

Research Report

Forum: First General Assembly

Issue: Preventing terrorists from acquiring weapons of mass destruction and their means of delivery

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Introduction

One of the biggest issues of our generation is the ongoing terror attacks and the ruthless terrorist organisations that stand behind them. Every moment terrorist organisations such as IS and Boko Haram are planning to deal even more pain and terror to the ones that oppose their ideals. It is in that light not unthinkable that these organisations will try to use a weapon of mass destruction. As Ban Ki-moon, Secretary General of the United Nations, said “Nuclear terrorism is one of the most serious threats of our time”

With multiple countries having nuclear weapons, not all with the best security, an extensive civilian sector using nuclear material and some countries possibly willing to sell weapons to terrorist organisations, there is a real danger that terrorists acquire a nuclear weapon or acquire enough nuclear material to build their own. Steps have been made to minimise the chances of this happening but a united approach adopted by all countries remains lacking.

Definition of Key Terms

Terrorism

It is true that the definition of the term terrorism varies among member states but a general definition would be: the implementation of violent acts to intimidate the people in a particular in order to achieve a political goal.

Weapons of mass destruction

weapons of mass destruction (WMD) are defined by the Encyclopaedia Britannica as: ‘weapons with the capacity to inflict death and destruction on a massive scale.’ Modern weapons of mass destruction are either nuclear biological, or chemical weapons.

Highly enriched Uranium (HEU)

Uranium, containing a concentration of U-235 greater than 20 %, is classified as Highly-enriched Uranium whereas any concentration of over 85% of U-235 is referred to as weapons-grade. The more concentrated the U-235 isotope is, the more potent the weapon is. Nuclear weapons are created from highly enriched Uranium.

Low enriched Uranium (LEU)

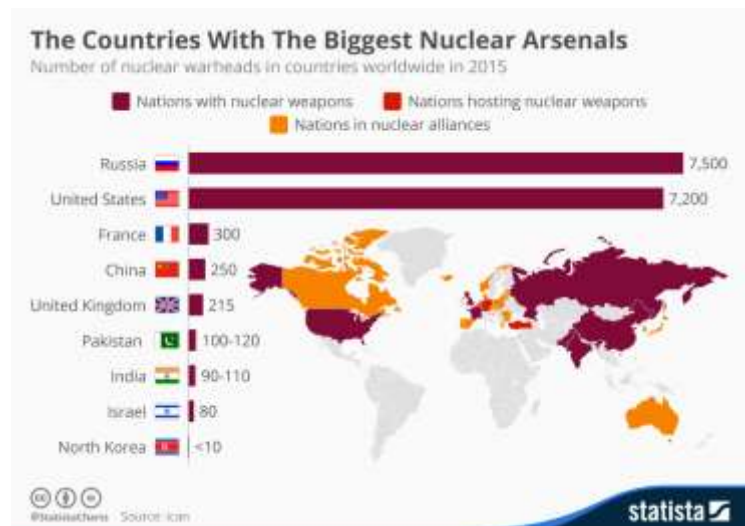
Uranium with less than 20% concentration of U-235 is named as low enriched Uranium. This type of uranium is used in some commercial and research reactors.

General Overview

The acquirement of nuclear weapons by terrorist organisation can be distinguished via two methods: purchase or theft of a nuclear weapon or the construction of an improvised nuclear device.

Purchase or theft of a nuclear weapon

One of the possibilities for terroristic organisations to gain nuclear weapons is to steal or purchase a nuclear weapon. Theft of a complete weapon is the least likely pathway to nuclear terrorism, as facilities at which complete nuclear weapons are stored have high levels of security. It is next to impossible for terrorists to gain access to silo-based Intercontinental ballistic missiles (ICBM) and seize a nuclear weapon from one of these bases with the resources available to them.



A slightly different case is the case of mobile ICBM's. If terrorists attack mobile ICBM's when they are on patrol or infield positions, they could perhaps succeed in rendering a missile launcher inoperable or even blowing it up, but it would probably still be very difficult to seize the warheads. Other nuclear weapons such as submarine-launched ballistic missiles (SLBMs) or air-delivered nuclear weapons are equally if not harder to seize as it would mean that terrorists need to either infiltrate a heavily guarded airbase or mutiny a submarine.

But even if a nuclear warhead is stolen, the terroristic organisation would have to overcome safeguards against unauthorized use in the nuclear weapon. Most modern nuclear weapons are equipped with sophisticated electronic locks, which terrorists without the authorized code would find very difficult to bypass. Older weapons may not be equipped with these measures or may be equipped with older less high-security versions of them.

