



IKV PAX
CHRISTI

CAUTION



***RADIOLOGICAL
SECURITY
QUESTIONS***

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About IKV Pax Christi & NoNukes

NoNukes is IKV Pax Christi's campaign for a World free of nuclear weapons. IKV Pax Christi is the joint peace organization of the Dutch Interchurch Peace Council (IKV) and Pax Christi Netherlands. We work for peace, reconciliation and justice in the world. We join with people in conflict areas to work of a peaceful and democratic society. We enlist the aid of people in the Netherlands who, like IKV Pax Christi, want to work for political solutions to crises and armed conflicts. IKV Pax Christi combines knowledge, energy and people to attain one single objective: there must be peace!

The NoNukes campaign informs, mobilizes and speaks out for nuclear disarmament. We do so through research, publications, political and public advocacy. For more information, visit our website: www.NoNukes.nl.

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Introduction

In creating the conditions for a nuclear weapons free world, the security of materials needed to build nuclear bombs is a necessary element, first identified on the international agenda as a priority in 1957. While some progress has been made through UN Security Council Resolution 1540 and the declaratory statements emerging from the 2010 Nuclear Security Summit, the focus has been preventing terrorist acquisition and the relationship to fissile materials for nuclear explosive devices has been largely ignored. The focus on preventing terrorists acquisition of nuclear and radiological materials rather than focusing on nuclear safety is disturbing, since practice (Tjernobyl, Fukushima) has shown that more accidents occur with regard to peaceful uses of nuclear energy. As our efforts to create a nuclear weapons free world continue, addressing this gap, and addressing the safety and security issues around radioactive elements is a necessary component.

In the last several years, global civil society has paid increased attention to the issue of securing peaceful nuclear materials. However, addressing the relationship between securing radiological materials for peaceful purposes and securing radiological materials for nuclear explosive devices (including nuclear weapons) remains a gap. Most advocates have chosen one or the other, without highlighting the fact that the materials themselves are often the same and legal regimes around their security and protection could be applied universally.

In order to address these issues, an overview of the security mechanisms on the international level will be provided. Next, the global trend in dealing with issues of security will be discussed, before turning to the Dutch role concerning radiological security. Seeing as the Netherlands will be hosting the next Nuclear Security Summit in 2014, an analysis of the previous Summits and a preview of the upcoming one will be included. Lastly, to stress the importance of securing radiological material an assessment of the consequences of a fictional incident in the harbor of Rotterdam will be made.

Overview of international mechanisms

Since the recognition of the need to regulate the security of radiological materials in 1957 a number of international mechanisms have been put in place to ensure the security of radiological materials. Below you will find an overview of these, and their implementation in Dutch legislation. From this overview it becomes clear that the mechanisms are created with the concept of global nuclear security in mind, and more specifically they seem intended to prevent the creation of nuclear devices, rather than focus on the security of materials with regard to peaceful purposes.

Convention on the Physical Protection of Nuclear Material¹

The Convention on the Physical Protection of Nuclear Materials is one of the key international agreements in the area of nuclear security. It was adopted in 1979 and entered into force in February 1987. Since 29 September 2010, 145 States have ratified the Convention. The goal of the Convention is to prevent the theft or unauthorized use of nuclear material, and, when amended, sabotage of nuclear facilities. The Convention defines sabotage as any deliberate act directed against a nuclear facility or nuclear material in use, storage or transport which could directly or indirectly endanger the health and safety of personnel or the public. The Convention applies only to domestic facilities used for peaceful purposes, a majority of which are commercial facilities.

In 2005 an Amendment was adopted requiring States to protect peaceful domestic nuclear facilities and material, and to create a legal framework for their security. The Amendment also provides for expanded State cooperation on rapid measures to locate and recover stolen or smuggled nuclear material, mitigate any radiological consequences of sabotage, and prevent and combat related offences.

The implementation of this regulatory framework should be done by a competent authority, created by the State for this task. The actual physical protection is the responsibility of the facility license holders. Furthermore any commission of acts listed in Article 7 of the Convention, should be made punishable by domestic criminal law. An example of a violation is the theft or illegal possession of nuclear materials, which is a big problem as the IAEA's illicit trafficking database confirms.² Although the Amendment has yet to come into force, it has also been concluded that five years after doing so there shall be convened a review conference. Such a conference will then take place in intervals of no more than five years, if State parties wish for this to happen.

