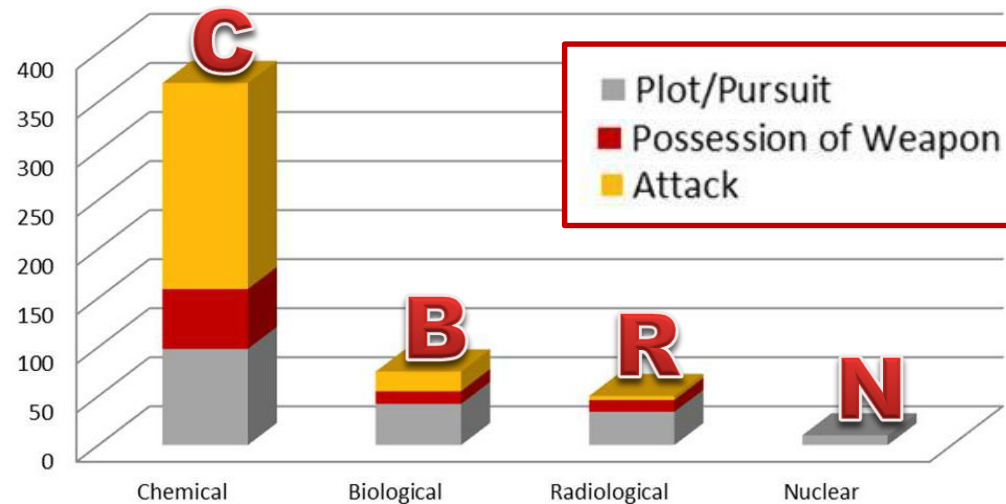
CBRN Events Worldwide, 1990-2013



◀ Plots, successful acquisitions, and actual attacks



CBRN Agent and Event Type



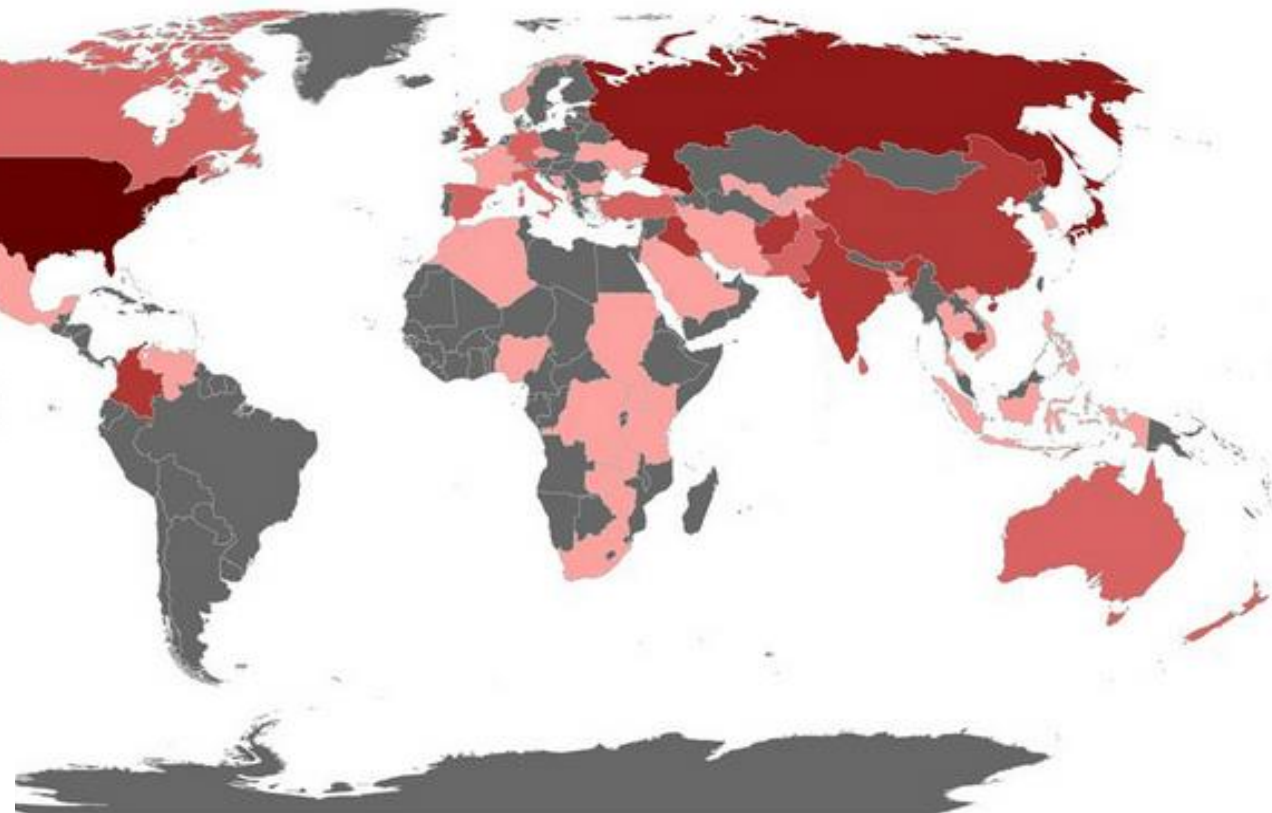
<http://warontherocks.com/2014/08/a-global-picture-of-non-state-actors-and-cbrn/>