While there is a low probability that a nuclear warhead would be stolen from special storage facilities of advanced nuclear states, that probability is not so low when it comes to nuclear weapons in states outside the nuclear Non-proliferation Treaty (NPT). There is for example limited information on measures taken by India and Pakistan to protect their nuclear weapons and practically no information on nuclear warhead storage in Israel, which not even acknowledged that it has these weapons.

Al this is relevant in a situation where the nations owning the nuclear weapons do not wish the terroristic organisations acquire a nuclear weapon. But in the case of North Korea that is not strictly true. Crippling sanctions and pressure on the Korean regime are believed to have made it desperate for money, meaning it could escalate arms sales to terroristic groups. A report by US organisation Clarion, which monitors Islamic extremism, says North Korea has traded in guns, missiles and bombs with Islamist terror groups for years. Although there is no sign of trade of nuclear weapons now, it may become a possibility with the rising tension surrounding North Korea, when it is in need of more money.

Constructing an improvised Nuclear device

Counting assembled nuclear weapons is far easier than accounting for nuclear material in bulk form. Some weapons-usable material, especially in civilian use, does not have the same level of security that nuclear weapons have. As a result the best chance terroristic organisations have to acquire a nuclear weapon is a long-term effort to construct an improvised nuclear device (IND) with weapons-usable material stolen or purchased on the black market.

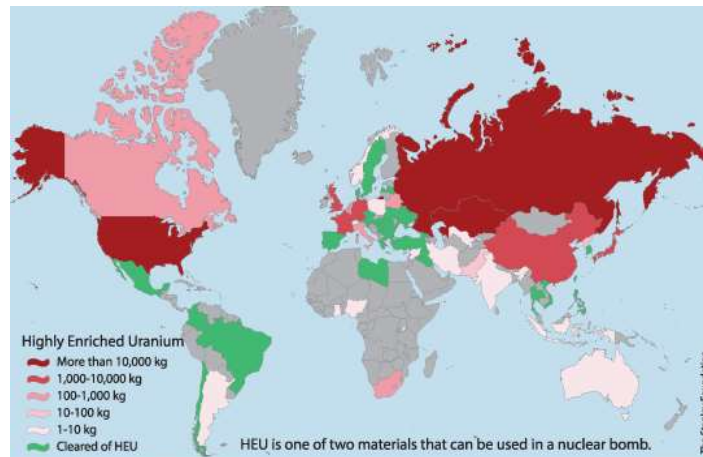
Making weapons-usable nuclear material is by far the most difficult part of making a nuclear bomb. If this step is bypassed by theft or purchase of this material, terroristic organisations would likely be able to make a nuclear explosive, as it is far easier to create a crude, unsafe and unreliable bomb than it is to create one a state would be interested in. As Harold Agnew, former head of Los Alamos National Laboratory, puts it,

“those who say that building a nuclear weapon is easy, they are very wrong, but those who say that building a crude device is very difficult are even more wrong”

Therefore the focus must be put on the use and storage of highly enriched uranium (HEU) and plutonium, the weapons-usable nuclear material. The main focus of terroristic organisations will be on the civilian use of nuclear material, as these will be in general less secure.

Civil use of HEU

Many civilian facilities that use or store HEU on-site lack adequate security. Although nuclear power plants often have sufficient security, that is not to be said of research and test reactors.



Research and test reactors are significantly less powerful than commercial power reactors and use smaller amounts of HEU. They are often located in universities or other publicly accessible research centers, which makes them vulnerable. A possibility is to replace the HEU by low enriched uranium (LEU), which is not suitable for weapons-use. But this process is costly and is not in every case possible. The used HEU would also need to be stored.

Other civil uses of HEU are in the production of radioactive isotopes for medical applications, in which LEU is in multiple cases already being used, the HEU powered icebreakers, that only the Russian Federation still uses and for propulsion of satellites in space. Do to the last case some countries could be against a permanent ban of civil HEU use, as it may be useful for future space applications.

The last issue is than the storage of used HEU. HEU spent fuel is still a source of weapons-useable material, but storage sites are often even less secure than fresh fuel stocks, as the used fuel has no further economic value to the facilities. In storage of used HEU the danger of radiation was always seen as enough protection. But with the modern scene of suicide terrorism, this is no longer sufficient, as terroristic organisations will not be scared to sacrifice some of their followers for the long term goal of building an nuclear bomb.

