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BACKGROUND GUIDE: Preventing Nuclear Terrorism

READ TO DISCOVER:
1. Why is nuclear terrorism a concern for the international community?
2. What is the history of nuclear technology?
3. What can be done to prevent nuclear terrorism from occurring?

DESCRIPTION OF THE COMMITTEE

The IAEA is the world’s center of cooperation in the nuclear field. It was set up as the world’s "Atoms for Peace" organization in 1957 within the United Nations family. The Agency works with its Member States and multiple partners worldwide to promote safe, secure and peaceful nuclear technologies.

The IAEA’s mission is guided by the interests and needs of Member States, strategic plans and the vision embodied in the IAEA Statue. Three main pillars - or areas of work - highlight the IAEA’s mission: Safety and Security; Science and Technology; and Safeguards and Verification.

As an independent international organization related to the United Nations system, the IAEA’s relationship with the UN is managed by special agreement. In terms of its Statute, the IAEA reports annually to the UN General Assembly and, when appropriate, to the Security Council regarding non-compliance by States with their safeguards.

TERMS & CONCEPTS

Safeguards: Measures that allow the IAEA to make sure all countries follow the rules and use nuclear technology for only peaceful purposes.

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INTRODUCTION

Nuclear technology involves the combination or splitting of atoms. How atoms interact during nuclear reactions is called radiation, which has a number of important scientific applications. Radiation can be used, among other things, to diagnose and treat illnesses, to clean medical equipment, and to perform scientific research. ii Most relevant to our discussion, the energy released during nuclear reactions can be used in power plants to produce electricity. iii

However, nuclear technology can also be used to make a bomb, which is the most powerful force known to mankind. Not only is the strength of a nuclear explosion incredibly devastating, but, when not safely contained, the radiation produced by the blast can stay in the area for years, thereby causing serious illnesses in survivors.

This destructive power makes the existence of nuclear weapons one of the greatest threats to the international community. Most worryingly, it also makes nuclear weapons very attractive to terrorists. While many states have struggled for decades to build nuclear weapons, most governments listen to the demands and established safety practices of the international community. In fact, countries that have tried to develop a nuclear weapons program have faced great pressure to disarm. However, terrorists do not face the same pressures that countries do. Terrorist groups, for the most part, are not tied to a national government or even to a specific territory, which makes tracking them very difficult. As a result, terrorist organizations that use violence against civilians as a strategy are very dangerous.

Given these facts, safely destroying nuclear weapons and securing nuclear material from possibly being stolen is especially important today, when our world is continuously facing the threats
of terrorism. The United Nations and individual Member States must do everything possible to prevent terrorists from acquiring or, even worse, producing nuclear weapons.

**HISTORY OF THE PROBLEM**

The first nuclear weapon developed was done so by the United States during World War II under a secret program known as the Manhattan Project. Then in 1945, the United States ended the war by releasing two nuclear bombs over Japan. The weapons used were the most destructive ever known to humankind. In fact, the destruction in Japan was so widespread and shocking that the international community realized nuclear weapons could threaten the safety of the entire world.

However, it was exactly because of their destructive power that other countries wanted to make one for their defense. Since then, many countries have tried to build their own nuclear weapons (see pages 7 and 8 for more information).

If only a few states used nuclear technology, then the world would not be as scared of the possibility of technical information or nuclear material itself slipping into the hands of terrorists. The problem is that, because nuclear technology can also be used to produce electricity, many countries use it. In fact, because nuclear science can be used to help so many people, the United States and the former Soviet Union (today Russia) long ago provided nuclear materials and information to other countries for only peaceful purposes.

Terrorists, however, have proven eager to take advantage of the widespread use of nuclear technology to either steal parts of it, or simply buy it from corrupt officials. As this guide will explain, there have been numerous examples of terrorist groups doing both, which makes the discussion of this issue incredibly important for the safety of the world’s citizens.

**CRITICAL THINKING:**

How can the members of the IAEA prevent the theft or illegal sale of nuclear materials, such as highly enriched uranium and plutonium?

**DISCUSSION OF THE PROBLEM**

**Kinds Of Nuclear Terrorism**

In April 2005, the United Nations defined nuclear terrorism as “the threat or execution of a threat to use any nuclear or radiological materials in a harmful way by a non-state actor.”

