International Atomic Energy Agency (IAEA) 1991
Topic: Ensuring Security of Fissile Material

Executive Summary

Fissile materials, more commonly referred to as "atomic" materials are any materials consisting of the high-energy transformation of atoms via nuclear fission. Considering scientific advancements from the last few decades, this would include atomic bombs, nuclear power, and other nuclear-related experiments. Of course, this topic comes to the attention of the IAEA during a tumultuous time, as the threat of nuclear war and mutually-assured destruction is becoming the new normal. Therefore, as a matter of maintaining the safety of the global community, the conversation on fissile materials must be resolved.

Recent progress on controlling the use of fissile materials is limited to the last few decades: the ratification of the 1968 Treaty on the Non-Proliferation of Nuclear Weapons in 1970, the provision of IAEA safeguards, and the recent Intermediate-Range Nuclear Forces Treaty.

Historical Background

Fissile materials have a short history in the global conversation. In 1938, human-made nuclear fission was discovered by German physicists. In 1945, the United States successfully detonated the first atomic bomb in New Mexico. Then, in August 1945, the United States used the atomic bomb in Hiroshima and Nagasaki, Japan, killing tens of thousands of Japanese people. In 1942, Enrico Fermi was credited with the invention of nuclear power by harnessing the power of a "controlled self-sustaining nuclear chain reaction" that could be commercialized and produce energy in massive quantities.

In the recent past, the majority of those in the global diplomatic community have witnessed the advancement of fissile technologies at a pace that is concerning to many. Nuclear weapons are in possession of a variety of global superpowers, namely the United States and Soviet Union, and the threat of mutually-assured destruction has nearly come to fruition countless times. This emerged most notably in 1962 with the Cuban Missile Crisis, when the installation of Soviet missiles in Cuba created a naval standoff between the Soviets and the United States. Experts believe nuclear power can create global utility, but the sour threat of nuclear war has led many to stray away.

Applications of Fissile Materials

Naturally, a general understanding of the use of fissile materials is essential. That said, a comprehensive understanding of the physical or chemical science of nuclear weapons is far

beyond the scope of the IAEA. Brief descriptions of the basic chemistry, supply chain, and production process of two core goods related to fissile materials are outlined below.

Terminology

It should be made known that the terms "fissile" and "fissionable" are distinct and will assist in understanding the specific definition of fissile materials. Fissionable materials are any isotopes that can undergo nuclear fission and is a broad term that includes, but is not limited to, fissile materials. Nuclear fission is the splitting of a nucleus into smaller fragments, generally resulting in the release of a large amount of energy, hence its application in nuclear power and weaponry.

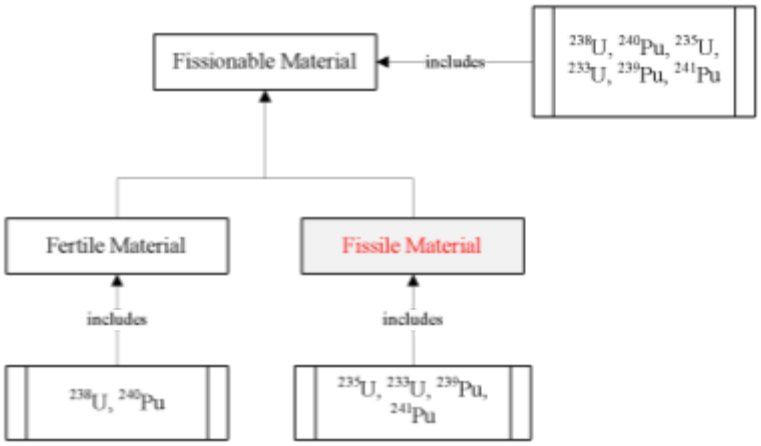

*Figure SEQ Figure * ARABIC 1. Distinctions between fissionable materials*

As shown in Figure 1, fissionable materials are generally either fissile or fertile, with the distinction being that fissile materials undergo nuclear fission after the capture of a thermal neutron. Thermal neutrons are free neutrons that are not bound to a nucleus. This allows them to easily collide, causing fission in fissile materials. Fertile materials, however, react more-or-less spontaneously over time.

Fissile materials, however, are only the beginning of a long process to produce the goods that rely on it. The following subsections of this guide outline the supply chain and operations to produce nuclear weapons and nuclear power.

The Production of Nuclear Weapons

Originally, primitive nuclear weapons were done simply by colliding two components made of uranium-235 (235U). As mentioned, 235U is a fissile isotope, though the release of energy is only achievable through the collision because the collision would constitute a critical mass. Critical mass is the minimum amount of nuclear material needed to trigger and maintain fission.

