



Charles Ferguson

The threat of nuclear terrorism in Europe

Charles Ferguson outlines which moral and technical barriers terrorist cells have to overcome in order to acquire and unleash nuclear weapons. While not all of them will have the skills and the determination to go nuclear, the threat posed by these weapons calls for Europe and America to enforce preventive strategies together.

A nuclear terrorist act anywhere is a nuclear terrorist act everywhere. In particular, a terrorist–detonated nuclear weapon in a European city will impact on American security. Conversely, a terrorist–constructed crude nuclear bomb exploded in an American city will have repercussions for European security. Nuclear weapon explosions are the most devastating form, or face, of nuclear terrorism. The four recognized faces of nuclear terrorism are:

Terrorists could seize an intact nuclear weapon and bypass its security features, thus activating it.

Terrorists could acquire, through theft, purchase, or diversion, weapons–usable fissile material (either highly enriched uranium or plutonium) and build a crude nuclear weapon, or improvised nuclear device (IND).

Terrorists could attack or sabotage nuclear facilities, such as commercial nuclear power plants or research reactors, to cause a release of radioactivity.

Terrorists could acquire and release radioactive materials, such as commercial radioactive sources used in medicine, research, and industry, to fuel radiological dispersal devices (RDDs) — one type of which is popularly known as a "dirty bomb," or release radiation through other mechanisms, such as radiation emission devices.

Understanding Nuclear Terrorists

While most terrorist groups are not motivated to unleash nuclear terror, at least one terrorist network – al Qaeda – has expressed strong interest in acquiring weapons of mass destruction. Al Qaeda operatives and their brethren in like–minded organizations have spread their web across numerous countries. According to a January report by *The Observer*, Islamic militants have built up an extensive network in Europe since 11 September 2001, using Great Britain as a logistical hub and nerve center. In recent years, Islamic extremists have expanded eastward into Bulgaria, the Czech Republic, Poland, and Romania. Terrorist cells have become rooted in Austria, France, and Germany and have recruited new members in these and other countries. Intelligence officials have warned that labeling all of these groups as al Qaeda misses the complexity behind the terrorist network. While most of the cells follow a similar agenda as al Qaeda, few directly hold their allegiance to this organization. The current focus on Islamic extremist groups should not blind us from seeing other terrorist organizations that would covet nuclear means of destruction. For example, Aum Shinrikyo, an apocalyptic cult with no ties to Islamic

extremism, sought out nuclear weapons and released deadly sarin gas in a 1995 chemical attack in the Tokyo subway system.

Despite the growth of terrorist cells in Europe, one must not assume that they will ultimately go nuclear. Climbing the escalation ladder to acts of nuclear terror requires leaping over several barriers. Regardless of the nuclear terror act under consideration, the terrorist group must be motivated to conduct extreme levels of violence and to venture into unconventional methods of attack.

While a terrorist organization with a well-defined constituency would most likely not want to alienate its constituency with a nuclear act, groups that have weak or non-existent ties to constituencies would not face as many moral or political constraints. For example, the Chechen rebels, a national-separatist group, depend strongly on their supporters within Chechnya. In contrast, the character and agenda of al Qaeda, a political-religious terrorist network, make this organization apparently less concerned about directly harming constituents. The final barriers for a terrorist group to cross are technical in nature. The group would have to acquire the nuclear assets. If the group decided to attack a nuclear power plant, it would have to identify a vulnerable nuclear facility. The organization would have to develop or hire the skills needed to build and detonate a weapon or to sabotage a nuclear facility. Finally, the group would have to be able to deliver the attack without being detected during the development or completion phase.

Vulnerable Nuclear and Radiological Assets in Europe

Tactical nuclear weapons: Though intact nuclear weapons tend to be well-guarded, some are more susceptible than others to falling into the hands of terrorists. Most experts believe that portable so-called tactical nuclear weapons (TNWs) are more vulnerable to terrorist seizure than are strategic nuclear weapons. TNWs are designed for nuclear-war fighting or battlefield use. As such, they tend to be more portable than their strategic cousins. In Europe, concerns over loose nuclear weapons have focused on the thousands of Russian TNWs that are in various physical conditions and under varying security storage and use. The United States also maintains about 150–180 TNWs in about six NATO countries. While European politicians want to keep the issue of NATO's nuclear weapons out of public view, they need to take steps to reassure Russia that nuclear arms will not be deployed in new NATO-member states. This confidence building measure could serve as a way toward achieving more openness about how to improve the security of Russian TNWs.

Uranium: Of the two types of weapons-usable nuclear material, highly enriched uranium (HEU) poses the greatest concern, because it can be used in the simplest nuclear bomb – a gun-type device – to produce a high-yield explosion. Most weapons experts agree that a well-funded terrorist group could build a gun-type bomb, which simply slams two pieces of HEU together inside a gun barrel. The major barrier to stopping construction of such a device is access to HEU. Research sites in Bulgaria, the Czech Republic, Hungary, Poland, Romania, and Yugoslavia have HEU, supplied mostly from Russia. Over the past several years, experts have warned that HEU from these sites could find its way to terrorists. The December 1994 seizure of almost three kilograms of weapons-usable HEU in the Czech Republic highlighted this danger.

Since the fall of the Soviet Union, there have been many incidents of illicit trafficking of nuclear and radiological materials in Central and Eastern Europe and the newly independent states. Many more incidents could be happening than are being detected. Fortunately, efforts to secure and repatriate HEU from vulnerable sites in this region have begun. Since the summer of 2002, the United States, Russia, the International Atomic Energy Agency (IAEA), partner governments, and non-governmental organizations, such as the Nuclear Threat Initiative, have conducted three successful missions – Belgrade, Romania and Bulgaria – to secure HEU at research sites and to repatriate it to Russia. But more needs to be done, since about 20 additional research sites, each containing enough Russian-origin HEU for at least one bomb, still exist. Some of these sites are located in Central and Eastern Europe.

