Committee History

"The Nuclear Non-Proliferation Treaty is an essential pillar of international peace and security, and the heart of the nuclear disarmament and non-proliferation regime. Its unique status is based on its near universal membership, legally-binding obligations on disarmament, verifiable non-proliferation safeguards regime, and commitment to the peaceful use of nuclear energy." UN Secretary-General António Guterres on the Fiftieth Anniversary of the NPT's opening for signature, 24 May 2018, Geneva

Introduction

Nuclear non-proliferation, the effort to eliminate the spread of nuclear weapon technology, and to reduce existing stockpiles of nuclear weapons, has been a key topic of international security since the end of World War II. In the 1940's the United States possessed the only nuclear weapons in the world and its use of two nuclear bombs on Japan had revealed their devastating destructive capabilities. With the effects of these nuclear attacks still fresh on the minds of people around the world, U.S. President Harry Truman was eager to prevent further use and development of nuclear weapons in the future. As a result, he proposed the "Baruch Plan" to the United Nations which would require the U.S. to destroy its nuclear arsenal if other countries agreed not to acquire nuclear weapons and if those countries allowed a UN-backed agency to verify their compliance with the deal. The U.S. Congress, concerned about the plan's future in the UN, passed the 1946 Atomic Energy Act which intended to help keep US nuclear technology secret from other countries.

In 1953, President Eisenhower gave a speech that would come to be known as the "Atoms for Peace" proposal to the UN General Assembly. He called for the establishment of an international organization that could supply countries with nuclear technology for peaceful purposes (like energy production) but that would also verify that those countries were not pursuing nuclear weapons. Four years later in 1957, the International Atomic Energy Agency was founded. Amidst these developments, the science for nuclear weapons had been disseminated to the public through academia and was being pursued by both governments and private firms. Five countries, the United States, the Soviet Union, the United Kingdom, France, and the People's Republic of China had all successfully tested nuclear weapons by 1965—with other states not far behind—though it was only feasible for the US, UK, and Soviet Union to launch military strikes.

At that time, incentives for nuclear war were low because both US and Soviet stockpiles were large enough that a nuclear conflict would end with the destruction of both countries; however, if other nations acquired nuclear weapons, that balance would be disrupted. In response to this evolving crisis, countries began serious negotiations on the issue of non-proliferation. The product of these discussions came in 1968 with an international treaty known as the Non-Proliferation Treaty (or NPT). The NPT prohibited the dissemination of nuclear weapons and nuclear weapons-related technology to states that did not already have them in 1968, paved the way for cooperation on the peaceful use of nuclear power, obligated the Nuclear Weapons States (NWS) of the US, UK, USSR, France, and People's Republic of China, to achieve eventual nuclear disarmament (the reduction and eradication of nuclear weapons), and committed non-Nuclear Weapons States (non-NWS) to accept safeguards from the International Atomic Energy

Agency intended to verify their compliance with the treaty. The NPT came into full effect in 1970. Article VIII, paragraph three of the NPT calls for "Parties of the Treaty" to convene "conferences with the…objective of reviewing the operation of the Treaty" every five years. Such conferences have continued in accordance with the NPT's terms—until 2020. The 2020 conference, the tenth since 1977, was postponed due to the COVID-19 pandemic and rescheduled for no later than February 2022.

Mandate and Functions

The Non-Proliferation Treaty Review Conferences aim to "assess the implementation of the Treaty's provisions and make recommendations on measures to further strengthen it." Typically, the parties at the Conference assess all progress made during the last five years towards complete fulfillment of the terms of the NPT. The Conference is a consensus body with Member States working together to create a "Final Declaration" which identifies the findings of the Conference. Key issues debated at the NPT Review Conferences usually include whether NWS have adequately met the terms of article VI, which outlines the NWS duty to achieve nuclear disarmament, the legality of nuclear testing, developments in the quality of existing nuclear weapons, the 1995 resolution that deemed the Middle East a zone free of nuclear weapons, and security guarantees to non-NWS by the NWS.

Recent Impact

In 1995, in the wake of the First Gulf War, the Conference issued a resolution which created "a Middle East zone free of nuclear weapons as well as other weapons of mass destruction" and noted concern over "unsafeguarded nuclear facilities" in the Middle East. Additionally, parties agreed to extend the NPT indefinitely.