International Convention for the Suppression of Acts of Nuclear Terrorism³

The goal of the International Convention for the Suppression of Acts of Nuclear Terrorism is to establish a legal regime to prevent the use of nuclear materials for terrorist purposes. The Convention was adopted in 2005 and entered into force on 7 July 2007. The key obligation of the Convention is to establish legal responsibility under national laws for acts of nuclear terrorism and to create an international legal framework that ensures prosecution of such activities. The Convention also creates an obligation to undertake certain measures aimed at preventing acts of nuclear terrorism. Moreover, Article 8 of the Convention obliges States to adopt appropriate measures to ensure the safety of radiological materials, which in practice extends the requirement to provide physical protection of nuclear materials and facilities beyond materials in peaceful use which are covered by the Physical Protection Convention.

¹ Convention on the Physical Protection of Nuclear Materials (1979)

² <http://www-ns.iaea.org/downloads/security/itdb-fact-sheet.pdf>

³ International Convention for the Suppression of Acts of Nuclear Terrorism (2005)

UN Security Council Resolution 1373⁴

Adopted on 28 September 2001, the main goal of the Resolution is to combat international terrorism. Although, resolution 1373 contains no obligations to ensure nuclear security or the protection of radioactive materials it did create a mechanism to allow the UN to monitor progress in these areas. Furthermore the UN can issue recommendations to states regarding cooperation on a number of issues related to nuclear security, as these fall under the category of sensitive materials and the threat posed by weapons of mass destruction mentioned in the Resolution. Furthermore, the Resolution also creates a committee to monitor implementation of the Resolution. This is the Counter Terrorism Committee, which conducts country visits, provides technical assistance, country reports, creates best practices and organizes special meetings. The Country visits however are at the request of the State. Countries are also required to submit a country report.⁵

The Global Partnership Against the Spread of Weapons and Materials of Mass Destruction.

The partnership was launched by the G8 in 2002 out of fear that terrorist groups or states of proliferation concern might acquire weapons of mass destruction (WMD) or related materials. The Partnership funds and implements projects to prevent the proliferation of WMD.⁶

UN Security Council Resolution 1540⁷

Resolution 1540 was adopted April 28, 2004 following the discovery of the A.Q. Khan proliferation network. The key provisions include obligations of Member States to deny support to national groups engaged in proliferation of Weapons of Mass Destruction and to create domestic laws criminalizing such activities. It obliges States, inter alia, to refrain from supporting by any means non-State actors from developing, acquiring, manufacturing, possessing, transporting, transferring or using nuclear, chemical or biological weapons and their delivery systems. The Resolution also imposes binding obligations, in accordance with Article 25 of the UN Charter, on all States to establish domestic controls to prevent the proliferation of nuclear, chemical and biological weapons, and their means of delivery, including by establishing appropriate controls over related materials.⁸ The Resolution encourages enhanced international cooperation for such efforts, and the promotion of an universal adherence to existing international non-proliferation treaties. The mandate of the 1540 Committee has so far been extended three times, and now lasts until 2021.⁹ Furthermore, Resolution 1977, which was adopted in 2011 and is the latest to extend the mandate of the 1540 Committee, also provides for two Comprehensive Reviews to take place. One after five years, and one before the end of the mandate.

⁴ United Nations Security Council Resolution 1373 (September 28, 2001)

⁵ <http://www.un.org/en/sc/ctc/resources/1373.html>

⁶ <http://www.nti.org/treaties-and-regimes/global-partnership-against-spread-weapons-and-materials-mass-destruction-10-plus-10-over-10-program/>

⁷ United Nations Security Council Resolution 1540 (April 28, 2004)

⁸ United Nations Charter (1945), Chapter V, Article 25

⁹ Security Council Resolution 1673 (April 27, 2006), Security Council Resolution 1810 (April 25, 2008) and Security Council Resolution 1810 (April 20, 2011)

Global Initiative to Combat Nuclear Terrorism¹⁰

Created in 2006 at the G8 Summit in St. Petersburg, the *Global Initiative to Combat Nuclear Terrorism* is a partnership of states that made a commitment to work together on a number of shared nuclear security principles. So far, 82 Nations have become a partner to the Initiative, which includes the European Union as a partner. To implement the principles created by the Global Initiative, three working groups have been created: the nuclear detection working group, the nuclear forensics working group and the response & mitigation working group.

Conference on Disarmament¹¹

The Conference on Disarmament (CD) tries to negotiate a ban on radiological weapons, a new type of weapon of mass destruction that could disperse radioactive materials without a nuclear explosion. Such weapons could include waste material from non-military nuclear applications such as spent reactor fuel. In 1979, the United States and Soviet Union jointly submitted to the CD major elements of a treaty banning the development, production, stockpiling, and use of radiological weapons. However, the conclusion of such a treaty within the CD has been held up because no such weapons presently exist and because of questions about verifiability. Some states also insist that, under this agenda item, discussions be held on a treaty to ban attacks against nuclear facilities. Radiological weapons are currently not being discussed in the CD. While there is no treaty banning radiological weapons, a Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, which entered into force in 2001, includes provisions for the management, storage, and transportation of radioactive waste from civilian and military reactors. In addition, the General Assembly adopted a RW resolution for the first time at its 60th session in 2005, on "Preventing the risk of radiological terrorism." In 2007, the General Assembly adopted resolution A/62/46 on "Preventing the acquisition by terrorists of radioactive materials and sources."

