



Nuclear Disarmament: India's Balancing Act

This editorial is based on "[Taking stock of global nuclear disarmament](#)" which was published in The Hindu on 26/09/2024. The article highlights the growing significance of the Treaty on the Prohibition of Nuclear Weapons (TPNW) amidst global challenges and India's delicate position as a nuclear power outside the NPT. It underscores India's need to balance national security interests with the potential of the TPNW to delegitimize nuclear weapons.

For Prelims: [International Day for the Total Elimination of Nuclear Weapons](#), [Non-Proliferation Treaty](#), [International Atomic Energy Agency](#), [1963 Partial Nuclear Test Ban Treaty](#), [Smiling Buddha](#), [Comprehensive Nuclear-Test-Ban Treaty](#), [Israel and Hamas](#), [AI Supported Warfare](#), [Submarine-launched ballistic missiles](#), [Agni-V](#), [Nuclear Suppliers Group](#), [Agni-P missile](#).

For Mains: Evolution of Global Nuclear Disarmament Efforts, Current Nuclear-Related Issues that India is Facing.

The [International Day for the Total Elimination of Nuclear Weapons \(26th September\)](#) brings renewed focus to global nuclear disarmament efforts, particularly the **Treaty on the Prohibition of Nuclear Weapons (TPNW)**. As the United Nations grapples with divisive issues like the Ukraine war and climate change, the TPNW's agenda gains significance. The treaty, which came into force in 2021, goes beyond the [Non-Proliferation Treaty \(NPT\)](#) by comprehensively banning the development, testing, production, and use of nuclear weapons. With 70 states parties and 27 signatories as of July 2024, the TPNW represents a growing movement to delegitimize nuclear weapons.

India's stance on the TPNW is crucial, given its status as a nuclear power outside the NPT framework. While **India has historically opposed the NPT as discriminatory**, it has not actively undermined the treaty. As the global community reassesses nuclear risks in light of recent geopolitical tensions, India must navigate its national security interests **while considering the normative potential of the TPNW in delegitimizing nuclear weapons**.

How Global Nuclear Disarmament Efforts Evolved Over Time?

- **Early Nuclear Era and First Disarmament Attempts (1945-1960):** The modern nuclear age began with the [Trinity test](#) and the **bombings of Hiroshima and Nagasaki** in 1945.
 - By 1949, the Soviet Union had tested its first nuclear device, initiating the arms race.
 - The **1946 Baruch Plan** proposed international control of atomic energy but failed due to Cold War tensions.
 - In **1953**, Dwight Eisenhower's "**Atoms for Peace**" speech attempted to shift focus to peaceful nuclear applications.
 - The [International Atomic Energy Agency \(IAEA\)](#) was established in **1957** to promote

- peaceful nuclear use and prevent military applications.
- India, newly independent, initially advocated for complete disarmament but **began its own nuclear program in the 1950s under Homi Bhabha.**
- **Non-Proliferation Treaty and Partial Test Ban (1960-1970):** The [1963 Partial Nuclear Test Ban Treaty](#) prohibited above-ground nuclear tests.
 - The **Treaty on the Non-Proliferation of Nuclear Weapons (NPT)** was opened for signature in 1968, entering into force in 1970.
 - **The NPT recognized five nuclear weapon states (US, USSR, UK, France, China)** and aimed to prevent further proliferation.
 - The treaty established a review process every five years.
 - India refused to sign the NPT, viewing it as discriminatory, and continued its nuclear program under the guise of peaceful purposes.
- **SALT, START, and Regional Nuclear-Free Zones (1970-1990):** The **Strategic Arms Limitation Talks (SALT)** between the US and USSR resulted in the **Anti-Ballistic Missile Treaty (1972) and SALT I (1972).**
 - The first Nuclear-Weapon-Free Zone was established in Latin America (**Treaty of Tlatelolco**).
 - The Intermediate-Range Nuclear Forces Treaty (1987) eliminated an entire class of nuclear weapons.
 - **India conducted its first nuclear test, "Smiling Buddha," in 1974.**
- **Post-Cold War Disarmament Momentum (1990-2000):** The slowdown of the Cold War accelerated disarmament efforts.
 - The **Strategic Arms Reduction Treaty (START I)** was signed in 1991, reducing deployed nuclear warheads.
 - The [Comprehensive Nuclear-Test-Ban Treaty \(CTBT\)](#) was opened for signature in 1996.
 - However, it has **not entered into force due to non-ratification by key states.**
 - **India and Pakistan both conducted nuclear tests in 1998**, declaring themselves nuclear powers outside the NPT framework.
- **Challenges to Disarmament and New Initiatives (2000-2010):** The US withdrew from the **Anti-Ballistic Missile Treaty in 2002**, citing new security threats.
 - The Global Threat Reduction Initiative was launched in 2004 to secure nuclear materials worldwide.
 - **India signed a civil nuclear agreement with the US in 2008, gaining de facto recognition of its nuclear status** while remaining outside the NPT.
- **Humanitarian Initiative and Ban Treaty (2010-2020):** The **Humanitarian Initiative, launched in 2010**, refocused disarmament efforts on the catastrophic humanitarian consequences of nuclear weapons.
 - This led to the negotiation of the **Treaty on the Prohibition of Nuclear Weapons (TPNW) in 2017**, which entered into force in 2021.
 - The **2015 Joint Comprehensive Plan of Action (Iran nuclear deal)** was a significant non-proliferation achievement, though challenged by US withdrawal in 2018.
 - India maintained its policy of "**credible minimum deterrence**" and continued to advocate for universal nuclear disarmament.
- **New Challenges and Uncertain Future (2020-Present):** The [Covid-19 pandemic](#) disrupted disarmament diplomacy, with many meetings postponed or held virtually.
 - The US and Russia extended **New START for five years in 2021**, preserving the last remaining bilateral nuclear arms control treaty.
 - **Tensions over Ukraine** led to increased nuclear rhetoric, raising global concerns.
 - Also, The recent escalation **between Israel and Hamas** has heightened concerns with the **risk of broader conflict raising questions about nuclear security in the Middle East.**
- Emerging technologies like [hypersonic weapons](#) and [AI Supported Warfare](#) pose new challenges to strategic stability.
- India continues to **modernize its nuclear arsenal while supporting disarmament in principle**, advocating for a time-bound framework for universal nuclear disarmament.

