



Global Partnership Program

Learning from the Past and Looking to the Future: Canadian International Nuclear Security Activities

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Threat of Nuclear Terrorism: Part I

- Despite significant progress, the daunting spectre of nuclear terrorism has not abated.
- A relatively simple nuclear bomb can be built using open source blueprints and only 15-25 kg of highly-enriched uranium (or 4-8 kg of plutonium for a slightly more sophisticated device).
- Terrorists have been seeking nuclear weapons and materials, and a *fatwa* has been issued authorising the use of nuclear weapons against civilians.
- Open sources reveal that several terrorist groups, if they possessed the nuclear material, could construct a crude nuclear device.



Threat of Nuclear Terrorism: Part II

- Evidence of continuing vulnerabilities of facilities housing nuclear material abound.
- There have also been incidents of attempted nuclear trafficking.
- Adding to these concerns are revelations about the deep level of penetration and extensive global reach of the A.Q. Khan network.
- The most effective way to prevent nuclear terrorism is to prevent access to weapons usable nuclear materials.



The Consequences of Nuclear Terrorism

“Nuclear terrorism is still often treated as science fiction. I wish it were. But unfortunately we live in a world of excess hazardous materials and abundant technological know-how, in which some terrorists clearly state their intention to inflict catastrophic casualties. Were such an attack to occur, it would not only cause widespread death and destruction, but would stagger the world economy and thrust tens of millions of people into dire poverty.”

-Former UN Secretary General Kofi Annan (remarks from *A Global Strategy for Fighting Terrorism, Madrid, 10 March 2005*)



Progress Achieved Since 2002: Overview

- Since 2002 Canada has undertaken important nuclear security activities with the assistance of a clear strategy, implementing best practices and embracing lessons learned.
- Canadian approach is predicated on the belief that the most effective way to prevent nuclear terrorism is to prevent terrorist acquisition of weapons-usable nuclear materials.
- This requires urgent and continuing action by all states to ensure that their own nuclear materials are secure, and to assist other states in protecting their nuclear assets.
- Canada's focus has been the countries of the former Soviet Union, but is preparing for geographic expansion.
- Geographic expansion will allow Canada to respond to threats wherever they are found, but Canada is steadfast in its commitment to completing its important nuclear work in Russia and other surrounding countries.



Progress Achieved Since 2002: Canada's First Pillar – Physical Protection of Nuclear Materials

- Principle focus of Canada's bilateral work: both civilian and defence sectors in Russia
- 9 Russian nuclear facilities: 9 projects completed, 12 on-going, 8 in development
- Through IAEA Nuclear Security Fund (NSF), Canada is funding physical protection projects in a variety of other countries.
- Through the IAEA, Canada has also funded upgrades and courses at Russia's main physical protection training centre in Obninsk.



Progress Achieved Since 2002: Canada's Second Pillar – Safe and Secure Transportation of Nuclear Materials

- Nuclear materials can be at their most vulnerable during transportation.
- 2 projects successfully completed, including the provision of special cargo trucks and locomotives.
- 2 additional projects being implemented, with a focus on providing special railcars.



Progress Achieved Since 2002: Canada's Third Pillar – Radiological Security

- Implemented largely in partnership with the US Department of Energy (DOE). To date, Canada has contributed CA\$9 million to DOE's Global Threat Reduction Initiative (GTRI) to remove radioisotopic thermoelectric generators (RTGs) along Russia's Northern Sea Route and to complete the removal of all remaining RTGs in Russia's Far East.
- Canada has worked bilaterally with Russia to develop an RTG Strategic Master Plan.
- Canada completed a project to provide transportation and security shielding containers for RTGs.



Progress Achieved Since 2002: Canada's Fourth Pillar – Preventing of Illicit Nuclear Trafficking

- This constituted the “second line of defence” against nuclear terrorism by aiming to detect and interdict nuclear materials as they are moved through international borders.
- In order to maximise existing work in this important area, Canada has contributed approximately CA\$10 million to DOE's Office of the Second Line of Defense to implement border security projects in Ukraine.
- In December 2008, the Canadian-funded radiation detection system was commissioned for Kyiv's Boryspil International Airport.



Progress Achieved Since 2002: Canada's Fifth Pillar – Reduction of Nuclear Materials

- The key to preventing nuclear terrorism over the long-term is to decrease the overall quantity of nuclear materials in existence.
- To this end, Canada contributed CA\$9 million to help shut-down the last Russian weapons-grade plutonium producing reactor in Zheleznogorsk, Russia.
- Canada will also support efforts to dispose of 34 tonnes of plutonium declared in excess by Russia.



Lessons Learned and Best Practices

1. Constant evaluation and readjustment

2. International cooperation is key:

- Lack of duplication;
- Joint efforts by donors for training and sustainability; and
- Help ensure that equipment provided is compatible and that the systems are interoperable.
- Maximise the value of funding by identifying priority projects.



Lessons Learned and Best Practices

3. Sustainability considerations need to be a key component of all international nuclear security activities.

- Indigenous technology
- Build into every project:
 - Extended warranties
 - Spare parts
 - Operator and maintenance training



Lessons Learned and Best Practices

- 4. Take advantage of the plurality of available implementing mechanisms.**
 - Avoid the temptation to become involved in a multitude of projects
 - Work through established mechanisms such as the IAEA and US programs.
 - This approach has allowed Canada to continue to concentrate on its key emphases, while still making an important contribution to other areas such as the prevention of illicit nuclear trafficking.



Looking Forward: The New IAEA Nuclear Security Plan and Beyond

- The imminent development of the new IAEA Nuclear Security Plan presents the international community with a unique opportunity.
- A successful future in preventing nuclear terrorism will depend upon broad and deep international support.
- There are a myriad of additional international nuclear security mechanisms through which the problem is being addressed: G8-led Global Partnership Program, GICNT, WINS.
- In the future, these efforts will need to be enhanced and consideration will need to be given to how to aggressively address the problem (e.g. 1540).
- Imperative that all states work together to prevent nuclear terrorism: no activity is too small to have an impact.



Looking Forward: Mechanisms

- 1. MOVE QUICKLY:** Projects can be implemented rapidly, as piggybacking dispenses with the need to negotiate bilateral treaties with recipient countries, negotiate agreements with individual organisations/facilities within recipient states, and establish a monitoring framework and contracts for related technical expertise.
- 2. FULL CONFIDENCE:** Canada can delegate project management and monitoring to the IAEA &/or US, based on their track-record of successfully implementing projects.
- 3. COST SAVINGS:** Reduced operational expenses, leaving more funding available for actual projects.