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Debunking nuclear security hype on the eve of the Nuclear Security Summit

Minsu Crowder-Han

News stories about nuclear security tend to follow a pattern: terrorists, smugglers, highly enriched uranium, loose nukes, mushroom clouds, the end. But have we really been teetering on the brink of nuclear terror since the early 1990s, when the term "nuclear terrorism" first entered the beltway lexicon? Probably not. So is nuclear security just the cause célèbre of fear-mongering, attention-seeking worrywarts? Again, probably not.

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The public and policymakers should be concerned about safeguarding nuclear and other radioactive materials. However, the dramatic, even panicked tenor of discussion on the topic makes it extremely difficult to take a level-headed look at the state of nuclear security and the actual threat of nuclear terrorism. On the eve of what will likely be the last of four biannual Nuclear Security Summits (March 31-April 1), we can expect the predictable chorus of doom-and-gloom mixed with progress reports on the commitments of summits past. But it is also time to deflate some of the hype surrounding nuclear security, because it clouds judgment and impedes scholarship at a time when we need to make sure that nuclear security efforts are sustainable beyond 2016.

There is no universally-employed definition of "nuclear security," but the International Atomic Energy Agency (IAEA) offers a good one: "The prevention of, detection of, and response to, criminal or intentional unauthorized acts involving or directed at nuclear material, other radioactive material, associated facilities, or associated activities." Simply put, nuclear security means keeping bad people from doing bad things with nuclear material, including acts of terrorism.

The Nuclear Security Summits always occasion plenty of speculation (http://www.nytimes.com/2012/03/16/opinion/nuclear-terrorism-a-clear-danger.html) among journalists and security experts about the likelihood of a violent non-state group (like ISIS) stealing or developing a nuclear weapon. Much nuclear security coverage is driven by a terrifying mythology, at the heart of which exists a "nuclear black market" that brings together a network of smugglers and extremists. "Proof" of this shadowy underworld crops up periodically, most recently in October 2015 when the Associated Press's Desmond Butler and Vadim Ghirda published an investigation (http://bigstory.ap.org/article/9f77a17c001f4cf3baeb28990b0d92eb/ap-investigation-nuclear-smugglers-sought-terrorist-buyers) into a terrorist-sympathizing smuggler peddling cesium in a Moldovan nightclub and several other

incidents of attempted illicit trafficking. The story predictably set off a firestorm of hand-wringing, but also skepticism.

As Mark Fitzpatrick, US director of the International Institute for Strategic Studies, has pointed out (https://www.iiss.org/en/politics%20and%20strategy/blogsections/2015-932e/october-8fa9/a-nuclear-trafficking-route-to-the-levant-7dcd), if a market requires market forces—that is, supply and demand—then we have yet to see anything resembling a black market for nuclear material. In the overwhelming majority of known cases involving the attempted sale of nuclear or other radioactive material (or material alleged to be radioactive), there was no buyer. Most smugglers have been caught by law enforcement posing as potential buyers. One of the most well-known cases (http://www.nti.org/analysis/articles/bulgarian-weekly-examines-1999-heu-smuggling-case/) of nuclear trafficking took place in 1999, when a smuggler was caught with a small quantity of highly enriched uranium at the Bulgarian border while attempting to return to his home in Moldova, after being stood up in Turkey by alleged buyers. One of the incidents cited by the Associated Press in its October report is one of the few to ever involve an actual customer: In 2011, investigators found contracts for the sale of attack helicopters and armored personnel carriers to a Sudanese doctor, and Skype messages revealed that he had also inquired about plans for a dirty bomb and the availability of uranium.

An absence of buyers for nuclear or other radioactive material contradicts the notion that there exists a widespread, consistent effort to commit nuclear terrorism. To be sure, some terrorist groups have shown interest in doing so. In November, *New York Times* reporter CJ Chivers described in fascinating detail (http://www.nytimes.com/2015/11/22/magazine/the-doomsday-scam.html?_r=0) ISIS's hunt for red mercury, a mythical weapon of mass destruction. Red mercury is wrongly believed by some to be capable of extraordinary levels of nuclear-style destruction. Chivers' investigation reveals an eager interest in inflicting nuclear terror. And while we are lucky that, for now, ISIS is chasing a doomsday unicorn, the group claimed (http://www.independent.co.uk/news/world/middle-east/isis-claims-it-could-buy-its-first-nuclear-weapon-from-pakistan-within-12-months-10270525.html) in the May 2015 issue of its magazine *Dabiq* to be capable of buying a nuclear weapon from Pakistan. Given the absence of evidence that ISIS is actively seeking genuine nuclear material, though, and the preposterousness of the claim that "ready made" nuclear weapons are available for purchase (from anywhere, including Pakistan), the *Dabiq* claim likely shows the group's penchant for dramatic rhetoric, rather than proof of any capacity for nuclear terrorism.

