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## 'Dirty bombs' are formidable weapons for terrorists: experts

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By Michel Moutot, AFP

PARIS -- Easy to make "dirty bombs," like from the uranium seized last week near the Slovakian-Hungarian border, are a formidable weapon capable of unleashing major panic for would-be terrorists, experts say.

Slovak police announced Thursday that 481.4 grams of material containing uranium-235, the type used in nuclear reactors and nuclear warheads, and the naturally occurring uranium-238, was found when they arrested two Hungarians and a Ukrainian.

Police said the uranium they discovered was particularly dangerous because it was already in powder form.

Unlike a nuclear bomb, a dirty bomb is relatively easy to make -- simply pack radioactive materials around conventional explosives so they will be spread around upon detonation.

Without the fission or fusion reaction that occurs with nuclear devices, the blast will not cause as much direct damage, but experts say it will likely unleash panic and could cause considerable contamination.

"The interest in a dirty bomb is to frighten," said Marc Lemaire, an emergency response doctor and nuclear, radiological, biological and chemical specialist.

"It is designed to hurt, of course, like all attacks, but the goal most of all is to terrorize."

Lemaire, who is also co-author of the book "From the Terrorist Threat to the Treatment of Victims," added: "You can have an effective result by contaminating an area. But in what proportion? It's difficult to know beforehand. But certainly you can create a huge panic."

The detection of even weak levels of radioactivity by first-responder teams equipped with Geiger counters at the scene of an attack can lead to panic in the area, then throughout the city.

In the short time it may take officials to determine the perimeter of the contaminated area, panic can set in throughout an entire region, specialists say.

As for long-term effects, entire areas could be contaminated, leading officials to bar access, possibly leaving them deserted for decades.

But because such an attack has yet to be carried out, "no one really knows the true effectiveness of that type of device," said Georges Le Guelte, a researcher at France's Institute for International and Strategic Research.

Various factors have to be taken into account, he said, including location of the explosion, density of the radioactive material used, weather, strength and wind direction.

While certain materials are difficult to find, such as the enriched uranium seized this week, others used widely in industry or medical labs can be relatively easy to procure, specialists say.

In a report before the US Senate, Henry Kelly, president of the Federation of American Scientists, warned against the problem.

"Significant amounts of radioactive materials are stored in laboratories, food irradiation plants, oil drilling facilities, medical centers, and many other sites," according to Kelly.

The International Atomic Energy Agency (IAEA) has regularly expressed concern about illegal trade in uranium in eastern Europe and other parts of the former Soviet Union.

It registered 275 incidents of non-authorized possession and illegal trafficking of nuclear and radioactive products between January 1993 and December 2006.

"Using a dirty bomb would be a major escalation in violence," said Lemaire. "The step toward chemical weapons has been taken in Iraq with the regular use of chlorine in attacks. So the day will likely arrive when we see an escalation involving radiological weapons."

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