Even the use of threats or force to illegally receive or sell these materials is considered an act
of nuclear terrorism, according to some governments. As a result, many countries have laws in place making it a crime to give any aid to groups trying to acquire a nuclear weapon.

Nuclear weapons are extremely difficult to create. Even building a bomb similar to the first nuclear weapon ever used would require a very strong nuclear weapons program – a difficult task for even a well-organized terrorist group. In order to produce a nuclear weapon, a terrorist group would have to illegally obtain approximately 30 pounds of extremely rare and expensive nuclear material, such as highly enriched uranium (HEU) or plutonium. A more powerful bomb would require even more nuclear material. Due to the fact that these chemical elements are both dangerous and valuable, they are closely monitored by the International Atomic Energy Agency (IAEA) and by the governments that have them.\(^{vi}\)

However, terrorist groups have come up with easier ways to produce radiological devices. An example of this is usually called a “dirty bomb,” in which an explosive is used to spread low-grade radioactive material over a public area. Even though a dirty bomb would not kill thousands of people, as a nuclear explosion would, it could cause billions of dollars in damage and would make thousands of people sick from radiation exposure. This radiation could also contaminate buildings and food sources, possibly affecting millions of people. Perhaps what is the scariest thing to realize about a dirty bomb is that it can be made from the radiological substances in legal, everyday items, such as hospital equipment, oil drilling facilities or university laboratories.\(^{vii}\)

### Security Failures

Even though the IAEA monitors **nuclear reactors**, the large majority of radiological materials are not contained in them. Most areas that have dangerous radiological materials, such as hospitals, universities, and other research facilities, are not as secure as they should be. The safety efforts of most companies that own radiological materials focus on preventing accidental exposure to radiation, disregarding other important aspects of dealing with radiological materials such as handling nuclear waste. Very often, once the equipment has expired (such as parts from X-ray machines), it is simply

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**TERMS & CONCEPTS**

**Dirty bomb**: A bomb that uses an explosion to spread nuclear or radiological material over a large area, thus causing injury or death from exposure.

**Nuclear reactors**: Power plants that use heat from radiation to produce electricity.
thrown away, even when the radiological material is still active. Such carelessness with these materials could lead to them falling into the hands of a terrorist.

Specific countries also present specific security issues when it comes to nuclear weapons. The nations that once made up the Soviet Union, especially present-day Russia, have had problems securing their nuclear weapons sites for the past 20 years. In the chaos at the end of the Cold War, when the Soviet Union broke apart and several new nations formed, former Soviet territories, including Belarus and Ukraine, had nuclear weapons in their new territory. Most of these weapons were turned over for destruction, but the newly formed Russian Federation was allowed to keep the weapons within its newly defined borders.

Since that time the Russian government has struggled to secure all the weapons. There are rumors of nuclear secrets being stolen, a lack of proper security at sites, and even claims that Russia has not stopped researchers from selling nuclear secrets to terrorists.

Aside from the problems in Russia and the countries of the former Soviet Union, Pakistan is another one of many countries that also poses a particular threat to nuclear safety. The creator of Pakistan’s nuclear weapons program, for example, was found to be running a large black market for nuclear technology. After secretly creating Pakistan’s own nuclear program, Dr. Abdul Qadeer Khan began selling nuclear technology and equipment to countries all over the world, including Iran, Libya and North Korea. Some experts worry that this technology and equipment might be bought or stolen by terrorist networks or that members of Pakistan’s military might sell a nuclear weapon on the black market.

At the same time, Pakistan’s internal conflicts with groups such as Al Qaeda have been a concern of the international community for several years. In 2007, the president at the time, Pervez Musharraf, worked to bring all of Pakistan’s nuclear weapons under full state control. However, Pakistan remains a very unstable country, particularly in its northwest area (where many believe Osama bin Laden is hiding), and does not like being told what to do by the international community.

Criminals have already used these sorts of security gaps. Between 1993 and 2005, the IAEA learned of over 800 reported cases of illegal activity involving radioactive materials. These
activities range from “illegal possession and attempted sale and smuggling, to unauthorized disposal of materials and discoveries of lost radiological sources.” In 16 of the cases, the materials being smuggled were nuclear instead of merely radioactive.