In 2000, the NWS, in order to "preserve the objective of global nuclear nonproliferation," agreed to a 13-step program which was included in the 2000 NPT review conference "Final Declaration." Those steps are as follows: one, accept and ratify the Comprehensive Test Ban Treaty (a 1996 treaty which prohibits all nuclear weapon test explosions), two, adoption of a temporary ban on both nuclear test and other types of nuclear explosions, three, a prohibition on the production of fissile material for nuclear weapons, four, the creation of a UN group which focuses on nuclear disarmament, five, the application of the principle of irreversibility to nuclear disarmament, six, a concerted effort for the NWS to eliminate their arsenals, seven, entry into the START II, START III, and ABM treaties, eight, entering into the Trilateral Initiative (a deal between the US, the Russian Federation, and IAEA to ensure that excess weapons-grade uranium is used for peaceful purposes), nine, more efforts by all NWS to reduce their nuclear arsenals, ten, the placement of former-military fissile material under IAEA supervision, eleven, achieving general and complete disarmament, twelve, reports by NWS on their disarmament activities, and finally, the creation of further "verification capabilities" to make sure that progress is made towards nuclear disarmament.

Following a failed attempt at a consensus document in 2005, the 2010 Conference yielded an action plan for further implementation of the NPT. Part of that plan included the establishment of a subsidiary body to deal with nuclear disarmament (as had been recommended in 2000), further

commitments to adopt the 13 steps from the Conferences' 2000 Final Declaration, a call for a standard reporting form for notifying the UN about nuclear activities, and the organization of a meeting of delegates from all Middle Eastern countries to discuss the implementation of the 1995 Resolution on the Middle East.

Conclusion

Izumi Nakamitsu, the Under-Secretary General and High Representative for Disarmament Affairs, recently said that: "the NPT has transcended its initial purpose and has become a core component of our international architecture—the cornerstone of the non-proliferation regime and an essential framework for the pursuit of nuclear disarmament." Ms. Nakamitsu also warned that the threat of a nuclear weapon being used today is "higher than it has been in generations." Given the current climate of relations between NWS, it is imperative that NWS fulfill their NPT obligations to achieve complete nuclear disarmament. The NPT Review Conference is tasked with making sure that each Member State is not only effectively implementing their duties but also planning out the next steps for each party to the treaty. Learn more about the steps already taken by your Member State towards the fulfillment of its NPT responsibilities and to explore what its next phase may be.

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I. Article VI Compliance: Strengthening Channels towards Complete Nuclear Disarmament

Introduction

In 1986, the total number of nuclear weapons in the world peaked to 70,300 and by early-2021, that figure had dropped considerably to 13,100. The US and Russia possess over 90% of these nuclear weapons. About 9,600 of these are in military stockpiles with about 2,000 of US, British, French, and Russian warheads on high alert. Despite disarmament efforts, including the NPT, China, UK, Pakistan, India, Israel, and even the Russian Federation are each suspected of having increased their arsenal size. Even if nuclear arsenal expansion is not in a NWS' playbook, upgrades and updates are.

The United States is on a trajectory to spend $1.7 trillion dollars over the next 30 years to replace its entire nuclear arsenal. In fact, the US Air Force has hired defense firm Northrop Grumman to build a $100-billion-dollar nuclear weapon, now known as the "ground-based strategic deterrent" (GBSD) which will be ready for deployment around 2029. The GBSD is intended to replace the existing US arsenal of Minuteman III missiles. Additionally, according to the Stockholm International Peace Research Institute, Russia increased its overall military nuclear stockpile by about 180 warheads—including intercontinental ballistic missiles (ICBMs) and sea-launched ballistic missiles (SLBMs).

The Russian Federation is in the process of developing its hypersonic Avangard missiles—the infrastructure for which began installation in December of 2019. The Avangard can allegedly, according to President Putin, evade missile defenses. Furthermore, Russia is developing a heavy SS-29 missile which will replace its SS-18 counterpart (first deploying in 1988).

In March of 2021, the United Kingdom announced that it will increase its nuclear weapon supply by more than 40 percent and will no longer publish data on the number of warheads it maintains in operational status. The NPT implications of this development are immense. Not only is the UK increasing its stockpile from 180 to 260 warheads, its commitment to the NPT itself has been called into question.

The US Strategic Command in July of 2021 found that China is constructing over 250 new missile silos—the underground bases and launch facilities for nuclear warheads. While it is doubted that all of the silos will house Chinese nuclear weapons (China previously only had 20), it is plausible that China is increasing its nuclear stockpile while simultaneously playing a "shell game" to confuse its rivals of where its actual weapons are located. Further transparency from the Chinese to the UN is necessary in order to verify their path towards fulfilling their NPT obligations.