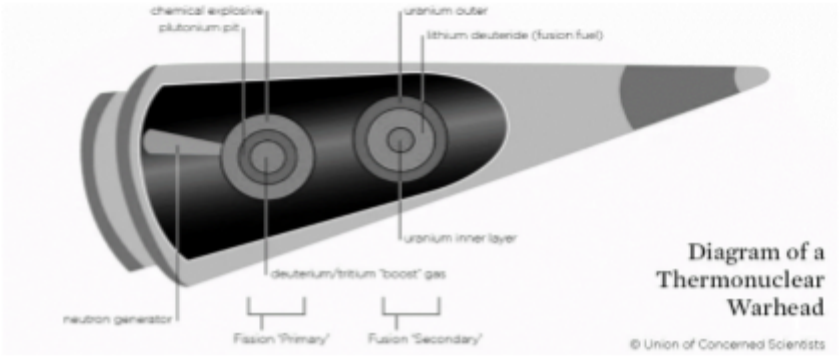

*Figure SEQ Figure * ARABIC 2. Diagram of a Thermonuclear Warhead*

Present-day nuclear weapons are more sophisticated. Modern nuclear warheads are comprised of pits (spheres) of fissile material, while chemical explosives detonate around them. These detonations direct the blast inward and compress the pits to achieve critical mass and cause an atomic explosion as the pits become denser. A fusion bomb—otherwise known as a hydrogen or thermonuclear warhead—can be made through this initial fission explosion with a secondary fusion pit where the fusion of hydrogen isotopes is likely. Hydrogen bombs, in addition to the atomic blast, are known for the release of heat in the tens of millions of degrees.

The Production and Disposition of Atomic Energy

The catastrophic power of these warheads is leveraged also in atomic energy, as the splitting of uranium atoms causes fission and produce steam to generate power using turbines. Atomic energy, unlike other sources of energy, does not produce any material amount of emissions; however, it does produce radioactive waste.

*Figure SEQ Figure * ARABIC 3. IAEA Nuclear Event Scale*

Many nations recognize the immense utility of nuclear energy, though the question of waste disposal is nearly unsolved. Radioactive waste, unlike other waste, cannot be recycled or sent to a landfill; therefore, long-term nuclear power infrastructure seems only likely for large nations who can designate remote land areas to act as repositories for high-level nuclear waste.

There are many concerns about the disposition of radioactive waste. Some solutions include sending the waste into space or to the moon, though the most significant fear comes from other nuclear and radiological events. The IAEA's Nuclear and Radiological Event Scale was introduced last year to assess radiological accidents and incidents and make clear distinctions between the various levels of nuclear events.

To date, there has only been one level 7 accident, the 1986 Chernobyl disaster, and only one level 6 accident, the 1957 Kyshtym disaster. However, the Chernobyl accident is still fresh in the minds of the general public, and the reputation of nuclear power is on its volatility as opposed to its utility. It is the responsibility of this committee to manage the development of atomic energy as safely as possible and ensure that the actions taken by the global atomic energy community are as much for the welfare and well-being of the public as they are for the advancement of science.

Current Situation

The Non-Proliferation Treaty (1968)
Today, the production of nuclear material is in the process of becoming regulated and controlled. The largest of these efforts is the Treaty on the Non-Proliferation of Nuclear Weapons, or the Non-Proliferation Treaty (NPT), signed in 1968 and enacted in 1970. In regards to this committee, the NPT is generally seen as a landmark agreement, easing international tensions and beginning the process of eliminating the production of nuclear weapons. While it has been 21 years since the enacting of this treaty, the NPT directly acknowledges the IAEA safeguards in its preamble:

"Expressing their support for research, development and other efforts to further the application, within the framework of the International Atomic Energy Agency safeguards system, of the principle of safeguarding effectively the flow of source and special fissionable materials by use of instruments and other techniques at certain strategic points" -*Treaty on the Non-Proliferation of Nuclear Weapons (NPT)*

Delegates in this committee should be well aware of their influence on U.N. operations, as any countries adhering to the NPT allow their fissile and nuclear materials to be available for security inspection by the IAEA. Naturally, the IAEA's level of involvement can expand or decline at any time, depending on the decisions of this committee.

The Intermediate-Range Nuclear Forces Treaty (1987)
More recently, the Intermediate-Range Nuclear Forces Treaty (INF) was signed by USSR General Secretary Mikhail Gorbachev and U.S. President Ronald Reagan on December 8, 1987, and agreed to the elimination of land-based ballistic missiles, cruise missiles, and missile launchers designated as short or intermediate-range. The agreement designated specific guidelines for removal, frequently including clear guidelines for individual types of devices as well, such as the Pershing II:

Missile:
1) missile stages shall be eliminated by explosive demolition or burning;
2) solid fuel, rocket nozzles and motor cases not destroyed in this process shall be burned, crushed, flattened or destroyed by explosion; and
3) front section, minus nuclear warhead device and guidance elements, shall be crushed or flattened.

Launcher:
1) erector-launcher mechanism shall be removed from launcher chassis;
2) all components of erector-launcher mechanism shall be cut at locations that are not assembly joints into two pieces of approximately equal size;

3) missile launch support equipment, including external instrumentation compartments, shall be removed from launcher chassis; and
    a) launcher chassis shall be cut at a location that is not an assembly joint into two pieces of approximately equal size.

This agreement was a landmark accomplishment by the two nations, and allowed for the disposal of over 2,500 missiles, among other equipment and devices. It was a landmark demonstration of collaboration between the superpowers, and indeed a relief for states affected by their ongoing conflict. At least for a moment, the INF indicated to the world that the threat of disaster was behind them.

Current Distribution of Nuclear Weapons

These resolutions, however, have yet to reduce the possession of nuclear weapons to zero. There are nearly 50,000 nuclear warheads spread across six nations, and other countries have tested warheads or begun development but have yet to develop a substantial arsenal. Nearly all of these warheads, however, are in the Soviet Union's possession (59 percent) and the U.S. (38.5 percent).