CBRN Events Worldwide, 1990-2013

Plots, successful acquisitions, and actual attacks

Number of Events per Country

- ◆ 1 - 4
- ◆ 5 - 10
- ◆ 11 - 27
- ◆ 28 - 51
- ◆ 52 - 87



START ►►►

Source: Profiles of Incidents involving CBRN by Non-state actors dataset

<http://warontherocks.com/2014/08/a-global-picture-of-non-state-actors-and-cbrn/>

PRANK

When terrorists claimed to have used CBRN material but **no such substance** was used

HOAX

When a prank is accompanied by a **fake substance**

THREAT

CBRN use is threatened but there is **no evidence of** possession, attempted acquisition, or execution

- ↳ they do **not** really represent a CBRN **risk**
- ↳ **may result** in inconvenience and costs.

RISK

The intersection of assets, **threats**, and vulnerabilities.

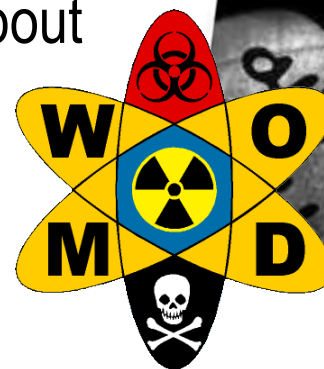
Ivanova, Kate and Sandler, Todd, "CBRN Attack Perpetrators: An Empirical Study" (2007). *Published Articles & Papers. Paper 65.*

http://research.create.usc.edu/published_papers/65

There are three tenants to IS terror:

1. The “active shooter” **Charlie Hebdo type attack** (which includes suicide bomber, executions, conventional explosives, etc);
2. **Cyber-attack** against all things electronic, and
3. **Irregular or asymmetric attack**, predominantly CBRNe

but also anything we haven't thought about which will **enhance** ISIL's **psychological campaign of terror**.



PAST

- Counter-terrorism exper
 - ↪ use of a CBRN v
 - ▶ expensive, di
 - weaponize as
- With the operational env agencies, it would be a c large CBRN attack, parti

Homeland Security News Wire

BIOMETRICS BORDER/IMMIG. BUSINESS CYBERSECURITY

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Risk analysis

Experts are often fallible, so expert advice should be examined carefully

Published 16 October 2015

+ Share |    

Evidence shows that experts are frequently fallible, say leading risk researchers, and policy makers should not act on expert advice without using rigorous methods that balance subjective distortions inherent in expert estimates. Many governments aspire to evidence-based policy, but the researchers say the evidence on experts themselves actually shows that they are "influences" — from individual values and mood, to whether they stand to gain or lose from a decision — and, while highly credible, experts often vastly overestimate their objectivity and the reliability of peers.

shifted the paradigm a terrorist group.

Experts are highly susceptible to “subjective influences” — from individual values and mood, to whether they stand to gain or lose from a decision — and, while highly credible, experts often vastly overestimate their objectivity and the reliability of peers.



Security Expert: ISIS Could Launch Chlorine Attack on London Sites

1



(Dan Talson/Dreamstime)