Current Problems and Areas of Action

To further complicate cooperation on the international non-proliferation regime, US-Chinese and US-Russian relations are at an historic low. Tensions have been high between the US and the Russian Federation since Russia's illegal annexation of Crimea since 2014. Russia's interference

in the most recent American elections, cyberattacks on sensitive US information, and the US withdrawal from the INF treaty have made things more difficult. American President Joe Biden and Russian President Vladimir Putin met in Switzerland in June of 2021 to address these and other issues but little progress was made. China's crackdown on Hong Kong's democratic regime, its alleged genocide of the Uighurs in Xinjiang, and its recent trade war with the US have created a hostile environment for diplomacy. Deputy Secretary of State Wendy Sherman met with Chinese Foreign Minister Wang Yi but the talks turned into both sides listing demands of the other. As a result, Chinese-American relations have now entered a standstill with neither side willing to give in.

Furthermore, there is great concern over the notable absence of some UN Member States' signatures on the NPT, like Pakistan and India. The two nations have a long history of conventional wars stretching back to 1947 and most recently in 1999. India maintains a vast conventional superiority over Pakistan's forces but has a no-first-use policy when it comes to deployment of its nuclear forces except in the case of a first strike with biological or chemical weapons.

Experts believe that a war between the two states resulting in a full-scale invasion of Pakistan by India would prompt Pakistan to deploy its nuclear forces, which would invite a nuclear retaliation by India. Such a war is not out of the question as India could respond to future Pakistani terrorist attacks (like the one in Mumbai in 2008) with mass conventional or nuclear retaliation—if the attack involved biological or chemical weapons. The regional rivals are expected to have a combined nuclear stockpile of 400 to 500 nuclear weapons by 2025 and a nuclear confrontation between the two would likely result in millions of casualties and severe global environmental impacts.

Entering the NPT would force these states to dismantle their nuclear arsenals but the rivalry between the two and their wariness of one another complicates the situation. China's relationship with Pakistan is tightening after it recently delivered its first batch of VT-4 battle tanks to India's western rival. Those ties and potential Chinese security guarantees to Pakistan could be key to convincing Pakistan to join the NPT. On the other side, recently bolstered Indo-American relations and long-standing Indo-Russian relations may be crucial to bringing India into the NPT fold.

UN Efforts

Parties who have signed the NPT have pledged to work towards complete global nuclear disarmament. Article X of the Nuclear Non-Proliferation Treaty calls for parties of the NPT to meet every five years to evaluate progress made on the implementation of the Treaty in order to hold Parties accountable for their actions. Article I of the Treaty commits the NWS to not transfer nuclear weapons or assist in non-NWS acquiring nuclear weapons—of special concern would be the transfer of nuclear weapons or intelligence to the suspected nuclear-armed non-NPT signatories. In Article II non-NWS agree to not receive the transfer of nuclear weapons or to build their own nuclear weapons. Article III obligates signatories to accept International Atomic Energy Agency safeguards and inspections to verify compliance with the Treaty—this includes IAEA inspections of NWS nuclear facilities. Article VI, one of the most debated issues

at the Review Conferences, reads as follows: “Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relation to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.”

In addition to the Review Conferences, a Preparatory Committee, to which all the signatories of the Treaty may become a part, is given a charge to address substantive and procedural issues related to the Treaty and the next Review Conference. For example, in 2019, the Preparatory for the 2020 NPT Review Conference split into three different sub-committees which then reviewed progress made on specific aspects of the NPT itself, the 1995 Review and Extension Conference (including the Resolution on the Middle East) and the Final Document of the 2000 Review Conference which set forth steps that each of the NWS would take towards disarmament. These points will be up for discussion in the coming months when the official 2020 NPT Review Conference will be held.

Conclusion

In order for the 2020 NPT Review Conference to yield productive results, the relationships and dynamics between each of the NWS must be properly understood. Russia, China, the UK, and the US need to improve their diplomatic relationships for progress to be made. Part of the role of the 2019 Preparatory committee was to investigate measures “aimed at strengthening the implementation of the Treaty and achieving its universality.” A bolster to the strength of the NPT would be the addition of Pakistan and India as Parties but such a feat will not be possible without US, Russian and Chinese efforts.