What are the Current Nuclear-Related Issues that India is Facing?

- **Balancing Nuclear Deterrence with Disarmament Advocacy:** India faces the challenge of

maintaining its nuclear deterrent while advocating for global disarmament.

- As of 2023, India is estimated to possess about **160 nuclear warheads**.
- **India continues to modernize its nuclear arsenal**, including the development of submarine-launched ballistic missiles (SLBMs) like the K-4.
- Simultaneously, India has been a vocal proponent of **universal nuclear disarmament**, calling for a time-bound framework at various international forums.
- This dual stance creates diplomatic tensions, particularly as **India remains outside the Non-Proliferation Treaty (NPT)** while seeking greater integration into the global nuclear order.

▪ **Managing the China-Pakistan Nuclear Axis:** The strategic partnership between China and Pakistan poses a significant challenge to India's security calculus.

- **China's support for Pakistan's nuclear program**, including the alleged transfer of missile technology and nuclear materials, has been a long-standing concern.
- Recent developments, such as **China's construction of nuclear reactors in Pakistan (e.g., the Karachi Nuclear Power Plant Units 2 and 3)**, have heightened these concerns.
- The potential for a **two-front nuclear threat scenario** complicates India's defense planning and nuclear posture.
 - This has led to **India's development of longer-range missiles** like the [Agni-V](#), capable of reaching targets across China, and investments in sea-based deterrence capabilities.

▪ **Nuclear Doctrine and No First Use Policy:** India's nuclear doctrine, centered around its **No First Use (NFU) policy**, faces scrutiny and debate in light of evolving regional dynamics.

- Some strategists argue for a **revision of the NFU policy**, particularly given Pakistan's development of tactical nuclear weapons and China's nuclear expansion.
- In August 2019, **India's Defence Minister's** statement that the future of NFU would depend on circumstances sparked speculation about potential doctrinal shifts.
- The debate continues on whether **India's NFU policy enhances or undermines its deterrence credibility**, especially in asymmetric conflict scenarios. This discussion has implications for India's nuclear posture, force structure, and diplomatic relations.

▪ **Nuclear Security and Safety Concerns:** Ensuring the security and safety of its growing nuclear infrastructure is a critical challenge for India.

- The country has **23 operational nuclear reactors as of 2023**, with plans to increase nuclear power capacity to **22,480 MWe by 2031**.
- While India has a good nuclear safety record, incidents like the **2010 Mayapuri radiation exposure** highlight potential vulnerabilities.
- International concerns persist about the security of India's nuclear materials, despite its participation in global initiatives like the Nuclear Security Summit process.
- The Nuclear Threat Initiative (NTI) Nuclear Security Index ranked **India 20th out of 22 countries** with weapons-usable nuclear materials, indicating areas for improvement in nuclear security practices.

▪ **Civil Nuclear Cooperation and NSG Membership:** India's quest for greater integration into the global nuclear order faces ongoing challenges.

- Despite the landmark **India-US Civil Nuclear Agreement of 2008** and subsequent Nuclear Suppliers Group (NSG) waiver, India's full membership in the NSG remains elusive.
- China's opposition, linked to **Pakistan's parallel NSG bid**, has been a significant obstacle.
- This situation impacts India's access to advanced nuclear technologies and its ability to participate fully in global nuclear commerce.
- Recent developments, such as **India's civil nuclear cooperation agreements with countries like Japan (operationalized in 2017)** demonstrate progress but also highlight the complexities of India's unique position in the global nuclear landscape.

▪ **Technological Advancements and Strategic Stability:** India's pursuit of advanced nuclear and missile technologies presents both opportunities and challenges.

- **The successful test of the Agni-P missile in December 2021**, a canisterized missile with improved accuracy and quicker response time, enhances India's deterrence capabilities.
- However, such advancements, along with the development of **Multiple Independently Targetable Reentry Vehicles (MIRVs)** and **Ballistic Missile Defense (BMD) systems**, could potentially trigger an arms race in the region.

