

European Nuclear Safeguards and Terrorism: A Personal Perspective

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This analysis is divided into two parts that, in my view, deal with two fundamentally different types of terrorism—national and state sponsored. The information is drawn from my experience and recollections of data and events.

National Terrorism

A fundamental fact has to be considered when dealing with the possible desire of national terrorist groups to acquire nuclear materials. National groups, such as the Italian Red Brigades and the German Baader band, want to change or subvert the organization of the state in order to install a different regime. They also need—and want to gain—the sympathy and support of at least a fraction of the nation. They see killing a political leader or other terrorist actions that are directed at a specific target—a person, a building, and so on—as a way to get the approval of that fraction.

Use of nuclear explosives would mean killing a large number of people and destroying a vast area. That type of action would inevitably provoke a reaction of horror on the part of the population, the exact opposite effect of what the group wants. Thus, it seems to me that the attractiveness to a national terrorist group of using nuclear material or devices is conspicuously low.

That said, would it be difficult for a national terrorist organization to gain access to nuclear materials? This question is the old one of whether safeguards are safe. It can hardly be said that safeguards are safe, even though many loopholes have been closed. The first safeguards systems (EURATOM, IAEA) had two enormous loopholes—transport and legal and administrative procedures. These loopholes were all too evident in the well-known diversions recorded about two decades ago. They were possible, it was concluded, because of the gaps in the safeguards system.

The diversion of 200 tons of natural uranium in late 1968 was a chef d'oeuvre of adroitness, with the organizers making optimum use of the regulations. The whole enterprise was planned and carried out in such a way that it was extremely difficult to prosecute the diverters under existing laws and regulations. The nuclear material was being purchased by a West German firm from a well-known, respected Belgian company, Union Minière. West German and Belgian officials had authorized this transaction in full compliance with administrative rules. The EURATOM Supply Agency had also given its authorization (the authorization of the Nuclear Security Control was not required by the safeguard system in this case). The material was destined for reprocessing at an Italian company in Milan that had requested and obtained the authorizations needed from Customs, the Ministry of Transport, and the Ministry of Industry.

Once on the open sea, the ship transporting the nuclear material disappeared. By the time it was located while on another merchant trip, the material had been unloaded and the crew, officers, and captain had changed. To my recollection, nobody has been convicted, nor could they be. This incident is an excellent example of how safeguards are not safe when the diverter is not a burglar acting for money but perhaps a nation with all the resources—technical, legal, and operational—it can command.

The other famous case of suspected nuclear diversion occurred at the end of the 1960s. Called the NUMEC case, it presents some analogies. Based on my memory, the Nuclear Material and Equipment Corporation (NUMEC) of Apollo, Pennsylvania, had MUF of more than 400 pounds of uranium, 150 of which were uranium 235, a material almost directly usable as an explosive. In this case, the suspected diversion was possible because of loopholes in the administrative rules and procedures, as well as the disastrously low level of accountability of the company and the poor performance of the controllers. The case was prosecuted but was closed, administratively and judicially, for a fine of about \$1 million. That penalty is inadequate given that 150 pounds of uranium 235 is enough to destroy several capital cities.

Much has been done to close the gap in this area. I imagine it would now be difficult to repeat successfully those operations and other similar ones that are less well known. Moreover, it is believed that these diversions were masterminded by states. A terrorist organization would need to have sophisticated leadership and advisers to replicate them, a condition that is possible but improbable.

If a complex operation that seizes on the loopholes in the safeguards systems appears improbable now, a hypothesis that cannot be discarded is direct access to nuclear material by theft or something analogous. However, if the materials accounting system works well, even a small MUF should appear within a matter of weeks at the latest. A team of inspectors, dispatched immediately, should be able to clarify the situation or impose strict measures.

of control until the MUF is explained satisfactorily. In the case of EURATOM, the inspectors can request intervention by the police or armed services so as to impose effective control over the factory. I am referring to prolonged theft of small quantities so that it would appear in the MUF. Theft by assault cannot be protected against with safeguards, machineguns are needed instead.

