

Illicit Trade in Nuclear Black Market and Present-Day Challenges

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Introduction

The proliferation of nuclear weapons has long been a pressing concern for the international community which has brought together a majority of states in efforts to retard the acquisition of nuclear weapons capability by more states. However, these efforts have not always been successful. At the time of entry into force of the Treaty on non-Proliferation of Nuclear Weapons (NPT), five states namely the US, the then USSR, Britain, France and China possessed nuclear weapons. These countries today are recognized as the de jure or “normal” nuclear weapons states, while India, Pakistan, North-Korea and Israel do not enjoy the legitimate status and are considered de facto nuclear powers because of their known nuclear weapon capabilities.

In addition to proliferation of nuclear weapons to states, the possibility of non-state actors acquiring these capabilities has added to the concern in recent years. The rise of extremist organizations like Al-Qaeda and the Islamic State (IS), and their open admission of nuclear aspirations, have injected new life into the efforts to prevent non-state actors from getting their hands on this technology.¹ Knowledge of nuclear science and access to technology has become available to more and more people due to increasing accessibility of knowledge in the last few decades. However, making of a nuclear weapon remains a highly specialized job. Development of nuclear weapons is reliant on special materials, precision engineering and industrial capabilities that not many states can boast of, let alone rogue organizations like the IS.

The international community is committed to denying the procurement of dual use technologies to non-state actors, lest they develop the capacity for enrichment—which, has been deemed highly unlikely. Moreover, there are unspecified amounts of nuclear and radiological materials floating in the black market looking for buyers. Most of these materials, though not nearly adequate for use in fission devices, can still cause significant harm through radiation poisoning, contaminating

the land, air and water. This scenario is much more realistic and poses immediate danger since a dirty bomb relies on spreading radioactive contamination in the environment which does not require powerful triggering of a chain reaction. In order to better understand the challenges faced by the efforts to deny such materials to undesirable elements, we must analyze the lapses in nuclear security and the caveats in export controls that have been allowed and/or exploited in the past.

A Global Wake-up Call

History is witness to the global wake-up call for non-proliferation efforts and the major caveats that it harbored when Dr. Abdul Qadeer Khan was found involved in illicit trade of nuclear secrets and equipment with Iran in 2003.² Investigations revealed that Khan's illicit activities had been going on for a few years³. Over the two decades that this procurement—and later proliferation—network thrived, he was able to arrange procurement of vital components required in assembling centrifuges, all the way down to an almost working bomb-design.⁴ In his dissertation, nuclear expert Christopher O. Clary has gone as far as stating that “the list of items available to Khan and his network approaches [...] the level of a “turnkey” nuclear program.”⁵

These facts beg the important question as to how such an extensive network of illicit nuclear trade went on to function for years. The answer to this question is a fragmented affair that culminates first, in the involvement of Pakistan in a vital proxy war against the USSR. Khan had already been convicted in the Netherlands for stealing designs from his former employers at URENCO, in 1983. However, due to a technicality, he was acquitted of the four year sentence. This ‘technicality’ was the involvement of the CIA, which advised the Dutch government not to arrest Khan.⁶ Secondly, the economic interests of private vendors from whom Khan acquired dual-use technologies along with his use of front organizations issuing end-user certificates, prompted little interest in prodding deeper into the final destination of technologies being purchased.⁷ Similar methods of using a procurement network of front organizations was also previously employed by Saddam Hussein “that operated in this country [US] and through out Europe”, as argued by a US Congressman, Henry Gonzales, in 1992.⁸ Lastly, the network for the most part, exploited existing loopholes in the system to avoid detection. While the fall of the Soviet Union also marked the end of the vital interest that the US saw in

Pakistan, the latter's overt declaration of nuclear capability followed by the global shift in policy in the wake of the 9/11 attacks deprived Pakistan of the political favour that it once enjoyed. The remaining two caveats in the non-proliferation regime persist to date—that national interests override a state's desire to prosecute deviant actors and the economic prospects for private companies leave little incentive for denying sale of sensitive materials to such actors in the absence of adequately dissuasive legal action in response.