The Japanese doomsday cult Aum Shinrikyo (now Aleph), Chechen rebels, and Al Qaeda are all known to have had an active interest in nuclear weapons during the 1990s and early 2000s. Aum Shinrikyo tried to mine uranium in Australia and buy nuclear expertise from Russia, but its attempts failed, and it shifted its focus entirely to biological and chemical weapons. Chechen rebel forces made plans to hijack a nuclear submarine and use it to compel Russia's withdrawal from Chechnya. Al Qaeda made its desire for a nuclear weapon public in 1998, when then-leader Osama bin Laden described the acquisition of weapons of mass destruction as a "religious duty," and the group orchestrated a 2003 fatwa, penned by cleric Nasr al-Fahd, justifying their use. However, Al Qaeda made multiple attempts to acquire nuclear material that were unsuccessful. And while the absence of evidence is not proof that no crime occurred, it is telling that there have been no known smuggling incidents involving Al Qaeda or its affiliates.

An oft-quoted but generally misunderstood figure is the 2000-plus incidents of "illicit trafficking" recorded by the IAEA's Incident and Trafficking Database (ITDB) since 1993. Tellingly, the ITDB changed its name from "Illicit Trafficking Database" to "Incident and Trafficking Database" after a 2012 proposal, in part because it charts more than illicit nuclear trafficking, which accounts for a small minority of the cases it tracks. The database also tracks incidents in which nuclear or other radioactive materials are outside of regulatory control, most of which are far less sensational than

illegal sales of highly enriched uranium. For instance, naturally occurring radioactive material (appropriately called "NORM") is generally harmless and found in everything from bananas to ceramics. If a shipment of kitty litter (http://www.slate.com/articles/news_and_politics/explainer/2005/06/is_cat_litter_really_radioactive.single.html) (which contains several types of NORM, including uranium, potassium, and thorium) triggers a radiation portal monitor, that would count as an incident. If a radioactive source like a self-illuminating sign were lost from a construction site, that, too, would count as an incident. The database even records incidents involving non-radioactive material mistaken for nuclear material. None of this is to suggest that the ITDB isn't an important tool; it is an immensely valuable resource for many reasons. But too often, people get carried away citing its figures without understanding the composition or purpose of the database.

Similarly, stories about nuclear security sometimes blur the lines between nuclear and other radioactive materials, which is misleading. While there is occasionally good reason for grouping nuclear with other radioactive materials, at the end of the day, cesium-137, cobalt-60, and strontium-90—to name a few of the radionuclides that so often get people worried—cannot be used to make a nuclear device. Coverage of incidents involving radioactive material, especially when it is described as "nuclear," often inflates perceptions of the nuclear terror threat and sows fear. The Associated Press investigation, which was headlined "Nuclear black market seeks IS extremists," is an example: The seller seeking an ISIS buyer was peddling cesium-135, cesium-137's mildly radioactive and barely hazardous cousin. "Weapons of mass *disruption*," as radiological weapons (those made with non-nuclear radioactive material) are often labeled, are puny in their capabilities compared to an improvised nuclear device. They are also considerably easier to construct than even the crudest nuclear weapon. Ultimately, the smuggling of radioactive material is not reasonable evidence that an adversary is capable of nuclear terrorism.