By Sandy Fitzgerald | Monday, 23 Mar 2015 01:59 PM

 **ISLAMIC STATE**

 Lone wolves → **attacks out of their area of operations**

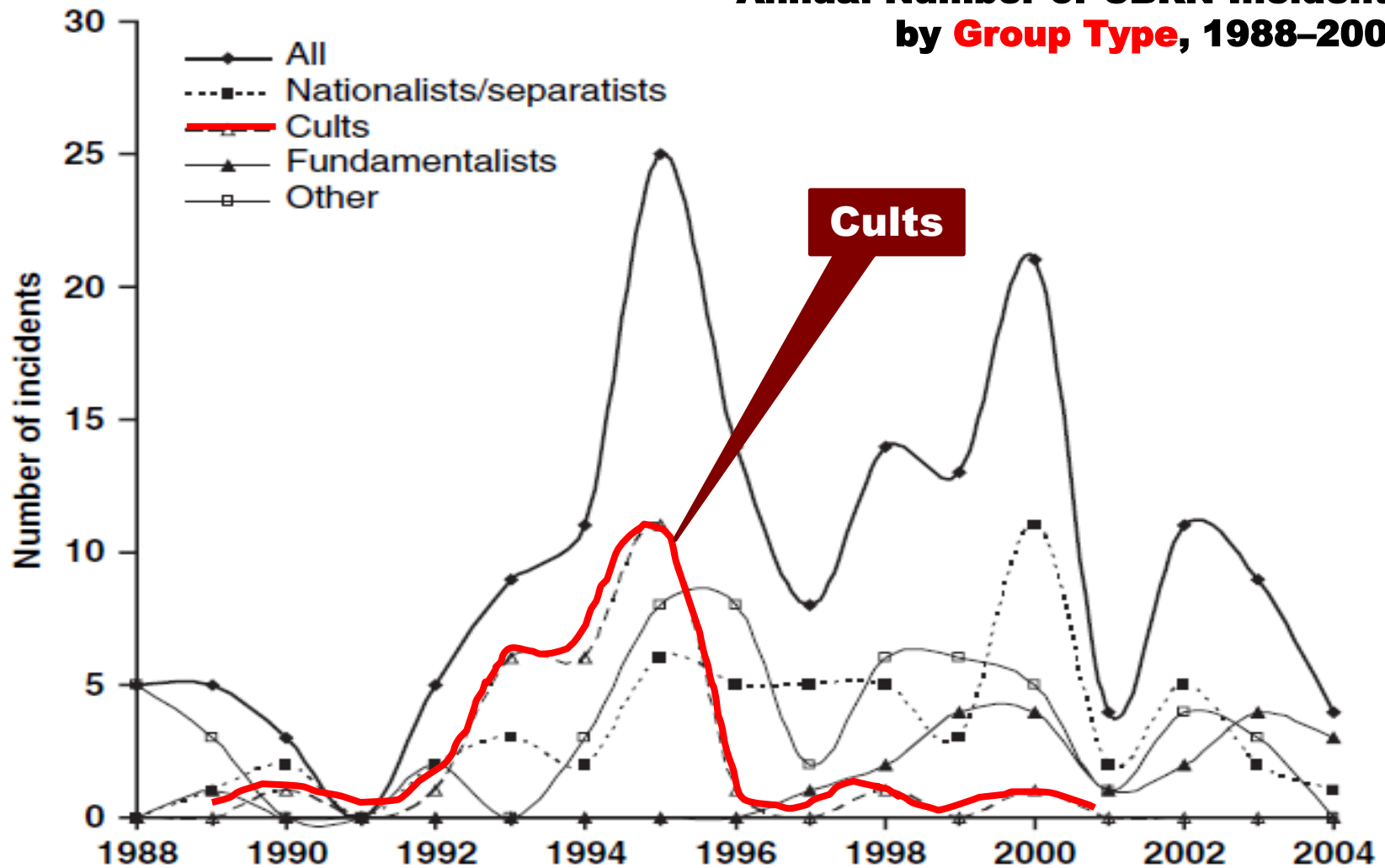
ni insurgency in Iraq:

estimate large-scale casualty attacks.
attacks.

ed chemical weapons against
and security forces in Iraq.

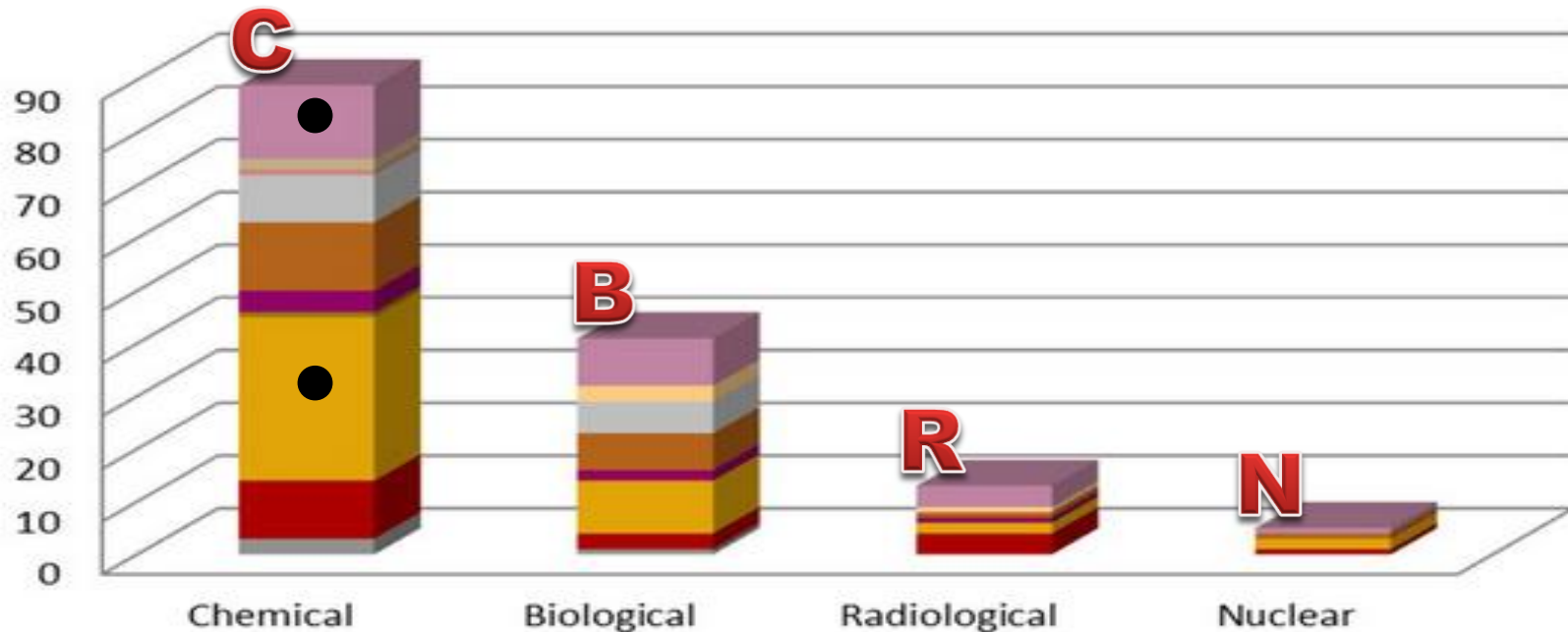
Hamish de Bretton-Gordon
*Former commanding officer UK's CBRN Regiment
and NATO's Rapid Reaction Battalion*