Lessons Learnt and Lessons Lost

The international community, by the time A. Q. Khan's illicit activity was detected, had evidently failed to come together in enforcing the principles of non-proliferation. This network is taken as a starting point in an attempt to highlight the global nature of illicit nuclear trade networks and to bring to light the myriad actors—both state and non-state involved in the process—either at the giving or the receiving end of sensitive materials and information. Prior to the revelations of Henry Gonzales in front of Congress, other major illicit nuclear trade activities had gone unpunished. Of these, a prominent case is that of Alfred Hempel, who provided India with large consignments of heavy water, enabling it to operate its Madras I nuclear plant, without having to abide by safeguards, which would have been impossible to avoid had the heavy water procurement been made through overt means.⁹Hempel was known to have used elaborate trade-routes for such illicit materials—passing through many states—in attempts “to conceal its true customer”.¹⁰ Similarly, even Pakistan has benefitted from the *see no evil hear no evil* approach of German export controls at the time, listed exhaustively in a Washington Post article which claimed that if India and Pakistan were ever to engage in a war that turned nuclear, “West Germany will be primarily to blame”.¹¹

Similarly, tracking the illicit procurement activities of the Iraqi nuclear program—which was being covertly developed, albeit at a rather slow pace, until it was discovered and dismantled in 1991—also used various European companies to procure dual use technologies that were being channelled towards the Iraqi nuclear program.¹² The companies being exploited were primarily of German, Austrian and Swiss origin, whereas two well-known and credible companies of the US, NUPRO and Dupont, were also found implicit in providing components for gas centrifuges to Iraq. However, the companies claimed they were unaware of what the end-user had intended to do with the parts, or who the end-user was for that

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matter.¹³ How accurate the plea of ignorance of these companies was, is debateable. However, internationally applicable legal measures, implicating corporate entities and other such non-state agencies of illicit nuclear trade at that time did not exist. States could therefore, treat such issues under domestic law, the way they pleased. Considering national economic dependencies on big tech companies, these measures were directed at individuals at best and at the most entailed a payment of fine.¹⁴

Moreover, national interests repeatedly came in play at hindering the pursuit of companies in Malaysia due to political connection of implicated persons. BSA Tahir, a Sri Lankan businessman was another prominent name in the nuclear black market trade. He too was freed after nominal interrogations and currently holds a permanent residence in Malaysia.¹⁵ Moreover, the US involvement in disrupting investigations on the Tinnens case in Switzerland, also points to national interest superseding international security obligations.¹⁶ This also resulted in the destruction of vital information which could have proved helpful in understanding illicit nuclear trade networks and thereby, facilitating a well-informed approach at enforcing controls. While the Tinnens were later indicted in 2011, receiving a five-year sentence, most of the evidence in the case had already been destroyed. Apart from these actors, Gerhard Wisser and Daniel Geiges also faced nominal sentence for their involvement in transnational illicit nuclear trade,¹⁷ while most other actors still remain unnamed and were never tried. Those who were prosecuted, however, were not awarded strict enough punishments to effectively discourage future involvement in such activities.

Though the Treaty on Non-Proliferation of Nuclear Weapons had long since entered into force by this time, it did little in the way of curbing companies from engaging in, or safeguarding them against being exploited for illicit nuclear trade.¹⁸ However, one good thing did come out of the discovery of the A. Q. Khan network. It hurried international action mandating limitations and safety measures on companies dealing in dual use technologies. The invasion of Iraq further hastened the steps towards putting in place international controls for safeguarding against nuclear proliferation. This step came in the form of the United Nations Security Council Resolution 1540, which stated that each country shall be held responsible for any non-state actor caught carrying out illicit nuclear trade in or through its territory.