Bloc Positions

USSR & Russia

The Soviet bloc is experiencing a turbulent time, and numerous political opportunities exist in the IAEA that can help preserve the power of the Soviet nations that remain. Nuclear weapons are as much an asset as they are a liability, so disarmament measures should carefully be considered within this committee.

The United States & the West

Considering the last few decades of fissile materials research, the U.S. and its allies have a lot to gain from its advancements. Similar to the Soviet bloc, nuclear weaponry is a double-edged sword, and nuclear power is a powerful (albeit costly) resource.

Former Soviet States

The threat of nuclear war in these nations was uncalled for, but whether or not absolute disarmament and prohibition of fissile materials research, including nuclear power and medicine, is the right way to go. In this bloc, it is justified to take notes from the arms race between the western and Soviet blocs and perhaps make moves to prevent another instance of the same genre of incidents.

India and Pakistan

As nations are researching nuclear warheads, the issue of fissile material management is critical for your respective country. If one party agrees to the non-proliferation of arms, are they to be trusted? If you agree to it, will you be at risk?

Discussion Questions

- How does nuclear energy fit into the current-day conversation?
- How do fissile materials affect your nation, and what measures is your country taking to deploy or reduce fissile materials?
- With the recent breakdown of the Soviet Union, nuclear weapons may become increasingly decentralized. How will this affect the relationships between nations in the future?
- How can the reputation of atomic energy be repaired after the Chernobyl incident? What can the IAEA do to support it?
- Considering the distinctions between nuclear weapons and thermonuclear weapons, is there a distinction to be made in the IAEA's recommendations regarding nuclear warheads? If so, what?
- To what extent would disarmament be considered unreasonable, if ever?
- What preventative measures can be taken to eliminate the threat of nuclear war?

Keywords

- Fissile material
- Warheads
- Nuclear power
- Thermonuclear
- Chernobyl
- Disarmament
- Intermediate-range weapons
- Fission
- Fusion
- Non-proliferation

Sources Consulted

- https://www.unog.ch/80256EE600585943/(httpPages)/DA1BBE9DF4C5C0FDC1258244005AACE2
- https://www.history.com/topics/world-war-ii/atomic-bomb-history

- https://www.nuclear-power.net/glossary/distinction-between-fissionable-fissile-and-fertile/
- https://ourworldindata.org/nuclear-weapons
- http://www.atomicarchive.com/Fission/Fission1.shtml
- https://www.ucsusa.org/resources/how-nuclear-weapons-work
- https://www.duke-energy.com/energy-education/how-energy-works/nuclear-power
- https://www.energy.gov/management/office-management/operational-management/history/doe-history-timeline/timeline-events-2
- https://web.archive.org/web/20110515164252/http://www-pub.iaea.org/MTCD/publications/PDF/INES-2009_web.pdf
- https://www.un.org/disarmament/wmd/nuclear/npt/text
- https://2009-2017.state.gov/t/avc/trty/102360.htm
- https://www.euractiv.com/section/defence-and-security/opinion/why-europe-needs-to-support-the-us-russia-inf-treaty/

International Atomic Energy Agency (IAEA) 1991
Topic: Procedures for Denuclearizing States

Executive Summary

One of the hallmark issues of the late 1980s and early 1990s has been the international push for denuclearization—the removal of nuclear weapons from the world stage. In light of the voluntary denuclearization of South Africa, the International Atomic Energy Agency (IAEA) must consider how to stabilize and expand pre-existing procedures for states that are willing to voluntarily denuclearize. The IAEA can do this by ameliorating the flaws in the current procedural nuclear safeguard system, as implemented under the Non-Proliferation Treaty, and by developing new measures that incentivize denuclearization and create long-term preventative measures against developing militarized nuclear capability in the first place. This must be done in order to ensure that the process moves effectively and efficiently, and concludes in the full and final denuclearization of the state under consideration.

Historical Background

The Denuclearization of South Africa[1]

The basis for this committee's topic is as a reaction to a recent event that has the potential to significantly alter the trajectory of the international nuclear weapons dilemma. In 1989, South Africa became the first country that had developed its own nuclear weapons program to voluntarily decide to dismantle them.[2] South Africa's initial participation in the nuclear arms race was spurred by its natural resources, as the country contains large uranium reserves. After exporting uranium to the United States for use in the Manhattan Project, South Africa began its own nuclear weapons program in the 1960s. Though South Africa's nuclear program initially began as a peaceful initiative, it began experimenting with explicitly militarized weapons in the mid-1970s. This was due to fears that came with Portugal pulling out of Angola and Mozambique, meaning the last European colonial power had left the African continent. South Africa, consequently, felt vulnerable after the Soviet Union and Cuba invaded these territories, fearing that a communist government could take over the territory of South West Africa, which is now known as Namibia.

