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## The Washington Post washingtonpost.com

The Washington Post

July 2, 2002 Tuesday Final Edition

## **Dirty Bombs: Assessing the Threat**

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SECTION: EDITORIAL; Pg. A15

LENGTH: 775 words

A new term has entered our lexicon of fear: the so-called "dirty bomb." But giving the new threat a name has only heightened panic; the crucial step is to improve public understanding of what a dirty bomb is and of how the threat is being addressed internationally.

A dirty bomb would be made of ordinary explosives -- such as dynamite -- packaged with radioactive material, which would be dispersed when the bomb went off. As with any explosion, people in the immediate vicinity could be killed or injured by the blast itself. The radioactive material that was dispersed, depending on the amount and intensity, could cause radiation sickness for a limited number of people nearby if, for example, they inhaled large amounts of radioactive dust. But the most severe tangible effects would likely be the economic costs and social disruption associated with the evacuation and subsequent cleanup of contaminated property.

Packaging explosives with other toxic substances could cause equally severe public health effects and social disruption, with less effort and risk for the terrorist. Radioactive material is hard to handle: The bomber would have to choose between being directly exposed to a concentrated clump of material -- which could be lethal -- or using large amounts of lead shielding, which would hamper bomb assembly and transport. But a dirty bomb could be a terrorist's weapon of choice simply to play on public fears of all things nuclear and radioactive. Panic and chaos are a terrorist's primary objectives.

Around the world, radioactive materials have been widely used for decades to benefit humankind -- to diagnose and treat illnesses, to monitor oil wells and water aquifers and to irradiate food to eliminate microbes. But a lack of control over the thousands of radioactive sources worldwide makes their acquisition and use by terrorists a real possibility. In Kabul, Afghanistan, in late March, my organization -- the International Atomic Energy Agency (IAEA) -- secured a powerful cobalt source abandoned in a former hospital. In Uganda a week later, we helped to secure a source that appeared to have been stolen for illicit resale. And as I write, a team of IAEA and local experts is searching through remote areas of the Republic of Georgia to locate and recover a number of powerful strontium sources that have been outside official control for years. Even in the United States and Europe, where regulatory controls are relatively

stringent, thousands of radioactive sources have been lost or stolen, their whereabouts unknown.

Providing security controls for radioactive material is not a new concept. Common-sense measures have been required for many years -- such as strict inventories, locked storage facilities and security guards, depending on the type or amount of material. But the primary focus in the past has been on safety hazards and the prevention of inadvertent (rather than deliberate) exposure.

The terrorist attacks of last September catapulted security to the forefront. The sophistication of the attacks, the evident will to create large-scale panic and destruction, and the willingness of the terrorists themselves to risk their lives to achieve their ends made the dirty bomb threat far more realistic.

The degree and nature of the threat vary significantly from one country to another. National governments are redoubling their efforts to prevent and to counter nuclear terrorism, both at home and abroad. The IAEA is serving as a catalyst for these efforts. We have provided equipment and training to hundreds of border guards and other law enforcement officials, to help them detect illicit trafficking of radioactive material across borders. We have held dozens of workshops to help governments and operators in assessing the threats to their nuclear facilities, raising their standards of security, maintaining proper control of nuclear and radioactive material and being prepared to respond to any related emergencies that arise. And we recently forged a trilateral partnership among the United States, the Russian Federation and the IAEA to locate, secure and dispose of powerful radioactive sources that were lost or abandoned during the breakup of the former Soviet Union.

The good news, in brief, is that governments and the IAEA are working overtime on this problem, and we have every intention of continuing until the threat has been vastly reduced. But this will not happen overnight; bringing the global inventory of radioactive material under proper controls will require a sustained and concerted effort.

The writer is director general of the International Atomic Energy Agency.

LOAD-DATE: July 2, 2002

LANGUAGE: ENGLISH

DOCUMENT-TYPE: COLUMN

PUBLICATION-TYPE: Newspaper

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