Annual Number of CBRN Incidents by Group Type, 1988-2004



http://research.create.usc.edu/published_papers/65

CBRN Agent and Perpetrator Type



- Cult
- Religious
- Right-Wing (Religious)
- Secular Right-Wing
- Single Issue
- Unidentifiable
- Ethno-nationalist
- Proregime/Counter-revolutionary
- Secular Left-Wing
- Socialist/Communist/Marxist/Leninist
- State Sponsored

<http://warontherocks.com/2014/08/a-global-picture-of-non-state-actors-and-cbrn/>



20 July 2015

ISIS targets civilians with chemical weapon attack in Iraq and Syria

CHEMICAL weapons have been used by Islamic State (ISIS) militants in Iraq and Syria, according to groups monitoring the increasingly deadly conflict.

By TOM BATCHELOR

PUBLISHED: 12:00, Mon, Jul 20, 2015 | UPDATED: 15:56, Mon, Jul 20, 2015

SHARE TWEET 47 5



Missile fired by Islamic State fighters reported to contain chemical weapons

The Syrian Kurdish People's Protection Units (YPG) militia said that **fanatical Islamists** had fired "**makeshift chemical projectiles**" on June 28 at two positions in and near the city of Hasaka.

The type of chemical used had not been definitively determined, although initial reports suggested the substance was a **chlorine agent**.

Soldiers exposed to the gas experienced “burning of the throat, eyes and nose, combined with severe headaches, muscle pain and impaired concentration and mobility”.

THOMSON REUTERS
ACCELUS™

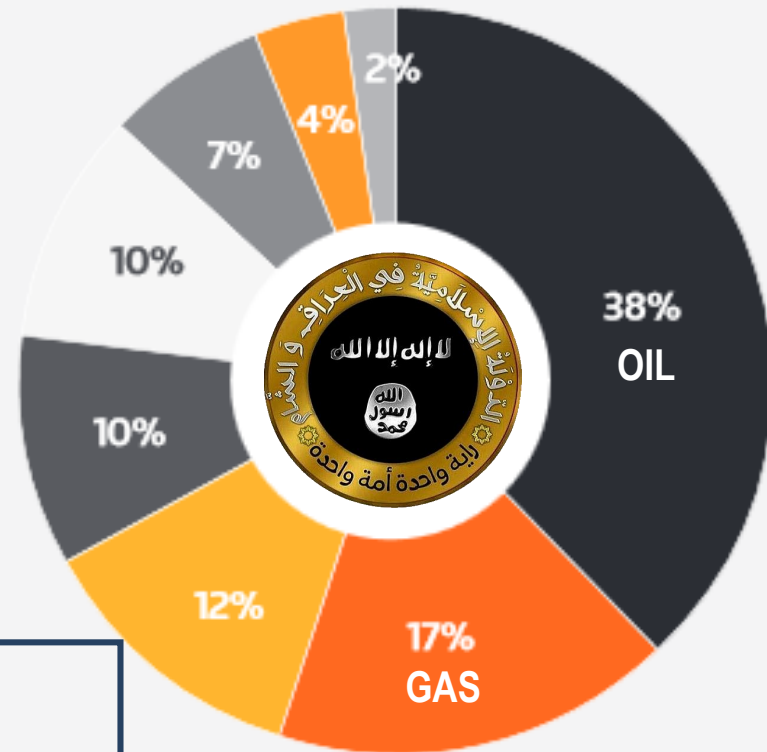
ISLAMIC STATE: TERRORIST FUN

By Jean-Charles Brisard and



THOMSON REUTERS™

Islamic State funding sources by type
(estimates)