Major Parties Involved

China, France, Russian Federation, United Kingdom, United States of America

The treaty on the Non-proliferation of Nuclear Weapons, commonly known as the Non-Proliferation Treaty (NPT) allows for these five nations to have nuclear weapons. They therefore have the title nuclear weapon states. Understandably that makes these five nations target to terroristic organisations attempting to steal a nuclear bomb and therefore, although security of nuclear weapons is high in these nations, should always look to improve their security and prevent terrorist organisations of acquiring a nuclear device. The nuclear weapons

India, Pakistan, Israel

Although the majority of the nations have agreed that only China, France, Russian Federation, United Kingdom and the United States of America are allowed to have nuclear weapons, not all signed and ratified the NPT. India, Pakistan and Israel did not and of all three is assumed that they have acquired nuclear weapons. India and Pakistan confirmed this and most assume Israel has nuclear weapons to, although they did not confirm nor deny it. Of the security measures taken by these nations is far less known than of the by the NPT defined nuclear weapon states. As these nations are less stable, than the other nuclear weapon states they are larger targets for terrorist organisations.

North Korea

North Korea is the last nuclear weapon state. But the situation of North Korea is vastly different than those of the other eight. North Korea is currently under great international pressure and has relative to other nuclear weapon states less concern for universal peace and stability. Therefore as earlier mentioned North Korea may wish to sell nuclear weapons or nuclear material to terroristic organisations.

International Atomic Energy Agency (IAEA)

The IAEA is an international organization that serves as an intergovernmental forum for scientific and technical co-operation in the peaceful use of nuclear technology, provide international safeguards against misuse of nuclear technology and nuclear materials, and promote nuclear safety and nuclear security standards and their implementation.

Timeline

date	description of event
1941	Uranium is enriched for the first time by means of Manhattan project
August 6, 1945	A uranium bomb is dropped on Hiroshima.

October 9, 1950	The US increases production of uranium.
1951	Usable electricity produced from nuclear power.
March 5, 1950	Nuclear Non-proliferation Treaty (NPT) is signed.
1957	International Atomic Energy Agency is established.
1993	Megatons to Megawatts program adopted by Russia and the US.
1994	Convention on Nuclear Safety is signed
1996	U.S. Foreign Research Reactor Spent Nuclear Fuel (FRR SNF) Acceptance Program is initiated.
2005	The International Convention for the Suppression of Acts of Nuclear Terrorism is signed
April 12-13, 2010	The first Nuclear Security Summit takes place in the US.

Previous attempts to solve the issue

Although many conventions and treaties were signed on the topic of nuclear weapons, it took until 2005 to have a specific convention for the suppression of acts of nuclear terrorism. It was designed to criminalize acts of nuclear terrorism and to promote police and judicial cooperation to prevent, investigate and punish those acts. Next to this there were also multiple actions that indirectly prevented terroristic organisations of acquiring nuclear weapons. One of such is the NPT, which tried to minimize the amount of nuclear weapons in this world and with that reduced the chances of one being stolen. Another very important act which indirectly helped this cause is the convention on nuclear safety. Its aim is to commit states operating land-based nuclear power plants to maintain a high level of safety by setting international benchmarks. But aside from this no preventive action has been taken, especially not in the civil sectors.

Possible Solutions

As terroristic organisations have multiple ways to acquire a nuclear device, a solution has to cover all aspects of this problem. From the security of nuclear devices to prevention of terrorists acquiring nuclear-weapons-usable material.

Although it is not very likely that a nuclear weapon will be stolen from a nation, there cannot be taken any chances at these kind of issues. Especially in the non NPT nuclear states security is not always on high enough standards or there is practically no information on security measures. The delegates could therefore for example try to create a framework in which information on security of nuclear weapons is shared with other nations or the security of nuclear weapons is examined by a nonbiased party.

Preventing terrorist organisations of building their own nuclear device is arguably even more important than the previous topic. Nuclear material is often not sufficiently protected. Therefore there can be done multiple things to improve this situation. To begin with is of course more or better security an option. But this is not always possible, as many places where weapons-usable material is used are public places, such as universities and other research centers. Therefore the second option could be replacing the weapons-usable material if possible with non-weapons-usable material, as this is already being done at some places. Another huge problem is the problem of used nuclear material. Security of this material is often very low and delegates should therefore try to find a way to safely storage these used materials.

Lastly delegates could think of a reaction plan for the situation that a terroristic organisation does acquire a nuclear weapon, as we need to be prepared for every possible situation.

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