**Terrorist Organizations**

As terrorism becomes a problem that unfortunately affects more and more countries, and terrorist organizations grow larger and more far-reaching, terrorists may try to get their hands on bigger and more powerful weapons. It can be assumed that groups acting on a global scale would have the desire and the money needed to purchase a nuclear device.

It takes approximately 25 kg of HEU to detonate a nuclear weapon. Most cases of the IAEA discovering smuggled or illegally transported HEU or plutonium have only been measurable in grams, with one or two exceptions. However, there is still a very real possibility of a group one day getting enough material for a full bomb.

Al Qaeda, the terrorist group that attacked New York City’s World Trade Center on September 11, 2001, is a good example of the global terrorist network described above. As early as 1994, the organization attempted to purchase uranium, paying $1.5 million for it; the uranium turned out to be fake. Al Qaeda leader Osama bin Laden even described the acquirement of nuclear weapons as a “religious duty.”

Russia has a history of being contacted by such groups to provide nuclear information. For example, in October 2000, Raisa Vdovichenko, a Russian Security Council official, told journalists about an issue involving the Taliban, the former extremist Muslim leaders of Afghanistan. He said that representatives of the Taliban approached a scientist at, “an institution related to nuclear technologies to go to their country to work there in this field.” While the scientist did not go, three of his fellow workers left for other countries. Most scarily, it is not known exactly where they went.

Aum Shinrikyo, a Japanese terrorist group famous for using deadly sarin gas to kill 12 commuters on subways in 1995, has also tried to obtain nuclear weapons. Both the Russian and Japanese media have suggested that Aum Shinrikyo recruited scientists at Russian nuclear research facilities and developed relationships with top Russian security officials, but these claims have yet to be proven.

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Terrorist groups of the Chechen separatist movement in Russia are another example of a threat to nuclear safety. In 1995, Chechen fighters, which want the region of Chechnya to be legally separated from Russia, placed radiological material in Moscow's Izmailovskiy Park as a threat to the Russian government. Since then, members of the Chechen terrorist group have said that they may try to obtain a full-scale nuclear weapon in the future.

**Political Problems**

The lack of security for nuclear weapons, nuclear material, and radiological material is a clear threat to the entire international community. With this fact in mind, the IAEA must make sure that those countries that possess any or all of these technologies are in complete control of the materials. It can be argued that the easiest and safest way to keep nuclear weapons out of the hands of terrorists is for nuclear powers to disarm their nuclear stockpiles. However, countries that have invested years of research and so much money in creating their nuclear programs are often unwilling to do so.

Instead of complete disarmament, the next safest option is for those states that are nuclear-capable to cooperate in reducing the number of their weapons and securing their materials. The United States and Russia, which have more nuclear weapons than all other countries combined, work closely to ensure the protection of Russia’s stockpile; the U.S. has even funded the dismantling of Russian nuclear arms. However, some experts argue that allowing the United States to monitor Russia’s weapons disarmament poses the risk of revealing defense secrets. As a result, countries that rely on others to disarm their nuclear weapons or protect their nuclear materials may feel that their security is at risk.

**CURRENT SITUATION**

As of January 2009, there were 437 nuclear power plants in the world with another 56 under construction. At least 30 countries have nuclear power reactors, and over 70 countries have some form of nuclear material in them. Although the IAEA closely monitors nuclear materials and technologies, this observation requires the cooperation of governments, which sometimes are not very willing to cooperate. Since terrorist organizations often operate in politically unstable areas, such as some parts of the Middle East and Asia, this political instability makes it difficult for the IAEA, or any other international organization, to determine if they are trying to acquire nuclear weapons.

“A capable and well-organized terrorist group plausibly could make, deliver, and detonate at least a crude nuclear bomb capable of incinerating the heart of any major city in the world.” – May 2004 Report of Harvard University’s Project on Managing the Atom

Today, there are three countries that stand out as particular problems for the international community when it comes to the threat of nuclear terrorism. The first, as has previously been discussed, is that of Pakistan. The last few months of 2009 witnessed a number of terrorist attacks in Pakistan, which seems to become more unstable by the day. As a result, there is a growing fear that terrorists could either steal a nuclear weapon (or its parts) or that they could buy one from a corrupt member of Pakistan’s military.