- OIL
- PHOSPHATE
- K&R
- NATURAL GAS
- CEMENT
- DONATIONS
- EXTORTION
- WHEAT & BARLEY

<https://risk.thomsonreuters.com/sites/default/files/GRC01815.pdf>

Increased Number of Safe Havens

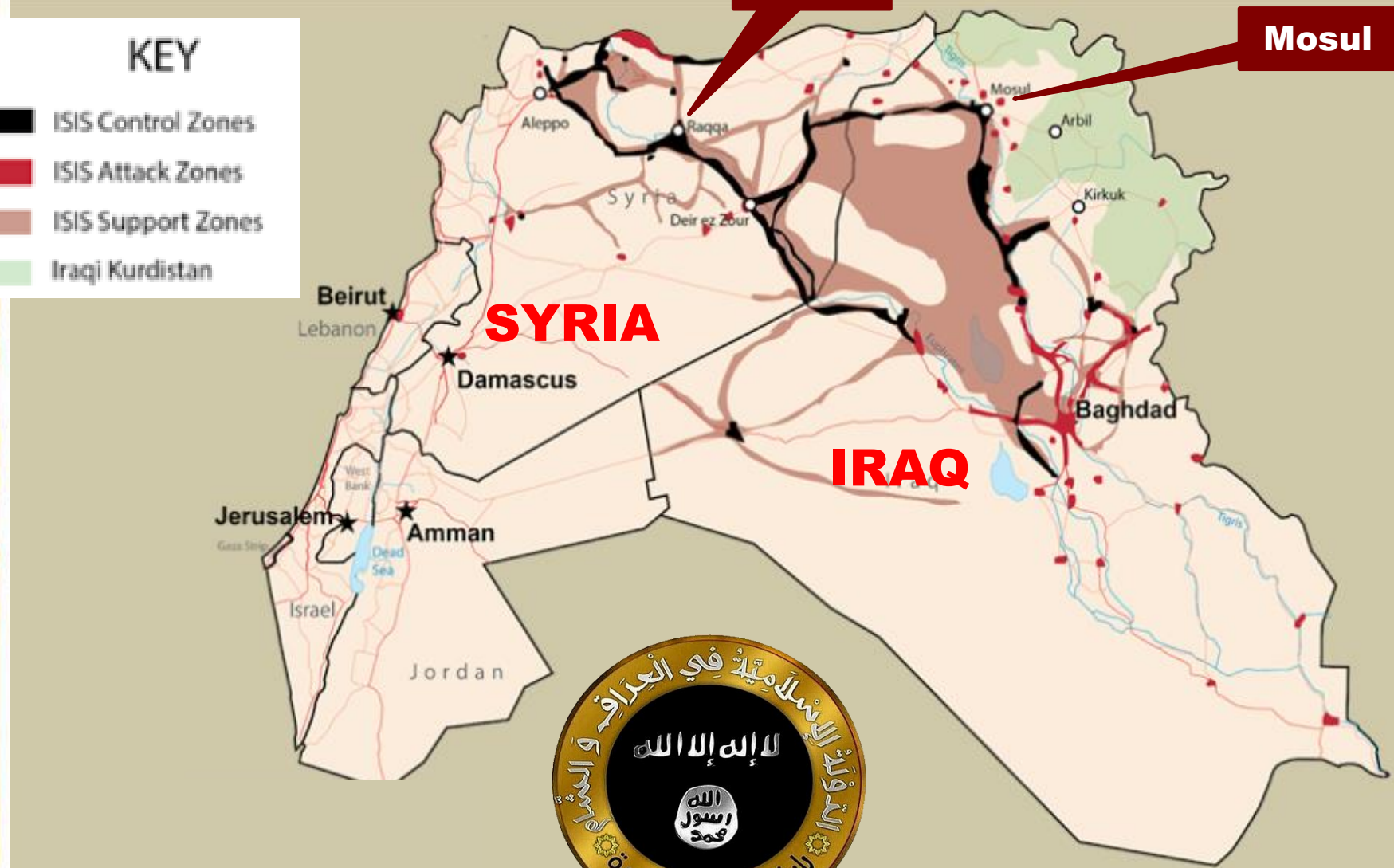
- **Operating in weak or failing states** can offer such a haven in which terrorist groups can function freely and shelter from authorities seeking to disrupt their activities.
- Islamic State has **control** of **almost 50% of Syria** and has seized much of **northern Iraq**, including the major city of Mosul.
- The fear is that there are individuals working in the Islamic State-**controlled campuses** of the **University of Mosul** or in some CBRN facility in the **Syrian city of Raqqa**, the group's de facto capital, to develop such weapons.

KEY

- ISIS Control Zones
- ISIS Attack Zones
- ISIS Support Zones
- Iraqi Kurdistan

Raqqa

Mosul



© Institute for the Study of War

Accessibility of a CBRN Arsenal

It is still unclear whether
its CBRN arsenal

↳ access to CBRN m



April 2013

Militants in Aleppo targeted the **al-Safirah chemical facility**,
↳ a pivotal production center for Syria's CWAs program.

July 2014

In **Iraq**, where security and centralized control is also weak, Islamic State fighters were able to seize more than **88 lbs. [40kg] of uranium** from the **University of Mosul**

↳ material was not enriched to the point of constituting a nuclear threat

↳ radioactive uranium isotopes could have been used to make **crude RDDs**

Chemical weapons facility in Al Safirah

UN report (2003) on Bunker 13 (past Iraqi CW program)

- 2,500 sarin-filled 122-mm chemical rockets produced and filled before 1991
- ~180 tons of sodium cyanide – a very toxic chemical and tabun precursor

Libya, where ISIL is establishing a new stronghold, has still not destroyed **all** its chemical materials from previous programs.

