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INDIA'S NUCLEAR WEAPONS POLICY: CHALLENGES AND BENEFITS

ABSTRACT

The Cold War tended to divide the world into two blocs on ideological basis, namely the capitalist bloc headed by USA and the communist bloc headed by the former USSR. In such a situation of 'Cold War', India refused to join any of these two blocs and adopted a policy of non-alignment which further enhanced India's Nuclear Weapon Policy. India is now a nuclear weapon state which shaped its policy through strategic interests, security concerns & commitment to global non-proliferation norms. The aim of this paper is to analyze the India's stance on Nuclear Weapon Policy and how much India acquired. Indeed, the foundation of India's Nuclear Weapon Policy is guided by the principles of no- first use policy (NFU), minimum credible deterrence and non-proliferation. The benefits of India's Nuclear Weapon Policy include strategic deterrence, national security, nuclear agreements and enabled energy security. Furthermore, India's nuclear weapon policy faces several challenges such as Pakistan's tactical nuclear weapons, conundrum of NFU policy and growing China's military and its nuclear capabilities. Another significant challenge faced by India is nuclear terrorism. The objective of this paper is attempts to demystify the Indian view of nuclear proliferation and disarmament. This paper is broadly divided into four sections: the first section deals with the basic rationales behind India's acquisition of nuclear weapons. The second section analyses the negotiations with NPT, CTBT and NSG waiver. The third section will examine India, as an emerging power with recent nuclear innovation, its benefits and its challenges.

The final section of this paper will assess the extent of India nuclear weapon policy towards nuclear non- proliferation regimes and the synopsis of Budget 2025 towards India's Nuclear Weapon Policy. Towards the end of this paper, it likely to assess India's Nuclear Weapon Policy with recent negotiations as India continues to navigate the complexities of nuclear politics, it must carefully balance its national security interests with regional &global responsibilities.

KEY WORDS

Deterrence, National Interest, Nuclear disarmament, Security, Credible Threat, Responsive State, Retaliating Nature

LITERATURE REVIEW

Acknowledging the previous Scholar's contribution is perennial and used in research paper. To examine India's Nuclear Weapon Policy: Challenges and Benefits and in order to make the study more coherent, the review & literature summarized as in themes and try to engage with IR theories are as follows:

Strategic and Doctrinal Dimension

Indeed, India's nuclear doctrine reflects a commitment to deterrence rather than warfighting. Tellis (2001) argues that India's posture aims to prevent coercion rather than mirror Cold War-style strategies. However, Karnad (2008) critiques this doctrine as overly idealistic and strategically timid, suggesting it may not deter aggressive adversaries effectively. Basrur (2009) offers a contrasting view, arguing that minimal deterrence enhances stability by avoiding arms races and maintaining a restrained posture. The evolving debate around the credibility of India's NFU policy, especially after ambiguous political statements, has led scholars like Rajagopalan (2015) to call for a re-examination of doctrinal clarity.

Regional Security Dynamics

India's nuclear policy cannot be understood in isolation from its regional security environment, particularly its relationships with China and Pakistan. Ganguly and Kapur (2008) note that nuclear weapons have helped prevent full-scale wars, but have not deterred low-intensity conflict, especially with Pakistan. Krepon (2010) highlights the destabilizing effect of Pakistan's tactical nuclear weapons and India's lack of a clearly articulated response. Saalman (2011) observes that India's growing missile capabilities, including MIRVs, are a response to China's expanding arsenal, which could risk triggering a regional arms race.

Technological and Operational Challenges

The current challenge that India faces is the significant technological and operational hurdles in realizing a fully credible nuclear deterrent. Sethi (2020) underscores delays in deploying sea-based deterrents like SSBNs, limiting India's assured second-strike capability. Narang (2014) points out that India's command and control infrastructure remains underdeveloped, potentially undermining crisis stability.

International and Diplomatic Perspective

India’s nuclear policy has brought both opportunities and criticisms in the global arena. While India remains outside the Nuclear Non-Proliferation Treaty (NPT), it gained de facto recognition as a responsible nuclear power through the 2008 U.S.-India Civil Nuclear Agreement. Mohan (2003) argues that this enhanced India’s global status and strategic autonomy.

Realism: Power and Security

Thinker like Kenneth Waltz- Source: Waltz, K. (2000). "The Spread of Nuclear Weapons: More May Be Better", in International Security, Vol. 2, No. 4, pp. 3-45. Provide illustration that India’s nuclear policy Driven by deterrence needs, especially after 1962 Sino-Indian War and China's nuclear tests is primitive for future outlook. Likewise in the Book: Ganguly, S. (1999). India's Nuclear Bomb: The Impact on Global Proliferation. University of Washington Press, pp. 50-75 also cited similar comments coercive diplomacy.

DEFINITION, RATIONALE & SCOPE OF THE STUDY

Definition

Indeed, India’s nuclear weapon policy refers to the set of strategic doctrines, political positions, and operational principles guiding the development, deployment, and use of nuclear weapons by the Republic of India. This includes the official No First Use (NFU) doctrine, credible minimum deterrence, and decisions surrounding nuclear posture, command structure, and diplomatic engagement within global non-proliferation regimes. The policy reflects India's broader security concerns, regional geopolitical dynamics, and commitment to maintaining strategic stability.

Scope of the Research:

- To analyze the historical evolution of India’s nuclear policy post-independence.
- To study the core principles of India’s nuclear doctrine, including "No First Use" and minimum credible deterrence.
- To evaluate strategic benefits of possessing nuclear weapons in the context of regional and global geopolitics.
- To examine the internal and external challenges India faces in maintaining and modernizing its nuclear arsenal.

- To assess India’s position in global nuclear regimes like the NPT, NSG, and CTBT.
- To analyze India's nuclear policy in light of relations with neighboring nuclear states such as China and Pakistan.
- To explore the role of nuclear weapons in India’s defense and foreign policy strategy.
- To offer a comparative view with the nuclear policies of other major powers for better contextual understanding.

Limitations of the Research

- Classified or sensitive data related to India’s nuclear arsenal and strategy is not publicly available.
- The study is based on secondary sources, which may have inherent biases (India) or outdated information.
- Rapid developments in global geopolitics might impact the relevance of the findings over time.
- Limited access to firsthand accounts or interviews with policymakers or defense experts.
- The research does not cover more prolonged technical or scientific aspects of nuclear weapons development.
- Focus is on India’s official doctrine and public discourse, not on speculative strategies or unofficial postures.