Accurate monitoring of material accounting and transfers is possible and is performed effectively in Europe. It is probably less accurate and presents more obstacles of various types in other areas of the world. However, it is precisely in European countries (and in the United States) that most nuclear material in its different forms is stored and processed. As for the Eastern bloc countries and the Soviet Union, it is well known that the government in Moscow is a keen supporter of safeguards, which it enforces strictly on its own territory and that of its customers.

Optimism is not justified, however. It is known that the IAEA is permitted to safeguard only material, not facilities, unless they have been declared to be nuclear. Although national terrorist groups would hardly be able to build their own facilities, they could try to gain access to facilities whose activities are ambiguous and that might not be subject to IAEA controls because they have not been declared nuclear. IAEA safeguards inspectors have no authority to visit undeclared facilities that they suspect might be engaged in activities associated with nuclear material devices, even in states that have signed the NPT. Further, the IAEA does not search for undeclared material. Here is another wide loophole that affords a potential diverter fertile ground for operations. In this case, however, the national services in charge of security matters should be able to fill the gap if they are aware that a diversion is being planned by terrorist groups.

This discussion applies essentially to reactor sites or spent fuel storage facilities. The situation is different with bulk-handling facilities involving substantial flows of nuclear materials, such as plutonium or uranium 235, that present a much higher risk. Measures that would help in these cases are the ones that have been suggested frequently: multinational fuel cycle centers, international spent fuel storage facilities, and others.

Terrorist access to weapons-usable material is a tremendous risk. It has to be emphasized, however, that weapons-usable materials in states other than the nuclear weapons ones are located at only a small and well-known number of sites. Inspections of the so-called resident inspection type would reduce this threat of diversion. They would probably not be enough, however. This field is one where the intervention of the national services in charge of security and their collaboration with other states or international agencies are necessary.

The intervention of these services has long-established precedents. When foreign companies are engaged in research, testing, or production of sensitive military materials, the U.S. government requires that they sign contracts with

special clauses to protect secrecy. This protection is ensured in general by personnel of the military intelligence services of the country concerned, they have exercised discreet, and satisfactory, surveillance within the plant.

It is not advisable to say or write more on such a delicate subject. In any case, it would not be easy to extend these kinds of procedures and exercises to nuclear plants generally, although maybe that could be envisaged for the small number of installations that have or process weapons-usable materials. If the terrorist threat extended to the nuclear field, such measures would have to be considered.

State-Sponsored Terrorism

For more than two decades, the risk that terrorist groups will gain access to nuclear materials has been practically discarded by competent officials dealing with safeguards. If, however, state-sponsored terrorist groups wanted to gain access to nuclear materials or highly toxic chemicals, the prospects would be totally different. These groups operate in foreign countries amid a foreign population. They do not have the same political constraints that the national groups referred to earlier do. They are, or consider themselves to be, combatants, and they are fighting an enemy. They may be fanatic or just imbued with a dramatic sense of combatting an adversary. In their logic, there might be little difference between a grenade or a mass-destruction weapon. Moved by a strong ideal or fanaticism, state-sponsored terrorist groups consider themselves at war, even at holy war.

National groups would have difficulty getting access to nuclear materials. With terrorist groups sponsored by states, however, it would be foolish to ignore the possibility that they could receive materials (nuclear or chemical) from their sponsor state(s). Nuclear weapons states have a long-established clean record in this field. A number of nonnuclear weapon states are, however, considered threshold states, they are near to acquiring the capacity to produce nuclear explosive devices. Nevertheless, there is no basis for thinking that they would establish a connection with terrorists.

In terms of potential access to nuclear and chemical materials, the most dangerous possibility is the state-sponsored terrorist group, and it poses a difficult situation. The sponsor state may or may not be a member of the NPT and may or may not have accepted IAEA safeguards. Even if it had accepted them, given the technical and political limitations on the agency's activities, it is almost impossible for the IAEA to guarantee that illegal transfers do not occur.

Chapter 4

Can Civil Uses of Weapons-Usable Nuclear Materials Be Minimized?