

Nations Tackle Nuclear Terrorist Threat

Illicit trafficking of nuclear materials has doubled since 1996, according to the International Atomic Energy Agency (IAEA), which is concerned about rising proliferation risks and inadequate precautions taken at both civil and military nuclear facilities. According to George J. Tenet, director of the US Central Intelligence Agency, there are “about a dozen terrorist groups that have expressed an interest in, or have sought, chemical, biological, radiological, and nuclear agents.” A high-profile example is Osama Bin Laden’s Al-Qaida group in Afghanistan, which has tried several times to purchase nuclear materials. “Vigorous efforts need to be made to keep the nuclear genie in the bottle and out of the hands of terrorists,” says Alex Schmid, head of the UN Terrorism Prevention Branch in Vienna.

The IAEA tallies 370 confirmed cases of smuggling in the past eight years. Those cases were discussed at the IAEA conference “Security of Material: Measures to Prevent, Intercept and Respond to Illicit Uses of Nuclear Material and Radioactive Sources” in Stockholm this past May. “While most of these incidents do not involve material that can be used for making nuclear weapons, the high number of events shows that we have reason to be concerned,” says Mohamed ElBaradei, IAEA’s director general.

The rise in nuclear trafficking cases may be due to better reporting, says Stanley Erickson of Lawrence Livermore National Laboratory. Even so, Ian Ray, a forensic nuclear scientist with the Institute for Transuranium Elements in Karlsruhe, Germany, estimates that only 5–10% of the illicit trafficking is detected.

The public is also at risk from many small, “orphaned” radioactive sources lost because of lax controls at factories, laboratories, and hospitals. According to Friedrich Steinhäusler of the University of Salzburg in Austria, even in the US “about 200 radioactive sources are reported lost, stolen, or abandoned every year.” But the primary danger of unanticipated exposure to the public is from radioactive scrap metal, say analysts. Following a series of accidents—including the melting of cobalt-60 and cesium-137 in a steel plant in Brescia, Italy, in 1997—many smelting plants and foundries now check for contaminants.

 Lax controls on nuclear materials and a thriving black market are alarming officials.

About 5–8 kg of plutonium is needed to produce a crude atomic bomb, but a radiological weapon—an ordinary bomb with radioactive material attached to it—requires only a few kilograms of plutonium to disperse lethal amounts of radioactivity over hundreds of meters. Of the cases on the IAEA list, 9% involve highly enriched uranium (HEU) or plutonium, while 30% concern low-enriched uranium (LEU). The LEU is mainly fuel pellets from civil reactors that, although unsuitable for making a bomb, are appearing on the black market in large quantities. At the Stockholm meeting, for example, the Kazakhstan Atomic Energy Committee reported the recent capture of three criminal groups that were selling fuel pellets.

The greatest risk of theft appears to be in the former Soviet Union (FSU) and other parts of Eastern Europe—not from nuclear warheads but from 603 tons of weapons-usable materials stored at nuclear weapons laboratories, civilian research centers, and naval shipyards. According to a US General Accounting Office report released in February, the US Department of Energy program that is helping to safeguard the FSU stockpile has reduced the risk of theft of a third of the materials, but many sites remain vulnerable to both internal and external threats.

The safety of Russia’s naval fissile material fuel storage facilities is of particular concern to security ana-

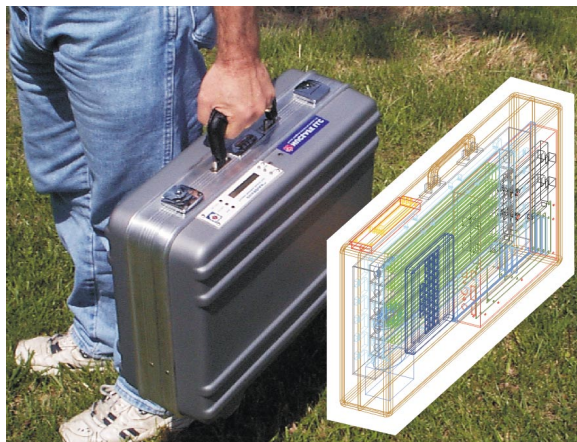
lysts. Weapons-grade HEU fuel is stored at the sites, and the Bush administration has slashed funds for safeguarding them by 18%. And long-term risks are posed by the 120 000 spent fuel rods and pellets from Russian submarines and icebreakers because they too contain enough HEU to create a weapon.

Terrorist sabotage—turning a civil reactor into a radiological bomb—is another worry and a strong possibility, says Edwin Lyman, scientific director at the Nuclear Control Institute in Washington, DC. Computer simulations are being developed to help power plants spot weaknesses in their security, but, says Lyman, “computer models cannot be an effective substitution for mock attacks on power stations.”

Inadequate border controls and the increase in trafficking cases are the most pressing concerns of the IAEA and the World Customs Organization. “I doubt we would have seen representatives from over 70 countries at a conference like this five years ago,” says Livermore’s Erickson. Few countries have radiation-monitoring equipment along all borders, and many detectors do not work properly. Interception often seems to be a matter of luck. In February, for example, Greek police discovered a small amount of plutonium during a search for contraband cigarettes. Russian border police have also discovered several smuggling attempts aboard legitimate radioactive shipments. Sheremetyevo International Airport near Moscow saw the number of cases involving radioactive materials jump from 2 to more than 60 after a three-stage monitoring system and trained personnel were added to the customs service.

To help increase the rate of intercepting radioactive shipments, the IAEA is encouraging countries that do not have nuclear programs, but that are on trafficking routes, to join its training programs. It has also set up programs to develop monitoring systems for border crossings. But the work is just getting started, says ElBaradei. “It is clear that broad international cooperation will be needed to upgrade security measures, to improve capabilities for intercepting and responding to illicit trafficking, and to enhance the protection of facilities against terrorism and sabotage.”

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