IAEA Nuclear Security Plan for 2010-2013¹²

The objective of the Nuclear Security Plan for 2010-2013 is to contribute to global efforts to achieve worldwide, effective security wherever nuclear or other radioactive material is in use, storage and/or transport, and of associated facilities, by supporting States, upon request, in their efforts to establish and maintain effective nuclear security through assistance in capacity building, guidance, human resource development, sustainability and risk reduction. The objective is also to assist adherence to and implementation of nuclear security related international legal instruments; and to strengthen the international cooperation and coordination of assistance given through bilateral programmes and other international initiatives in a manner which also would contribute to enabling the safe, secure and peaceful use of nuclear energy and of such applications with radioactive substances. The plan identified four elements of the IAEA Nuclear Security Programme: needs assessment and information analysis, enhancement of a global nuclear security framework, providing nuclear security services to member states, and risk reduction and security improvement.¹³

¹⁰ <http://www.state.gov/t/isn/c18406.htm>

¹¹ [http://www.unog.ch/80256EE600585943/\(httpPages\)/2D415EE45C5FAE07C12571800055232B?OpenDocument](http://www.unog.ch/80256EE600585943/(httpPages)/2D415EE45C5FAE07C12571800055232B?OpenDocument)

¹² http://www.iaea.org/About/Policy/GC/GC53/GC53Documents/English/gc53-18_en.pdf

¹³ <http://www-ns.iaea.org/security/nuclear-security-plan.asp>

2010/2012 Nuclear Security Summit¹⁴

The Nuclear Security Summits addressed preventing terrorists from acquiring nuclear weapons or materials. They focused on safeguarding against nuclear terrorism by bolstering international cooperation and improving security for nuclear materials worldwide. They have done so by pointing to each nation's responsibility to secure nuclear material on its own territory, to help nations which may lack the capacity to secure material to do so successfully, and to strengthen the institutions and initiatives that combat nuclear smuggling and theft, including the Global Threat Reduction Initiative, Global Initiative to Combat Nuclear Terrorism, and the Proliferation Security Initiative. Moreover, a long term goal is to ensure, that once loose nuclear material has been secured, the international community takes measures to enable it to remain secure, and to prevent new materials from being created outside of safeguarded facilities. In order to facilitate this Obama is pushing for the negotiation of the Fissile Material Cutoff Treaty. The Nuclear Security Summit will be discussed in depth later on.

European Union legislation/measures¹⁵

In the European Union, actions to deal with Chemical, Biological, Radiological and Nuclear (CBRN) security threats were initiated in 2001. Following this initiative, the "Programme to improve cooperation in the European Union for preventing and limiting the consequences of chemical, biological, radiological or nuclear terrorist threats" was adopted in 2002. This programme was then followed by the 2004 EU solidarity Programme, which focuses on the consequences of terrorist threats and attacks. In February 2008 the CBRN Task Force was set up to work on a policy on CBRN which resulted in a final report of January 2009 which in turn provides the basis for the EU CBRN action plan. The goal of the CBRN policy is to minimize the threat and damage to the public from CBRN incidents. The CBRN policy focuses on three areas: prevention, detection and preparedness and response. As prevention is the focal point of action a risk assessment should be used to prioritize high-risk CBRN materials, and then focus on the security and control of these materials and the related facilities. The action plan will be carried out by implementing it under existing structures within the EU.

¹⁴ http://www.thenuclearsecuritysummit.org/eng_main/main.jsp

¹⁵ http://europa.eu/legislation_summaries/justice_freedom_security/fight_against_terrorism/jl0030_en.htm

Global Trend

Today, there is a growing concern that terrorist or criminal groups could gain access to high activity radioactive sources and use the sources maliciously. The CIA on its website has argued that a variety of radioactive materials are commonly available and could be used, including Cesium-137, Strontium-90, and Cobalt-60. Hospitals, universities, factories, construction companies, and laboratories are possible sources for these radioactive materials.¹⁶

Consequently, there has been a global trend towards increased control, accounting and security of radioactive sources to prevent their malicious use and any potential associated consequences. The Code of Conduct on the Safety and Security of Radioactive Sources is one example of this global trend. It was revised in 2003 to contain stronger security principles, including the recommendation for each State to define its domestic threat and assess its vulnerability with regard to this threat for the variety of sources within its territory. Additionally, several important international conferences have been convened on this topic and concluded that the security of radioactive sources should be a global priority and that efforts should be geared to enhancing security.¹⁷