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However, this development also brings into question the commitment of the international community towards retarding the flow of sensitive technologies and radiological or nuclear material. It is evident that the A. Q. Khan episode—arguably the most elaborate illicit trade network to date—was by no means the first occurrence of its kind. The lethargy of the international non-proliferation regime in addressing the issue of non-state actors involved in illicit international nuclear trade then, can be said to have allowed the space for networks such as Khan's to function.

If anything, the discovery of Alfred Hempel's illicit trade activities should have raised red flags all across Europe and in China, from where he procured some of the heavy water which he sold to India.¹⁹ However, economic imperatives trumped such alarm. Even though Germany had been touted as an example for export control legislative measures after it was discovered that most of the technology being used in Iraq's nuclear program in the 80s and 90s, was procured from German companies A. Q. Khan managed to acquire technologies from Germany through front companies for a number of years. It is interesting to note that over the past decades, most recorded illicit trading in dual use technologies, and nuclear and radiological material, have surfaced in Europe.²⁰ This leads to the conclusion that despite a tightening of German export control laws—as acknowledged by the United Nations²¹—procurement of dual use technology was still possible.

Malaysia is another country with loose export controls which allowed dual use materials to be bought without much hindrance. After substantial international pressure, the country revised its export control laws in 2010. However, reports have surfaced of illicit materials seizure intended for the Middle East.²² Dubai has also served as a long-time favorite transit route for nuclear material black market activities and has yet to show export control investments that could substantially hinder the passing of dual use and nuclear materials through its ports.²³ Energy and industry sectors in nuclear technology have also been exploited by profiteers from unlikely sources originating from Switzerland.²⁴ Moreover, South Africa²⁵ and the Black Sea region can also not be ignored for the role they have been playing in sustaining and enabling the nuclear black markets. The Black Sea region has been identified by the Bulletin of Atomic Scientists as “the center of the nuclear black market”²⁶ and a location most prone to trading of orphan sources²⁷.

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Although Resolution 1540 of the United Nations Security Council states that any assistance from a company or use of a transit route of a state for acquisition of illicit nuclear technologies, shall make said state responsible for these activities, there is little mention of consequences, should such activity be discovered. The resolution committee claims to be reliant upon the voluntary compliance of states in good faith and that it does not serve as a sanctions committee and neither does it concern itself with the prosecution or investigation of illicit trade activities.²⁸ In other words, the committee is concerned with keeping track of all the legislative and implementation-oriented measures undertaken by states, to prevent illicit nuclear trade by non-state actors, in compliance of the Resolution, while the investigative and monitoring side of affairs is overseen by agencies such as the IAEA.

Persistent Challenges

As previously discussed, dual use technologies and their application by countries in military nuclear facilities have been proven. The UNSCR 1540 has attempted to address this issue by placing responsibility for end-user verification on states. However, in the absence of a unified and clear understanding of which technologies constitute a risk of duality, regulation of trade in dual use technology may not prove effective. Countries with effective export controls could have a positive impact in this matter by offering assistance to states with export controls that are not as comprehensive in comparison. The Japan-Pakistan collaboration in addressing non-proliferation and anti-terrorism challenges is one such example.²⁹

As officials postulate the existence of a larger smuggling ring operating in the region, they face another dilemma. Should law enforcement agencies focus on apprehending suspects caught on the scene, or should the investigation of the larger smuggling ring be made imperative? This situation creates a dilemma as waiting too long to apprehend a suspect may result in nuclear material falling into the wrong hands. While on the other hand, apprehending the suspect may alarm the linchpins of the organized trading ring and make them suspend their activities and subsequently reorganize and resume anew with more vigilance.