Close to Pakistan, the second major threat is Iran. In 2002, it became known that Iran had been secretly building nuclear facilities that could be used to make a weapon. While Iran has, to this day, denied that it has any interest in building a bomb (and says it solely wants to produce nuclear power), many experts wonder why Iran continues to hide its nuclear intentions and operate in violation of many U.N. Security Council Resolutions that have repeatedly demanded Iran stop various nuclear-related activities. Most worrying for some, Iran is known to have links to various terrorist organizations, such as Hezbollah, which operates in southern Lebanon. It is feared that Iran could eventually sell a bomb to such a group if it is secretly building one.

Last, there is the case of North Korea. In 2003, the North Korean government took back its signature from the Non-Proliferation Treaty (see below for more information). However, in 2006 North Korea shocked the world by announcing that it had successfully conducted a nuclear test, though many governments (including those of the United States and Japan) argued that the test had only been partially successful. Finally, in 2009, world experts agreed that North Korea had become a full nuclear power. Like with Iran, there is a deep fear that North Korea, which also has ties to terrorist groups and is deeply mistrusted by the international community, could sell nuclear technology (or, even worse, an entire bomb) to the highest bidder.
PAST INTERNATIONAL ACTION

The Non-Proliferation Treaty (NPT)

To stop the spread of nuclear weapons, U.N. member states adopted the Treaty on the Non-Proliferation of Nuclear Weapons (or NPT, for “Non-Proliferation Treaty”) in 1970. The NPT had three main points. First, the five countries with nuclear weapons at that time – China, France, the Soviet Union (today the Russian Federation), the United Kingdom and the United States – would not give nuclear weapons or technology to other countries. Second, non-nuclear-weapons countries would not develop or obtain weapons, though they are allowed to have civilian nuclear programs for energy. Third, all countries would discuss disarmament and create “a treaty on general and complete disarmament under strict and effective international control.”

The IAEA oversees if and how countries are following the NPT. To do so, the organization sets up “safeguards” with each country that has ratified the treaty. These “safeguards” –which come from separate agreements between each country and the IAEA – allow officials to inspect nuclear sites. Today, there are over 140 agreements in place. Safeguard activities can include inspections, monitoring cameras, and reviewing reports from countries. Additionally, in 1998 the IAEA developed the Additional Protocol, which gave a framework (an outline) for giving the IAEA greater powers in its inspections. By the end of 2009, 93 countries had signed and ratified the Additional Protocol.

Nuclear Weapons States

Aside from the five countries allowed to have nuclear weapons under the NPT, four others (India, Pakistan and North Korea) are also known to have nuclear weapons, though this fact is legal because none of them have signed the NPT. At the same time, it is believed that Israel, which also has not signed, has nuclear weapons, though it has never confirmed or denied this belief.

Several nations that have signed the NPT are suspected of having secret nuclear weapons programs, including Iran, which has caused a lot of controversy in the past few years.

In 1991, South Africa became the only nation to disarm a completed nuclear program, while Libya disarmed an incomplete one in 2007.

Conventions And Resolutions

In 1987 the Convention on the Physical Protection of Nuclear Material entered into force. This agreement required all governments that signed to take “appropriate steps” to ensure that nuclear materials are protected from theft and illegal sale. The document also prevents states from buying or selling dangerous materials, and stops countries from having nuclear material in their country if it cannot be properly secured. At the same time, it forces governments to work with each other if any material goes missing or is stolen. The document also describes what kind of safety measures must be taken in order to secure these materials.
Ten years later, the UN General Assembly (GA) adopted Resolution 51/210, Measures to Eliminate International Terrorism, which pointed out that terrorist attacks were becoming more common. The resolution called for member states to enter into international agreements to help prevent terrorist activity by sharing information and assisting attempts to arrest and prosecute suspected terrorists. The resolution also called for the creation of a committee to study how to stop terrorism before it started. xxvii Similarly, a year later (in 1998) the GA passed Resolution 52/164, the International Convention for the Suppression of Terrorist Bombings, which asked states to arrest and punish any terrorists who attempted to create, deliver or detonate a bomb, and to assist one another in the arrest of terrorists. xxviii