However, South Africa's decision to nuclearize made it an international pariah. In 1977, the United Nations Security Council voted to impose an arms embargo on South Africa in

---

1 https://slate.com/news-and-politics/2018/03/what-can-we-learn-from-south-africas-decision-to-give-up-its-nukes.html

2 https://www.theatlantic.com/international/archive/2017/09/north-korea-south-africa/539265/

Resolution 418, which was expanded to a ban on South African military imports in 1984 through Resolution 558.[3] Though the resolution's explicit trigger was apartheid, Resolution 418 also brought forth the concern that South Africa was "at the threshold of producing nuclear weapons."[4] The success of South Africa's nuclear program became less significant when the security situation began to change in the late 1980s with the waning of the Cold War.[5] A cease-fire agreement in Angola removed 50,000 Cuban troops from the country. This set the stage for South Africa to end its occupation of South West Africa, leading to the independence of Namibia in 1990. The new environment,—combined with the pressures of international sanctions on South Africa—allowed the new President F.W. Klerk to realize that ending his country's nuclear program could better its relationship with the international community.[6] As a result, on July 10, 1991, South Africa signed the Treaty on the Non-Proliferation of Nuclear Weapons and began negotiating a safeguard agreement with the International Atomic Energy Agency.

Now that South Africa has voluntarily decided to end its nuclear weapons program, it is up to the IAEA to determine the best possible means to facilitate this denuclearization and how to set standards for other member states to follow in South Africa's footsteps.

Past International Actions

It is important to understand the past treaties and international agreements that structure the current nuclear landscape in which the IAEA works. The following section will provide a short introduction to the landmark actions that have been taken by the international community on this subject.

Treaty on the Non-Proliferation of Nuclear Weapons (NPT)

The Treaty on the Non-Proliferation of Nuclear Weapons (NPT) is the most significant venue for states to choose to voluntarily denuclearize. Opened for signature in 1968 and entering into force in 1970, the NPT requires states with nuclear arms not to transfer nuclear weapons or devices to non-nuclear states.[7] It also requires nuclear-powered states to "pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race" and to work on a treaty for "complete disarmament under strict and effective international control."[8]

---

[3] https://www.sipri.org/databases/embargoes/un_arms_embargoes/south_africa/un-arms-embargo-on-south-africa

[4] Ibid 1

[5] https://nationalinterest.org/blog/the-buzz/the-story-how-south-africa-voluntarily-gave-its-nuclear-23449

[6] https://www.latimes.com/opinion/op-ed/la-oe-deklerk-south-africa-nukes-20131222-story.html

[7] https://fas.org/nuke/control/npt/

[8] https://www.un.org/disarmament/wmd/nuclear/npt/text

For states without nuclear capabilities, the NPT obligates participating countries to not acquire nor build any nuclear weapons, and to create a safeguards agreement with the International Atomic Energy Agency to prevent nuclear materials intended for peaceful use from being used for weaponry. Furthermore, under the NPT, all nuclear materials must be declared to the IAEA, which is responsible for regulating and monitoring them.

As of the date this committee begins, 90 countries have ratified the NPT, with the Soviet Union, the United Kingdom, and the United States each recognized as nuclear states.[9]

Comprehensive Safeguards Agreement (CSA)

In conjunction with the signing of the Non-Proliferation Treaty, countries must enter into safeguards agreements with the International Atomic Energy Agency. According to the IAEA itself, safeguards are "a comprehensive set of internationally approved technical and legal measures, applied by the IAEA, to verify the political undertakings of States not to use nuclear material to manufacture nuclear weapons and to deter any such use."[10] Safeguards agreements are essential to facilitating the IAEA's mission, because they allow for the IAEA to verify nuclear demilitarization and disarmament, and promote sustainable, non-violent use of nuclear energy.[11] Comprehensive Safeguards Agreements (CSAs) are technical agreements made possible due to the characteristics of nuclear materials being measurable through the emission of radiation and detection of radioactive particles.

There are four stages in the implementation of IAEA safeguards:[12]

1. IAEA safeguards determine the necessary information to collect in order to determine whether or not countries are reporting their nuclear capabilities correctly;
2. Safeguards agreements set out which regulatory measures are necessary to collect this information;
3. The IAEA develops a plan on how to go about collecting this information;
4. The IAEA creates conclusions that determine whether or not states are following their safeguards commitments.

Outside of the primary CSA framework, several other types of CSAs were developed to fit the needs of different situations:[13]

- Small Quantities Protocol (SQP): SQPs are less-intensive, less-intrusive CSAs for states with little-to-no nuclear capabilities.

---

[9] http://disarmament.un.org/treaties/t/npt
[10] https://www-pub.iaea.org/MTCD/Publications/PDF/NVS2_web.pdf
[11] https://www.iaea.org/publications/factsheets/iaea-safeguards-overview
[12] https://www.armscontrol.org/factsheets/IAEAProtoco
[13] https://www.iaea.org/sites/default/files/safeguards_web_june_2015_1.pdf

- Voluntary Offer Agreements (VOA): VOAs are voluntary safeguards agreements for nuclear states who, under the NPT, do not need to submit to CSAs.
- Item-specific Safeguards Agreements: These agreements cover only certain items specified in the agreement, such as nuclear material or facilities.

The first IAEA CSAs were created in conjunction with Canada in 1959 and 1961; however, there has been a great evolution in CSAs since then.[14] Currently, the IAEA is working under a CSA standard set in 1971, which is based on two principles. The first is that safeguards will regulate mainly the flow of nuclear material to countries, rather than inspecting nuclear facilities themselves. The second is that routine inspection access of nuclear plants will only be confined to a few key points and the use of human inspectors will be limited. This regime means that safeguards agreements are still relatively weak enforcement measures, as much regulation of facilities is left to the states themselves, rather than to IAEA personnel. Consequently, there are still weaknesses in the CSA program that may need to be remedied in order to ensure the complete compliance of states who are parties to CSAs.