Another important aspect in the overall operation of a nuclear black market is that of logistics. Smugglers have in the past used elaborate and complex trade routes to mask the destination of the illicit material. However, some transit points have been

favoured due to the loose security and verification arrangements there. Turkey and the Black Sea port has been identified as one of the busiest routes for illicit nuclear trade.³⁰ Another port favoured by traders of illicit nuclear materials and technologies has been Dubai. The laid back response from the international community in holding the state responsible has also caused much alarm in journalistic circles.³¹ According to the Nuclear Threat Initiative (NTI) “the development of robust export controls, border security, and related legal infrastructure requires significant time and resources”³² in the UAE. This deduction points to the fact that the regulatory revisions made by the UAE, are insufficient in curbing use of its posts for illicit activity in the future.

Illicit nuclear trade in the past has exploited the disarray in export controls and border regulations of different countries. In order to place effective controls for curbing nuclear related illicit trade, efforts towards uniformity in export controls and greater transparency of end-use need to be enforced collectively by states.

Emerging Challenges

There is an increasing danger of orphan radiological sources falling into the wrong hands. These are nuclear and radiological sources which are floating in the market since the disintegration of the USSR, when a dangerous amount of enriched Uranium and other radiological sources were lost track of. The most recent revelation in this regard has come about in Moldova, where traffickers sought to sell large amounts of radiological material to Middle-Eastern extremist outfits, presumably the Islamic State.³³ The investigation so far has linked four attempts at selling nuclear or radiological material to extremist outfits. These traffickers are suspected to have access to enough quantities of enriched Uranium that can make a few dirty bombs and more enriched material is speculated to be floating in the black market which could be used for making a nuclear bomb.³⁴ Dirty bombs are crude explosive devices that use radioactive material but cannot produce enough energy to trigger and sustain a fission reaction. However, the spread of radiation by a bomb of this kind is a cause for concern. The immediacy of this issue was also addressed during the 2010 Nuclear Security Summit in Seoul.

Conclusion

With the Moldova connection to the Islamic State having been discovered, a fresh look into improving international restraints on trade and detection of sensitive materials is needed. Furthermore, space should be denied to non-state actors for acquiring dual-use technologies that could facilitate realization of their nuclear ambitions. For this purpose, instruments like the UNSCR 1540 is a starting point. However, it lacks a comprehensive framework addressing the “how” while emphasising the “what” of export control measure to be taken by states in denying non-state actors the acquisition of sensitive technologies. Counter-measures to a transnational threat must be enforced on a transnational level to be effective. The proliferation of nuclear weapons to non-state actors is a threat to all states, nuclear or otherwise, therefore non-proliferation and international controls must be strengthened at a higher level of urgency than is presently seen.

International transit routes remain vulnerable to illicit trading despite events in the past which have pointed out caveats in detection and control of dual use technology and sensitive materials, as highlighted above. Dissemination of scientific information and know-how is another very important issue that remains underrated in international instruments aiming at curbing the spread of sensitive technology and information to undesired actors. This would also include the protection of human resources.

It is understandable why states attempt to acquire nuclear weapons. In the greater effort of strengthening international non-proliferation, nuclear weapons states with a global impact would have to make good on their commitments to non-proliferation and disarmament. As the powerful states continue to tout nuclear weapons as essential to their security, smaller states and non-state actors will be tempted to pursue nuclear aspirations. According to former Chief UN weapons inspector Hans Blix, “...it is not a recipe for success to preach to the rest of the world to stay away from the very weapons that nuclear weapons states claim are indispensable to their own security.”³⁵

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Endnotes

¹Joe Cirincione, "The Risk of a Nuclear ISIS Grows," *The Huffington Post*. October 7, 2015, accessed January 1, 2016, http://www.huffingtonpost.com/joe-cirincione/the-risk-of-a-nuclear-isi_b_8259978.html.

²Pervez Musharraf, *In the Line of Fire: A Memoir*. New York: Free Press, 2006. 291.

³Feroz Hassan Khan, *Eating Grass the Making of the Pakistani Bomb* (New Dehli: Cambridge University Press, 2013) 141.