In September 1998, following an assessment of the major findings of the first International Conference on the Safety of Radiation Sources and the Security of Radioactive Materials, held in Dijon, France, (the Dijon Conference), the IAEA's General Conference (in resolution GC(42)/RES/12), inter alia, encouraged all governments

*“to take steps to ensure the existence within their territories of effective national systems of control for ensuring the safety of radiation sources and the security of radioactive materials” and requested the Secretariat “to prepare for the consideration of the Board of Governors a report on: (i) how national systems for ensuring the safety of radiation sources and the security of radioactive materials can be operated at a high level of effectiveness; and, (ii) whether international undertakings concerned with the effective operation of such systems and attracting broad adherence could be formulated”.*¹⁸



Nuclear material: [Source](#); www.downloadwallpapers.com

¹⁶ https://www.cia.gov/library/reports/general-reports-1/terrorist_cbrn/terrorist_CBRN.htm#01a

¹⁷ IAEA Global tend radiological security report

¹⁸ IAEA Global tend radiological security report

The situation in the Netherlands

The Netherlands ranks 6th on the Nuclear Threat Initiative's nuclear materials security index¹⁹, but what measures are in place domestically to ensure the safety of these materials?

As a member of the UN the Dutch are obliged under Resolution 1540 to produce a National report to the 1540 Committee. The Dutch submitted this on 28 October 2004. In its report the Netherlands first mentions the multilateral treaties which they are a party to, including:

- 1963 Treaty Banning Nuclear Weapon Tests in the Atmosphere, Outer Space and under Water (NTBT);
- 1968 Treaty on the Non-Proliferation of Nuclear Weapons (NPT);
- 1972 Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction (BWC);
- 1980 Convention on the Physical Protection of Nuclear Material (CPPNM);
- 1993 Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction (CWC);
- 1996 Comprehensive Nuclear-Test-Ban Treaty (CTBT).

In accordance with Article II of the NPT, the Netherlands has concluded a safeguards agreement with the International Atomic Energy Agency (IAEA), as well as an Additional Protocol. The Netherlands has signed and ratified the Convention on the Physical Protection of Nuclear Material, 2005 Amendment to the CPPNM and the International Convention for the Suppression of Acts of Nuclear Terrorism.

Because international law requires implementation in domestic law, the Netherlands, in order to comply with Resolution 1540, is obliged to establish domestic controls to prevent the proliferation of nuclear, chemical and biological weapons, and their means of delivery, including by establishing appropriate controls over related materials. This also follows from the text of the Resolution.²⁰

In its national report the Netherlands has stated that as "the objective and purpose of UNSCR 1540 converge with those of the NPT, BWC and CWC. The legislation enacted in the Netherlands to implement these Conventions secures compliance by the Netherlands with UNSCR 1540. Furthermore, as the Netherlands is a member of the EU, reference is made to the EU Common Report that will be transmitted to the UNSCR 1540 Special Committee separately. This EU report covers areas of EU and Community competencies and activities in relation to UNSCR 1540 and should be read in conjunction with this national report."²¹

The Netherlands then provides an overview of the existing the legislation in place to implement the provisions of Resolution 1540.:

The Biological Weapons Convention(implementation) Act (*Uitvoeringswet verdrag biologische wapens*) prohibits the manufacture, acquisition, possession, development and transfer of biological weapons. Furthermore, the use and transport of biological weapons is prohibited by Articles 172, 173, 173a, 173b, 287 and 289 of the Dutch Criminal Code.

¹⁹ <http://www.ntiindex.org/countries/netherlands/>

²⁰ UN Security Council Resolution 1540

²¹ European Union national report: <http://daccess-ods.un.org/TMP/2093844.86079216.html>

It also provides the framework for the prohibition of the development, production, stockpiling, acquisition and retention of biological agents not justified for peaceful purposes within the meaning of the BWC (Section 2).

The Chemical Weapons Convention (implementation) Act (*Uitvoeringswet Verdrag Chemische Wapens*) prohibits the manufacture, acquisition, possession, development, transfer and use of chemical weapons. As well as providing for an accounting and reporting system in accordance with the CWC (Sections 4-8 in conjunction with the Chemical Weapons Convention (Implementation) Decree (*Uitvoeringsbesluit verdrag chemische wapens*)).

