

TOWARD A “GLOBAL ZERO” WORLD

Keeping nuclear weapons out of dangerous hands requires cooperation

MANUELA-SIMONA MICU AND COSTINEL ANUTA

The detonation of the first nuclear bomb (July 16, 1945) brought humanity to the Damoclesian nuclear age. Even though the human race witnessed the destructive power of the atom (August 6 and 9, 1945) and found itself on the brink of a nuclear “apocalypse” (October 1962), nuclear weapons were the main deterrent, first in the United States and Soviet Union and then in other states that joined the nuclear “club” (France, the United Kingdom and China).

The attempts to create a control mechanism over nuclear technology in terms of law and practice, starting in 1970 with the enforcement of the Non-Proliferation Treaty, have had limited impact. The 2004 confession of Pakistani A.Q. Khan regarding his contribution to the development of the nuclear technology black market emphasizes the real dimension of the nuclear “problem” in an international environment governed by uncertainty.

In these circumstances, the Prague speech of U.S. President Barack Obama (April 5, 2009) regarding nuclear disarmament and non-proliferation represents the first significant post-Cold War signal toward “peace and security of a world without nuclear weapons” (Global Zero). President Obama’s speech represents the first significant nuclear policy change, owing to the

comprehensiveness of his agenda in the nuclear field in relation to past endeavors.

Moreover, the insertion of the nuclear subject into the agenda of one of the most powerful world leaders brings with it a latent promise to eliminate nuclear weapons. The key to Global Zero rests in preventing nuclear proliferation, which has two key components — one regarding nuclear weapons per se, including means of delivery, and the other focused on preventing the spread of nuclear materials and know-how.

The threat of nonstate actors

Unfortunately, even though current assessments indicate that the first dimension is less apt to involve nonstate actors, there is evidence of an increase of nonstate actors’ role in both cases. A comprehensive analysis of these two facets, even from the nonstate actors’ perspective, does not imply only the examination of the problem raised by nuclear weapons’ existence and use (both strategic and nonstrategic/tactical). Taking into account the increased demand for nuclear energy, one must consider the security of the fissile material and nuclear know-how that could transform any state or organization into a virtual nuclear power.

Let’s start with nuclear weapons. Even though some states disagree with placing nuclear weapons in strategic



THE ASSOCIATED PRESS

U.S. President Barack Obama welcomes Russian President Dmitry Medvedev to the Nuclear Security Summit in Washington in April 2010. The summit offered the opportunity for the world to collaborate and cooperate on nuclear security challenges.

ing the strengthening of the global nuclear nonproliferation regime atop the nuclear agenda; the signing of the New START treaty; the summoning of a nuclear security summit emphasizing the need to protect fissile

materials (and the summit's "mirror" version organized by Iran); and finally, results from the 2010 NPT Review Conference concerning the creation of a nuclear weapons-free zone in the Middle East.

Although treaties are reliable accountability instruments facilitating the observation of strategic nuclear weapons, the nonstrategic/tactical nuclear weapons are not properly managed. NSNWs/TNWs constitute a large percentage of the arsenals of the nuclear weapon states. Some of these tactical weapons are located in failing states³ or conflict areas, a factor that increases the odds they will be acquired or stolen by nonstate actors. A number of analysts agree that the former U.S.S.R. and Pakistan represent the greatest risk of nuclear technology being transferred from state to nonstate actors.

Moreover, as a worst-case scenario, political instability within a failing state possessing nuclear technology could bring organizations with terrorist connections into the position of controlling a nuclear arsenal. Given the dilemma faced by the international community when, in May 2008, the ruling military regime of Burma initially refused to respond to offers of international aid following the catastrophic Cyclone Nargis,⁴ it is debatable whether a human security concept such as responsibility to protect⁵ could be invoked by the international community against a sovereign state to prevent a regional or global nuclear disaster.

The Khan network

The second facet of nuclear proliferation, regarding fissile materials and nuclear blueprints, has already advanced irreversibly. Its dimensions were revealed by the detection of the Khan nuclear trafficking network, the worst lapse of international and state oversight and control over nuclear technology.

The Khan enterprise's success was mainly due to its innovative approach — to get bits and pieces of enrichment technology and equipment from small high-technology firms in the West dealing with individual components not placed on the "trigger list" of restricted exports.⁶ After obtaining the knowledge and materials to build a nuclear bomb for Pakistan, Khan entered the business of exporting fissile material and blueprints mainly to states. Even though there is no indication that

and non-strategic categories, the distinction is necessary to delineate the possible role of nonstate actors. Among the numerous criteria used to define nonstrategic/tactical nuclear weapons (NSNWs/TNWs), two of them are most widely cited: range and yield. According to a majority of the experts, in the case of range, the NSNWs/TNWs are defined as short-range weapons, including land-based missiles with a range of less than 500 kilometers (about 300 miles) and air- and sea-launched weapons with a range of less than 600 kilometers (about 400 miles).¹ In the case of yield, NSNWs/TNWs typically have the explosive power of a fraction of a kiloton, while strategic weapons can produce thousands of kilotons of explosive force.

