

NUCLEAR AND RADIOLOGICAL SECURITY



"The G8 Global Partnership should expand the geographical and functional scope of its non-proliferation assistance. The G8 should guarantee full funding for the Elimination of Weapons-Grade Plutonium Production (EWGPP) programme."

– Dr. Hans Blix, chair of the Weapons of Mass Destruction Commission, quoted from his 2006 book *Weapons of Terror: Freeing the World of Nuclear Biological, and Chemical Arms*.

Photo Credit: UN

Background

There is an unacceptable risk that terrorists might acquire a nuclear device or a radiological dispersal device (dirty bomb), in which conventional explosives are used to disperse radioactive materials. Terrorists have been formally charged with seeking nuclear weapons and materials to make them, and a fatwa has been issued authorizing the use of nuclear weapons against civilians. Open sources also reveal that several terrorist groups have the capabilities, if not the materials, necessary to construct at least a crude nuclear device. A relatively simple nuclear bomb can be built using open-source blueprints and only 15–20 kilograms of highly enriched uranium (HEU) or 4–8 kilograms of weapons-grade plutonium. Documents describing the construction of dirty bombs have been found in many conflict areas, from Afghanistan to Chechnya.

Canadian security is only as strong as the weakest link in the chain protecting nuclear and radioactive materials. In Russia alone, there are approximately 600 tonnes of weapons-grade nuclear materials, and significant quantities remain in other countries of the FSU. This material is poorly protected. According to the International Atomic Energy Agency (IAEA), there were 149 reported incidents of unauthorized activities involving nuclear material in 2006, including attempts to smuggle the material across borders or sell it on the black market.

Accomplishments to date

Canada and its international partners have made considerable progress over the last year in securing vulnerable nuclear and radioactive materials in the FSU. Canada alone has spent over \$28 million on activities to secure such materials. However, much work remains to be done. At the beginning of 2006, only 54 percent of the buildings in the FSU with potentially vulnerable weapons-grade nuclear materials had received comprehensive security upgrades.

Progress made in 2006-2007

Nuclear security – Physical protection of nuclear materials: The most effective way to prevent nuclear and

radiological terrorism is to prevent access to weapons-grade nuclear materials, as well as radiological materials suitable for the construction of a dirty bomb.

In close collaboration with Russian partners, Canada has developed a robust program to help upgrade the physical security of Russian nuclear facilities.

To date, Canadian efforts have concentrated on upgrading perimeter security. Bilateral Canadian-Russian projects are currently being successfully implemented at five facilities.



Highly radioactive sources that could be used to construct a "dirty bomb" must be removed from vulnerable locations and put into secure storage. Photo Credit: International Atomic Energy Agency



The installation of detection sensors and cameras along perimeter security fences is a key measure to help prevent the theft of dangerous nuclear materials. Photo Credit: Obninsk Interdepartmental Special Training Centre