



# Nuclear Disarmament

**For Prelims:** [Nobel Peace Prize 2024](#), [Non-Proliferation of Nuclear Weapons \(NPT\)](#), [Comprehensive Nuclear-Test-Ban Treaty \(CTBT\)](#), [International Day for the Total Elimination of Nuclear Weapons](#), [Treaty on the Prohibition of Nuclear Weapons \(TPNW\)](#)

**For Mains:** Nuclear Disarmament: Need, Frameworks, Challenges & Way Forward.

**Source:** [IE](#)

## Why in News?

The [Nobel Peace Prize 2024](#) was awarded to **Nihon Hidankyo**, an organisation representing Japanese atomic bomb survivors, in recognition of its dedicated efforts **to achieve a nuclear-free world**.

- This award emphasises the **critical importance of advocacy for [nuclear disarmament](#)**, which is deeply rooted in the catastrophic impacts of nuclear weapons experienced during the bombings of [Hiroshima and Nagasaki](#).

## Modern Threat of Nuclear Weapons

- The Hiroshima bomb had a yield of 15 kilotons (Kt), while modern weapons, such as the **Tsar Bomba tested by Russia in 1961**, can reach 50 megatonnes (Mt), making them over 3,800 times more powerful.
- Modern [nuclear arsenals](#) include not only large-scale strategic warheads but also tactical weapons **designed for battlefield use**, increasing the risk of nuclear conflict.

## What is Nuclear Disarmament?

- **About:**
  - Nuclear disarmament refers to the **process of reducing or eliminating nuclear weapons to promote global security** and prevent the potential catastrophic consequences of nuclear warfare.
    - It encompasses several efforts aimed at controlling and ultimately abolishing nuclear arsenals, **with the end goal of achieving a nuclear-free world**.
- **Need:**
  - **Humanitarian Impact:** The immediate consequences of a nuclear explosion include **widespread loss of life**, mass destruction, severe burns, and radiation sickness.
    - In addition, long-term effects such as [cancer](#) and **genetic damage** can affect survivors and their descendants for generations.
  - **Environmental Consequences:** A nuclear detonation can cause large-scale

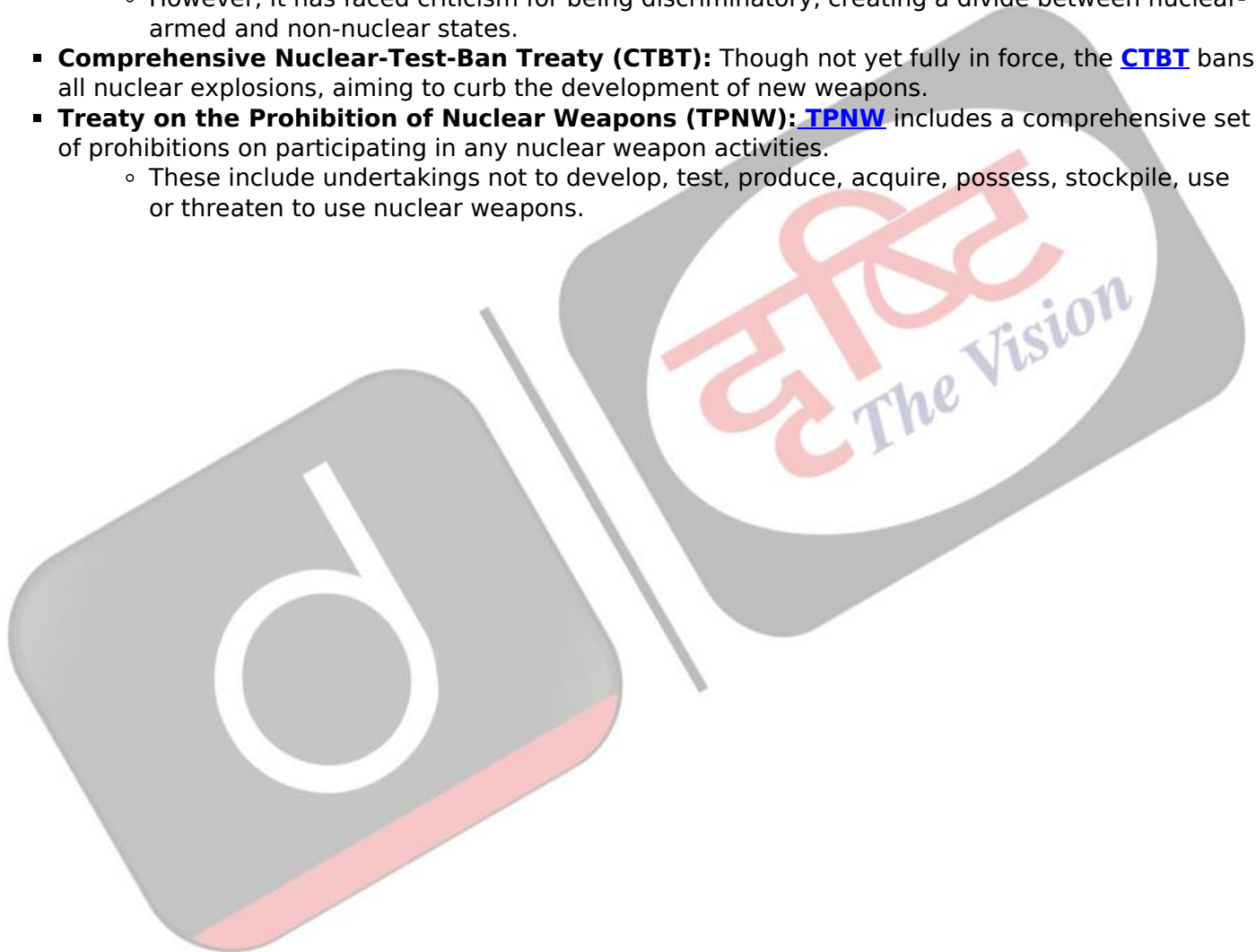
environmental damage, including "**nuclear winter**," where smoke from explosions blocks sunlight, **leading to drastic global cooling, agricultural collapse**, and disruptions to ecosystems.