OBJECTIVE OF THE RESEARCH

The primary objective of this research paper is to critically analyze India's nuclear weapons policy by examining its historical evolution, strategic doctrines, and policy frameworks. The paper aims to explore the key challenges India faces in maintaining and modernizing its nuclear arsenal—such as regional security dynamics, technological constraints, international pressure, and arms control regimes. Simultaneously, it seeks to assess the benefits that India's nuclear policy provides in terms of national security, deterrence capabilities, and global strategic positioning. The ultimate goal is to offer a balanced perspective that informs policymakers, scholars, and the public about the implications of India's nuclear stance in the contemporary geopolitical landscape.

FUNDAMENTAL RESEARCH QUESTIONS

1. How effective is India's No First Use (NFU) doctrine in maintaining regional and global strategic stability?
2. What are the geopolitical and diplomatic benefits India has gained by adopting a nuclear weapons policy based on restraint and strategic ambiguity?
3. Is India's current nuclear doctrine sufficiently equipped to address emerging threats, such as cyber warfare, missile defense technologies, and new nuclear doctrines from neighboring countries?

HYPOTHESIS

Hypothesis 1:

India's No First Use (NFU) policy has historically contributed to regional strategic stability by discouraging nuclear escalation in South Asia. However, as Pakistan and China modernize their nuclear arsenals, this policy faces challenges in maintaining deterrence credibility, potentially leading to policy reassessment.

Hypothesis 2:

India's adherence to a policy of nuclear restraint and strategic ambiguity—highlighted by its NFU stance—has enhanced its diplomatic standing globally. This has led to significant geopolitical advantages, such as securing the Nuclear Suppliers Group (NSG) waiver and bolstering its strategic autonomy in global nuclear politics.

Hypothesis 3:

India's existing nuclear doctrine, while robust in traditional deterrence, does not adequately account for emerging non-traditional threats, such as cyberattacks, missile defense systems, and the growing sophistication of China's and Pakistan's nuclear strategies. Consequently, India's deterrence credibility may be at risk unless the doctrine is modernized to include these new challenges.

RESEARCH METHOLDOLOGY

This research is grounded in a realist epistemological framework, recognizing the primacy of state interests, power dynamics, and security imperatives in shaping nuclear policy. A mixed-

methods approach is adopted, combining qualitative and quantitative techniques to ensure a comprehensive understanding of India's nuclear doctrine. Primary sources—including official government documents, strategic policy papers, speeches, and expert interviews— taken form the core empirical foundation. Quantitative data, such as nuclear capability indicators, Nuclear Arsenals, and conflict records, are critically analysed to trace trends and assess policy impacts over time. A comparative framework is employed to evaluate India's nuclear posture alongside those of key nuclear powers, particularly Pakistan, China, and the United States. This comparative analysis enables identification of both shared strategic patterns and context-specific divergences. Triangulation is utilized to strengthen the validity and reliability of findings by cross-verifying data across diverse sources and methodological perspectives. The methodology supports a balanced, empirically grounded assessment of both the benefits and challenges inherent in India's nuclear policy and In-depth examination of India's nuclear policy through existing literature, government documents, and policy reviews included.

CHAPETRIZATION

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INTRODUCTION

The war of the future, would be in one in which man could extinguish millions of lives at one blow, demolish the great cities of the world, wipe out the cultural achievements of the past- and destroy the very structure of a civilization that has been slowly & painfully built up through hundreds of generations.

Prominent Manhattan Project, introduced world to a "Nuclear Age" by attacking twin bombing of Hiroshima and Nagasaki by USA. It became a psychological weapon more than that weapon of terrible destruction. Further, the Cold war elucidated concept of nuclear deterrence which has changed and ideas like MAD (Mutually Assured Destruction) has been diluted. Nevertheless, this has been revived by Asian Nations reaffirming the prominence of nuclear weapon in their strategic thought. Some nations with geographical and Conventional weakness as well as financial constraints found it difficult to counter conventional challenges and so opted for offensive nuclear doctrine such as "First Use" by Pakistan and some nations like India who wanted to secure their boundary as newly developed country. Quote Waltz (IR thinker of Realism) stated that "State act owns their national interest" as India surrounded by economy one side Pakistan and other side Giant China. So here some fundamental questions raised in this scenario what India should do? What has to be the Future outlook for India? and how Under developed country like India stand in the Nuclear World? Yet. India Adopted to choose nuclear weaponization to protect the country' interest and their subjects by adopting doctrine "No First Use".

Paving way for nuclear is not an easy task, Indian leaders at the beginning of the nuclear era were deeply uneasy with the invention of the bomb. M. K. Gandhi, widely regarded as the architect of Indian independence, rejected nuclear weapons as morally unacceptable. Unlike Gandhi and Nehru Indira paved way to make India a nuclear country talking about India's nuclear weapon policy so it has long been at the intersection of strategic necessity, technological evolution, and geopolitical aspirations. Since its first nuclear test in 1974 and the Pokhran-II series in 1998, India has pursued a doctrine of credible minimum deterrence with a declared No First Use (NFU) policy.

Rooted in strategic restraint and moral legitimacy, India's nuclear doctrine seeks to balance deterrence with responsibility, especially given the volatile security environment in South Asia. India's nuclear policy has evolved in response to both external threats and internal imperatives. With nuclear-armed neighbours—China to the north and Pakistan to the west—India's strategic calculus involves deterring both a conventional and nuclear threat, while also avoiding an arms race. As Perkovich (1999) insightfully argues, "India's nuclear policy has been shaped as much by political identity and moral exceptionalism as by strategic calculus" (p. 3). This nuanced foundation distinguishes India's approach from other nuclear powers, combining realism with a commitment to global norms like disarmament and non-proliferation. A key challenge in recent years has been technological modernization. Scholars like Narang (2014) and Rajagopalan (2015) highlight persistent issues such as inadequate command and control infrastructure, limited real-time surveillance, and delays in deploying second-strike capabilities via nuclear submarines (SSBNs). These technological vulnerabilities, when combined with growing cybersecurity threats, pose a serious risk to India's deterrent credibility (Acton, 2017; Sethi, 2020). The regional strategic environment remains fragile. Pakistan's development of tactical nuclear weapons and its first-use policy significantly complicate deterrence stability (Ganguly & Kapur, 2008). Meanwhile, China's rapid military modernization—including its nuclear arsenal—places pressure on India to maintain strategic parity, particularly in light of border tensions and regional competition.

