FORUM: Disarmament Commission

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Regulation and Oversight of Nuclear Weapons

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Introduction

International regulation and oversight of nuclear weapons requires the combined efforts of states and international institutions aimed at preventing all the risks related to research, production, and employment of such arms. The United Nations, since its creation, has always paid attention to the importance of such an issue. This is evident in the first UN General Assembly's decision, adopted in 1946, which dealt with the control of atomic energy and the elimination of nuclear weapons.

Nuclear weapons may be the deadliest items created. A single blow has the power to obliterate a city, murder millions, and leave lasting ecological and health consequences. With their instant destruction, nuclear weapons proliferation is potentially catastrophic as it escalates the risk of regional war, nuclear terrorism, and swift escalations of conventional conflict.

Recently, the annual assessment of armaments done in 2025 has revealed that nations including China, the United Kingdom, France, India, Pakistan, North Korea, and Israel have expanded their nuclear arsenal and stockpile. These are signs that a new arms race is mounting. Therefore, it is important that the global community acts collaboratively to prevent the further proliferation of nuclear weapons.

Background

Nuclear weapons originated in the 1940s at the beginning of World War II, with the United States launching the Manhattan Project with the purpose of countering the European fascist states. The project resulted in the development of the first atomic weapons, opening the era of nuclear weapons. In. In 1945, two atomic bombs were released on Hiroshima and Nagasaki, Japanese cities, resulting in extensive destruction and loss of lives. Though the exact statistics are unknown, it is estimated that there were 200,000 total casualties, with 105,000 deaths and 94,000 injured. The episodes left

Mushroom cloud created from the nuclear bombing in Nagasaki, Japan



the world with fear of the destructive power of nuclear weapons and their persistent effect.

The public discussion was at its peak during the Cold War years, as conflict between America and the Soviet Union, the two nuclear-armed nations, fueled fear of possible nuclear war. Even so, nuclear



The signing of the NPT on July 1, 1968

tests continued with the United Kingdom testing in 1952, France in 1960, China in 1964, and India in 1974. Moreover, the Cuban Missile Crisis in 1962, which was a direct confrontation between the United States and the Soviet Union, was a major event marking the risk of a nuclear war as the United States found out that the Soviet Union was shipping missiles to Cuba.

As a reaction to the growing threat of nuclear proliferation, the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) was initiated in 1968. The treaty's aim included impeding the proliferation of nuclear weapons, promoting disarmament, and allowing for

peaceful uses of nuclear energy. Even though all five of the then-recognized nuclear-weapon states—the United States, the Soviet Union, the United Kingdom, France, and China—all signed the NPT, the treaty did not commit them to give up on their already accumulated arsenals, causing criticism of unequal obligations.

Problems Raised

Lack of Effective Global Enforcement Mechanisms

One of the main problems of nuclear arms control is the lack of a globally binding enforcement mechanism. The existing international legal instruments are insufficient in obtaining compliance or preventing violations. The NPT, for instance, lacks clauses binding nuclear-weapon states to disarm within specified timelines or fully meet treaty obligations.

This was evident when North Korea withdrew from the NPT and subsequently conducted a series of nuclear tests. Despite such violations, the response of the global community could only be limited to diplomatic pressure and economic sanctions, neither of which was able to halt North Korea's nuclear initiative.

Moreover, institutions such as the IAEA and the UN, as much as they play immense roles in monitoring compliance and urging treaty implementation, cannot wield the power of punishment nor threaten state action. This is due to the rule of national sovereignty and the political interest of the states themselves, typically discouraging the establishment of an effective, broadly agreed regime of enforcement.

Verification gaps

Gaps in verification refer to weaknesses in the ability of the international systems to detect and monitor nuclear weapons activity. Gaps undermine confidence, perpetuate confusion, and give states reason for secrecy on nuclear development or cheating on controls—all while undermining international non-proliferation efforts.