Current Situation

The mandate under which the International Atomic Energy Agency (IAEA) was created is twofold. First, it is responsible for accelerating and enlarging the use of nuclear energy for peaceful purposes.[15] Second, it aims to supervise the use of nuclear power to ensure that it is not used to further any military purpose.[16] This issue of creating a procedure for denuclearizing states falls squarely in the second category.

As of the opening of this committee's inquiry, the primary procedure in place through which states may voluntarily denuclearize is that of the NPT, which requires a CSA to monitor progress of participating states. However, as introduced above, there are several deficiencies in this process. The first is that the process largely relies on self-reporting and instrumental measurement, meaning that it is difficult for the IAEA to track bad-faith states illicitly procuring nuclear material. The second is that there are a lack of incentivization and punitive structures to discourage states from shirking on their agreements. This means that if South Africa wished, it could either illegally begin a nuclear program again or choose to go back on its agreement under current denuclearization standards.

It is therefore beneficial for the IAEA to discuss reforming the process by which states voluntarily denuclearize, whether it be signing the NPT and entering into CSAs, or abolishing

[14] Ibid
[15] https://www.iaea.org/about/overview/history
[16] Ibid

CSAs and creating a new system entirely. When discussing mechanisms that the IAEA would like to implement in order to facilitate the voluntary denuclearization of member states, the following subjects must be kept in mind.

Stronger Verification Methods

It is technically possible for scientists to dismantle every single nuclear weapon in the world in a matter of hours if they cut the triggering and detonation wires on the weapons, then dismantle the major parts of the bombs.[17] However, most international experts recognize that a country merely *saying* that it will denuclearize does not guarantee that they actually *will* denuclearize. This is where the process of verification becomes necessary.

There are debates in the IAEA on how exactly to reform the process of verification. Some in favor of stronger IAEA regulation claim that the IAEA needs to have a deeper, more hands-on approach in CSA enforcement at *all* stages of the disarmament process. Proposed reforms include giving the IAEA access to all states of the nuclear fuel creation cycle, including uranium mines, nuclear waste, and any location where nuclear material (even if intended for non-nuclear use) is located.[18] Other ideas include giving IAEA unrestricted access to all buildings and facilities, providing the IAEA any research regarding nuclear power, and making it easier for IAEA personnel to gain access to nuclear sites.[19]

Some states fear that an involved approach by the IAEA could be a breach of national sovereignty for states who choose to sign the NPT. They believe that the current status of CSAs should be maintained—if not weakened—in order to usher in a more collaborative process of denuclearization, in which more states could participate. States without nuclear capabilities could also fear intrusion into their affairs beyond the scope of what they are comfortable with. Proponents of strong regulation argue that states have the option to choose whether or not to be parties to the NPT; however, it is likely that the IAEA would like to avoid making safeguards requirements so strong as to discourage states from signing and ratifying the NPT initially. It is possible for the IAEA to offer CSAs of a smaller scope for states with nuclear capabilities in order to usher them into the regulatory framework at first, before requiring a transition to a stronger CSA as a mode of compromise between the two perspectives.

Incentives & Consequences

Itt is important for the IAEA to consider how to push states to participate in CSAs and denuclearize in the first place. The survival of the NPT relies solely on the consent of

---

[17] http://www.unesco.org/education/tlsf/mods/theme_a/interact/www.worldgame.org/wwwproject/what17.shtml

[18] https://www.iaea.org/sites/default/files/safeguards_web_june_2015_1.pdf

[19] Ibid

participating states, and as such, so does denuclearization.[20] The situation surrounding South Africa's voluntary surrender of its nuclear weapons program is idiosyncratic, highly influenced by the context in which the decision was made.[21] If the IAEA wants to continue to encourage other states to denuclearize in a consistent and repetitive fashion, they must create clear incentives and a clear structure to accomplish it.

Options for incentive structures can be determined by examining the reasons states decide to nuclearize and/or denuclearize in the first place: security concerns; fear of losing necessary support from the rest of the international community; technological capability; and economic costs.[22] For example, the IAEA could collaborate with other U.N. bodies and member states to offer humanitarian aid to states in need of such aid who agree to voluntarily denuclearize. It has further been suggested that the conventional viewpoint of nuclear weapons as being status symbols for great powers must be cast out in favor of a repugnant image, as pushed by emphasizing the humanitarian consequences of nuclear weapons.[23] The IAEA could also suggest implementing measures that offer some sort of consequence to states who refuse to sign the NPT or who illegally nuclearize, such as a stronger, renegotiated CSA or encouraging other U.N. bodies to limit economic aid.

Defining the Process of Denuclearization

States should also examine how the denuclearization process should be implemented—meaning concrete, measurable steps that states who have decided to denuclearize must take. The question here is whether or not states should fully denuclearize immediately, or if there should be some sort of step-by-step transition process in which they should gradually slow down, then stop, nuclear activity. A slower process could result in a more sustainable and attainable plan of action, especially if accompanied by year-to-year goals; but, a more immediate process could guarantee international security more quickly.