While, in this context, the Union Budget of India for 2025 plays an increasingly imperial role in shaping the country's nuclear and defense priorities. The 2025 budget saw a notable increase in capital outlay for defense modernization, including advanced missile systems, satellite-based surveillance, and cyber defense infrastructure. According to the Ministry of Defence (2025), allocations toward the Strategic Forces Command (SFC) and DRDO's nuclear delivery platforms indicate a push toward enhancing second-strike capabilities and modernizing command and control systems. This financial commitment signals India's intent to build a more robust and credible deterrent in the face of evolving threats. While budgetary expansion supports capability development, it also raises concerns about resource diversion from social sectors. Critics argue that disproportionate focus on nuclear modernization may strain broader developmental priorities, highlighting the ongoing tension between strategic security and human security (Bidwai & Vanaik, 2000). Understanding these dynamics is essential for assessing the sustainability and direction of India's nuclear posture in a changing world.

HISTORICAL BACKGROUND

India's Nuclear Weapon journey has always been an area of fascination for everyone. Whether it was India's Criticisms of the MPT, or its overt declaration of becoming nuclear weapon state in 1998, the ambiguousness and mystery that has surrounded the development of India's nuclear strategy, has become the hallmark of India's nuclear policy. India is one of the few countries whose leaders clearly understood the implications of the nuclear explosions in 1945. This cataclysmic event had upturned the security paradigms globally and countries were forced to rethink their strategies. Despite spear heading the shift to a "Nuclear Asia" to construct a nuclear reactor- namely "APSARA". But before digging into in-depth knowledge, let's look at the historical backyard.

India's first Prime Minister, Jawaharlal Nehru, was pragmatic enough to keep the possibility of nuclear weapons development open, but nevertheless opposed them because, as he put it, "we know that the use of these weapons amounts to genocide". It is hardly surprising then that India was in the forefront of calls for disarmament from early on. Its advocacy of universal nuclear disarmament goes back as far as 1948. In 1954, it proposed an end to nuclear testing and simultaneously Panchsheel Agreement between India and China. In 1965 it favoured a non-discriminatory treaty banning nuclear proliferation, but walked away from the Nuclear Non- proliferation Treaty (NPT) on the ground that it discriminated between nuclear haves and have-nots.

In **1974,** Prime Minister Indira Gandhi appeared to have abandoned the Gandhi-Nehru legacy when she authorized a nuclear test. The claim that it was a "peaceful" explosion was met with scepticism and there was widespread disappointment that India had stepped down from its moral high ground. Yet, few came to appreciate the still more remarkable fact that, having tested the bomb, Mrs. Gandhi made no move to go ahead and build an arsenal, but returned to the rhetoric of disarmament. What explains this second reversal? One answer is to ascribe it to "an unsettled domestic political order plus an unwillingness to press the advantage over Pakistan." It could be argued that there was no real threat—the Soviet Union deterred China from attacking India. But there was no particular reason to believe that it would always do so. A more feasible explanation is that Mrs. Gandhi had accomplished her objective of asserting India's independence and could—with the confidence that basic nuclear capability had been achieved—afford to realign herself with a normative perspective that found nuclear weapons discomfiting at best. In short, the making of the bomb did not dislodge the sustained Indian

interest in disarmament. The 1974 test, code-named **Smiling Buddha,** marked India's entry into the nuclear club, though it was officially described as a peaceful test. Scholars argue that this test was driven by regional security concerns, particularly following China's 1964 nuclear test and India's defeat in the 1962 Sino-Indian War (Perkovich, 1999).

In **1978**, India called for negotiations toward an international convention prohibiting the use or threat of use of nuclear weapons. Its most comprehensive proposal came in the form of the Action Plan for complete and universal nuclear disarmament, which Prime Minister Rajiv Gandhi presented to the United Nations General Assembly's Third Special Session on Disarmament in 1988. The comprehensive plan envisaged a time-bound agenda encompassing an end to testing, the non-use of nuclear weapons, and phased reductions of weapons systems and fissile material to the point of total elimination. In 1996, along with other members of the „Group of 21", India also supported a Programme of Action for complete elimination.

In **1996** proposal could be interpreted as shallow, even cynical. But there is nothing inherently contradictory in calling for disarmament and producing nuclear weapons at the same time. As **Shyam Saran,** Prime Minister Manmohan Singh's Special Envoy, later observed: In a world populated by states producing and deploying nuclear weapons, India's strategic autonomy must be safeguarded. However, we must not forget that, despite being a nuclear weapon state, India remains convinced that its security would be enhanced, no diminished, if a world free of nuclear weapons were to be achieved.

The indefinite extension of the NPT in 1995 seemed to Indian eyes to have cast "nuclear apartheid" in stone. The negotiations on the Comprehensive Test Ban Treaty (CTBT) turned sour as the treaty appeared to shut the door on India's nuclear option without extracting any firm commitments on disarmament from the "recognised" nuclear weapons states. To break out of the tightening squeeze, India decided to test and, after some hesitation (Prime Minister Narasimha Rao retracted a testing order under US pressure in 1995), did so in **1998.** Thereafter, Indian nuclear diplomacy focused on defending the decision, on tackling the international sanctions that followed, and on keeping the nuclear door firmly open. Analysts like Ganguly (1999) argue that the tests were influenced by Pakistan's growing nuclear capabilities and the strategic ambiguity surrounding China's role in South Asia.

However, Together, the 1974 and 1998 tests created the framework for India's current nuclear posture marked by restraint, credibility, and survivability. While also highlighting a continuity of strategic autonomy in the face of international pressure (Pant, 2012).

