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Title: 21st Century Terrorism: The New Face of the Hydra (Part II)

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Abstract. The second installment of this article by Mr. James A. Kinnison, political science graduate student from the University of New Mexico, who specializes in international relations and national security provides opinions on chemical, biological, and nuclear terrorism. A version of this article was presented at the international academic conference on Science, Technology, and the 21st Century: New Eden or Armageddon? at Cameron University, Lawton Oklahoma on March 21, 1997.

Crossing the Thresholds in Tokyo and Moscow

Given the shifts in terrorist patterns described in Part I, one of the critical questions which remains is whether terrorists will resort to the use of chemical, biological, or nuclear weapons of mass destruction. Given recent events in Tokyo and Moscow, I believe that it is no longer a question of if but of when.

Most people are already familiar with the Sarin gas attack by AUM Shinri Kyo that killed twelve and injured thousands of Tokyo commuters. Over the last twenty-five years, other groups have attempted to gain access to chemical or biological agents. In the 1970s, the Weather Underground attempted to obtain biological agents from a United States (US) Army weapons facility at Fort Detrick, Maryland, and in 1975 the theft of a large quantity of mustard gas from a US military ammunition bunker in Germany was followed by the threat of the gas employment against residents of Stuttgart by the Baader-Meinhof gang. In the 1980s, raids on Red Army Faction safe houses resulted in the discovery of botulin toxin in Paris and several hundred kilograms of organophosphorous compounds in Germany (xii). In addition to their production of Sarin, AUM Shinri Kyo researchers experimented with the nerve agents Tabun and Soman. They may also have obtained the formula for VX from Russian counterparts and experimented with biological agents such as botulism and anthrax. Under the guise of medical relief, members of the cult traveled to Zaire in 1992 to obtain a sample of the Ebola virus for cultivation (xiii).

Given that the production of chemical or biological weapons is relatively a low-technology enterprise, their potential use in future terrorist attacks is nearly certain. Nuclear terrorism remains more speculative, although this threshold was crossed by Chechnyan rebels in November 1995. On November 24, workers from Moscows NTV television network--following the directions of Chechnyan guerrilla leader Shamil Basayev--unearthed a container of radioactive cesium in Izmailovsky Park. While the other three containers Basayev claimed to have planted--two of which were reportedly rigged with explosives--were never discovered, the incident prompted the activation of the Russian Ministry for Emergency Situations, placed Moscow security forces on alert, and resulted in the activation of 46 radiation sensors around the city (xiv). Concerns over the potential for nuclear terrorism are significant enough in Moscow that the Russian Interior Ministry (MVD) is considering the reactivation of a spetsnaz unit--formerly responsible for sabotage and infiltration--as a counterterrorist unit specializing in nuclear and air terrorism (xv).

While it is possible that terrorists may seek to build or obtain a nuclear bomb, the more likely prospect, at least in the short-term, is that they will build a Radiological Disbursed Device (RDD) as the Chechnyans reportedly had. An RDD is far less expensive to build than a first-generation weapon and is less

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technically demanding. Also, the necessary materials are far more easily obtained. In my research on nuclear smuggling for Sandia National Laboratories, I could only identify nine cases that involved weapons-grade materials, and the quantities involved were far below the requirements of a fission device (xvi). Most of the materials were either low-enriched uranium or waste products such as cesium and strontium, which are less protected than fissile materials and unsuited for use in a fission bomb. Although there is no proof that the materials being smuggled out of the former Soviet Union (FSU) are being purchased by terrorist groups or rogue states, there is a strong possibility that they could be used in radiological weapons. In fact, sufficient quantities are being smuggled from the FSU--often in multi-kilogram shipments--to warrant concern. (For use in an RDD, cesium and strontium would be ideal. Both are water-soluble, penetrate the soil below the root zone, and are easily absorbed in the human body (xvii).