However, these criteria and the distinctions are not universally accepted. For example, France classifies all of its deployed nuclear weapons as strategic, irrespective of their ranges or yields. Moreover, the latest categorization of nuclear weapons defines nonstrategic/tactical weapons as those not covered by strategic arms control treaties, referred to as definition by exclusion.²

In 2010, nuclear-related events offered the image of a nuclear world moving in the right direction, at least at the strategic weapons level. Those events were the release by the U.S. of a Nuclear Posture Review plac-



THE ASSOCIATED PRESS

Pakistani nuclear scientist A.Q. Khan waves outside his home in Islamabad in February 2009. The architect of Pakistan's nuclear program, Khan admitted he operated a network that spread nuclear technology to North Korea, Libya and Iran.

The U.S. Department of Defense shows the components of a B-61 nuclear bomb. Tactical nuclear weapons such as the B-61 are rarely the subject of nuclear arms limitation treaties, although the U.S. and the former Soviet Union have voluntarily reduced stockpiles of such weapons.



Khan supplied fissile materials or nuclear plans to nonstate actors, this is a scenario yet to be considered.

However, the disruption of the Khan network — positioned at some point at the center of the nuclear black market — didn't stop the illegal procurement of fissile materials and nuclear blueprints.⁷ Studies have highlighted that these black market networks are hard to detect because of their flexibility and resilience. "They are often small and dispersed within the immense network of global business" and "the legitimate global market in nuclear dual-use goods is enormous."⁸ The smuggling networks "typically route their illegal procurements through countries with weak or nonexistent export controls" and are "using trading companies in third countries, intermediary shippers, and complex payment schemes."⁹ According to experts, the main goal of nonstate actors, especially terrorist organizations, is acquiring fissile materials or blueprints to build "dirty bombs" or weapons-grade HEU (highly enriched uranium) devices. Even though the term dirty bomb is widely used to describe the potential nuclear threat coming from nonstate actors, a weapons-grade HEU device would have far more destructive effects.

A dirty bomb is a device that disperses a radiological isotope, intending to slowly expose as many people as possible to radiation and prolong their exposure. Most experts emphasized that,

despite the panic associated with a dirty bomb attack, the threat does not have the same implication as the detonation of a nuclear weapon.¹⁰ Meanwhile, a sufficient quantity of weapons-grade HEU¹¹ could hypothetically fit into a crude gun-type device that could possibly, with a high degree of luck, achieve a yield of a few kilotons.¹²

Even though a dirty bomb or HEU bomb have not been used, one can witness their effects in some accidental misuse of radiological isotopes. For example, in 1987 in Goiania, Brazil, a tiny radiotherapy capsule of cesium was accidentally broken after it was scavenged from an abandoned hospital site and contaminated more than 1,000 people (4 died and 244 were found with significant radioactive material in or on their bodies). The costs of cleanup topped \$100 million.

The most important feature regarding access of nonstate actors to nuclear material is connected to those players' rationality.¹³ Despite the fact that even in the case of states one can talk only about bounded rationality, the rationality of nonstate actors in the nuclear game is mostly nonexistent, especially in light of suicide terrorism. Moreover, a "nonstate" equation cannot take into account the balancing function of nuclear deterrence — state actors' nuclear weapons cannot deter an enemy hidden within the civilian population, while the use of nuclear devices by nonstate actors is a terrifying perspective for inherently exposed population centers.

Working alone: Not an option

Therefore, in the light of the discussion above, it is evident that state involvement is not enough to track, monitor and secure nuclear weapons and fissile materials. Actually, there is a paradox

regarding the role of the state in nuclear affairs — the nuclear market is opening for nonstate actors, and the only way of containing this trend is through a multinational or international framework. Also, reactive solutions such as diplomatic pressure, economic sanctions or military strikes are less successful in the case of nonstate actors planning or carrying out nuclear attacks. There is no rational interlocutor, their financing is ensured through a complex network and there is no fixed military target to strike.

As a result, state actors should look to block nonstate actors' pursuit of nuclear technology and materials. Many initiatives target the containment of proliferation, irrespective of its alleged beneficiaries, state or nonstate: the International Atomic Energy Agency (IAEA), the Nuclear Suppliers Group (NSG), the Proliferation Security Initiative (PSI), the Global Initiative to Combat Nuclear Terrorism (GICNT), the G-8 Global Partnership against the Spread of Weapons and Materials of Mass Destruction, as well as other bilateral, regional, multilateral and nongovernmental activities.

Because all of these initiatives are pieces of a de-synchronized web, the main ingredient of a new approach would be networked information management. For this purpose, the initiatives could rally around the IAEA and the "Work Plan of the Washington Nuclear Security Summit," released April 13, 2010. A functional network built out of these initiatives and having as a center of gravity the IAEA would allow the use of a wide range of instruments to counter proliferation even in the case of nonstate actors, ranging from prevention and monitoring to consequence management actions. On the other hand, the IAEA should consider developing partnerships with transnational and national law enforcement organizations to track individuals or organizations interested in nuclear technology and materials.