FORGED IN FIRE: HOW WARS SHAPED INDIA'S NUCLEAR DOCTRINE

India's nuclear weapons policy is profoundly shaped by its national security, particularly its historical conflicts with China and Pakistan. The **1962** Sino-Indian War revealed India's strategic vulnerabilities, especially in the context of China's successful nuclear test in **1964.**

The phrase **"Hindi-Chini Bhai-Bhai"**, meaning "Indians and Chinese are brothers", was a popular slogan symbolizing the friendly relations between India and China during the 1950s. However, it has since come to represent a **"false truce"** or **illusion of friendship**, especially in light of the 1962 Sino-Indian War. So, this combination of military defeat and nuclear asymmetry played a crucial role in India's decision to pursue nuclear capabilities, culminating in the 1974 test (Perkovich, 1999). The enduring hostility with Pakistan, including full-scale wars in **1947, 1965**, and **1971**, and the Kargil conflict in **1999**, further underscored the strategic necessity of nuclear deterrence. Pakistan's own nuclearization in 1998 and its declared first-use posture pushed India to articulate a clear doctrine based on credible minimum deterrence and a no-first-use policy, as formally outlined in the 1999 Draft Nuclear Doctrine (Government of India, 1999). Scholars like Tellis (2001) argue that India's policy aims to ensure strategic stability while avoiding arms races, drawing from its unique geopolitical situation of facing two nuclear-armed adversaries. Moreover, China's growing nuclear arsenal and its infrastructural advancements along the Line of Actual Control (LAC) have prompted India to modernize its delivery systems and enhance second-strike capabilities (Pant, 2012). The **2020** Galwan Valley clash with China and ongoing border tensions have reignited debates around India's nuclear posture, with some experts suggesting a potential re-evaluation of the no-first-use policy (Saran, 2013). Overall, India's nuclear weapons policy reflects a strategic calculus shaped by its historical wars with Pakistan and China, aiming to deter aggression while maintaining responsible stewardship of nuclear technology under global scrutiny.

Analysis of India's nuclear weapon policy through the lens of the Kargil War (1999) and the 2001 Indian Parliament Attack

India's nuclear weapons policy, particularly its No First Use (NFU) doctrine and Credible Minimum Deterrence, was tested during both the Kargil War (1999) and the 2001 Indian Parliament Attack. During the Kargil War, Pakistan's infiltration into Indian territory escalated tensions between the two nuclear-armed nations. Despite the potential for a nuclear conflict, India adhered to its NFU policy, relying on conventional military forces to push back the infiltrators. The war highlighted the credibility of nuclear deterrence, where both sides avoided escalating to a nuclear exchange due to the catastrophic consequences. However, it also raised concerns about nuclear weapons' effectiveness in limited conflicts, as the threat of nuclear escalation loomed even in a conventional war.

Similarly, after the 2001 Parliament Attack, India mobilized its forces and considered military retaliation. The presence of nuclear weapons on both sides prompted international diplomatic pressure, particularly from the United States, to prevent escalation. India's restraint and NFU policy were tested once again, but nuclear deterrence helped prevent the crisis from spiralling into a full-scale war. Both events underscore that while India's nuclear policy provides strategic stability, it faces significant challenges in handling asymmetric threats like terrorism and conventional skirmishes. Nuclear deterrence is effective in preventing large-scale wars, but evolving threats necessitate a more flexible and nuanced approach to India's nuclear strategy

INDIA AND THE NPT: STRATEGIC AUTONOMY

The NPT lays out the behavioural norms expected of its signatories and remains central to any contemporary understanding of nuclear responsibility. The Treaty distinguishes between five Nuclear Weapon States (NWS) and all other states, which it classifies as Non-Nuclear Weapons States (NNWS), and allocates different responsibilities to each group. The former, comprising nuclear possessor states who tested a working nuclear device prior to 1 January 1967, have the responsibility to share the benefits of peaceful nuclear technology with non-nuclear parties to the Treaty and to take steps towards arms control and disarmament. The latter have the responsibility not to develop nuclear weapons, but in return have the right to use nuclear technology for peaceful or 'civilian' purposes.

India is a nuclear possessor state but, as an outsider to the NPT is, legally speaking, not bound by either set of nuclear responsibilities.re. As the NPT currently stands, it is difficult to imagine a space for India in the Treaty. India tested a working nuclear device after 1 January 1967, so it cannot be recognised formally as an NWS. India is highly unlikely to renounce its nuclear

weapon capability, so India also cannot be recognised as a NNWS. Moreover, Indian leaders have long challenged what they see as the NPT's fundamentally discriminatory character. Their opposition is based on the Treaty's focus on the prevention of the spread of nuclear weapons, while the recognised NWS are, in a de facto sense, at liberty to increase their own nuclear arsenals. From this perspective, the NPT creates two tiers of states, where the majority have ceded their right to develop or possess nuclear weapons, while a minority face no constraints on their weapons development. India's enduring critique of the NPT's bifurcation of the global nuclear order should not be mistaken for a rejection of all the Treaty's provisions. Indian officials have been keen to underscore that India both values and abides by key provisions of the Treaty.

In May 2000, for example, External Affairs Minister Jaswant Singh claimed that 'India's policies have been consistent with the key provisions of NPT that apply to nuclear-weapon states.' India's decision to remain outside the Treaty has, in some respects, served India well. On the one hand India cannot be accused of violating the provisions of the NPT (as have Iran and North Korea) through the development of a nuclear weapons programme. On the other hand, India's compliance with the Treaty in most other respects is not legally required of India, and therefore India has arguably derived a degree of moral suasion from this voluntary compliance.

India's claim to have complied with the NPT bears systematic analysis. Of the Treaty's three pillars—non-proliferation, the peaceful uses of nuclear energy, and disarmament—India can demonstrate, on balance, a fair record, if it is judged as a Nuclear Weapon State. However, it is impossible to sidestep India's devastating breach of a key norm enshrined in the Treaty: that of Non-Nuclear Weapons States foregoing nuclear weapons. Insofar as India was classified as an NNWS under the NPT, it challenged the centre-most pillar of the Treaty, the prevention of the proliferation of nuclear weapons, when it tested one nuclear device in May 1974 and five more in May 1998. In 1998, India also challenged an emerging norm of non-testing growing out of the 1995 NPT extension and the conclusion of negotiations towards the Comprehensive Test Ban Treaty (CTBT) in 1996. The CTBT is yet to enter into force, but the NWS have maintained a moratorium on testing. India is one of only three states6 to have tested nuclear weapons since 1996.