Questions to Consider

1. What can non-NWS do to get the NWS to make progress on their NPT obligations?
2. How can NWS increase their transparency with regard to their disarmament activities?
3. What are appropriate goals for moving towards complete disarmament and what is an appropriate timeline for them?
4. What will incentivize NWS to come to the negotiating table and work together towards disarmament?
5. Are there economic or diplomatic benefits which can be used by non-NWS to entice NWS cooperation

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II.Peaceful Uses Initiative: Promoting Global Development through Nuclear Energy

"The Peaceful Uses Initiative (PUI) has been instrumental in supporting a wide variety of IAEA activities aimed at helping Member States achieve their development objectives. Assisting countries in the peaceful application of nuclear technology is as important to the IAEA as its non-proliferation work. For many developing countries, it is the most important thing we do." Yukiya Amano (Former IAEA Director General)

Introduction

Article IV of the Nuclear Non-Proliferation Treaty (NPT) guarantees the right of all Parties to the Treaty to "develop research, production and use of nuclear energy for peaceful purposes." Additionally, the same article of the Treaty encourages Parties who are able to "cooperate in contributing alone or together with other States or international organizations to the further development of the applications of nuclear energy for peaceful purposes." International law therefore dictates that states have a right to pursue the benefits of peaceful nuclear technology.

For over 50 years, the International Atomic Energy Agency, composed of the Departments of Management, Technical Cooperation, Nuclear Energy, Nuclear Safety and Security, Nuclear Sciences and Applications, and Safeguards, was the lone-funded source for verifying compliance with the NPT and the promotion of peaceful nuclear energy. In 2010, with the endorsement of the United States during the NPT Review Conference, the "Peaceful Uses Initiative" (PUI) was established to "raise extra-budgetary contributions in support of Agency activities that promote the peaceful uses of nuclear technology". The PUI provided Parties to the Treaty another method by which to fund IAEA projects left unsupported due to IAEA budgetary constraints. Furthermore, the PUI enables the IAEA to respond quicker to changing priorities of Member States including emergencies.

As of September of 2020, 24 Member States and the European Commission had given 174 million euros in financial aid to PUI projects. The United States is the largest contributor by far with more than $100 million donated since 2010. In November of last year, U.S. Ambassador Jackie Wolcott pledged to IAEA officials that the US would provide another $50 million over the next five years to "reinforce our commitment to and support of the peaceful uses of nuclear energy" as outlined in Article IV of the NPT. Funding goes towards projects related to the UN Sustainable Development Goals of enhancing food security, combatting zoonotic disease, providing potable water to underserved communities, strengthening and developing nuclear energy infrastructure, mitigation and adaptation efforts related to climate change, conserving and using marine resources for sustainable development, and protecting, restoring and promoting long-term use of global ecosystems.

For example, nuclear-based technologies are used to detect diseases that can prove detrimental to livestock in areas of the world that are extremely dependent on animals for financial stability. Furthermore, the IAEA and the PUI help developing countries pay for equipment that medical professionals use to detect heart disease and cancer early. Such examinations can prove life-saving. Nuclear energy, in the widely-used form of radiotherapy,

is also used to treat cancer. The treatment utilizes X-rays, Gamma rays, and nuclear-charged particles to damage and eliminate tumors either independently or in conjunction with chemotherapy. In Central Asia, the PUI enables officials to detect toxic residues and environmental disasters, like landslides, caused by residues of toxic chemicals from abandoned uranium production sites.

PUI Actions

In the last decade, a large majority of PUI funds have gone towards projects related to nuclear safety, power and fuel. The IAEA ensures that countries considering nuclear power are set up with the proper safety infrastructure. Key safety features include a sequence of barriers between the radioactive core and the surrounding area and safety systems designed to reduce human errors. Solid uranium pellets are secured within zirconium alloy tubes, which are inside a steel pressure container, which is inside a one foot thick concrete structure. Additionally, each safety barrier is closely monitored and features like the "emergency core cooling system" are installed in case the core becomes unstable.

The next largest category, with an endowment of 26.66 million Euros is food and agriculture. In addition to the projects mentioned earlier, the PUI helped create the Veterinary Diagnostic Laboratory (VETLAB), which is a system of animal health laboratories that identify and monitor diseases. Just over 13 million Euros have gone towards water and environmental projects, which use nuclear techniques to assess groundwater quality, monitor dangerous algae blooms, and study the acidification of our Earth's oceans. A small portion of PUI funds go towards research reactors and industrial applications of nuclear energy. Research reactors are smaller than those used for nuclear power plants and are typically used solely for research and training about nuclear reactors, the manufacturing of radioisotopes for medications and industrial needs. These are only some of the many projects made possible by the PUI.