Nuclear security deserves attention from our political leaders. A dedicated cadre of professionals—ranging from cyber-security experts to lawyers to physicists—works every day to build, strengthen, and maintain nuclear security worldwide to protect populations from even the slightest chance that terrorists, or other nefarious actors, could use nuclear or other radioactive material to cause harm. But half-truths and urban legends draw attention away from more realistic threats. Worse, they undermine the sustainability of nuclear security efforts by perpetuating the idea that nuclear security only matters when catastrophe lurks around every corner. While experts may disagree about the likelihood of nuclear terrorism, they can agree that the consequences of even a single act would be unacceptably high. This alone is justification for a sustained and serious effort to understand and combat the threat, regardless of whether or not it is found to be terrifyingly imminent or relatively contained. In order for nuclear security efforts to be sustainable, the momentum behind them must come from clear-headed, honest scholarship, not knee-jerk reactions to headlines.

magnitude of the consequences that can flow out of any act (which includes both successful or even a failed attempt) of nuclear terrorism.

Some of the facts mentioned here need either argumentative qualification or correction. For instance, the following statement tries to make an 'assumption' a "factual" statement: "Al Qaeda made its desire for a nuclear weapon public in 1998, when the then Al-Qaeda leader Osama bin Laden described the acquisition of weapons of mass destruction as a “religious duty”. Moreover, it is fully tenable to maintain here that "making/becoming" the "desire" of the group "public" should not be construed as the "point of beginning", but the "point of uncovering". Admittedly, the "desire" of the group became "public" through the mentioned public statement, yet the actual "pursuit" (of course secret, not "public") of the group started in 1992.

Nevertheless, the argument proposed above by the author deserves attention.

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Rod Adams ➚ Syed Gohar Altaf • 2 days ago

I strongly disagree with the following statement.

> "Yet, deflating the threat --which evidently might have turned out to be a fact, not a "myth" (as the writer tries to maintain here), had there been no Global War on Terror and other Nuclear Security Initiatives in place --is far more dangerous than inflating it, given the magnitude of the consequences that can flow out of any act (which includes both successful or even a failed attempt) of nuclear terrorism."
>
> Risks should be evaluated and prioritized, not exaggerated. It makes no sense to expend enormous resources to fight a threat that is only "assumed" to exist because the resources expended in futile actions cannot then be deployed to counter ACTUAL risks.
>
> There are plenty of reasons why a savvy opponent would want to distract and deceive in an effort to encourage wasteful overreaction to the threat of "nuclear terrorism." It is apparently very easy to create a paper trail that sucks up vast resources simply by describing a desire to use "nuclear materials."

see more

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boonteetan • 15 days ago

Be vigilant against nuclear trade, smuggling and proliferation must still be the order of the day. No nation should stay complacent. Else..

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Dr. A. Cannara • 18 days ago

Good.

2 • Reply • Share ›

Robert Burke • 18 days ago

I did not find a definition of "non-nuclear radioactive material" here:
NRC: 10 CFR 110.2 Definitions.
http://www.nrc.gov/reading-rm/...

On its face, the term is oxymoronic since radioactivity is a nuclear phenomenon. Although the meaning may be intuited, it smacks of newspeak. In line with the article's aim of clarification, I submit that an explanation of this seeming effort to dissociate "nuclear" from "bad" is in order.

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Bob FInch ➚ Robert Burke • 18 days ago

The International Atomic Energy Agency (IAEA) states that "Nuclear material is necessary for the production of nuclear weapons or other nuclear explosive devices." (see Chapter 4 of the IAEA Safeguards Glossary - www.iaea.org/sites/default/fil....

Most radiological materials do not fit that definition (e.g., Cs-137, Co-60, etc.) and are commonly referred to as non-nuclear material. Note that IAEA's Safeguards Glossary also defines "non-nuclear material" for safeguards purposes (not for security purposes).

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Rod Adams ➔ Bob FInch • 2 days ago

In the U.S. lexicon, the Atomic Energy Act of 1956 (as amended) has a similar definition for the more accurate phrase of "special nuclear material."

Here is the Nuclear Regulatory Commission's page about the materials that meet the definition.

http://www.nrc.gov/materials/s...

It begins with the following statements.

""Special nuclear material" (SNM) is defined by Title I of the Atomic Energy Act of 1954 as plutonium, uranium-233, or uranium enriched in the isotopes uranium-233 or uranium-235. The definition includes any other material that the Commission determines to be special nuclear material, but does not include source material. The NRC has not declared any other material as SNM."

see more

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fiddie • 19 days ago

Thank you for an excellent and illuminating article - free of FUD.

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