CHALLENGES: **Strategic and Security**

1. **India's dilemma: Threat from China and Pakistan**

   India is also emerging as a major power and the rise of both China ad India will test the global system. This economic resurgence will influence military & foreign relations, and may lead to system of alliance& partnership. India's tryst with the atomic bomb is as old as the bomb itself. India's first PM Pt. Nehru understood implications of nuclear test along with the India's eminent physicist, Dr. Homi Jahangir Bhabha. The Sino- Indian conflict of 1962 had scarred India& the nuclear test by China in 1964 aggravated the security risks. Unlike Pakistan, who was a member of CENTO, India was not member of any multilateral alliances system rely on its resources. Thus, one threat coming from China as Galwan dispute, Depsang Plains, Gogra Hills and so on. While on the other side Pakistan which have had harsh dark bilateral relations. Various terrorist organization funded by Pakistan. So, China and Pakistan posing significant challenge for India.

2. **Terrorism**

   Terrorism presents a complex challenge to India's nuclear weapons policy, particularly given the threat of non-state actors operating from neighboring territories. Unlike traditional state adversaries, terrorist groups are not deterred by nuclear retaliation, which complicates India's doctrine of credible minimum deterrence and its declared no-first-use policy (Narang, 2010). The 2008 Mumbai attacks, allegedly orchestrated by Pakistan-based Lashkar-e-Taiba, heightened concerns about the possibility of nuclear escalation triggered by sub-conventional warfare. Scholars argue that such asymmetric threats place pressure on India to develop more flexible response options, potentially including tactical nuclear capabilities or a re-evaluation of the NFU stance (Pant, 2012). Additionally, the risk of nuclear terrorism—such as the theft or sabotage of nuclear materials—has pushed India to strengthen its nuclear command and control systems and collaborate in international frameworks like the Global Initiative to Combat Nuclear Terrorism. However, India remains cautious in altering its formal doctrine, seeking to maintain strategic stability while addressing evolving threats from terrorism that test the traditional logic of nuclear deterrence (Perkovich, 1999).

3. **Cyber and Technological Risks in India's Nuclear Weapon Policy**

India's nuclear weapon policy faces increasing challenges from emerging technologies and cyber threats, which could undermine the credibility and stability of its deterrence posture. As India advances its nuclear capabilities, it must also contend with risks arising from cyber warfare, command and control vulnerabilities, and asymmetric technological competition. Cyber threats targeting nuclear command and control systems present one of the most serious risks. Narang (2014) highlights that as nuclear systems become more digitized, they are increasingly susceptible to cyber intrusions that could spoof launch signals or disrupt communication networks. Acton (2017) warns that cyberattacks on early warning systems could lead to accidental escalation, particularly in high-tension environments with Pakistan or China. India's limited C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance) infrastructure and underdeveloped real-time surveillance capabilities exacerbate these concerns (Sethi, 2020). Without robust redundancies and cyber resilience, the credibility of India's second-strike capability may be compromised. Emerging technologies such as artificial intelligence (AI), autonomous systems, and hypersonic weapons also challenge traditional deterrence. Horowitz (2018) argues that while these technologies may enhance strategic operations, they introduce unpredictability and could destabilize deterrence dynamics if not carefully integrated. However, technological modernization must be accompanied by strong cybersecurity protocols, institutional reforms, and doctrinal adjustments. Ignoring these risks could weaken India's nuclear deterrent and escalate regional instability.

4. **India and NSG Waiver issue**

India's engagement with the Nuclear Suppliers Group (NSG) represents a landmark in its quest for global nuclear legitimacy despite being a non-signatory to the Nuclear Non-Proliferation Treaty (NPT). In 2008, India secured a historic waiver from the NSG, allowing it to engage in civil nuclear trade with member countries. This exceptional agreement was made possible through sustained diplomatic efforts, particularly the India-U.S. Civil Nuclear Deal 2005, which recognized India's strong non-proliferation record and its commitment to separating civilian and military nuclear facilities (Pant, 2009). The waiver effectively ended India's nuclear isolation, granting it accesses to nuclear

technology and fuel from the international market, and reinforcing its status as a responsible nuclear state. However, critics argue that this sets a precedent that undermines the NPT framework by allowing a non-signatory to benefit from nuclear cooperation (Sagan, 2011). Despite this, India has since aligned its export controls with international norms, such as the NSG Guidelines, the Missile Technology Control Regime (MTCR), and the Wassenaar Arrangement, furthering its case for full NSG membership. Yet, opposition from countries like China continues to stall India's admission, highlighting the geopolitical complexities of the global nuclear order.

BENEFITS: Geopolitical and Strategic

1. **NFU (No First Use) Policy**

   Two of the most influential voices in promoting the acquisition of nuclear weapons by India – General K. Sundarji, who later went to become the country's Chief of the Armed Forces, and K. Subrahmanyam, a civil servant who directed the Institute for Defence Studies and Analyses for nearly a decade and a half – were votaries of an NFU policy. The centrality of General Sundarji to India's nuclear weapons posture dates back to the early 1980s, during the period when he served as Commandant in the College of Combat (now Army War College) and began a public discussion on nuclear posture suitable for India. Sundarji made the argument that an adversary possessing nuclear capabilities could threaten the concentration of conventional forces on which India's (and Pakistan's) military strategy rested. The countermeasure of dispersing forces with greater reliance on manoeuvrability would require greater resources than India could deploy in the near future. This implied that India would need nuclear weapons to deter attack on massed armoured forces. (Perkovich 1999, 230) This argument "became the core of India's revived rationale for a nuclear weapons programme in the early 1980s" (Kampani 2013, 103). In one of his unpublished papers, "Strategy in the Age of Nuclear Deterrence and Its Application to Developing Countries", which has been described as "the locus classicus of K. Sundarji's writings" (Cohen and Dasgupta 2013, 202), the General went through a series of scenarios involving India with or without nuclear weapons and different levels of nuclear build up. He

concluded that, in all of the nuclear armed scenarios, there would never be a case for the first use of nuclear weapons. Furthermore, Sundarji argued that if India had "a big nuclear edge over Pakistan" then India could diplomatically ensure stability by adopting "a declared policy of non-first use of nuclear weapons, by a 'No-war' pact" as well as "a host JOURNAL FOR PEACE AND NUCLEAR DISARMAMENT 153 of other confidence building measures which India can afford to undertake from a position of strength" (Sundarji 1984, 34). He saw the NFU as proof of India's responsible status, writing, "For a sober, mature status quo power like India, a unilateral declaration of no first use should be axiomatic" (Sundarji 1996). By the early 1990s, General Sundarji was using the NFU as a way to argue for India (and Pakistan) moving from a position of ambiguity to an overtly nuclear posture because the former would "prevent both from declaring a 'no first use' policy" (Sundarji 1991).