⁴"Libyan Arms Designs Traced Back to China; Pakistanis Resold Chinese- Provided Plans," *The Washington Post*, February 15, 2004, Accessed December 17, 2015, http://www.washingtonpost.com/wp-dyn/articles/A42692-2004Feb14_2.html.

⁵Christopher O Clary, "The A. Q. Khan Network: Causes And Implications." December 1, 2005, Accessed December 24, 2015. 87, <http://fas.org/irp/eprint/clary.pdf>.

⁶"CIA 'let Atomic Expert Khan Go'" *BBC News*. August 9, 2005. Accessed January 4, 2016,

<http://news.bbc.co.uk/2/hi/europe/4135998.stm>.

⁷Joop Boer, Henk Van Der Keur, Karel Koster, and Frank Slijper. "A Q Khan, Urenco and the Proliferation of Nuclear Weapons Technology: The Symbiotic Relation between Nuclear Energy and Nuclear Weapons." May 1, 2004, Accessed January 4, 2016, <http://laka.org/info/publicaties/Khan/Khan.pdf>.

⁸Henry B. Gonzales, "US Armed Iraq Through BNL - Rep Gonzalez Special Order." US Armed Iraq Through BNL - Rep Gonzalez Special Order, August 10, 1992, Accessed December 19, 2015, <http://fas.org/spp/starwars/congress/1992/h920810g.htm>.

⁹Mark Fitzpatrick, "Nuclear Black Markets: Other Countries and Networks." In *Nuclear Black Markets: Pakistan, A.Q. Khan and the Rise of Proliferation Networks: A Net Assessment.*, 54. London: International Institute for Strategic Studies, 2007.

¹⁰*ibid*

¹¹Gary Milhollin, "Asia's Nuclear Nightmare The German Connection." June 10, 1990, Accessed December 22, 2015, <https://www.washingtonpost.com/archive/opinions/1990/06/10/asias-nuclear-nightmare-the-german-connection/63bf43d7-86eb-4e31-9af7-b2d238e6b3be/>.

¹²Mark Fitzpatrick, Nuclear Black Markets., 48.

¹³*ibid*

¹⁴Mark Fitzpatrick, Nuclear Black Markets., 48-49.

¹⁵"Malaysia Frees Sri Lankan in Nuclear Parts Case." *Reuters India*, June 22, 2008, Accessed January 16, 2016, <http://in.reuters.com/article/idINIndia-34173420080622>.

¹⁶Eline Gordts, "Urs, Marco And Friedrich Tinner, 3 Swiss Engineers, Charged In A.Q. Khan Nuclear Smuggling Case," *The Huffington Post*, December 13, 2011, Accessed January 20, 2016, http://www.huffingtonpost.com/2011/12/13/tinner-family-aq-khan-nuclear-smuggling_n_1146033.html.

¹⁷Michae Montgomery and Mark Schapiro, "Business of the Bomb: The Modern Nuclear Marketplace," *The Center for Investigative Reporting*, April 9, 2008, Accessed January 24, 2016, <http://cironline.org/reports/business-bomb-modern-nuclear-marketplace-2219>.

¹⁸The NPT entered into force in March 1970. However, there were two major caveats in it. The first being that it isn't a universal instrument of law, which leaves non-signatories free from the obligations it prescribes. And the second, that it is centered on states alone and does not account for proliferation committed, aided or abetted by non-state actors. For further info and complete text of the treaty, see:

"Non-Proliferation of Nuclear Weapons (NPT)." UNODA. Accessed December 24, 2015, <http://www.un.org/disarmament/WMD/Nuclear/NPT.shtml>.

¹⁹ Mark Fitzpatrick, *Nuclear Black Markets.*, 54.

²⁰ "Combating Illicit Trafficking In Nuclear and Other Radioactive Material: Reference Manual." 2007. 129, 130, Accessed December 28, 2015, http://www-pub.iaea.org/MTCD/publications/PDF/pub1309_web.pdf.