One possible approach to the step-by-step denuclearization process is to implement specific goals that states must attain before moving onto the next one—the first being to freeze nuclear testing, the second to terminate creating more fissile nuclear material, the third being to dismantle nuclear infrastructure and bombs, and the final step being to dispose of fissile materials that compose a nuclear weapon, allowing for full denuclearization.[24] Other potential steps to debate could include shutting down nuclear plants and facilities, and/or opening nuclear

---

[20] https://www.wilsoncenter.org/blog-post/ukraine-and-the-treaty-the-non-proliferation-nuclear-weapons
[21] https://nationalinterest.org/blog/the-buzz/the-story-how-south-africa-voluntarily-gave-its-nuclear-23449
[22] Ibid 19
[23] https://thebulletin.org/2016/03/change-the-incentives-stigmatize-nuclear-weapons/
[24] https://www.brookings.edu/blog/order-from-chaos/2018/05/14/a-step-by-step-plan-for-denuclearizing-north-korea/

facilities for IAEA inspections. It is up to the IAEA to decide which goals it sees as most important in tracking the process of denuclearization.

Preventative Measures

The more effective way to nuclearize is to ensure that no country is able to obtain the materials nor the standing necessary to develop nuclear weapons in the first place. Consequently, it is important for the IAEA to consider preventative measures it can take to disincentivize countries from starting nuclear weapons programs. Preventative measures can span from extending the length of nuclear non-proliferation agreements already in place, to encouraging states—if they see the potential to become nuclearized—to pre-emptively refuse. This second policy could become important, as the weakening of the Soviet Union's central government could raise questions about what the newly formed states could choose to do with their new, nuclear arsenals.

Bloc Positions

Nuclear Weapon States: The United States, the Soviet Union, the United Kingdom, France, and China are the five original nuclear-weapon states (NWS), which were given that status under the 1968 Nuclear Non-Proliferation Treaty. Only three of these five states actually signed the treaty: The United States, Soviet Union, and the United Kingdom. Currently, France and China are not part of this treaty.

South Africa: South Africa built six air-based nuclear weapons, but became the first state in history to terminate its nuclear weapons program. South Africa is a unique example of a country that has faced geopolitical pressures and decided to denuclearize. What role will South Africa play in encouraging other nations with suspected weaponry to follow suit, and how will this decision impact the IAEA's standards and regulations?

Non-Nuclear Weapon States: The NPT was put into place to prevent the proliferation of nuclear weaponry, and this has mostly been successful. The majority of the world and the majority of the IAEA do not possess nuclear technology, either out of a refusal to engage in the practice or an inability to develop the technological expertise and funds necessary to create the weapons. These countries have a vested interest in the regulatory aspects of the IAEA as well as South Africa's recent denuclearization.

States Researching Nuclear Technology: India, Pakistan, Israel, and North Korea, among others, have all expressed an interest in developing nuclear weapons. India has conducted tests of nuclear weapons, throwing the NPT to the wind, and Israel is ambiguous about its nuclear weapon status, choosing neither to confirm nor deny. The IAEA as a whole will need to address

the concerns of these countries and the lack of regulations that are allowing this research to continue.

Questions for Discussion

- What incentives and consequential measures can the IAEA implement to encourage other Member States to voluntarily denuclearize?
- Should CSAs be reformed to allow stronger IAEA regulation? If so, how? If not, should CSAs be abolished and replaced altogether?
- What should the primary goals of the IAEA measures be in order to determine the progress that states have made towards denuclearizing?
- Should non-nuclear states sign a preemptive agreement where they refuse to nuclearize if the possibility to do so is raised?

International Atomic Energy Agency (IAEA) 1991
Topic: Coordinating the Denuclearization of Iraq

Executive Summary

The International Atomic Energy Agency (IAEA) was founded in 1957 to promote safe nuclear technology and respond to potential crises and disasters stemming from nuclear weaponry.[1] In the latter half of the twentieth century, the world struggled to decide whether nuclear technology was a tool to build a brighter future or a dangerous power that states across the world could not be trusted with by any means. The IAEA helps to bridge the gap between those two schools of thought. 1991 is a hallmark year to discuss denuclearization, as the Persian Gulf War is drawing to a close, and the international community will push for denuclearization.[2] By discussing the denuclearization of a hostile power, the International Atomic Energy Agency will begin to set the standard for regulating the nuclear technology that is currently spread across the world.

Historical Background

Iraq's Nuclear Research

The first successful use of weaponized nuclear technology was in July 1945, when the United States tested its first nuclear bomb in New Mexico.[3] A few weeks later, this weaponry was used in Hiroshima and Nagasaki, Japan, causing more than 275,000 casualties and finally forcing Japan to enter a peace agreement.[4] In the following decades, the power of nuclear weaponry spread beyond the United States. Russia, the United Kingdom, France, and China all tested nukes between 1949 and 1964, and many feared that other states would not be far behind.[5] In response to the fear of global instability caused by too many states possessing this technology, the international community rallied behind the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), which outlined the steps necessary to achieve peace in a nuclear world. The signatories with a recognized right to nuclear power (U.S., Russia, U.K., France, and China) promised not to transfer nuclear technology to other states, and non-nuclear states agreed to abstain from developing this technology.[6] Though the agreement was not signed by France or the People's Republic of China, it

---

[1] https://www.iaea.org/about/overview/history
[2] https://www.britannica.com/event/Persian-Gulf-War
[3] https://asiasociety.org/education/brief-history-nuclear-weapons-states
[4] Ibid.
[5] https://fas.org/issues/nuclear-weapons/status-world-nuclear-forces/
[6] https://history.state.gov/milestones/1961-1968/npt

was ratified by Iraq on October 29, 1969.[7]