2. **CMD (Credible Minimum Deterrence)**

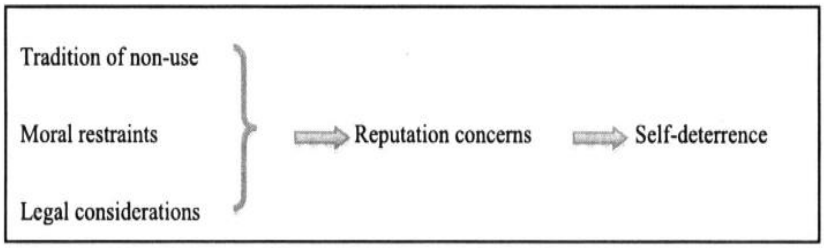
Deterrence in the most conventional sense implies the making of military threats in order to prevent an adversary from taking aggressive actions (Buzan 1987). According to Barry Buzan (1987:136), deterrence as a concept purport to stop an unwanted action by the adversary before they occur and encompasses both denial and the possibility of retaliation. Credible Minimum Deterrence (CMD) is one of the central pillars of India's nuclear policy. Nuclear policy makers aften argue that India's nuclear weapons programme, has always been guided by the understanding of minimum deterrence avoiding largess in terms of cost, pace or posture Credibility came upon demonstration of weapon capability. The credible minimum posture was considered apt to justify India's nuclear weapons and missile capabilities after the 1998 tests. K Subrahmanyam called it a doctrine adopted to suit India's requirements and thinking on nuclear weapons (Subrahmanyam 1999). Bharat Karnad (2008) defines it as a self-explanatory, moderate, limited, reasonable and legitimate posture. The CMD doctrine highlights that India does not seek an open-ended nuclear arsenal and pillars other postures like the second-strike capability and no first use. CMD has now become the over-arching feature of the Indian Nuclear Doctrine, advertising three aspects of a nuclear weapons-empowered India: security with a thrust on deterrence, a responsible nuclear weapons state and commitment to global nuclear disarmament. Understanding Credibility and Minimalism the CMD posture has two elements – credibility and minimalism. Both terms can be elucidated separately, but it is their

equation that makes for the nuclear deterrence policy. Credibility is a combination of political will, capability, effective and assured retaliation, intelligence and survivability. The minimum can be interpreted in terms of size, cost, posture and eventuality of use. Credibility is composed an effective second-strike capability and survivability (assured by a nuclear triad) ensured through a robust command and control system, safety and security of arsenal, operational force planning, training and preparedness, and research and development.

3. India's pursuit of global recognition and legitimacy

India's nuclear policy has consistently aimed at securing global recognition and legitimacy as a responsible nuclear power, despite remaining outside the NPT framework. The country's commitment to non-proliferation principles, its voluntary moratorium on nuclear testing, and the separation of civilian and military nuclear facilities have all contributed to its rising credibility on the global stage (Perkovich, 1999). The 2008 NSG waiver, backed by major powers like the United States, was a turning point, signalling de facto recognition of India's nuclear status and enabling civil nuclear trade without NPT membership (Pant, 2009). India's inclusion in key export control regimes such as the Missile Technology Control Regime (MTCR), the Wassenaar Arrangement, and the Australia Group further underscores its acceptance within the global non-proliferation order. Scholars argue that India's strategic restraint, democratic institutions, and transparent command and control structures have helped distinguish it from other non-NPT nuclear states, enhancing its legitimacy (Tellis, 2001). However, the continued denial of full Nuclear Suppliers Group (NSG) membership, largely due to geopolitical rivalries, reflects the ongoing tension between normative acceptance and legal formalities in global nuclear governance.

Table 1. The self-deterrence mechanism



This is formally adopted by many countries to stand in global counterpart with new look in the same way India used deterrence in three forms to show that India is a nuclear responsible power.

FUTURE OUTLOOK: Nuclear Power in Union Budget 2025-26

The Union Budget 2025-26 outlines a significant push towards nuclear energy as part of India's long-term energy transition strategy. The government has set an ambitious target of 100 GW nuclear power capacity by 2047, positioning nuclear energy as a major pillar in India's energy mix. This development aligns with the broader objectives of Viksit Bharat, ensuring energy reliability and reducing dependency on fossil fuels. To achieve this goal, strategic policy interventions and infrastructure investments are being undertaken, with an emphasis on indigenous nuclear technology and public-private collaborations.

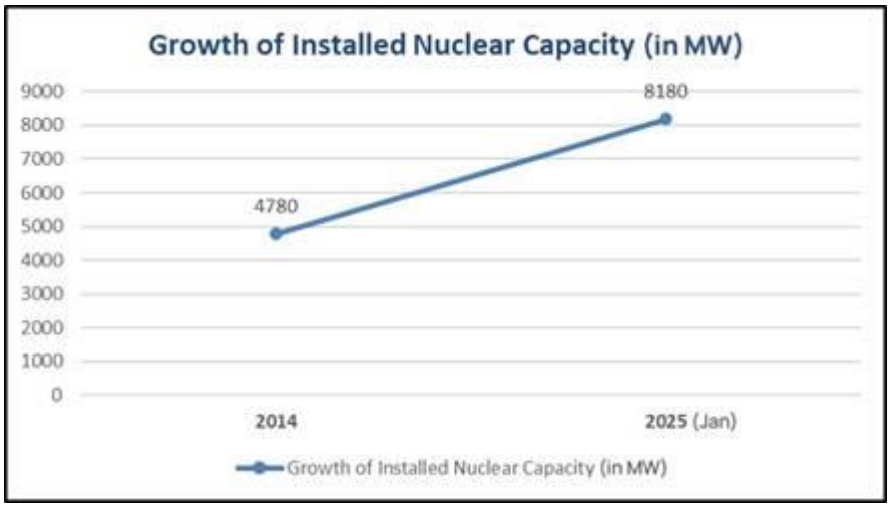
Small Modular Reactors (SMRs) and R&D Initiatives

A key highlight of the Union Budget 2025-26 is the launch of a Nuclear Energy Mission, which is focused on research and development (R&D) of Small Modular Reactors (SMRs). The government has allocated ₹20,000 crore for this initiative, aiming to develop at least five indigenously designed and operational SMRs by 2033.