The Nuclear Energy Act (*Kernenergiewet*) in respect of nuclear weapons prohibits the manufacture, possession, development, transport and transfer of nuclear material without a license (Sections 15, 29). Non-state actors will not be eligible for a license if issuance thereof would result in a violation of the NPT by the Netherlands. The Nuclear Energy Act also explicitly characterizes the manufacture, acquisition, possession, development, transport, transfer and use of nuclear material for terrorist purposes as a criminal offence under the Nuclear Energy Act (Section 79). The exposure of human beings, animals, plants and goods to ionizing radiation and their contamination with nuclear material is prohibited under the Criminal Code (Section 161). And provides for an accounting and registration system of nuclear material (Sections 13, 14 and 28 in conjunction with the Fissionable Materials and Ores (Registration) Decree (*Besluit registratie splijfstoffen en ertsen*)).

The Weapons and Ammunition law (*Wet Wapens en munitie*) prohibits the manufacture, possession and transfer of hazardous substances. This includes biological and chemical agents and nuclear material (Section 2, category II sub b in combination with sections 9, 14, 26, 27).

The Terrorist Crimes Act (*Wet terroristische misdrijven*) deals with the involvement of non-state actors qualified as criminal offences under the Dutch Criminal Code, Economic Offences Act, or the Nuclear Energy Act and amount to aggravating circumstances resulting in higher penalties under the Dutch Criminal Code, Economic Offences Act or the Nuclear Energy Act.²²

The Fissionable Materials, Ores and Radioactive Substances (Transport) Decree (*Besluit vervoer splijfstoffen, ertsen en radioactieve stoffen*) secures implementation of the provisions of the CPPNM (Section 4a). Pursuant to this provision, a nuclear security management program must be implemented for every nuclear transport.

The Nuclear Installations, Fissionable Materials and Ores Decree (*Besluit kerninstallaties, splijfstoffen en ertsen*) provides a framework for requiring physical protection measures in respect of nuclear installations (Section 36.2 in combination with Nuclear Installations Security Guidelines 1993 [*Beveiligingsrichtlijn kerninstallaties 1993*]). These require that every nuclear facility implement a nuclear security management program and submit an annual internal security audit report on what has been done.²³

²² <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N04/611/34/PDF/N0461134.pdf?OpenElement>

²³ <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N04/611/34/PDF/N0461134.pdf?OpenElement>

The Strategic Goods (Import and Export) Decree (*In- en uitvoerbesluit strategische goederen*) introduced a system of import, export and transit controls. These include checks on end-users, military materials, including military technology, and dual-use items. EC Dual-Use Export Control Regulation No. 1334/2000 applies to dual-use items whereas national legislation (i.e. the Strategic Goods ((Import and Export)) Decree) provides for additional measures regarding the imposition of penalties for infringements, and gives national authorities power to carry out controls and to investigate and prosecute criminal offences. It also prohibits the transfer of chemicals on List II of the CWC to States that are not Parties to the CWC; the transfer of chemicals on List III of the CWC to States that are not Parties to the CWC is subject to final destination verification (end-user control). Additional Community customs legislation and provisions adopted at the national level gives customs authorities the powers necessary to take action to ensure that custom rules are observed. Furthermore, the Netherlands has concluded several mutual administrative assistance agreements with main trading partners, to increase cooperation to detect and prevent illicit trafficking. In June 2003, the Minister of Finance of the Netherlands decided to install up-to-date technical equipment in the Port of Rotterdam which makes it possible to monitor large numbers of containers for radioactive material. In order to do this quickly, the Netherlands and the United States of America signed a mutual Declaration of Principles in August 2003, concerning the installation of special equipment on an interim basis at the Port of Rotterdam to facilitate a quick start. The initial equipment became operational in March 2004, in the end about 90% of all containers will be monitored. Dutch customs in the Port of Rotterdam also have two advanced X-ray container scanners. And, to enhance all monitoring possibilities, new customs legislation will be developed. This will be done in accordance with the 1982 United Nations Convention on the Law of the Sea. The Netherlands is in the process of establishing a contiguous zone for the purpose of, *inter alia*, carrying out checks at an earlier stage in the logistic chain.²⁴

The Foreign Financial Relations Act 1994 (*Wet financiële betrekkingen buitenland 1994*) requires a license for financial transactions involving the transit and brokering of war materials.²⁵

The Netherlands participates in the following multilateral export control regimes, and implements its national export controls in accordance with their guidelines and control lists:

- the Zangger Committee;
- the Nuclear Suppliers Group;
- the Australia Group;
- the Wassenaar Arrangement;
- the Missile Technology Control Regime.²⁶

Nuclear Security Summit

Because the Netherlands will be hosting the 2014 Nuclear Security Summit it is important to elaborate on this topic.

In 2009 during a visit to Prague president Obama announced “a new international effort to secure all vulnerable nuclear material around the world within four years.”²⁷ Obama then laid down a proposed trajectory to achieve this goal.