- **Ethical and Moral Considerations:** The sheer destructiveness of nuclear weapons raises ethical questions about their use.
  - The indiscriminate nature of their impact goes against the principles of [just war theory](#) and [humanitarian law](#).
- **Economic Costs:** Maintaining and upgrading nuclear arsenals require significant financial resources that could be used for development and addressing other pressing issues like [poverty](#) and [climate change](#).

## What are the Historical Efforts of Nuclear Disarmament Efforts?

- **Treaty on the Non-Proliferation of Nuclear Weapons (NPT):** The [NPT](#) entered into force in 1970 to prevent the spread of nuclear weapons and promote disarmament.
  - However, it has faced criticism for being discriminatory, creating a divide between nuclear-armed and non-nuclear states.
- **Comprehensive Nuclear-Test-Ban Treaty (CTBT):** Though not yet fully in force, the [CTBT](#) bans all nuclear explosions, aiming to curb the development of new weapons.
- **Treaty on the Prohibition of Nuclear Weapons (TPNW):** [TPNW](#) includes a comprehensive set of prohibitions on participating in any nuclear weapon activities.
  - These include undertakings not to develop, test, produce, acquire, possess, stockpile, use or threaten to use nuclear weapons.

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# Treaties Against Nuclear Weapons

## Part - I

### Nuclear Weapons

- The most dangerous weapons on earth; a **bomb or missile that uses nuclear energy to cause an explosion.**
- Nuclear weapons release energy either by **nuclear fission (atomic bombs) or nuclear fusion (hydrogen bombs).**
- Even a single weapon is potent of **destroying a whole city, potentially killing millions, jeopardising the natural environment** and lives of future generations.
- They were used for the **first and last time in WW-II** by the US in 1945 on **Hiroshima and Nagasaki.**

### Treaty on the Non-Proliferation of Nuclear Weapons (NPT 1970)



- **Objective:**
  - Prevent the spread of nuclear weapons and its technology
  - Foster peaceful uses of nuclear energy
  - Further the goal of nuclear disarmament
- **Member States:**
  - 191 with **5 nuclear-weapon states (NWS)** (US, Russia, UK, France & China)
- **Nuclear-Weapon States:**
  - Those who **manufactured & exploded** a nuclear weapon or nuclear explosive device **before 1st January 1967**
- **Significance:**
  - **Only binding treaty** to the goal of disarmament by the NWS
- **India and NPT:**
  - India (along with Pakistan, Israel, North Korea, and South Sudan) is **not a member**
  - Opposes it as a **discriminative disarmament policy**
  - India's policy - **No First Use** against NWS and **no use against non-NWS**
- **NPT Review Conference:**
  - **Undertakes review** of the treaty's implementation **quinquennially**