- **Nuclear Energy Expansion and Environmental Concerns:** India's ambitious plans to expand its nuclear energy sector face significant challenges.
 - The target of increasing nuclear power capacity to 22,480 MWe by 2031 requires **substantial investment and overcoming public opposition.**
 - Protests against nuclear power plants, such as those at **Kudankulam and Jaitapur**, highlight concerns about safety and environmental impact.
 - The push for indigenous technology, exemplified by the design of the 700 MWe **Pressurized Heavy Water Reactors (PHWRs)**, aims to reduce dependence on foreign technology but faces technical and economic hurdles.

What Measures India Can Adopt to Balance Nuclear Deterrence with Disarmament?

- **Strengthen Credible Minimum Deterrence (CMD):** India can reinforce its **Credible Minimum Deterrence** posture by clearly defining what constitutes "**minimum**" in the current geopolitical context.
 - The successful test of the K-4 submarine-launched ballistic missile in 2020 demonstrates India's commitment to a credible sea-based deterrent.
 - By emphasizing **quality over quantity in its nuclear modernization efforts**, India can maintain deterrence while signaling its commitment to restraint and eventual disarmament.
- **Promote Regional Strategic Stability Dialogues:** India can initiate and participate in regional strategic stability dialogues, **involving both nuclear and non-nuclear states in South Asia.**
 - These dialogues could focus on **risk reduction measures, confidence-building, and crisis management mechanisms.**
 - For instance, India could propose regular meetings of nuclear risk reduction centers with Pakistan, similar to the **US-Russia model.**
 - By fostering open communication channels, India can work towards reducing nuclear tensions while demonstrating its commitment to regional stability and eventual disarmament.
- **Engage in Global Disarmament Initiatives:** While maintaining its deterrent, India can take a **more active role in global disarmament initiatives.**
 - This could include proposing **concrete steps towards a nuclear-weapon-free world at forums like the Conference on Disarmament.**
 - For example, India could champion the development of a multilateral treaty on **No First Use of nuclear weapons, building on its own policy.**
 - **India's participation in the Nuclear Security Summits** and its contributions to the [International Atomic Energy Agency \(IAEA\)](#) demonstrate its capacity for constructive engagement.
 - By leading such initiatives, India can strengthen its position as a responsible nuclear power committed to ultimate disarmament.
- **Invest in Verification Technologies:** India can invest in and contribute to the development of nuclear disarmament verification technologies.
 - This demonstrates a **commitment to creating the technical conditions necessary for future disarmament** while maintaining current deterrence capabilities.
 - India's expertise in space and satellite technology, demonstrated by missions like [Chandrayaan-3](#) in 2023, could be leveraged for developing verification satellites.
 - Such investments position India as a key player in shaping the future of disarmament processes.
- **Strengthen Domestic Controls and Export Regulations:** India can further strengthen its domestic nuclear controls and export regulations, demonstrating **responsible stewardship of nuclear technology while maintaining deterrence.**
 - This could involve enhancing physical security at nuclear facilities, improving nuclear material accounting systems, and tightening export controls on dual-use technologies.
 - For instance, **India's implementation of the [Special Chemicals, Organisms, Materials, Equipment and Technologies \(SCOMET\) list](#)**, which regulates the export of sensitive items, can be further refined and expanded.
 - These measures reinforce India's image as a responsible nuclear power committed to non-proliferation and eventual disarmament.

- **Promote Nuclear Energy for Sustainable Development:** India can emphasize the peaceful uses of nuclear technology, **particularly in addressing climate change** and sustainable development goals, while maintaining its deterrent.
 - This could involve expanding its nuclear energy program with a focus on advanced, safer reactor designs.
 - For example, **India's development of the Advanced Heavy Water Reactor (AHWR), which uses a thorium fuel cycle**, demonstrates its commitment to sustainable nuclear energy.
 - By highlighting the **civilian benefits of nuclear technology**, India can maintain public support for its nuclear program while advocating for global disarmament in the long term.
- **Engage in Track 1.5 and Track 2 Diplomacy:** India can actively participate in and support Track 1.5 and Track 2 diplomatic initiatives focused on nuclear risk reduction and disarmament.
 - These unofficial dialogues can explore innovative ideas and build relationships that facilitate official negotiations.
 - For instance, **India could sponsor regional workshops on nuclear risk reduction**, similar to the "**Stability-Instability Paradox**" workshops held by the Stimson Center.
 - Such initiatives allow India to contribute to disarmament discourse while maintaining its deterrent posture.

Conclusion

India faces the complex task of balancing its national security interests with global disarmament goals. By modernizing its **deterrence capabilities while actively advocating for nuclear disarmament**, engaging in international diplomacy, and investing in peaceful nuclear technologies, India can strengthen its position as a responsible nuclear power committed to eventual disarmament.

Drishti Mains Question:

Discuss the current state of global nuclear disarmament efforts, with special reference to the challenges posed by geopolitical tensions and emerging technologies. How should India balance its national security interests with global disarmament goals?

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)

