

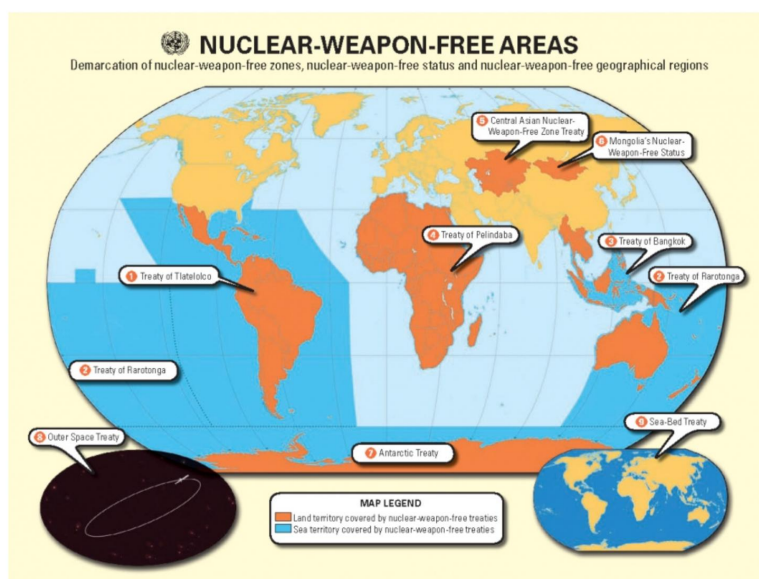
Committee: Commission on Science and Technology for Development (CSTD).

Question of: The question of the use of technologies to contribute to the creation of Nuclear-Weapon-Free zones.

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### Introduction:

Nuclear-Weapon-Free Zones are an important regional approach to strengthening global nuclear non-proliferation and disarmament norms and consolidating international efforts towards peace and security. Creating nuclear-weapon-free zones is even more urgent now as the major powers continue to develop arsenals that threaten the existence of humanity. There are currently five Nuclear-Weapon-Free Zones (NWFZs), covering territories in most of the Southern Hemisphere and in Central Asia. Antarctica and Mongolia have a special nuclear-weapon-free status as well.



Visual illustration of the nuclear-weapon-free zones

Image source: UN Office for Disarmament Affairs

General Assembly resolution 3472 B (1975) defined a Nuclear-Weapon-Free Zone as:

“...any zone recognized as such by the General Assembly of the United Nations, which any group of States, in the free exercises of their sovereignty, has established by virtue of a treaty or convention whereby:

(a) The statute of total absence of nuclear weapons, to which the zone shall be subject, including the procedure for the delimitation of the zone, is defined;

(b) An international system of verification and control is established to guarantee compliance with the obligations deriving from that statute.”

Simply put, NWFZs prohibit the acquisition, possession, placement, testing and use of nuclear weapons. The creation of NWFZs is incredibly crucial due to the humanitarian impacts and risks of the use of nuclear weapons. A nuclear weapon detonation in or near a populated area would – as a result of the blast wave, intense heat, and radiation and radioactive fallout – cause massive death and destruction. In addition, the detonation will trigger a large-scale displacement and cause long-term harm to human health and well-being, as well as long-term damage to the environment, infrastructure, socioeconomic development and social order. A large-scale attack is perfectly capable of destabilising an entire country. Although nuclear weapons have not been used in armed conflict since 1945, there has been a disturbingly high number of close calls in which nuclear weapons were nearly used inadvertently as a result of miscalculation or error.

### The Issue:

The issue of using technology to contribute to the creation of Nuclear-Weapon-Free Zones (NWFZ) involves a combination of diplomatic efforts, international cooperation, and technological applications to enhance verification and monitoring capabilities. Here are several aspects related to this issue:

#### Diplomacy and Treaties:

- The establishment of NWFZ often begins with diplomatic negotiations and agreements among countries in a specific region. Treaties, such as the Treaty of Tlatelolco in Latin America and the Caribbean, aim to create legally binding commitments to prohibit the development, testing, and deployment of nuclear weapons.

#### Verification Technologies:

- Technologies play a crucial role in verifying compliance with NWFZ agreements. Advanced monitoring systems, including satellite imagery, seismic sensors, and radiation detection technologies, can be employed to detect and verify nuclear activities.

#### International Atomic Energy Agency (IAEA):

- The IAEA, as the international organization responsible for promoting the peaceful use of nuclear energy and preventing its use for any military purpose, plays a key role in verifying compliance with non-proliferation agreements. The IAEA utilizes various technologies and safeguards to monitor nuclear facilities and ensure they are used for peaceful purposes.

#### Open Skies Agreements:

- Open Skies agreements facilitate mutual aerial observation to promote transparency and build confidence among participating countries. This can contribute to the creation of NWFZ by providing an additional layer of oversight and verification.