Obama's speech on disarmament *in* Prague (2009)
 Source: www.dailytalkforum.com

²⁴ <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N04/611/34/PDF/N0461134.pdf?OpenElement>

²⁵ <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N04/611/34/PDF/N0461134.pdf?OpenElement>

²⁶ <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N04/611/34/PDF/N0461134.pdf?OpenElement>

²⁷ http://www.whitehouse.gov/the_press_office/Remarks-By-President-Barack-Obama-In-Prague-As-Delivered/

The first step entails measures the United States will take. These measures include reducing the role of nuclear weapons in its national security strategy, and urges others to do the same. In order to obtain this goal, the aim was to first negotiate a new Strategic Arms Reduction Treaty with the Russians, which concluded on 8 April 2010. Furthermore Obama has pushed for U.S. ratification of the Comprehensive Test Ban Treaty but so far without success. Lastly Obama proposed that in order to cut off the building blocks needed for a bomb, the United States will seek a new treaty that verifiably ends the production of fissile materials intended for use in state nuclear weapons. The Conference on Disarmament has not been able to agree to begin negotiations on such a treaty.²⁸

The second step, according to Obama, is to strengthen the Nuclear Non-Proliferation Treaty as a basis for cooperation. In order to do so he proposes to embrace several principles. More resources and authority should be created to strengthen international inspections, and violations should be punished. A new framework should be built for civil nuclear cooperation including an international fuel bank, so that countries can access peaceful power without increasing the risks of proliferation.²⁹

Lastly, steps should be taken to assure that terrorists never acquire a nuclear weapon. Obama views this as the most immediate and extreme threat to global security. In order to achieve this he proposes the nuclear security summit as a new international effort to secure all vulnerable nuclear material around the world within four years. He suggests that new standards and partnerships must be created in order to do so, as well as increase the efforts to break up black markets, detect and intercept materials in transit, and use financial tools to disrupt this dangerous trade. This issue should be addressed both in the Proliferation Security Initiative and the Global Initiative to Combat Nuclear Terrorism.³⁰



Nuclear Security Summit Washington 2010
[Source; www.ens-newswire.com](http://www.ens-newswire.com)

2010 Nuclear Security Summit

The aims of the first nuclear security summit, which was held in 2010 in Washington DC were to seek joint response measures and ways to cooperate to strengthen nuclear security. As the Summit focused on nuclear security, the aspects of nuclear disarmament and non-proliferation were not addressed.

²⁸ http://www.whitehouse.gov/the_press_office/Remarks-By-President-Barack-Obama-In-Prague-As-Delivered/

²⁹ http://www.whitehouse.gov/the_press_office/Remarks-By-President-Barack-Obama-In-Prague-As-Delivered/

³⁰ http://www.whitehouse.gov/the_press_office/Remarks-By-President-Barack-Obama-In-Prague-As-Delivered/

The Washington Communiqué containing political pledges at the Summit level and the Work Plan containing specific technical measures were adopted as final documents, and the outcomes of the Summit include the following:

- Leaders agreed on the urgency and seriousness of the threat.
- Participating States agreed to work towards the goal to secure all vulnerable nuclear materials around the world.
- Participating States reaffirmed the fundamental responsibility of nations, consistent with their international obligations, to maintain effective security of the nuclear materials and facilities under their control.
- Participating States agreed to work cooperatively as an international community to advance nuclear security, requesting and providing assistance as necessary.³¹

2012 Security Summit

In 2012 another Security Summit was held in Seoul which consisted of a review of the progress made since the 2010 Washington Summit and a session on national measures and international cooperation to enhance nuclear security, including future commitments. The Seoul Summit build on the objectives set out by the 2010 Washington Summit and identified 11 priority areas . These are: the global nuclear security architecture; the role of the IAEA; nuclear materials; radioactive sources; nuclear security and safety; transportation security; combating illicit trafficking; nuclear forensics; nuclear security culture; information security; and international cooperation.³² The Seoul communiqué then set out the specific actions in each of the 11 areas. The communiqué then highlights a number of particularly important points. “Firstly, it provides important timelines for advancing nuclear security objectives, such as the target year (end of 2013) for states to announce voluntary actions on minimizing the use of HEU and the goal year (2014) for bringing the amended CPPNM into effect. Secondly, it reflects the need to address both the issues of nuclear security and nuclear safety in a coherent manner for the sustainable peaceful uses of nuclear energy. It also emphasizes the need to better secure spent nuclear fuel and radioactive waste. Thirdly, it sets out specific measures to prevent radiological terrorism, an issue which was only briefly touched upon at the Washington Summit.”³³

The communiqué then goes on to discuss the achievements on the 70 commitments made during the Washington Summit. With regard to Strengthening Nuclear Security-Related International Conventions and Multilateral Initiatives it is stated that since the Washington Summit, 20 additional countries have ratified the amended Convention on Physical Protection of Nuclear Material (CPPNM) and 14 countries have newly ratified the International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT). Moreover, Member States to the CPPNM have agreed to work together to ensure its coming into force by 2014. Six countries - Argentina, Mexico, the Philippines, Singapore, Thailand, and Vietnam - have joined the Global Initiative to Combat Nuclear Terrorism (GICNT and Algeria and Malaysia have indicated their intention to join the GICNT. Furthermore in 2011 the decision was taken to extend the mandate both of the Global Partnership and the Security Council Committee pursuant to Resolution 1540.