There are numerous reasons why these gaps persist, including technical restraints, sealedoff access to sensitive facilities, deficient legal powers of inspectors, and political resistance on the part of some states. A good example is Iraq prior to 1991, where the International Atomic Energy Agency (IAEA) inspected only the primarily declared facilities and material. Under such a narrow focus, Iraq could operate a clandestine nuclear weapons program without detection for years. Following the Gulf War, more



A Scud missile used in the Gulf War which was a part of Iraq's secret weaponry

invasive inspection revealed Iraq's extensive attempts at enriching uranium and constructing weaponsrelevant equipment. It may have catalyzed immense developments in the IAEA's technique of verification, yet an inherent conundrum still exists: showing the non-existence of nuclear activity outside declared programs is still extremely difficult, even with increased monitoring regimes.

Regional tensions engendered by the lack of nuclear regulation

Due to a lack of effective nuclear oversight, regional tensions were heightened in areas such as the Middle East and South Asia. The presence of nuclear weapons led to destabilized security structures and a quick escalation of conflicts. For instance, the rapid proliferation of North Korea's nuclear weapons has implied its ambition to reunify with South Korea in a coercive way. As a response to these actions, South Korea had to strengthen its military capabilities, entrenching mistrust and escalating the conflict between the two countries.

International Actions

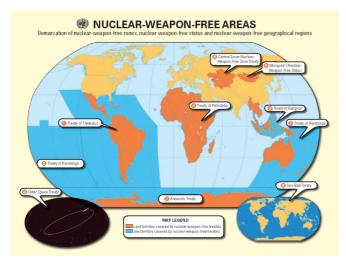
Comprehensive Nuclear Test Ban Treaty (CTBT)

The Comprehensive Nuclear-Test-Ban Treaty (CTBT) became open for signature in 1996 with the goal of stopping new nuclear weapon creation while restricting enhancements to existing arsenals. The

treaty prohibits all nuclear test explosions regardless of their intended military or civilian purposes. An intricate International Monitoring System (IMS) emerged from the CTBT's provisions to aid enforcement measures. Through its use of radionuclide detection alongside seismic monitoring and both hydroacoustic and infrasound technologies, the IMS system identifies nuclear detonations on a global scale. The system functions as a critical barrier against the spread of nuclear weapons technology. Many nations maintain a self-imposed suspension of nuclear tests due to the treaty, while several key countries remain unratified.

Treaty on the Prohibition of Nuclear Weapons (TPNW)

The Treaty on the Prohibition of Nuclear Weapons (TPNW) establishes intricate humanitarian and legal frameworks that challenge the perceived legitimacy of nuclear armaments. The treaty declares nuclear weapons illegal under international law, together with chemical and biological arms bans, which shifts global discourse towards complete nuclear disarmament. The emergence of broad international engagement resulted from the collective efforts of civil society groups and non-nuclear-weapon states who joined forces to build support. The treaty became active in 2021 following sufficient ratifications after receiving support from over 120 UN member states during negotiations. The disarmament impact of the agreement remains limited due to the absence of signatures from nuclear-armed nations and their principal allies.



A map of the nuclear weapon free zones around the world

Nuclear Weapon Free Zones (NWFZs)

Nuclear-Weapon-Free Zones (NWFZs) represent regional agreements through which states agree to forbid the development, testing, deployment, and acquisition of nuclear weapons. The established zones have stopped new nuclear-armed states from developing in their territories, which leads to decreased regional arms race threats and decreased nuclear proliferation risks. The NWFZs strengthen the NPT through extra binding agreements that enhance nonproliferation standards and provide protection to states

without nuclear weapons. The negotiation of these zones, together with their maintenance activities, creates regional stability through cooperative development and trust-building between neighboring nations. The achievement of NWFZs depends primarily on states collaborating and institutions providing support and shared security goals.