### Cybersecurity:

- As nuclear facilities become more reliant on digital systems, ensuring the cybersecurity of these systems becomes critical to prevent unauthorized access or cyber-attacks that could compromise the security of nuclear weapons-free zones.

### Education and Capacity Building:

- Technology transfer, education, and capacity building are essential components of establishing and maintaining NWFZ. Countries may need assistance in developing the expertise and infrastructure required to monitor and verify compliance with nuclear-free commitments.

### Global Information Sharing:

- Collaborative efforts and information sharing at the international level can enhance the effectiveness of technology in creating and maintaining NWFZ. This involves sharing best practices, lessons learned, and technological advancements.

### Public Awareness:

- Public awareness and engagement are important for the success of NWFZ. Technologies, such as social media and communication tools, can be utilized to raise awareness and build support for nuclear disarmament efforts.

### Key events:

The following treaties govern the five existing NWFZ:

- **Treaty of Tlatelolco** – Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (1967)

The Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (Treaty of Tlatelolco) was opened for signature on 14 February 1967 in Mexico City. The Zone of Application defined by the Treaty of Tlatelolco encompasses a surface of more than 20 million square kilometres. It includes areas of the high seas, defined by the United Nations Convention on the Law of the Sea, and the national territories of the 33 countries of Latin America and the Caribbean, home to more than 600 million people. The Treaty of Tlatelolco does not extend nor does claim sovereignty of the aforementioned high seas regions for the States Parties, it establishes them as nuclear-weapon-free in accordance with Additional Protocol II of the Treaty. The current States Parties to the Treaty are: Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela.

- **Treaty of Rarotonga** – South Pacific Nuclear Free Zone Treaty (1985)

The Treaty of Rarotonga, the South Pacific Nuclear Free Zone Treaty, opened for signature on 6 August 1985 and entered into force on 11 December 1986. The Treaty was borne of the South

Pacific's first-hand experience with nuclear weapons testing and was only the second NWFZ to enter into force in a populated region following the Treaty of Tlatelolco in Latin America. The Rarotonga Treaty importantly reinforces, at the regional level, the legally-binding commitments that its States Parties have made under the near universal Treaty on the Non-Proliferation of Nuclear Weapons (NPT) not to manufacture, possess, acquire or have control of nuclear weapons. The Rarotonga Treaty also includes an undertaking by States Parties to prevent nuclear testing in their territories. The current States Parties to the Treaty are: Australia, Cook Islands, Fiji, Kiribati, Nauru, New Zealand, Niue, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu.

- [Treaty of Bangkok](#) – Treaty on the Southeast Asia Nuclear Weapon-Free Zone (1995)

The Treaty on the Southeast Asia Nuclear Weapon-Free Zone, also known as the SEANWFZ Treaty or Bangkok Treaty, was signed on 15 December 1995 by ten Southeast Asian States. The Treaty, which entered into force on 27 March 1997, was registered with the United Nations on 27 June 1997. The Treaty is a key legal instrument in supporting the purposes of ASEAN, which, as articulated in the ASEAN Charter, include preserving Southeast Asia as a Nuclear Weapon-Free Zone and free from all other weapons of mass destruction. It also reaffirms the importance of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) in preventing the proliferation of nuclear weapons and in contributing towards international peace and security. The Treaty obliges States Parties not to develop, manufacture or otherwise acquire, possess or have control over nuclear weapons, station or transport nuclear weapons, or test or use nuclear weapons. States Parties also undertake not to discharge radioactive material or wastes at sea, into the atmosphere or on land within the Zone, and not to allow other states to conduct these acts. The Treaty further commits each State Party to use nuclear material and facilities exclusively for peaceful purposes and, prior to embarking on a peaceful nuclear energy programme, to subject that programme to a rigorous nuclear safety assessment conforming to guidelines and standards recommended by the International Atomic Energy Agency (IAEA) for the protection of health and minimisation of danger to life and property. The States Parties to the Treaty are: Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam.

- [Treaty of Pelindaba](#) – African Nuclear-Weapon-Free Zone Treaty (1996)

The African Nuclear-Weapon-Free Zone Treaty, also known as the "Pelindaba Treaty", established the nuclear-weapon-free zone on the African continent. It opened for signature on 12 April 1996 in Cairo, Egypt and entered into force on 15 July 2009. The African Nuclear-Weapon-Free Zone Treaty prohibits the research, development, manufacture, stockpiling, acquisition, testing, possession, control or stationing of nuclear weapons, as well as the dumping of radioactive wastes. The Treaty also prohibits any attack against nuclear installations in the zone by Treaty parties and requires them to maintain the highest standards of physical protection of nuclear material, facilities and equipment, which are to be used exclusively for peaceful purposes. The Pelindaba Treaty has 43 States Parties: Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cabo Verde, Chad, Comoros, Republic of Congo, Côte d'Ivoire, Democratic Republic of Congo, Equatorial Guinea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea Bissau, Kenya, Lesotho, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Seychelles, South Africa, Tanzania, Togo, Tunisia, Zambia, Zimbabwe.