Nuclear Energy Mission for Viksit Bharat

To facilitate the implementation of the Nuclear Energy Mission, amendments to the Atomic Energy Act and Civil Liability for Nuclear Damage Act will be taken up by the parliament. These amendments are expected to encourage private sector investments in nuclear power projects. These legislative changes are expected to create a more conducive environment for investment and innovation in the nuclear sector. The mission aligns with India's commitment to achieving 100 GW of nuclear energy capacity by 2047, a milestone deemed essential for

reducing carbon emissions and meeting future energy demands. As of January 30, 2025, India's nuclear capacity is 8180 MW.



Findings and Discussion

This presents the key findings derived from the preceding analysis and engages in a critical discussion of India's nuclear weapon policy in light of academic perspectives, strategic realities, and evolving global threats. The purpose is to draw coherent conclusions while addressing the challenges and benefits associated with India's nuclear doctrine.

6.1 **Key Findings**

6.1.1 Doctrinal Stability Amid Regional Volatility

India's adherence to the No First Use (NFU) doctrine and Credible Minimum Deterrence provides a framework for strategic stability. However, regional volatility, especially the increasing nuclear capabilities of China and the doctrinal ambiguity of Pakistan's tactical nuclear weapons, challenges the continued relevance of a rigid NFU policy.

6.1.2 Emergence of Technological Threats

India's deterrence posture is being tested by rapid technological advancements such as:

- Cyberwarfare threats targeting command-and-control infrastructure
- Hypersonic missile development by adversaries
- Space-based surveillance and missile defense systems

6.1.3 Internal Ambiguity and Policy Signals

Although India officially maintains NFU, periodic statements by political and military leaders suggest possible deviations under extreme scenarios. This dual messaging raises ambiguity and could impact the credibility of India's deterrent posture.

6.2 **Discussion**

6.2.1 NFU Policy: Principle or Strategic Posture?

Scholars remain divided on the nature of India's NFU commitment. Some view it as a moral high ground rooted in Gandhian philosophy and strategic restraint, while others see it as a flexible posture that could be altered based on the threat environment. The latter view is gaining traction amid growing border tensions and evolving military doctrines in the region.

6.2.2 Credible Minimum Deterrence: Is It Enough?

India's policy of "credible minimum deterrence" is being critically re-evaluated. In light of China's nuclear modernization and Pakistan's battlefield nuclear weapons, some experts advocate a shift toward a more "flexible deterrence" model or the inclusion of limited counterforce options.

6.2.3 Balancing Strategic Autonomy and Global Engagement

While India enjoys the benefits of strategic autonomy, continued exclusion from key non-proliferation treaties limits its influence on global nuclear norms. Participation in international arms control mechanisms, if approached pragmatically, could further enhance India's image as a responsible nuclear power.

6.2.4 Policy Implications and Strategic Recommendations

Based on the findings, the following policy directions are suggested:

- Reinforce or revise the NFU policy with greater clarity to reduce ambiguity.

- Modernize delivery systems and command-and-control structures to keep pace with emerging threats.
- Strengthen cyber and space defences to protect strategic assets.
- Engage proactively in global non-proliferation dialogue without compromising on sovereign interests.

CONCLUSION

India's nuclear weapons policy embodies a complex interplay of strategic necessity, regional security dynamics, and international norms. While it has successfully served as a deterrent against adversaries like China and Pakistan, challenges such as cross-border terrorism, pressure to conform to global non-proliferation regimes, and the evolving nature of warfare continue to test its credibility and adaptability. India's commitment to a no-first-use doctrine and credible minimum deterrence reflects a posture of restraint and responsibility, aimed at preventing escalation while preserving strategic autonomy. At the same time, India's integration into global nuclear frameworks—through the NSG waiver, adherence to export control regimes, and voluntary moratorium on testing—has elevated its international legitimacy despite its non-signatory status in treaties like the NPT and CTBT. The benefits of this policy are evident in enhanced global recognition, access to nuclear technology for peaceful purposes, and strengthened diplomatic ties. Moving forward, India must navigate the dual imperatives of maintaining national security and contributing to global non-proliferation efforts, ensuring its nuclear policy remains robust, responsible, and responsive to emerging threats.

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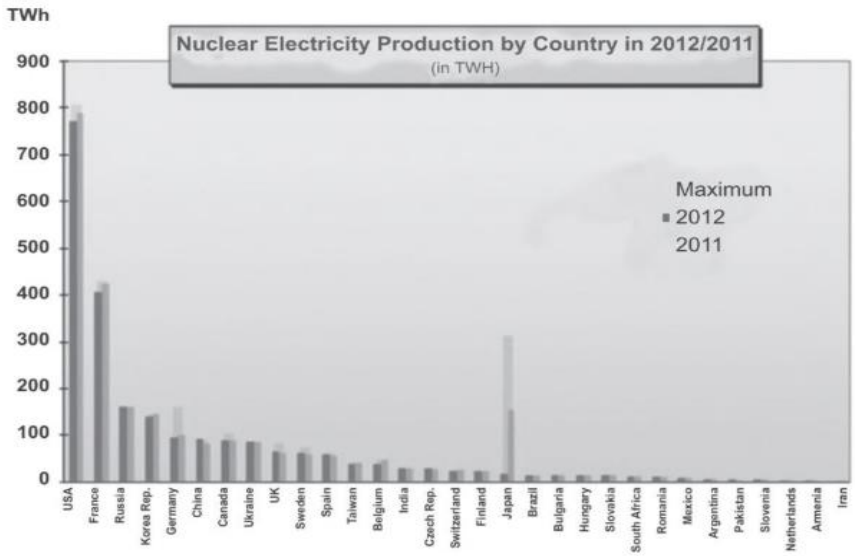
APPENDIX

This section contains only graphs which is relevant to the whole Study are as follows:

A.

