THE THREAT OF NUCLEAR TERRORISM

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There have always been enormous gaps between the potential of a weapon and the abilities and/or the will to employ it by terrorists. New means and methods of violence with unknown outcomes could be less appealing for sub-national groups. Conventional "off the shelf" weaponry is thus likely to remain the major tools for traditional terrorists.

However, the analysis show that while the risk of nuclear terrorism may be remote, it should not and cannot be excluded. Rigorous standards and means the protection, control and accounting of fissile materials are thus needed.

"Nuclear terrorism" can be defined as acts of violence and destruction where the means applied are nuclear devices, or threats of use of such means, to create a condition of fear, to get attention, or to blackmail to have wider effect on others than the directly targeted victim(s). Nuclear terrorism is a subset of radiological terrorism, were the means (or threats) applied are radioactive substances. While being distinctly dissimilar in terms of technical approaches and damage potentials, many of the features with regards to public threat perception are likely to be similar.

No non-state actors have ever deployed or used a nuclear device, and the number of (publicly known) nuclear bomb treats has been limited. However, there is a disturbing interest among some terrorist organizations in acquiring nuclear weapon capabilities, probably for tactical purposes.

The biological and chemical programs of the Japanese "Aum Shinrikyo" cult that culminated in the Tokyo metro attack is highly publicized. Less well-known is the nuclear weapon program of the group. Nuclear material was acquired from the sect's properties in Australia and markets were explored to purchase nuclear technology via straw trading companies.

Another highly profiled terrorist group with obvious nuclear intentions is the "Al- Qa'ida", the group of bin Laden. The recent trail for the bombings of the U.S. embassies in Nairobi, Kenya and Dar al-Salaam, Tanzania, August 1998, has shed new lights on bin Laden's and his groups' intentions to acquire weapons of mass destruction. Dating back to 1993, the group tried on several occasions to acquire nuclear material – and apparently nuclear weapons – during the 1990s.

The technical hurdles to overcome for making a nuclear explosive should not be regarded insurmountable. The highly differing requirements for performance, safety, and delivery can make weapons meeting the "terrorist standard" less technically challenging than producing state nuclear weapons. The rapid spread of technological knowledge can further boost terrorists' weaponization attempts.

The first generation nuclear weapons, which then represented state of the art technology, is now not only old, but also regarded as highly primitive. Their designs are well known from

the scientific literature. To highlight the proliferation dangers and the potential for clandestine nuclear bomb production, nuclear scientists have presented simple, technical outlines of crude gun-type weapons. A yield in the lower kiloton range is probable. At least two types of nuclear weapons can be built and fielded without any kind of yield test, and the possessors could have reasonable confidence in the performance of those weapons.

Acts of nuclear terrorism is likely to set a terrorist organization apart from any other group, and could compel governments to take the terrorists seriously. The attention span would be excessive and immediate due to the manifest and unambiguous nature of a bomb demonstration. Past nuclear explosions and nuclear accidents, limited public knowledge of radiation and the human inability to sense potential exposures may have cultivated (disproportionate) negative perceptions of radiation. Terrorists who capitalize on these connections are likely to have a strong psychological impact.

The primary technical barrier against nuclear terrorism is access to highly enriched uranium (HEU) or plutonium, the essential components of any nuclear weapon. State nuclear weapons programs will usually be supported by large and costly infrastructure for enrichment and/or reprocessing of fissile weapons material. Sub-national groups, however, are more likely to rely on externally acquired weapons-usable materials.

The vast production of fissile materials during the cold war has today left the world with a staggering legacy of three million kilos of weapons-usable material. More than half of the overall production of weapons-usable materials is in excess of national security needs. The huge quantities of fissile materials and the numerous reports of lax security and accountancy of nuclear materials raise concerns over the possibility of a successful diversion of significant quantities of weapons-usable materials, particularly in the former Soviet Union.

Recently declassified U.S. documents reveals that a significant nuclear yield can be accomplished by utilizing reactor-grade plutonium in nuclear explosives. Claims have been made that reactor-grade plutonium is a more appealing option to terrorists. Ever increasing stockpiles of separated civilian plutonium could thus be a reason for concern, and calls have been made to protect the material as if it were nuclear weapons.

The use of crude nuclear weapons provides the opportunity of fairly reliable, distinct, prestigious, novel, and highly visible acts of large-scale terrorism. Preventing any extremist group for achieving their goals of large-scale nuclear violence could only be done by preventing the access to fissile materials through state compliance to rigorous standards of MPC&A.