846,2 metric tons of precursors' destruction to be completed by **Dec 2016**

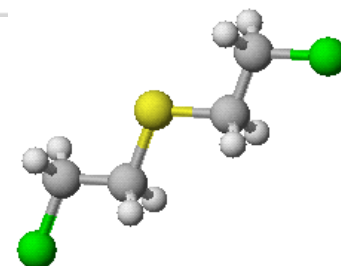


Sign In

8 October 2015

of World Videos Mad, Mad World

ack



"The results of the tests on blood samples the peshmerga ministry said.

"During the attack on Gweyr and Makhm statement said, referring to two frontline t





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6 November 2015

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Middle East

Syria conflict: 'Mustard gas used' in Marea attack

6 November 2015 | Middle East

Mustard gas was used in an attack on a town in northern Syria in August, chemical weapons experts have concluded.

The Organization for the Prohibition of Chemical Weapons (**OPCW**) said the chemical agent was used in the town of Marea.

Islamic State (IS) militants were accused of using mustard gas during fighting with a local rebel group. The OPCW report said **a baby "very likely" died as a result of its use**





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FOREIGN POLICY RESEARCH INSTITUTE

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E-NOTES

"A nation must think before it acts." - Robert Strausz-Hupé

B. DID ISIS SEIZE SADDAM-ERA RADIOLOGIC MATERIAL?

Syria: There are still unconfirmed reports that the country has moved nuclear material, intended to be used in the destroyed Dair al-Sour reactor, to an undisclosed **storage site near the city of Al-Qusayr**



nearby Jaber bin al-Hayyan facility for conversion into pure uranium hexafluoride (UF6). UF6 is used in gaseous diffusion or gas centrifuge enrichment processes to produce weapon-grade uranium-235. Al-Jazirah also produced uranium-235.

Al-Jazirah Analytical Lab

↳ University of Mosul (after 1991)

■ Yellow-cake → **Jaber bin al-Hayyan Facility** (uranium hexafluoride – UF6)

UF6 → **weapon-grade U-235**

■ Uranium tetrachloride (UCl4) → EM isotope separation of U enrichment

radioactive and highly toxic if ingested, inhaled as dust, or by skin contact) as well as uranium oxide “yellowcake”; ammonium diuranate (an intermediate chemical form of uranium produced during yellowcake production); uranium trioxide (UO3) and dioxide (UO2); and possibly, gram-quantity samples of uranium tetrachloride.

Homeland Security News Wire

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Nuclear materials

Moldova - timeline of nuclear smuggling

2010 1.8kg of Uranium-238 seized in Chisinau when three people tried to sell it for €9m (£6.6m; \$10m)

2011 Six detained for trying sell 1kg of weapons-grade Uranium-235 for €32m; they said they also had access to plutonium

2014 Smugglers allegedly tried to sell 200g of Uranium-235 from Russia to undercover security agents for \$1.6m; 1.5kg of Uranium-235 seized close to Moldovan border in Ukraine

