



# 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

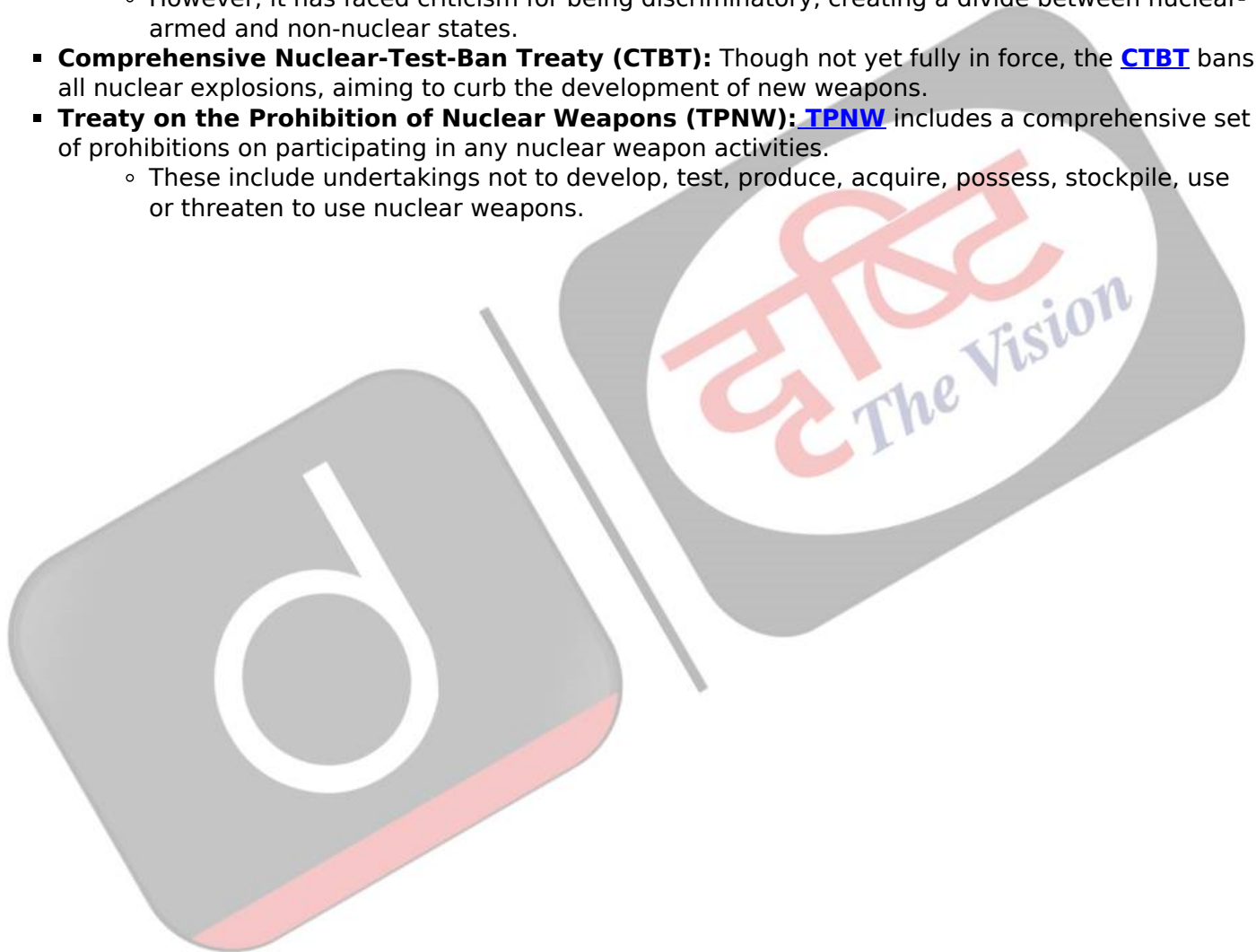
environmental damage, including "**nuclear winter**," where smoke from explosions blocks sunlight, **leading to drastic global cooling, agricultural collapse**, and disruptions to ecosystems.

- **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



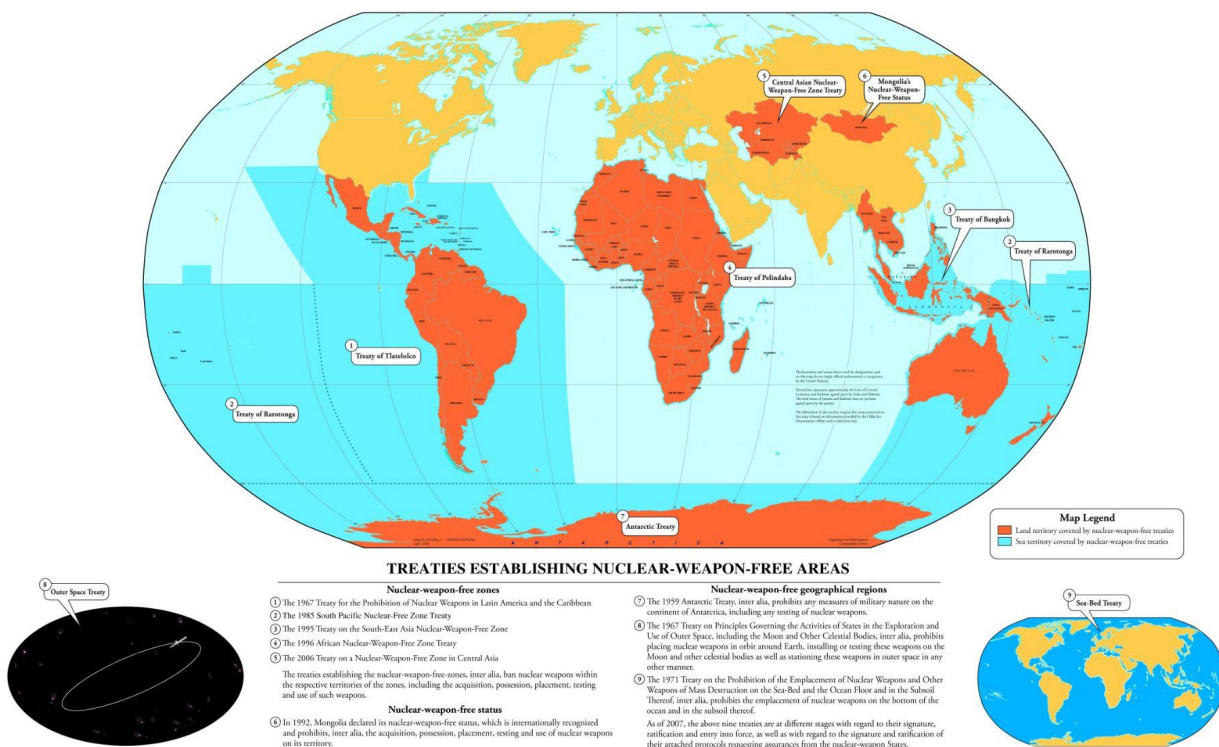
## What are the Different Frameworks for Nuclear Proliferation and Nuclear Disarmament?

### 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



## 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)**