While Iraq's signature on the NPT seemed to stave off fears of the country becoming a nuclear power, the international community was in the dark on what was actually occurring on the ground. A decade earlier, American President Dwight D. Eisenhower proposed the revolutionary Atoms for Peace program, which aimed to redirect nuclear technology away from weaponry and into the energy sector by creating a bank of enriched uranium. This fissile material was available to countries around the world, along with assistance for building power reactors, and this is how Iraq gained access to this material.[8] In the early 1970s, Saddam Hussein, the Vice President and head of the Iraq Atomic Energy Commission, ordered Iraqi scientists to begin a nuclear weapons program.[9] At first the Iraqi effort focused on the Osiraq research reactor, which France gave to the country in 1976. Iraqi scientists wanted the facility, because it was large enough for scientists to irradiate uranium specimens enough to create plutonium.[10] Iraq's strategy changed in June 1981 after Israel bombed the research center, forcing Iraq to rely less on international actors for the tools to harness nuclear technology. Instead, from 1982 until the present, Iraq has focused on Electro-Magnetic Isotope Separation (EMIS) in the hope of creating a fission weapon.[11] By this year, Iraq has a covert program including a fully finished nuclear weapon design and 36.3 kilograms of weapons-usable highly enriched uranium.[12] Additionally, scientists in Iraq manage a gas-centrifuge program for uranium enrichment as well as a program focused on separating plutonium.[13]

The Gulf War

Iraq is not the only state that this body believes to possess the technology necessary to create nuclear weaponry; but coordinating denuclearization of Iraq is a topic for today's body because of the violent events of the last few years, namely the Gulf War. The Gulf War is an ongoing

---

7 https://carnegieendowment.org/2002/08/22/brief-history-of-iraq-s-nuclear-weapon-program-part-i-pub-12534

8 https://www.armscontrol.org/act/2003_12/Lavoy

9 https://www.nti.org/learn/countries/iraq/

10 https://carnegieendowment.org/2002/08/22/brief-history-of-iraq-s-nuclear-weapon-program-part-i-pub-12534

11 https://fas.org/nuke/guide/iraq/nuke/program.htm

12 https://www.nti.org/learn/countries/iraq/

13 https://carnegieendowment.org/2002/08/22/brief-history-of-iraq-s-nuclear-weapon-program-part-i-pub-12534

international conflict that began when Iraq invaded Kuwait in August 1990, ostensibly to stop Kuwait from using slant drilling to steal Iraqi petroleum.[14] The United Nations Security Council immediately passed Resolution 660, condemning the invasion and demanding that Iraq withdraw immediately; but nonetheless, Kuwait was completely overrun in just two days.[15] A few days later, Iraq formally annexed Kuwait, calling it the nineteenth province of Iraq. This was also roundly condemned by the United Nations Security Council in Resolution 662, and economic sanctions were placed on Iraq.[16] In the following months, the United States led a war involving coalition forces from 35 different countries in Operation Desert Shield to coerce the Iraqi military into moving out of Kuwait and protect American ally, Saudi Arabia.[17]

The conflict continued through the end of summer and into the fall of 1990, and in November the United Nations Security Council passed Resolution 678, which authorized the coalition to "use all necessary means to uphold and implement resolution 660,"[18] calling for Iraq to back out of Kuwait. This final resolution set the stage for the conflict continuing into 1991 and gave the international community permission to use force in order to restore international peace and security in the Middle East. The conflict now known as the Gulf War is ongoing in the Middle East, but popular support for the coalition is high, and many hope that the war will end in 1991.

Denuclearization

During the Iran-Iraq War (1980-1988), Saddam Hussein used chemical weapons against Iranians, and this is a major reason the international community is supporting complete denuclearization and barring Iraq from controlling any Weapons of Mass Destruction (WMDs).[19] Since the beginning of the Gulf War, Iraq's foreign and domestic relations have been strained, and there are rumors that local ethnic and religious groups may revolt against President Saddam Hussein in the near future. This uncertainty only hastens the need for the international community to act through the IAEA and lead the denuclearization effort, which goes hand in hand with reducing Iraq's supply of WMDs. Coordinating the denuclearization of Iraq in 1991 will be a task for the International Atomic Energy Agency, but will also involve input from the United Nations Security Council and world leaders involved in Operation Desert Storm.

Issues the IAEA Faces

1. The IAEA is limited in its ability to successfully force Iraq to denuclearize for a few reasons, the biggest being that the IAEA has no authority to act on its own and must rely on

---

[14] https://www.britannica.com/event/Persian-Gulf-War
[15] http://unscr.com/en/resolutions/660
[16] http://unscr.com/en/resolutions/662
[17] https://www.cnn.com/2013/09/15/world/meast/gulf-war-fast-facts/index.html
[18] http://unscr.com/en/resolutions/678
[19] https://www.nytimes.com/2002/08/18/world/officers-say-us-aided-iraq-in-war-despite-use-of-gas.html

a nation to cooperate with its investigations and eventual mandates.[20] As of now, the Gulf War is ongoing, and the international community has no guarantee that Iraq will agree to cooperate in this investigation. If the Iraqi government intentionally attempts to obstruct the investigation, what power does the IAEA have to continue?[21]