Key Players

International Atomic Energy Agency (IAEA)

The International Atomic Energy Agency (IAEA) is responsible for ensuring that nuclear technology is used exclusively for peaceful purposes. These applications include addressing global health issues such as cancer and malnutrition, conducting environmental research, and supporting access to affordable energy. At the same time, the IAEA works to prevent the misuse of nuclear materials for weapons development and to protect people and the environment from harmful radiation. To achieve this, the agency establishes Safeguards Agreements with member states and conducts approximately 2,500 inspections each year to verify that nuclear materials are not diverted for military use. As of 2024, the IAEA was applying safeguards in 190 states.

Nuclear Threat Initiative (NTI)

The Nuclear Threat Initiative (NTI) is a prominent non-governmental organization that works to reduce global threats from nuclear, biological, and chemical weapons. NTI is key to elevating awareness of the dangers of nuclear weapons, nuclear terrorism, and proliferation, moving both public opinion and policy in the direction of risk reduction and disarmament. The organization is an active supporter of efforts to characterize nuclear weapons as unacceptable because of their catastrophic



Bilateral Meeting between ambassadors from the NTI and the IAEA Acting Director General in 2019 in Austria

humanitarian impacts, complementing ongoing efforts to delegitimize their use. NTI also works to further the development of technologies and policies for nuclear detection, forensics, and material security, confronting new threats and challenging technical issues in the field.

The United States

While the United States, as a major player in the nuclear arms race during the Cold War, raised the need for nuclear nonproliferation, it also played and continues to play an important role in setting global nuclear regulatory standards. The U.S. Nuclear Regulatory Commission (NRC) is praised for being transparent and for its awareness of the risks of nuclear weapons. It has served as an exemplar to other countries and influenced international regulatory frameworks.



Possible Solutions

Holistic Diplomatic Engagement

The successful regulation of nuclear weapons requires complete diplomatic engagement because it builds trust and establishes enduring agreements that promote lasting stability. Regular dialogue between nuclear-armed states and non-nuclear states reduces mistrust, which enables the development of cooperative measures. The implementation of confidence-building measures based on transparent operations, along with information-sharing and joint verification, proves essential to decrease



Nuclear diplomacy with ministers of foreign affairs from China, France, Russia, the United Kingdom, the United States, the European Union, and Iran in 2015

suspicion while stopping escalation. Non-governmental organizations, together with transnational advocacy networks, function as essential connectors between governments while influencing public discussions about disarmament priorities on the global stage.

Strengthening Verification Mechanisms

Verification processes play a fundamental role in achieving compliance with disarmament and nonproliferation agreements because they prevent breaches and establish mutual confidence between states. The verification process achieves enhanced reliability and responsiveness through the implementation of advanced technologies and systematic updates of these mechanisms. Publicly accessible data and citizen reporting serve as effective supplements to conventional verification methods, which both enhance transparency and improve non-compliance detection and response capabilities.

Glossary

Nuclear Proliferation

When nations acquire nuclear weapons technology which they did not have before

Treaty on the Nonproliferation of Nuclear Weapons (NPT)



An international pact to stop nuclear weapon distribution while promoting disarmament and supporting non-military nuclear applications

Comprehensive Nuclear Test Ban Treaty (CTBT)

An international treaty which forbids nuclear test explosions and any nuclear detonations throughout the entire globe.



International Atomic Energy Agency (IAEA)

An autonomous worldwide institution that supports peaceful nuclear energy applications while creating safety protocols and performs inspections to prevent military diversion of nuclear materials under safeguards agreements.

Treaty on the Prohibition of Nuclear Weapons (TPNW)

An international binding agreement that forbids all stages of nuclear weapons development and use until complete elimination.

International Monitoring System (IMS)

A worldwide sensor network implementing CTBT requirements for worldwide nuclear explosion detection through seismic, hydroacoustic, infrasound, and radionuclide technologies.

Nuclear Weapon Free Zones (NWFZs)

Regions which ban nuclear weapon development along with testing and deployment for both regional tranquility and worldwide non-proliferation objectives.

Nuclear Threat Initiative (NTI)

A nonprofit entity which focuses on stopping devastating nuclear, biological and chemical weapon attacks through security advancement alongside threat minimization and worldwide nonproliferation support



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