**Drishti IAS**



# Treaties Against Nuclear Weapons

## Part II



### Missile Technology Control Regime (MTCR) (1987)

- An informal and voluntary partnership
- Not legally binding
- Established in 1987 by G7 countries

**Objective:** To prevent the proliferation of missile and UAV (Unmanned Aerial Vehicle) technology capable of carrying >500 kg payload for range >300 km

#### MTCR Categories

##### Category I Items

- Complete rocket and UAV systems (>500 kg payload for >300 km)
- Such items are subjected to unconditional strong presumption of denial for export

##### Category II Items

- Less-sensitive and dual-use missile related components and other complete missile systems (range >300 km)
- Their export is subject to licensing requirements

**35 Member Countries**

**India** inducted into the MTCR in 2016 as the 35<sup>th</sup> member

**China** not a member

#### Mandate on Members

- Prohibition on supplying missiles and UAV systems controlled by the MTCR to non-members.
- In 1992, the ambit was extended to all Weapons of Mass Destruction - nuclear, chemical & biological.

**Secretariat:** No formal Secretariat; France serves as MTCR's Point of Contact

**MTCR and UN:** No formal linkage but remains committed to the UN's non-proliferation and export control efforts

#### Significance for India

- Can procure high-end missile technology
- Can run joint programmes for development of UAVs with other countries

### Comprehensive Nuclear-Test-Ban Treaty (CTBT) (1996)

**Objective:** Ban all nuclear explosions - everywhere, by everyone

**Negotiated At:** Conference on Disarmament in Geneva 1996 (adopted by UNGA)

**185 Signatories**

Out of 44, 36 countries have ratified

Treaty will enter into force after all 44 States listed in Annex 2 will ratify it (States having nuclear facilities at the time the Treaty was negotiated and adopted)

#### 8 Annex-2 Countries Not Ratified

- China, North Korea, Egypt, India, Iran, Israel, Pakistan and the US
- India, North Korea and Pakistan haven't also signed the Treaty

#### CTBT Organisation

- Promotes the Treaty so that it can enter into force
- Headquartered in Vienna



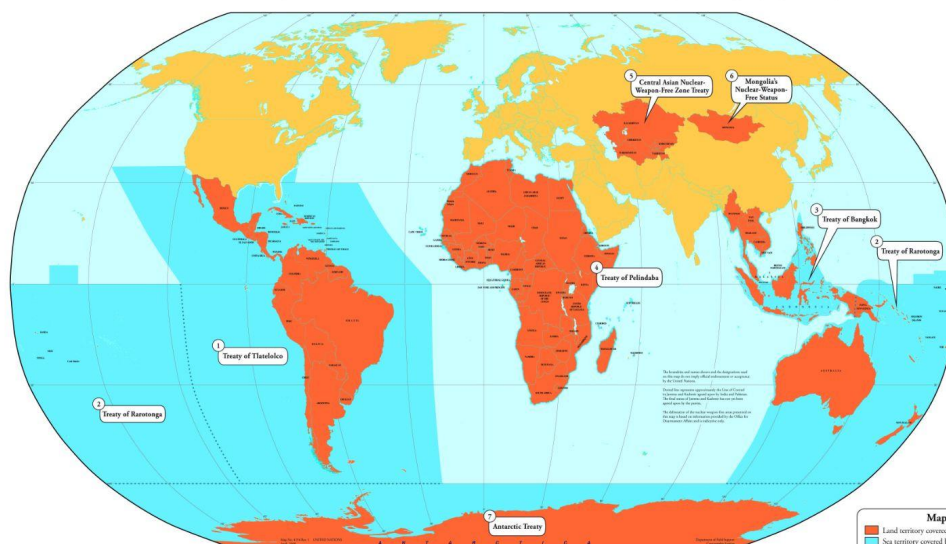
## What are the Different Frameworks for Nuclear Proliferation and Nuclear Disarmament?