³¹ http://www.thenuclearsecuritysummit.org/eng_about/archive.jsp

³² <http://www.thenuclearsecuritysummit.org/userfiles/Key%20Facts%20on%20the%202012%20Seoul%20Nuclear%20Security%20Summit.pdf>

³³ <http://www.thenuclearsecuritysummit.org/userfiles/Key%20Facts%20on%20the%202012%20Seoul%20Nuclear%20Security%20Summit.pdf>

The IAEA plans to organize an international conference in 2013 aimed at strengthening coordination among nuclear security-related multilateral initiatives. Also worth mentioning is that 51 countries out of the 53 Summit participants are also participants in the IAEA's Illicit Trafficking Database and a number of proposals has been made to enhance international cooperation.

2014 Security Summit

In 2014 the Netherlands will be hosting the Nuclear Security Summit.

Why NSS to address the gaps?

As stated before the focus with regard to the protection of radiological materials, both on the international level and the domestic level, is on the prevention of acts of terrorism rather than on the general safeguarding of radiological materials. The Nuclear Security Summit in 2014 can be used as a platform to address this gap. Furthermore the conference can be used as an opportunity to highlight the fact that the materials used for peaceful purposes and those for the creation of radiological devices and bombs are often the same and the creation of any legal regimes around their security and protection could be applied universally. Attention can be brought to a radiological materials Convention. At the same time it is not entirely positive that such a Convention is to be held again, and more specifically that it is to be held in the Netherlands. Firstly, the debate on nuclear security from the point of view of terrorism distracts from the debate on disarmament. Rather than focusing on disarming and thereby removing the threat entirely, the focus is on preventing terrorists getting hold of materials and weapons. With regard to the Netherlands, it seems hypocritical that the Dutch are hosting it since there are a number of nuclear weapons based in the Netherlands, at the Dutch air force base Volkel.

What happens if there is an incident?

The Dutch domestic security services (Algemene Inlichtingen –en Veiligheidsdienst (AIVD)) writes that nuclear, biological and chemical technology (NBC) is attractive for terrorists who wish to have a great number of victims. The question then is how big is the risk that those kind of weapons will become part of a terrorists arsenal?³⁴ The first of such an attack was the attack with Sarin gas by the Aum Shinrikyo cult in the Tokyo subway in 1995. Despite this attack the BVD states that there are three important reasons why terrorists do not use non-conventional weapons. The first is the psychological barrier to use non-conventional weapons. Radioactivity is invisible but extremely lethal and therefore perceived as scary by terrorists. A second hurdle is the great amount of knowledge necessary to effectively use these kinds of weapons. The third reason is more pragmatic. Politically ideological motivated as well as separatist terrorist groups owe most of their success to the sympathy and support of third, who are not directly involved in the conflict. The guaranteed international rejection if such a group uses a weapon of mass destruction is one to be avoided. The BVD concludes by stating that it seems that it is unlikely that terrorists attacks with non-conventional weapons will occur, but that the possibility of such an attack should not entirely be excluded.

Despite the unlikelihood of an attack with a radiological bomb (or dirty bomb) the possibility should not be excluded. Therefore risk assessments are developed to provide an analysis of the possible consequences of such an attack and to create a clear response framework. The BVD states that in the (alerting) communications with corporate society more attention has been paid to the possible use of non-conventional weapons by terrorists. As a consequence not only are international transactions strictly monitored on the basis of their merits, but also those of the inner-European market. Activities on non-proliferation will only be useful if they are shaped in the international sphere.

The necessary knowledge and equipment is available worldwide, and is being bought, at least by those States which are secretly working on weapons of mass destruction. Also, terrorist groups who call to use non-conventional weapons monitored sharply, and new religiously motivated terrorist groups should be detected early, which in the context of international cooperation can be successful.

³⁴ BVD report pg 20,21, Leidschendam 2008.



Port of Rotterdam
Source: Google maps

An attack with a dirty bomb in Rotterdam's port

Despite the fact that a dirty bomb has never actually been used by terrorists, the possibility that such an attack might happen is taken seriously. So what would happen if such a dirty bomb would go off in the port of Rotterdam?