2. International support for the denuclearization of Iraq is currently at an all-time high, but the members of the IAEA include states with nuclear weapons, states violently opposed to them, and states which may have secret stashes of their own nuclear material. The IAEA may struggle to move forward without continuous support from its own body and the United Nations Security Council.
3. Denuclearization of a hostile power has never occurred before, so the IAEA is responsible for an unprecedented task. To start with, the IAEA will be responsible for developing a timeline of denuclearization and gathering support for a process which may take years to successfully complete.
4. The Iraqi storage of nuclear material slipped past the international community prior to this point because of Iraq's focus on Electro-Magnetic Isotope Separation. The IAEA will need to identify the nuclear technology available in Iraq by conducting detailed reviews from numerous sources and will need to be prepared to look for nuclear material hidden in unforeseen ways.
5. If IAEA inspectors enter Iraq to take stock of nuclear weaponry and force denuclearization, they will be entering an unstable country on the verge of losing a territorial war.[22] Ensuring the safety and security of IAEA scientists will be a paramount issue. Additionally, United Nations sanctions are still placed on Iraq at this point, and the situation within the country has only deteriorated economically and politically.[23]

Blocs

Nuclear Weapon States

The United States, the Soviet Union, the United Kingdom, France, and China are the five original nuclear-weapon states (NWS), which were given that status under the 1968 Nuclear Non-Proliferation Treaty. Only three of these five states actually signed the treaty: The United States, Soviet Union, and the United Kingdom. Currently, France and China are not part of this treaty. As the countries guaranteed access to nuclear technology, they will play an active role in maintaining the strength of the NPT and will likely push for sanctions on Iraq.

Non-Nuclear Weapon States

The NPT was put into place to prevent the proliferation of nuclear weaponry, and this has mostly been successful. The majority of the world and the majority of the IAEA do not possess nuclear technology, either out of a refusal to engage in the practice or an inability to develop the

---

[20] https://www.bbc.com/news/world-europe-17117069

[21] https://www.armscontrol.org/act/2018-11/features/designing-denuclearization-regimes-agreement-declarations-objectives

[22] https://www.heritage.org/middle-east/report/disarming-iraq-the-lessons-unscom

[23] https://www.globalpolicy.org/previous-issues-and-debate-on-iraq/sanctions-against-iraq.html

technological expertise and funds necessary to create the weapons. These countries have a vested interest in the regulatory aspects of the IAEA.

States Researching Nuclear Technology
India, Pakistan, Israel, and North Korea, among others, have all expressed an interest in developing nuclear weapons. India has conducted tests of nuclear weapons, throwing the NPT to the wind, and Israel is ambiguous about its nuclear weapon status, choosing neither to confirm nor deny. These nations are now seeing the impact of disobeying the Non-Proliferation Treaty for the first time, and that may change how they behave.

Questions

- What are ways the U.N. can deter countries from making nuclear, chemical and biological weapons that can be used by other governments?
- Can the United Nations Security Council potentially pass another resolution encouraging Iraq to give up its nuclear material?
- Will Iraq denuclearize or will the international community need to step in with military force?
- How can the IAEA ensure that it has gained access to all of Iraq's nuclear material and is not missing hidden information?
- What standard does the denuclearization of Iraq set for other hostile countries that have attempted to gain access to nuclear material?
- What punishments should the IAEA levy on Iraq for breaking the Non-Proliferation Treaty?
- What could happen if Iraq does not denuclearize and instead doubles down on its supply of nuclear technology?

Keywords

- Disarmament/Denuclearization
- Nuclear Technology
- Nuclear Weaponry
- Highly Enriched Uranium
- Fission v. Fusion
- Treaty on the Non-Proliferation of Nuclear Weapons

References

- https://www.iaea.org/about/overview/history
- https://www.britannica.com/event/Persian-Gulf-War
- https://asiasociety.org/education/brief-history-nuclear-weapons-states
- https://fas.org/issues/nuclear-weapons/status-world-nuclear-forces/
- https://history.state.gov/milestones/1961-1968/npt
- https://carnegieendowment.org/2002/08/22/brief-history-of-iraq-s-nuclear-weapon-program-part-i-pub-12534
- https://www.armscontrol.org/act/2003_12/Lavoy

- https://www.nti.org/learn/countries/iraq/
- https://fas.org/nuke/guide/iraq/nuke/program.htm
- https://www.britannica.com/event/Persian-Gulf-War
- https://www.nytimes.com/2002/08/18/world/officers-say-us-aided-iraq-in-war-despite-use-of-gas.html
- http://unscr.com/en/resolutions/660
- http://unscr.com/en/resolutions/662
- https://www.cnn.com/2013/09/15/world/meast/gulf-war-fast-facts/index.html
- http://unscr.com/en/resolutions/678
- https://www.bbc.com/news/world-europe-17117069
- https://www.armscontrol.org/act/2018-11/features/designing-denuclearization-regimes-agreement-declarations-objectives
- https://www.cnn.com/2013/10/30/world/meast/iraq-weapons-inspections-fast-facts/index.html
- https://www.heritage.org/middle-east/report/disarming-iraq-the-lessons-unscom
- https://www.globalpolicy.org/previous-issues-and-debate-on-iraq/sanctions-against-iraq.