Such a weapon has a tactical advantage as a means of economic sabotage. As previously stated, the truck bomb placed in the World Trade Center was laced with cyanide, which fortunately was burned in the explosion. If, however, the bomb had been laced with some type of radioactive material, such as cesium, strontium, or cobalt, emergency workers and evacuees would have been exposed to high levels of radiation and higher risks of certain types of cancer. While an RDD lacks the blinding fireball and devastation of a Hiroshima-type weapon, it lays waste to the future. As a means of economic terrorism, the use of a radiological weapon would result in both short-term and long-term costs for a nation-state in the form of area deprivation. For states with access to remediation technologies and the funding for these technologies, such an attack would be costly, but manageable. For less developed states, the remediation would depend upon outside technical and financial assistance. Such an attack in an urban area, such as New York's Wall Street, would result in (1) short-run costs associated with economic displacement as companies sought alternative locations and (2) the higher remediation costs. An effective attack with RDDs would require the razing of buildings in the immediate area, due to contamination. The long-term impact would include increased health care costs resulting from public exposure, as well as long-term storage of contaminated soils and materials. An attack with radiological weapons on a target of high-economic and psychological value--e.g., Wall Street--would cause shockwaves throughout the international financial community. In a rural setting, such devices would result in a biblical salting of the earth, rendering an area useless for several decades.

The true power of terrorism lies in the psychological impact of the attack, not the power of the arsenal. The psychological tension in the mind of the public associated with the word nuclear is a vulnerability which could be easily exploited by terrorists at very little cost (xviii). This vulnerability is even more powerful when there is a credible basis for the threat, as with the states of the FSU. In the case of the Moscow incident, Russian Prime Minister Victor Chernomyrdin asked the Ministry of Atomic Energy in February 1995 for a precise accounting of nuclear waste in Chechnya and cited concerns that such materials were being stolen by Chechen fighters (xix). By early November 1995, Russian troops were alerted to search for radioactive materials being smuggled from Chechnya to Russia (xx).

(Notes. (xii) Purver, R. (August, 1995.) The threat of chemical/biological terrorism. *Commentary*, 60, Canadian Security Intelligence Service, p. 6 of Internet accessed copy (<http://www.csis-scrs.gc.ca/eng/comment/com60e.html>); Also, Holden-Rhodes, J.F. (November 28-29, 1996.) Civil-military relations in the Western European Union, The challenge of the new horsemen of the Apocalypse: Organized systemic crime, inter-national terrorism, and the narco-industry. Prepared remarks for the New Risks and European Security Seminar, Western European Union Institute for Security Studies, Paris, France; (xiii) Brackett, D. W. (1996.) *Holy terror: Armageddon in Tokyo*. New York: Weatherhill Inc., pp. 100-102 and Kaplan, D. E., & Marshall, A. (1996.) *The cult at the end of the world*. New York: Crown

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Publishers Inc., pp. 92 - 98; See also Bailey, K. C. (1991.) Domsday weapons in the hands of many. Chicago: University of Illinois Press and Luttwak, E., & Koehl, S. (1991.) The dictionary of modern warfare. New York: Harper-Collins Publishers; (xiv) Itar-Tass, 0855 GMT 24 Nov., 1995. FBIS-TAC-95-006, 6 December, 1995. See also Cameron, G. (September, 1996.) Nuclear terrorism: A real threat? *Janes Intelligence Review*, pp. 422-425; (xv) Galeotti, M. (November, 1995.) Decline and fall: Russias intelligence commandos. *Janes Intelligence Review*, p. 483; (xvi) Using unclassified materials, over 200 reports of nuclear trafficking were identified from 1989 through 1995, with 166 involving seizures of nuclear or strategic materials necessary for nuclear programs. Preliminary survey: Open source intelligence assessment of nuclear smuggling. Unpublished research conducted under the auspices of The University of New Mexico/Sandia National Laboratories Student Extern Program; (xvii) Strontium-90 is a beta emitter with a half-life of 28 years. Because it is water-soluble and resembles calcium, it is easily ingested by the body and can be found in mothers milk and bone tissue. Strontium moves through the soil to below the root zone, rendering a contaminated area a hazard for many years. Similarly, cesium-137 is relatively water-soluble, is a beta emitter with a half-life of 30 years, and binds very tightly to soil, also rendering an area hazardous for a long period of time. Since it resembles other alkalines-- such as sodium and potassium--, when ingested it is distributed uniformly throughout the body. See Harte; J., Holdren; C., Schneider; R., & Shirley, C. (1991.) *Toxics A to Z*. Berkeley, California: University of California Press; (xviii) The psychological impact of nuclear terrorism is more fully explored in the work of Jenkins, B. (November, 1975.) Will terrorists go nuclear? No. P-5541; (xix) Iaderni terrorizm: problema, kotoraya skoro vstanet na povestke dnya. (February, 1995.) *Yadernii Kontrol*, p. 6; Vandenko, I. (November 16, 1995.) Kuda edut radioaktivnye konteynery iz chechnya? *Izvestia*, p. 2.