- [Treaty on a Nuclear-Weapon-Free Zone in Central Asia \(2006\)](#)

The Central Asian Nuclear-Weapon-Free Zone (CANWFZ) treaty is a legally binding commitment by Central Asian States (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan) not to

manufacture, acquire, test, or possess nuclear weapons. The treaty was signed on 8 September 2006 at the former Semipalatinsk nuclear test site in Kazakhstan, hence the Treaty's unofficial name as 'Semipalatinsk Treaty'. It was subsequently ratified by all five Central Asian states and entered into force on 21 March 2009. The creation of the zone has been the result of the collective efforts by all five Central Asian States in their common desire to provide security, stability and peace in the region, address environmental concerns and create the necessary conditions for regional development and stability. The States Parties to the Treaty are: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.

Other treaties that deal with the denuclearization of geographical regions:

- [Antarctic Treaty](#)(1959)
- [Outer Space Treaty](#) – Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (1967)
- [Moon Agreement](#) – Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (1979)
- [Seabed Treaty](#) – Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Sea-Bed and the Ocean Floor and in the Subsoil thereof (1971)

### Possible Solutions:

**Surveillance Technology:** Implement advanced surveillance technologies, such as satellite monitoring and sensor networks, to detect and track any potential nuclear weapon activities within designated zones.

**Data Sharing Platforms:** Establish secure international platforms for sharing nuclear-related information, fostering collaboration and transparency among countries in the pursuit of nuclear disarmament.

**Cybersecurity Measures:** Strengthen cybersecurity to protect critical infrastructure related to nuclear facilities, preventing unauthorised access and potential sabotage attempts.

**Verification Technologies:** Develop and deploy advanced verification technologies, such as remote sensing and on-site inspections, to ensure compliance with nuclear disarmament agreements.

**Communication Systems:** Utilise secure communication systems to facilitate dialogue and information exchange among nations involved in creating and maintaining Nuclear-Weapon-Free zones.

**Education and Awareness Programs:** Leverage technology for educational campaigns and virtual training programs to raise awareness about the importance of nuclear disarmament and the benefits of Nuclear-Weapon-Free zones.

**Blockchain for Transparency:** Explore blockchain technology to create transparent and tamper-proof records of disarmament activities, enhancing trust among participating nations.

By integrating these technological solutions, nations can work collaboratively to strengthen the effectiveness of Nuclear-Weapon-Free zones and enhance global security.

**Conclusion:**

In conclusion, the use of technology can significantly contribute to the creation and maintenance of Nuclear-Weapon-Free Zones. However, careful consideration must be given to the responsible and ethical application of these technologies to ensure the effectiveness of disarmament efforts, enhance transparency, and promote international collaboration toward a world free of nuclear weapons.

## Bibliography:

International Committee of the Red Cross. (2020, August 29). Humanitarian impacts and risks of use of nuclear weapons. International Committee of the Red Cross.

<https://www.icrc.org/en/document/humanitarian-impacts-and-risks-use-nuclear-weapons%E2%80%8C>  
[C](#)

Overview of Nuclear-Weapon-Free zones | United Nations Platform for Nuclear-Weapon-Free Zones. (n.d.). <https://www.un.org/nwzf/content/overview-nuclear-weapon-free-zones>

Treaty of Bangkok | United Nations Platform for Nuclear-Weapon-Free Zones. (n.d.). <https://www.un.org/nwzf/content/treaty-bangkok>

Treaty of Rarotonga | United Nations Platform for Nuclear-Weapon-Free Zones. (n.d.). <https://www.un.org/nwzf/content/treaty-rarotonga>

Treaty of Tlatelolco | United Nations Platform for Nuclear-Weapon-Free Zones. (n.d.). <https://www.un.org/nwzf/content/treaty-tlatelolco>

Treaty on a Nuclear-Weapon-Free zone in Central Asia | United Nations Platform for Nuclear-Weapon-Free Zones. (n.d.).

<https://www.un.org/nwzf/content/treaty-nuclear-weapon-free-zone-central-asia>

<https://disarmament.unoda.org/wmd/nuclear/nwzf/>

<https://www.nejm.org/doi/full/10.1056/NEJMp2308547#:~:text=We%20now%20call%20on%20health,%2C%20adopt%20a%20no%2Dfirst%2D>

<https://www.un.org/en/global-issues/atomic-energy>