Parties to the Treaty can be considered for future PUI-sponsored projects too. States, in consultation with the IAEA Secretariat, are able to partner with the IAEA and other governments on new undertakings related to developing the peaceful uses of nuclear energy. Additionally, as of 2017, companies from the private sector are able to donate to PUI projects. These contributions by businesses and national governments have sustained more than 300 projects for over 150 Member States.

Current Problems and Areas of Action

Despite the progress that has been made regarding the development of nuclear technologies for peaceful purposes, much remains to be achieved. The IAEA has identified the following five areas for future projects: first, detection of zoonotic outbreaks, second, fighting plastic pollution, third, dealing with climate change, fourth, modernizing research laboratories, and finally, ensuring the safety of radioactive elements and nuclear materials.

Nuclear-derived techniques can be used for detecting zoonotic outbreaks. Zoonotic diseases are those which are transmitted from animals to human or from humans to animals. Reverse transcription-polymerase chain reactions have been key to identifying the virus that causes

COVID-19. More than 120 countries have received equipment from the IAEA that will help with the early detection and containment of future diseases similar to COVID-19 but further infrastructure is necessary.

Funding is necessary to provide countries around the world with data on animal pathogens and a stronger network through which experts combatting the zoonotic disease can communicate. Laura Lindenfeld, the executive director of the Alan Alda Center for Communicating Science at Stony Brook University, in the context of the COVID-19 pandemic, said that "scientists have come to understand that strong communication is an essential part of what it means to be a scientist." The Zoonotic Disease Integrated Action (ZODIAC) project is the IAEA's initial response to this communication problem as it intends to improve monitoring and detection of zoonotic illnesses but further action is necessary.

In 2019, global plastics production equaled 368 million metric tons and 2020 production, even with the COVID-19 pandemic, was estimated to only decrease by 0.3 percent. It is projected that about 8 million tons ends up in our oceans and between 60 and 80 percent of all litter in the oceans is plastic. A relatively untapped ability of nuclear power is the recycling of plastics. Irradiation, or the application of radiation for sterilization, can change the properties of plastic to create feedstock, or raw materials necessary for manufacturing another product. Additionally, nuclear techniques allow plastics to be recycled more than the typical one or two times with conventional means.

Nuclear power is also a form of green energy. Nuclear power can generate electricity without the carbon emissions produced by fossil fuels like coal and oil. At the center of nuclear reactors is a core in which nuclear fission, the splitting of an atom, is taking place. The fission reaction releases energy which heats up water that in turn produces steam and turns turbines that produce electricity. The steam is then cooled in a "cooling tower" and the water is reused to make steam. The IAEA aims to advise developing countries as to the role that nuclear energy could have in improving their infrastructure and their carbon footprint.

Austria is home to the IAEA's main nuclear laboratories which will continue to need updates as time passes. There are eight in Seibersdorf, Austria, which were constructed in 1962. Five of them are operated by the IAEA's Center of Nuclear Techniques in Food and Agriculture, one ensures the proper use of radiation in cancer treatment, one focuses on environmental monitoring, and the last one on the analysis of radioactive pollution.

Finally, nuclear technologies need up-to-date safety and security mechanisms. International cooperation is necessary for creating standards regarding the safe transportation and management of and proper emergency procedures for nuclear materials. Financial aid from the PUI assists the IAEA's mission to ensure the safety of nuclear elements.

Conclusion

After a decade, the Peaceful Uses Initiative has given many Parties the opportunity to show their commitment to the NPT and the development of nuclear energy for peaceful purposes. The PUI has been able to accomplish many things with a limited budget and continues to

receive critical financial support. Member States have benefited from funding, research, and materials provided by the PUI for projects within their own borders. Those who have yet to benefit from PUI assistance or who have identified other areas for potential collaboration on nuclear projects can counsel with the IAEA about those new undertakings. Furthermore, while the IAEA may have only identified five types of future projects, much remains to be explored with regards to civilian uses of nuclear energy (e.g. nuclear power and human space travel). The international community may also profit from new standards on the transportation and management of nuclear materials in order to increase the safety of those working with those elements. As Member States work together, the PUI will continue to be a critical form of international cooperation on development and security-related topics.

Questions to Consider

1. What other efforts can be made to advocate for the peaceful use of nuclear energy?
2. What can be done to expand the IAEA's efforts with regards to the five types of future projects that it's anticipating?
3. What are some other peaceful uses of nuclear energy? Could those projects be beneficial to your Member State? How so?
4. How does the PUI relate to the NPT and the Parties' commitment to its implementation?
5. What could be included in the Final Declaration that expands the realm of the PUI?

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