### Global:

- **International Atomic Energy Agency (IAEA):** The **IAEA** plays a crucial role in monitoring compliance with nuclear agreements and ensuring that nuclear technology is used for peaceful purposes.
- **Regional Nuclear-Weapon-Free Zones (NWFZs):** These zones, where countries commit to prohibiting nuclear weapons, represent significant progress toward disarmament. Expanding NWFZs could help build momentum for a global ban.
  - The **first NWFZ was established in Latin America** (Treaty of Tlatelolco).

# NUCLEAR-WEAPON-FREE AREAS

Demarcation of nuclear-weapon-free zones, nuclear-weapon-free status and nuclear-weapon-free geographical regions



## TREATIES ESTABLISHING NUCLEAR-WEAPON-FREE AREAS

### Nuclear-weapon-free zones

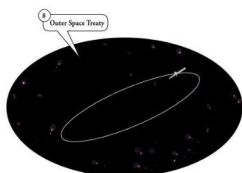
- ① The 1967 Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean
- ② The 1985 South Pacific Nuclear-Free Zone Treaty
- ③ The 1995 Treaty on the South-East Asia Nuclear-Weapon-Free Zone
- ④ The 1996 African Nuclear-Weapon-Free Zone Treaty
- ⑤ The 2006 Treaty on a Nuclear-Weapon-Free Zone in Central Asia

### Nuclear-weapon-free status

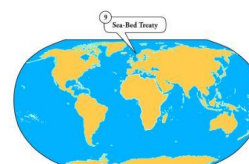
- ⑥ In 1992, Mongolia declared its nuclear-weapon-free status, which is internationally recognized and prohibits, inter alia, the acquisition, possession, placement, testing and use of nuclear weapons on its territory.

### Nuclear-weapon-free geographical regions

- ⑦ The 1959 Antarctic Treaty, inter alia, prohibits any measures of military nature on the continent of Antarctica, including any testing of nuclear weapons.
  - ⑧ The 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, inter alia, prohibits placing nuclear weapons in orbit around Earth, installing or testing these weapons on the Moon and other celestial bodies as well as stationing these weapons in outer space in any other manner.
  - ⑨ The 1971 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, inter alia, prohibits the emplacement of nuclear weapons on the bottom of the ocean and in the subsoil thereof.
- As of 2007, the above nine treaties are at different stages with regard to their signature, ratification and entry into force, as well as with regard to the signature and ratification of their attached protocols requesting assurances from the nuclear-weapon States.



**Map Legend**  
■ Land territory covered by nuclear-weapon-free treaties  
■ Sea territory covered by nuclear-weapon-free treaties



## India's Stance:

- **No First Use (NFU) Policy:** India has pledged not to use nuclear weapons first but reserves the right to retaliate if attacked.
  - **NFU policy** aims to reduce the risk of a nuclear conflict while maintaining deterrence.
- **Refusal to Join the NPT as a Non-Nuclear Weapon State:** India has not signed the NPT, arguing that it is discriminatory because **it allowed the five UNSC Permanent members (P5)** to retain their nuclear arsenals while requiring other states to give up their nuclear weapons.
- **Promotion of Peaceful Nuclear Energy:** India supports the peaceful use of nuclear technology for energy and scientific development under international safeguards.
- **Other Related Initiatives:** **Wassenaar Arrangement** & **the Australia Group**
  - Though these initiatives are not directly focused on nuclear disarmament, they do **play supportive roles** in preventing nuclear proliferation and enhancing global security.

## Note:

- **International Day Against Nuclear Tests:** The objective of observing this day, celebrated on 29th August, is to **educate the public about the need to ban nuclear tests** and prevent their harmful effects on people's lives and health.
- **International Day for Disarmament and Non-Proliferation Awareness:** Observed on 5th March and **focuses on disarmament to maintain international peace and security**, protect civilians, and promote sustainable development.
- **International Day for the Total Elimination of Nuclear Weapons:** The **International Day for the Total Elimination of Nuclear Weapons** is celebrated on 26th September every year to raise awareness about the threat of nuclear weapons and to promote their elimination.