Radiation: Within the past few years, the European Union has commissioned two studies to determine the effectiveness of the existing regulatory practices concerning the life cycle of radioactive sources. The first study examined the controls within the EU itself and found that radioactive materials management varied across the EU. The report underscored the risk posed by some 30,000 disused sources that are in danger of becoming orphaned, that is, of falling outside of regulatory controls. On the heels of that study, the EU investigated the regulatory practices in the Czech Republic, Estonia, Hungary, Poland, and Slovenia, states that were being considered for early admission to the EU. The EU study concluded that these states have regulatory controls that meet the general standards found throughout the EU. While the results of these pre-11 September reports are by and large encouraging, it should be noted that they focused on safety considerations and did not examine details of security procedures.

Nuclear power plants: Well-designed nuclear power plants employ defense-in-depth safety features. To release radioactivity from a nuclear plant, terrorists would have to destroy or disable multiple safety systems. Unfortunately, Central and Eastern Europe contain many Soviet-designed nuclear power plants that do not meet Western safety standards. For example, early Soviet-designed models lack an adequate emergency core cooling system and containment structure, and have an inadequate fire protection system.

Such reactors operate in Bulgaria, Slovenia, the Czech Republic, Hungary and Slovakia and Lithuania.

While these reactors have engendered discussion regarding safety and security, attacks and sabotage against research centers – where security procedures tend to be less rigorous than at commercial plants – have been overlooked. Many research reactors are located at universities in or near major urban areas. While the inventory of radioactivity in a typical research reactor pales in comparison to the large quantities of lethal fission products within a commercial reactor, release of radioactivity from research sites could suit nuclear terrorists' purposes.

A multi-pronged defense strategy

Combating a multi-headed nuclear-terrorism hydra demands a multi-pronged defense strategy. Combining multiple preventive, enforcement, and response efforts would forge an increasingly strong system that would significantly reduce the risk of nuclear terrorism.

One defense tactic is denying access to safe havens, choking off terrorist funding, improving intelligence capabilities to identify groups and their activities, and coordinating law enforcement efforts within and among states. Another technique is to develop and mobilize radiation detection equipment to help spot nuclear and radioactive materials crossing national borders and boundaries and entering high-profile targets, such as major cities. However, this method is limited because shielding can substantially lessen the detected radiation signal, especially the signature for highly enriched uranium, which could fuel crude nuclear weapons. But above all, the tactic with the most promise of stopping nuclear terror embodies securing nuclear assets. If terrorists cannot seize nuclear assets, they cannot perpetrate acts of nuclear terror. For instance, securing and eliminating highly enriched uranium throughout the world would prevent terrorists from constructing a gun-type device. This effort should be one of the highest priorities in combating nuclear terrorism.

Following the 11 September 2001 terrorist attacks, governments have stepped up their cooperative security efforts. Notably, the IAEA (International Atomic Energy Agency) and several members created an action plan against nuclear terrorism. Several Central and Eastern European states, including Bulgaria, the Czech Republic, Hungary, Romania, and Slovenia, have contributed to the IAEA's Nuclear Security Fund. With last year's accession of Albania to the Convention on Assistance in the Case of Nuclear Accident or Radiological Emergency, all states in this region have acceded to or ratified the convention. In the event of an attack, parties to the convention can ask for and receive aid to mitigate the consequences of a radiological attack. Because such an attack has a relatively high probability of occurrence in coming years, states need to continue to devote resources toward consequence management and mitigation. Last year the IAEA published a revised version of the non-binding Code of Conduct on the Safety and Security of Radioactive Sources, which places increased emphasis on security improvements.

The IAEA has developed state systems for nuclear material accountancy and control. According to an August 2003 IAEA Director General's report, the majority of Central and Eastern European states have completed self-assessments of their nuclear material accounting and control systems. The IAEA has also recently sponsored a regional physical protection of nuclear material training course in the Czech Republic. In February 2003, the IAEA conducted in Romania a pilot regional course on "Response to Nuclear Terrorism and Incidents Involving the Illicit Trafficking of Radioactive Materials." Similar courses and physical protection advisory service missions are expected to continue to take place in the region.

When faced with the Herculean task of prevention of and response to nuclear terrorism, states are realizing that they cannot remain independent. They must recognize and act on their interdependence. Only this approach will succeed in the fight against nuclear terrorism.

Some further references:

Strengthening Global Practices for Protecting Nuclear Material, NUMAT Proceedings, EU-High Level Scientific International Conference on Physical Protection, Salzburg Austria, F. Steinhäusler (convener), 8-13 September 2002.

Antony Barnett, Jason Burke, and Zoe Smith, "Terror Cells Regroup – and Now Their Target is Europe," *The Observer* available on the *Guardian Unlimited* Web site, January 11, 2004.

Matthew Bunn, Anthony Wier, and John P. Holdren, *Controlling Nuclear Warheads and Materials: A Report Card and Action Plan*, Project on Managing the Atom, Harvard University, March 2003.

International Atomic Energy Agency, "Nuclear Security – Measures to Protect Against Nuclear Terrorism," Report by the Director General, GC(47)/17, 20 August 2003.

Alistair Millar and Kathryn Crandall, "As NATO Gets Bigger, Can it Downsize Nuclear Risks?" BASIC's NATO E-Mail Series, British American Security Information Council, Fall 2002.

Published 2004-06-02
Original in English
Contribution by The New Presence
© Eurozine
© The New Presence