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### Reviews

#### **The Nuclear Black Market, Global Organized Crime Project**

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The Nuclear Black Market (NBM) Task Force concludes the "security of weapons-usable materials in the Former Soviet Union (FSU) to be poor." In 1994, Germany found 182 "believed-true" cases of nuclear smuggling within Germany. Also in 1994, 2.7 kg of 88% enriched uranium was recovered in Prague. But 1995 was reportedly much better. Before the FSU collapsed, the KGB was able to use terror to control fissile materials, and nuclear safeguards were not as necessary as they are now. The NBM Task Force concludes that "Progress (on enhancing nuclear safeguards) has been glacial." The tip of this glacial iceberg is revealed in the statement of a military prosecutor who investigated the theft of fuel rods from a naval facility in Murmansk: "... even potatoes are sometimes better protected nowadays than radioactive materials... officers and specialists had submitted written reports on this... but the answer was always the same: no money."

These conclusions should not be startling to readers of *Physics & Society*, but what is noteworthy is that officialdom is speaking. The Global Organized Crime Steering Committee is populated by three former directors of the CIA, two FBI members, Secret Service and Defense Intelligence Agency personnel, Senator Sam Nunn, and others. This public involvement from the intelligence community was not always the case. In 1991 the executive branch responded slowly to the demise of the FSU, failing to make plans to control FSU "loose nukes" and plutonium. In fact it took science-to-science back-channel contacts to grease the skids to create much-needed legislation that was sponsored by Senators Nunn and Lugar.

The promotion of tagging and sealing FSU nuclear weapons in December 1991 would have greatly complicated the timely removal of tactical nuclear weapons from Ukraine and the other FSU republics to Russia, and would have slowed up the START process. But it was necessary to begin the process to strengthen FSU safeguards. As a follow up, the non-governmental community hatched the 1992 Biden Condition on START that requires "the President [to] seek an... appropriate arrangement, including the use of reciprocal inspections, data exchanges, and other cooperative measures, to monitor... nuclear stockpile weapons... and inventory of facilities... capable of producing or possessing significant quantities of fissile materials." In the intervening years it has been difficult for our government to make progress on reciprocal monitoring regimes.

NBM sticks mainly to what the intelligence community does best, gathering data and analyzing futures from what is, rather than from what might be with totally new policy initiatives. Even though the NBM findings and recommendations have mostly appeared in journal articles, it is very useful for the likes of Webster, Gates, Sessions, Soyster, Woolsey and Nunn to give us confidence to take action. The Nunn-Lugar bill would, if funded by Congress, assist in safeguards such as the materials protection, control and accounting systems which will be applied to plutonium storage facilities at in Russia. But it will take perhaps ten years to nail down security at some 100 facilities. These plans can become reality if all goes well politically in Russia, if the U.S. moves toward some modest reciprocal safeguard measures, and if Congress funds the Nunn-Lugar programs.

The major NBM findings are as follows:

- The probability of theft is growing.
- The insider threat far exceeds the outsider threat.
- The nuclear black market is inchoate, with few buyers identified.
- Materials are arriving in Western Europe by numerous and shifting routes that render countermeasures expensive and leaky.
- Should today's unsophisticated suppliers link up with professed nuclear weapons aspirants, organized efforts may evolve.
- Russian organized crime is participating but appears to be low-level and localized. Since corruption pervades Russia from top to bottom, the Task Force cannot dismiss the likelihood that higher-level criminal elements operating on a more global scale might become involved.
- The importance of human intelligence cannot be overstated. Task force members generally agree that technical sensors, law enforcement officers, "profiles" of thieves, and joint analysis of relevant intelligence are inadequate.
- Plans and capabilities for neutralizing nuclear materials or devices at the international level are far less robust than at the national level.

However, NBM is silent on a number of issues: the continuing Russian plutonium-breeder economy, the burning of plutonium as MOX in thermal reactors, the vitrification and geological burial of plutonium, the fissile cut-off treaty, the deeper cuts of START III, and so forth. Lastly, NBM ends with unspecific recommendations on bilateral safeguards, on organization, on technology (including nuclear forensics) and on legislation. With luck and diligence, we can hope to constrain the 25,000 warheads, 100 tons of plutonium and 1000 tons of high-enriched uranium, but then we may need some prayer as well.

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