2015 Undercover agent bought ampoule of Caesium-135; materials contaminated with Caesium-137 found in central Chisinau

U-238

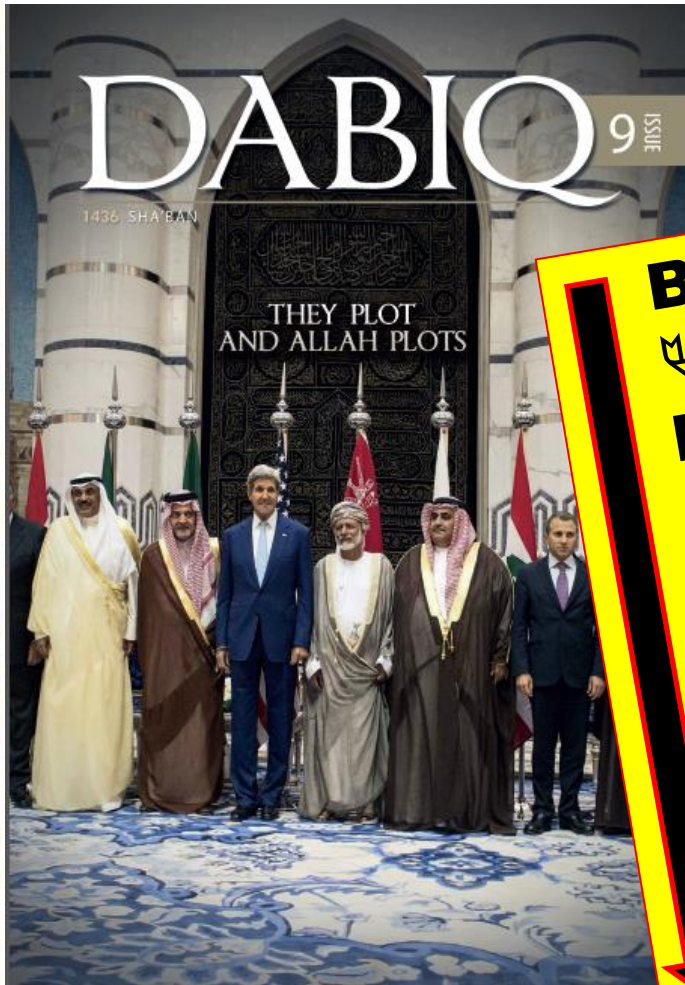
U-235

U-235

Cs-135

er 2015





Let me throw a hypothetical operation onto the table. The Islamic State has billions of dollars in the bank, so they call on their contacts in Pakistan to purchase nuclear weapons. The weapons are transferred overland through the borderlands of Pakistan and Afghanistan to mujahidīn who transport them from the West Coast of Africa and from the Gulf of Mexico and the Caribbean through the United States. They drive through a tunnel through a mountain range and hey presto, they're mingling with another 12 million "illegal" aliens in America with a nuclear bomb in the trunk of their car.

Buy nukes from Pakistan

- ↳ **Transfer overland to**
- Libya**
- ↳ **Nigeria**
- Transfer by boat**
- ↳ **Central Latin America**
- Transfer overland**
- ↳ **Mexico**
- Via smuggling tunnel**
- ↳ **USA**

p.77 ▶



2 October 2015

ISIS nuke alert: Terror group could unleash WMD after Russian bombing campaign

ISIS could unleash weapons of mass destruction in retaliation to the Russian bombing campaign.



By Craig Saunders / Published 2nd October 2015

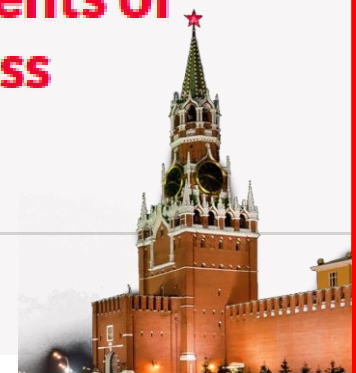


FEAR: Vladimir Putin's bombing campaign could spark an Isis nuclear retaliation



“Isis has stable sources of income, a well-equipped army and elements of weapons of mass destruction”

A Russian diplomat



EXCLUSIVE

Found: The Islamic State's Terror Laptop of Doom

Buried in a Dell computer captured in Syria are lessons for making bubonic plague bombs and missives on using weapons of mass destruction.

BY HARALD DOORNBOOS, JENAN MOUSSA | AUGUST 28, 2014



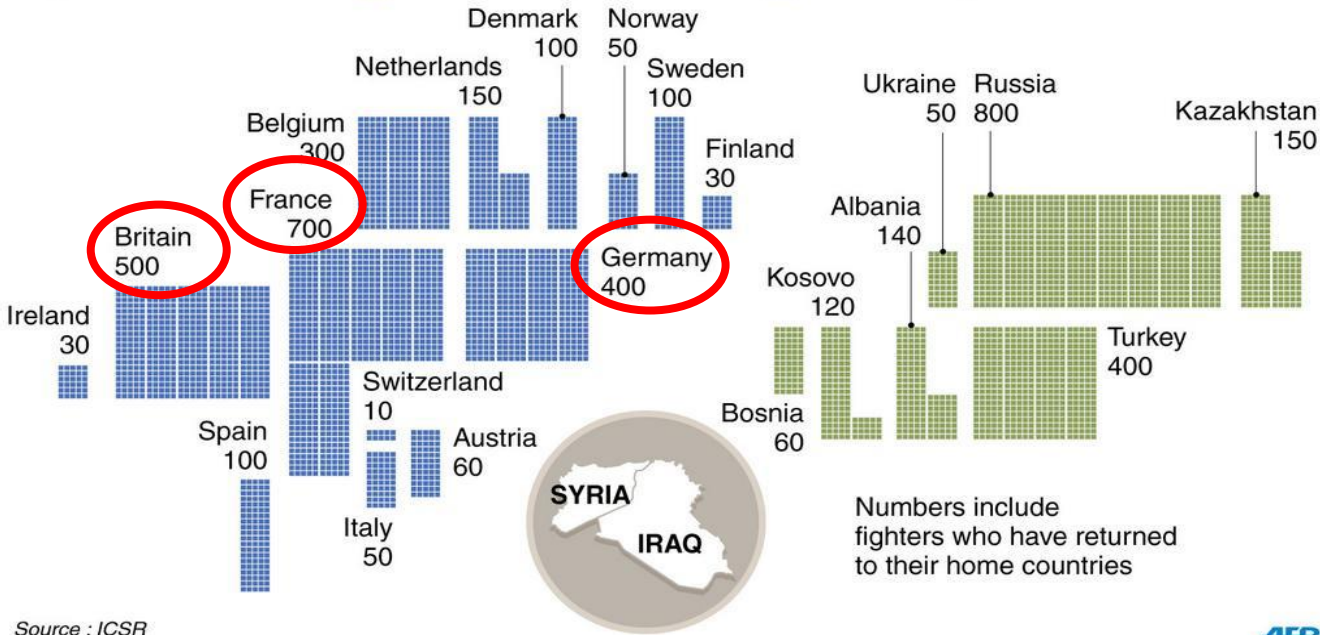
European fighters in Syria and Iraq

Official estimates and analysis from the London-based International Centre for the Study of Radicalisation