²¹ David Albright, "Key Elements of an Effective Export Control System," Accessed December 28, 2015, http://exportcontrols.info/key_elements.htm.

²² "Malaysia, Export Controls, and the Nuclear Black Market." March 24, 2011, Accessed January 5, 2016, <http://csis.org/blog/malaysia-export-controls-and-nuclear-black-market>.

²³ "Profile for United Arab Emirates | NTI." NTI: Nuclear Threat Initiative. Last updated: April 1, 2015, Accessed January 2, 2016, <http://www.nti.org/country-profiles/united-arab-emirates/>.

²⁴ "Swiss Arrest German Engineer | GSN | NTI." NTI: Nuclear Threat Initiative. November 17, 2004, Accessed January 6, 2016, <http://www.nti.org/gsn/article/swiss-arrest-german-engineer-3836/>.

²⁵ Dafna Linzer and Craig Timberg, "S. African's Arrest Seen as Key to Nuclear Black Market." September 4, 2004, Accessed January 5, 2016, <http://www.washingtonpost.com/wp-dyn/articles/A60368-2004Sep3.html>.

²⁶ Bruce Lawlor, "The Black Sea: Center of the Nuclear Black Market." *Bulletin of the Atomic Scientists*. December 15, 2011, Accessed January 23, 2016, <http://thebulletin.org/black-sea-center-nuclear-black-market>.

²⁷ Citing IAEA approved definitions in a VERTIC report on legislative response to illicit trafficking of nuclear materials, an orphan source has been defined as "a radioactive source which is not under regulatory control, either because it has never been under regulatory control, or because it has been abandoned, lost, misplaced, stolen or transferred without proper authorization". For more information, see: "Illicit Trafficking of Nuclear and Other Radioactive Material The Legislative Response." April 1, 2012, Accessed January 5, 2016, http://www.vertic.org/media/assets/Publications/ITR_WEB.pdf.

²⁸ "Security Council Committee Established Pursuant to Resolution 1540 (2004)." October 29, 2015, Accessed December 28, 2015, <http://stimson.org/PDFs/Stimson-1540-Overview-29-Oct-15.pdf>.

²⁹ "Pakistan, Japan Agree to Curb Proliferation." *DAWN News*. July 8, 2006, Accessed December 30, 2015, <http://www.dawn.com/news/200587/pakistan-japan-agree-to-curb-proliferation>.

³⁰ Bruce Lawlor. "The Black Sea"

³¹ Gary Milhollin and Kelly Motz, "Nukes 'R' Us." *The New York Times*. March 3, 2004, Accessed January 2, 2016, <http://www.nytimes.com/2004/03/04/opinion/nukes-r-us.html>.

³² "Profile for United Arab Emirates | NTI." NTI: Nuclear Threat Initiative. Last updated: April 1, 2015, Accessed January 2, 2016, <http://www.nti.org/country-profiles/united-arab-emirates/>.

³³ Desmond Butler and Vadim Ghirda, "AP INVESTIGATION: Nuclear Black Market Seeks IS Extremists." Associated Press. October 7, 2015, Accessed January 1, 2016, <http://bigstory.ap.org/urn:publicid:ap.org:6fd1d202f40c4bb4939bd99c3f80ac2b>.

³⁴ Douglas Birch and R. Jeffrey Smith, "The Fuel for a Nuclear Bomb Is in the Hands of an Unknown Black Marketeer from Russia, U.S. Officials Say." Center for Public Integrity. November 12, 2015, Accessed January 5, 2016, <http://www.publicintegrity.org/2015/11/12/18850/fuel-nuclear-bomb-hands-unknown-black-marketeer-russia-us-officials-say>.

³⁵ Hans Blix, *Why Nuclear Disarmament Matters*. (Cambridge, MA: MIT Press, 2008) 54.