In April 2005, the GA adopted the International Convention for the Suppression of Acts of Nuclear Terrorism. The document touched on many of the important issues surrounding nuclear terrorism. For example, it recognized the right of every U.N. member state to benefit from nuclear technology. While it required countries to share information necessary to protect themselves from nuclear crimes, it also allowed them to keep certain information – such as defense tactics or surveillance technology – secret. The convention also required that states cooperate to investigate, arrest, and prosecute all nuclear terrorists, no matter where they are from. xxix

In spite of these important international agreements, experts still worry that not enough has been done to secure nuclear materials. Even though the Convention on the Physical Protection of Nuclear Materials describes how certain materials or weapons must be secured, no strong international plan has been established to protect these dangerous substances. xxx

**RECOMMENDATIONS FOR FORMULATING A RESOLUTION**

Delegates should work to address the following when creating draft resolutions:

- Setting universal guidelines for the protection of nuclear and radiological material;
- Continuing efforts to disarm or reduce the number of nuclear weapons in nuclear-capable countries;

The Trinity explosion, the first nuclear test, carried out by the United States on July 16, 1945
• Sharing information about terrorist networks and improving international efforts to fight terrorist organizations; and

• Improving openness in the security process, so the international community can be sure countries are protecting their dangerous materials, without going against national security concerns.

**Questions to Consider**

1. Does your country have (or has it had in the past) a nuclear program or nuclear weapons? If so, how does it protect its dangerous materials?
2. Is your country affected by terrorism? Does it harbor terrorist networks? Do neighboring countries do so? Is your country targeted by terrorist organizations?
3. Has your country signed the Non-Proliferation Treaty and the Additional Protocol?
4. What changes can be made to improve the NPT?
5. Has your country signed the conventions and resolutions on preventing terrorism and protecting nuclear materials? Why or why not?

**RESEARCH AID**

The website to a non-governmental organization with useful information on general arms control and some specific information on nuclear weapons:

- **Arms Control Association:** [www.armscontrol.org](http://www.armscontrol.org)

A website that contains a lot of information and multimedia resources on nuclear bombs:

- **Atomic Archive:** [http://www.atomicarchive.com/index.shtml](http://www.atomicarchive.com/index.shtml)

This is the Brookings Institution website on Nuclear Weapons where you can find interesting commentaries on Nuclear Weapons and country-specific investigations:

- **Brookings Institution “Nuclear Weapons”:**
  [http://www.brookings.edu/topics/nuclear-weapons.aspx](http://www.brookings.edu/topics/nuclear-weapons.aspx)

This video shows what would happen to not only major cities, but to the developing world too, if a nuclear bomb was detonated. *(Teachers, you should watch this before your students do.)*

- **Nuclear Terrorism: A Global Problem:**
  [http://www.youtube.com/watch?v=5Eu-d6P4_C4&feature=video_response](http://www.youtube.com/watch?v=5Eu-d6P4_C4&feature=video_response)

This website contains, aside from information, continuous updates of news on nuclear policy topics:

- **Carnegie Endowment for International Peace “Proliferation News and Resources”:**
A CNN website with focus on Nuclear Weapons that includes relevant news on the subject:
  - CNN “Nuclear Weapons”:
    http://topics.edition.cnn.com/topics/nuclear_weapons

This website of the Council of Foreign Relations of the United States contains different articles and news on the topic of proliferation:
  - Council on Foreign Relations “Proliferation”
    http://www.cfr.org/issue/418/proliferation.html

This is the official website to the International Atomic Energy Agency:
  - International Atomic Energy Agency www.iaea.org

This is a great place to start your research as it contains a lot of basic information on nuclear weapons, nuclear energy and related issues:
  - Nuclear Files: http://www.nuclearfiles.org/

Here you can find a lot of useful information and resources on the topic of nuclear and other weapons of mass destruction:

The World Factbook by the United States Central Intelligence Agency will provide you will basic information about your country and hundreds of other countries around the world.

Similar to the CIA World Factbook, the British Broadcasting Company Country Profiles will also give you a historical, political, and economic background on your country and other UN member states:
  - BBC Country Profiles: http://news.bbc.co.uk/2/hi/country_profiles/default.stm

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