Other potential measures envision new mechanisms to manage fissile materials (international fissile fuel banks); the establishment of nuclear weapon-free zones, especially in areas covered by failing or failed states (on the model initiated during the 2010 NPT Review Conference); or intelligence cooperation, even conducting multinational specialized covert intelligence operations. Moreover, irrespective of the global economic crisis, these approaches should be supported financially.

However, bilateral or multilateral agreements among states such as START and NPT envision, at least for the medium-term, a reduction of nuclear arsenals, not the complete abandonment of their use as

a deterrent. Although most countries support the goal of a nuclear-free world, they reiterate the deterrent role of nuclear weapons. We are observing a transition from Nuclear Primacy to Post-Existential Deterrence,¹⁴ a replacement of the logic of "missile deters missile, bomber deters bomber, submarine deters submarine" with the logic "factory would deter factory, blueprint would deter blueprint, equation would deter equation."¹⁵ An extended debate on the role of nuclear energy is taking place. Meanwhile, an extended debate on the role of nuclear energy is also taking place and the solutions such as a nuclear weapon-free zone in the Middle East will have to overcome the "traditional" logic of arms races in the region, a problem highlighted by Iran's nuclear efforts. □

1. Sokov, Nikolai, Tactical Nuclear Weapons (TNW), Center for Nonproliferation Studies, Monterey Institute of International Studies, 2002, http://www.nti.org/e_research/e3_10a.html, accessed September 2010.

2. Woolf, Amy F., Nonstrategic Nuclear Weapons, Congressional Research Service's Report for Congress, 2010, <http://www.fas.org/sgp/crs/nuke/RL32572.pdf>, accessed September 2010.

3. Sokov, Nikolai, op.cit.

4. Cyclone Nargis and its tidal surge devastated the Irrawaddy Delta, directly killing more than 130,000 people and putting scores of thousands more at risk from disease, starvation and exposure.

5. From a new approach to intervention on human protection grounds ("The Responsibility to Protect," Report of the International Commission on Intervention and State Sovereignty, 2001), the responsibility to protect became an "emerging" norm, "exercisable by the Security Council authorizing military intervention as a last resort, in the event of genocide and other large scale killing, ethnic cleansing or serious violations of international humanitarian law which sovereign Governments have proved powerless or unwilling to prevent" ("A More Secure World: Our Shared Responsibility," report from the Secretary-General's High-Level Panel on Threats, Challenges and Change, 2004).

6. Clary, Christopher O., The A.Q. Khan network: causes and implications, Naval Postgraduate School Monterey, 2005, <http://www.fas.org/irp/eprint/clary.pdf>, accessed September 2010.

7. According to the IAEA Illicit Trafficking Database, (ITDB) in the period 1993-2008 there were 1,562 confirmed incidents, out of which 336 incidents involved unauthorized possession and related criminal activities, 421 incidents involved reported theft or loss, and 724 incidents involved other unauthorized activities and events (most of them concentrated in the period 2005-2008). In the remaining 81 cases the reported information was not sufficient to determine the category of incident. In 2004-2008, the share of incidents involving theft or loss with unrecovered materials has increased to about 73 percent.

8. Albright, David, Brannan, Paul, Scheel Stricker, Andrea, Detecting and Disrupting Illicit Nuclear Trade after A.Q. Khan, http://www.twq.com/10april/docs/10apr_AlbrightBrannanStricker.pdf, accessed September 2010.

9. Idem.

10. Stewart, Scott, Dirty Bombs Revisited: Combating the Hype, STRATFOR Global Security & Intelligence Report, 2010, http://www.stratfor.com/weekly/20100421_dirty_bombs_revisited_combating_hype, accessed September 2010.

11. Highly Enriched Uranium that contains at least 80 percent of the isotope Uranium 235 and is usable in a nuclear device.

12. Nuclear Weapons: Terrorism and the Nonstate Actor, STRATFOR Analysis, 2008, http://www.stratfor.com/analysis/nuclear_weapons_terrorism_and_nonstate_actor, accessed September 2010.

13. "Bounded rationality is a school of thought about decision making that developed from dissatisfaction with the 'comprehensively rational' economic and decision theory models of choice. [...] Like comprehensive rationality, bounded rationality assumed that actors are goal-oriented, but bounded rationality takes into account the cognitive limitations of decision makers in attempting to achieve those goals." (Jones, Bryan D., Bounded Rationality, *Annual Review of Political Science* 1999, 2:297-321)

14. Sauer, Tom, A Second Nuclear Revolution: From Nuclear Primacy to Post-Existential Deterrence, *Journal of Strategic Studies*, vol.32, no.5, October 2009, pp.745-766, <http://www.ua.ac.be/download.aspx?c=tom.sauer&n=52713&ct=52296&e=213945>, accessed September 2010.

15. Jonathan Schell, *The Abolition*, Picador, 1984, pp.119.