Origins

Western Europe (blue grid) Rest of Europe/Eurasia (green grid)

Germany	400
Australia	10
Belgium	300
Netherlands	150
United States	10
Denmark	100
Norway	50
Ireland	30
Sweden	30



Numbers include fighters who have returned to their home countries



Source : ICSR

© StatistaCharts * Excluding Islamic ma Sources: CNN, National

AFP

**National
DEFENSE**

NDIA

*NDIA's Business and
Technology Magazine*

ISIL Determined to Acquire Biological Weapons (UPDATED)

By Sarah Sicard

July 10, 2014



**... weaponize
bubonic plague
through the use of
infected animals**



"Intelligence has recently discovered that ISIS intends to pursue biological agents and also is trying to figure out how to weaponize bubonic plague through the use of infected animals," said Brig. Gen. Maria Gervais, head of the Army's Chemical, Biological, Radiological and Nuclear School.



The U.S. military has evidence that Islamic State militants in Iraq and Syria are seeking biological weapons, an Army official said Oct. 7.



October 2014

CBRNe World

Gary A Ackerman, Director, and Ryan Pereira, Advanced Researcher, of the Unconventional Weapons and Technology Division at the National Consortium for the Study of Terrorism and Responses to Terrorism

Jihadists and WMD:

Abu Musab al-Zarqawi, the former leader of AQI (the forerunner of IS) predicted an apocalyptic end-of-days military battle with the Crusaders, saying, “Behold, the spark has been lit in Iraq and its flames will blaze, Allah willing, until the armies of the cross.”

With the jihadists’ end goal of defeating the Crusaders and establishing the caliphate across the globe, IS’ **availability of chemical weapons**, and with the **pool of potential biological materials** in Iraq and Syria, **western policymakers could be forgiven for thinking that Zarqawi was correct.**

The jihadist WMD spark has been lit and appears to be growing...

CSIS | CENTER FOR STRATEGIC & INTERNATIONAL STUDIES

14 July 2015

Center for Strategic & International Studies

Statement before the House Committee on Homeland Security

Subcommittee on Emergency Preparedness, Response, and

Cyber

Terrorist groups continue to pursue CBRN weapons,

Terrorist groups continue to pursue CBRN weapons, despite the challenges they face developing these capabilities, at least in part because of their high level of power, and even prestige, relative to other groups. For almost twenty years, we have seen Al Qaeda and its affiliates pursue these capabilities. In 1998, Osama bin Laden declared that acquiring and using weapons of mass destruction (WMD) was his Islamic duty. More recently we have seen reports of chemical weapons facilities and radioactive materials in Iraq. Deterrence strategies have no effect against these enemies – If they acquire a WMD then we should expect them to use it.



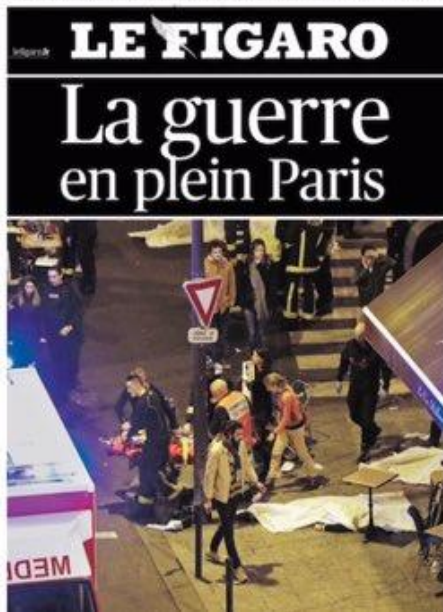
- If they acquire a WMD then we should expect them to use it.

July 14, 2015
Cannon House Office Building
Washington, DC 20515

http://csis.org/files/attachments/ts150713_Nelson.pdf



13 November 2015



Foxcrawl

Nov
19
2015

France fears chemical attack. Government requires stocks of atropine sulfate, a drug used to offset neurotoxins effect in chemical warfare

Hotnews

Add comments



Francois Hollande urged government

The **INDEPENDENT**

News › World › Europe

Paris attacks: French PM Manuel Valls issues Isis 'chemical weapons' warning

Valls urges French parliament to extend its state of emergency

Adam Withnall | @adamwithnall | 53 minutes ago | 2 comments

**MINISTÈRE DES AFFAIRES SOCIALES, DE LA SANTÉ
ET DES DROITS DES FEMMES**

Arrêté du 14 novembre 2015 autorisant l'utilisation de sulfate d'atropine,
solution injectable 40 mg/20 mL PCA antidote des neurotoxiques organophosphorés

NOR : AFSP1527645A

Thank you for your attention!

Be prepared!

It was not raining when Noah made
the Arc!



BrigGEN (ret'd)
Ioannis Galatas, MD, MSc, MC (Army)

- ✓ KEMEA's CBRNe Research Associate
- ✓ Editor-in-Chief @ CBRNE-Terrorism Newsletter



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