## What are the Challenges Related to Nuclear Disarmament?

- **Global Scenario:**
  - **Geopolitical Rivalries:** Nuclear weapons are viewed by some nations as a deterrent against aggression, leading to an arms race. **For instance, the nuclear arms race among nuclear-armed states like the US, Russia, and Pakistan** complicates efforts toward disarmament.
    - **Some countries, such as the USA, lack an NFU policy**, which raises concerns for nations like China and Russia, prompting them to expand and **modernise their nuclear arsenals** in response to perceived potential threats.
  - **Verification and Compliance Issues:** Ensuring that countries follow disarmament treaties is difficult because **nuclear weapons programs are generally unknown**, making it hard to verify whether weapons have been dismantled properly.
  - **Technological Developments:** New technologies, such as [hypersonic missiles](#), anti-missile defence systems, and cyber capabilities, add layers of complexity to the nuclear arms race, making disarmament negotiations difficult.
- **India's Scenario:**
  - **China-Pakistan Nexus:** China's rapid nuclear modernisation and its military partnership with Pakistan pose a dual strategic challenge for India.
    - These developments, coupled with **ongoing border tensions (at both fronts)**, compel India to bolster its nuclear capabilities to ensure a credible deterrence.
  - **India's Dual Approach:** India faces the challenge of balancing its nuclear deterrence while advocating for global disarmament. The country is modernising its arsenal, including developing [Submarine-Launched Ballistic Missiles \(SLBMs\) like the K-4](#).
    - India promotes **universal nuclear disarmament** and a time-bound framework at international forums, **but this dual approach creates diplomatic tensions** as it seeks greater global integration while remaining outside the NPT.
  - **Absence of Formal Arms Control Agreements:** India does not have formal arms control agreements with its nuclear neighbours, unlike the **bilateral arms control treaties that existed between the US and Russia (USSR)** during the [Cold War](#).
    - The lack of such agreements complicates efforts to build trust and manage nuclear risks in the region effectively.

## What can be the Way Forward?

- **Investing in Peaceful Nuclear Technologies:** Promote the advancement of peaceful nuclear technology for energy generation, showcasing that **nuclear capabilities can serve beneficial purposes instead of being limited to military uses**.
  - Encourage international cooperation in nuclear research for non-military uses, which can also build trust among nations.
- **Enhancing Verification and Compliance Mechanisms:** Invest in technologies and methodologies that enhance the monitoring and verification of nuclear disarmament agreements. **Collaboration with organisations like the IAEA** can improve compliance.
  - Create **independent bodies that can verify the status of nuclear arsenals** and ensure adherence to disarmament commitments.
- **Fostering Dialogue and Diplomacy:** Initiate regular dialogues among nuclear and non-nuclear countries to address concerns regarding nuclear weapons and disarmament. **Forums like the UN and regional organisations can facilitate such discussions**.
  - Develop initiatives that **promote transparency**, such as sharing information on nuclear arsenals and military doctrines. This can help reduce mistrust and prevent escalation during crises.
- **Promoting Nuclear-Weapon-Free Zones (NWFZs):** Expanding regional Nuclear-Weapon-Free Zones can serve as a significant step toward global disarmament.
  - India can take the lead in advocating for the establishment of such **zones in South Asia**, which would help reduce the nuclear threat while promoting peaceful cooperation among nations.

## Conclusion

While **addressing the challenges** posed by nuclear weapons **is critical for global security**, it is equally important to focus on the threats posed by **chemical and biological weapons**. These weapons are **often more lethal and, alarmingly, more accessible** than nuclear arms. By promoting international cooperation and robust regulatory frameworks, a safer, more secure world can be achieved, where the risks of all forms of warfare are significantly reduced.

### **Drishti Mains Question**

Examine India's position on nuclear disarmament. What challenges does the world face in its goal of global nuclear disarmament?

## **UPSC Civil Services Examination, Previous Year Questions (PYQs)**

### **Prelims**

**Q. In India, why are some nuclear reactors kept under “IAEA safeguards” while others are not? (2020)**

- (a) Some use uranium and others use thorium
- (b) Some use imported uranium and others use domestic supplies
- (c) Some are operated by foreign enterprises and others are operated by domestic enterprises
- (d) Some are State-owned and others are privately owned

**Ans: (b)**

### **Mains**

**Q. With growing energy needs should India keep on expanding its nuclear energy programme? Discuss the facts and fears associated with nuclear energy. (2018)**