First of all it is important to note that a dirty bomb is simply a normal explosive to which a radiological source is attached. It is also called a radiological dispersal device (RDD), because when it goes off it can cause a widespread dispersion of radioactive particles.³⁵ When such a bomb is used two things happen, first you have the actual explosion and secondly you have radiation. The source emits radiation before the explosion. After the explosion, bystanders are exposed to external radiation from the radioactive cloud and internal radiation by inhaling radioactive particles.³⁶ Some radioactive particles can be inhaled while others land on the ground and buildings where it gives off radiation. Despite the catastrophic scenarios painted in the media it is unlikely that many people, if any at all, will actually die from radiation sickness the way they did in Hiroshima and Nagasaki. Of course the explosion itself can kill people and destroy surroundings. The problem with this is that due to the likely surprise effect of an attack with a dirty bomb it is unlikely that the response undertaken by rescue workers can prevent the radiation from spreading. With regard to health effects such as cancer it has been argued that the probability of these effects occurring is very small. However, the main consequences of an attack with a dirty bomb will be psychological and economic. The effects of a dirty bomb in terms of the anxiety and fear it causes can be tremendous. This is why a dirty bomb is also dubbed a *weapon of mass disruption*.³⁷

In order to try and imagine what can be expected if a dirty bomb were to explode, researchers look at similar incidents which have occurred with CBRNe's. Three main scenario's are used as references. The first is the 1995 attack by the Aum Shinrikyo cult in the subway of Tokyo using the nerve gas Sarin, in which twelve people died and over a thousand people were injured. The attack shows what happens when dealing with a terrorist attack, panic and fear were widespread and the area surrounding the metro was like a battlefield.



Tragic scenes from the Tokyo subway attack
Source: <http://captain-nitrogen.tumblr.com/post/2791226579/chemical-weapons-feeling-nervous>

³⁵ Gonzalez, A.J., "Lauriston S. Taylor Lecture: Radiation protection in the aftermath of a terrorist attack involving exposure to ionizing radiation", (2005).

³⁶ Bader, S. and de Hoog, C. "Vuilebomscenario's: dreiging en vooruitzichten"(2009/2), NVS nieuws.

³⁷ King, G. (2004), *Dirty Bomb: Weapon of Mass Disruption*, Chamberlain Bros., Penguin Group.

The second situation often referred to is the incident in 1987 in Goiania in Brazil, where in 1987 a Cs-137-source was found and opened by scrap-metal scavengers in an abandoned institute for radiotherapy. The material was used in paint, and the dust spread over the area, in two weeks 249 were contaminated externally and 129 people internally. Four persons died from the exposure.

The importance of this incident for risk management lies in the fact that it showed the tremendous costs of cleaning, over 100.000 persons needed to be tested and inhabitants of the area where the incident occurred were socially stigmatized for years.

Obviously researchers have also looked at the disaster of Tsjernobyl. Although the situation of Tsjernobyl is very different from a dirty bomb scenario, it did show how radioactive materials, and specifically cesium, attaches itself to an urban environment and which consequences this for the contamination of the people.³⁸

But what scenarios are in place to respond to an actual attack? In dealing with a response, a number of phases are identified, consisting of the period before an attack, shortly after and some time after the attack. Before an attack the radiological source can already emit radiation but it is most likely that this will only affect the terrorist themselves or close bystanders. In the phase immediately after the attack it is necessary to attend to wounded persons and stabilize them first before starting decontamination, while rescue-workers at the same time need to take measures for personal protection. Because debris can work as a hot spot for radiological material the cleaning process needs to be started as soon as possible. The cloud which was created by the explosion has the ability to carry radioactive particles and spread the material which will attach itself to buildings, grass and streets. It is necessary to start monitoring the cloud to determine which areas are contaminated and need to be cleaned.³⁹ It can be the case that the radiological material has settled in the grass and then it might be necessary to dig up entire fields of grass or destroy housing blocks, in order to deal with lasting contamination. The cost of such a cleaning operation are enormous, with the theory being that it will costs 3,6M euro's per km² to decontaminate an area, with the costs increasing if it is a complex urban environment.⁴⁰ The above information shows that although the number of casualties or wounded persons may not be very high the impact of an attack with a dirty bomb has a huge social and economic impact on a country and a community.

³⁸ Bader, S. and de Hoog, C. "Vuilebomscenario's: dreiging en vooruitzichten"(2009/2), NVS nieuws.

³⁹ Bader, S. and de Hoog, C. "Vuilebomscenario's: dreiging en vooruitzichten"(2009/2), NVS nieuws.

⁴⁰ Sohler, A. and Hardeman, F. "Radiological Dispersion Devices: are we prepared?", (2006), Journal of Environmental Radioactivity, 85 pp 171-81.

