

Chapter 1

Introduction



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The first session of this XX Amaldi conference is devoted, as in the previous conference, to the dual existential problem of Nuclear Safety and Nuclear Security.

The IAEA (International Atomic Energy Agency) defines Nuclear Safety as “The achievement of proper operating conditions, prevention of accidents or mitigation of accident consequences, resulting in protection of workers, the public and the environment from undue radiation hazards”.

Nuclear Security is defined as the physical protection of nuclear materials from theft or sabotage with particular reference to the protection of fissile materials that could be used to produce a nuclear bomb. This problem has been emphasized by the preoccupation that rogue states or sub-state actors might acquire by violent or illegal means enough quantity of nuclear fissile materials to produce even a rudimentary nuclear explosive device.

Three presentations by distinguished speakers illustrate particular aspects of the worldwide commitment to reduce the risk of emergencies deriving from the uses of nuclear materials for peaceful or aggressive purposes:

- IAEA’s Central Role in International Cooperation for Strengthening Nuclear Safety and Nuclear Security Worldwide by Gustavo Caruso, Director of the Office of Safety and Security Coordination of the IAEA;
- Nuclear Security Summits and Legacy by Alexandre Bilodeau, a Canadian career foreign service officer Counsellor and Deputy Permanent Representative at the Canadian Permanent Mission to the International Organizations in Vienna;
- The GICNT Contribution to Nuclear Security by Jari Petteri Luoto, Ambassador, Ministry for Foreign Affairs of Finland, Coordinator for the Global Initiative to Combat Nuclear Terrorism—Implementation and Assessment Group (GICNT IAG).

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Starting from the obvious premise that nuclear safety and security are the responsibility of individual countries, Gustavo Caruso has illustrated the role of IAEA in fostering scientific cooperation among countries and between countries and the IAEA to improve their nuclear and radiation safety and security standards in the peaceful uses of nuclear science and technology. This field is regulated by several legally binding international conventions adopted under the IAEA auspices and the Agency supports Member States in fulfilling their obligations. Moreover, it encourages them to commit politically and implement several Codes of Conduct that are not legally binding but improve nuclear safety and security also in the eventuality of nuclear accidents like Chernobyl and Fukushima Daiichi.

The communiqué of the fourth Nuclear Security Summit (NSS) held in Washington DC in March 2016, outlines the commitments to the principles and the Action Plans agreed by the participants states to enhance nuclear security. This important but complicated process has been illustrated by Alexandre Bilodeau who has also emphasized the specific activities engaged by States to reduce their stockpiles of Highly Enriched Uranium and Plutonium, and improve the physical protection of nuclear facilities. To improve their collaboration each State has designated a senior official to participate in a Nuclear Security Contact Group that convened for the first time in Canada in September 2016. In his conclusion, the speaker has stressed the very unsatisfactory financial situation of the organizations responsible for these problems. As an example, 85% of IAEA Nuclear Security Activities rely on extra-budgetary voluntary unpredictable contributions of Member States.

The last presentation of the session by Jari Luoto was devoted to the Global Initiative to Combat Nuclear Terrorism (GICNT), a voluntary collaboration of 88 nations co-chaired by Russia and the USA. Presently Finland chairs its Implementation and Assessment Group (IAG) and Ambassador Luoto is its coordinator. The main goal of GICNT is to promote the exchange of information about the dangers of nuclear terrorism and discuss the rules and best practices that are recommended gathering information from a wide community: technical experts, law enforcement officers, custom and border guards, policy makers, etc. GICNT has organized table top and field exercises, workshops and seminars to promote an interdisciplinary approach that helps national and international officers to prevent, detect and respond to the use of nuclear and radioactive materials by terrorist groups.

Short questions were addressed to each speaker after his presentation and a larger discussion developed at the end after all presentations. Participants raised several problems that were partly answered: the conversion of research and propulsion nuclear reactors from operating with Highly Enriched Uranium (HEU) to operation with Low Enriched Uranium (LEU); the impact of the New and Emerging Technologies on the mitigation and the enhancement of nuclear risks; the difficulty of national government of exchanging information on terrorist groups for the fear of jeopardizing the sources of such information; the similarity between the risk of dispersion in the environment of radioactive and chemical and biological agents versus the risk of terrorist groups acquiring a nuclear explosive device and

exploding it in a city with the consequent risk of provoking a nuclear exchange at the international level; how to deal with the increasing worldwide stockpiles of Plutonium; etc.

The general consensus was for measures to improve international cooperation both at the bilateral and multilateral level.

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