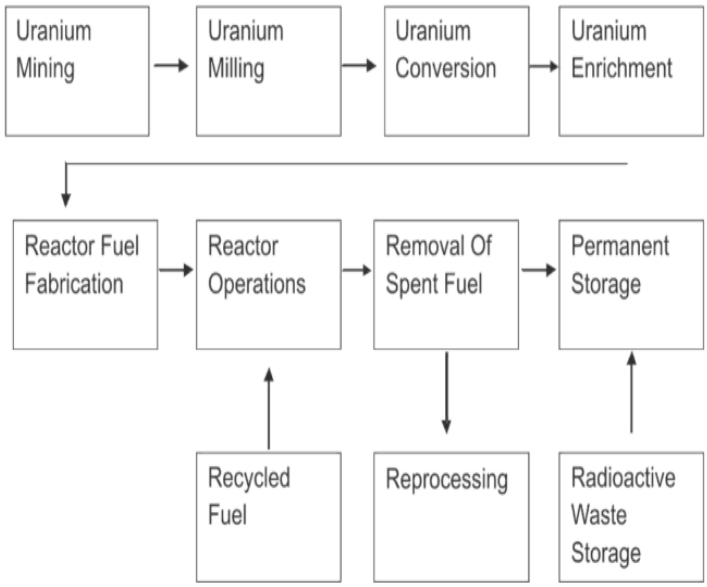
Figure: 1 Nuclear Electricity Production



Sources: IAEA-PRIS, MSC, 2013

B.

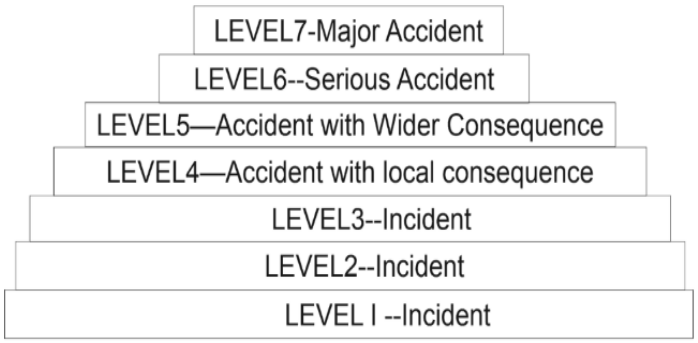
Figure: 2 The Uranium Cycle



Source: Compiled from Canadian Environmental Assessment Agency on Nuclear Fuel Waste Management

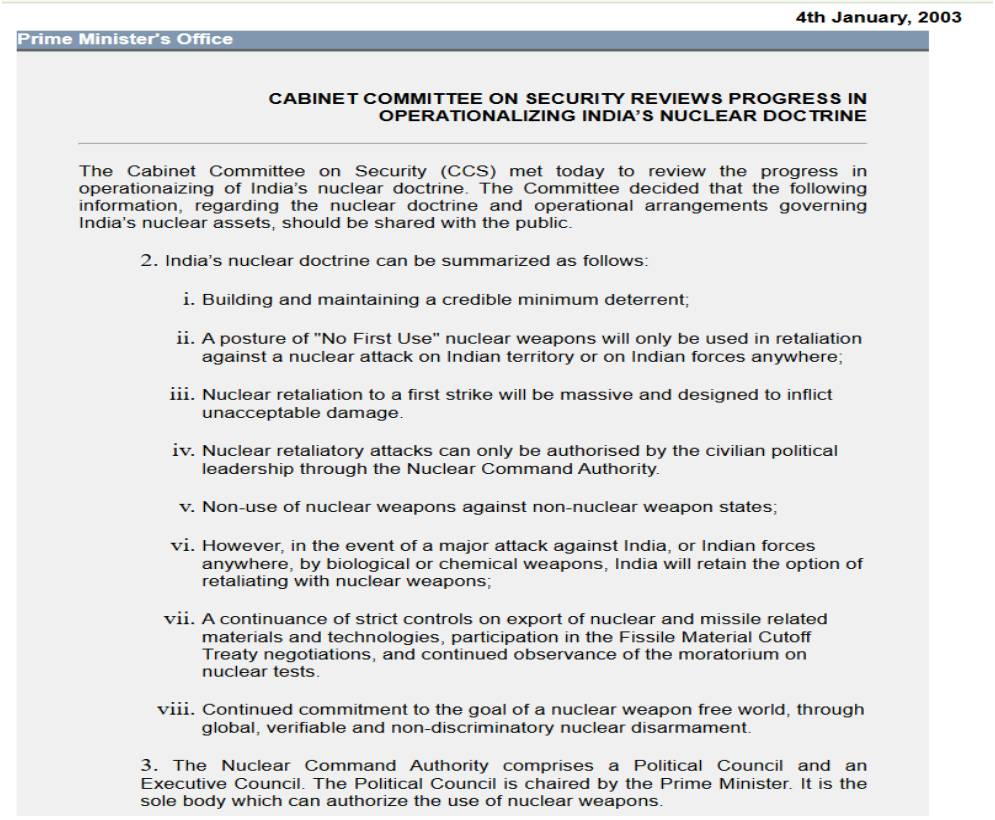
C.

Table: 3 International Nuclear Event Scale



Source: International Nuclear Event Scale Established in 1990 at http://mens-news.com/2011/04/japan-raises-nuclear-severity-to-highest-level-same-as-chernobyl/

D.



4th January, 2003

Prime Minister's Office

CABINET COMMITTEE ON SECURITY REVIEWS PROGRESS IN OPERATIONALIZING INDIA'S NUCLEAR DOCTRINE

The Cabinet Committee on Security (CCS) met today to review the progress in operationaizing of India's nuclear doctrine. The Committee decided that the following information, regarding the nuclear doctrine and operational arrangements governing India's nuclear assets, should be shared with the public.

2. India's nuclear doctrine can be summarized as follows:

i. Building and maintaining a credible minimum deterrent;

ii. A posture of "No First Use" nuclear weapons will only be used in retaliation against a nuclear attack on Indian territory or on Indian forces anywhere;

iii. Nuclear retaliation to a first strike will be massive and designed to inflict unacceptable damage.

iv. Nuclear retaliatory attacks can only be authorised by the civilian political leadership through the Nuclear Command Authority.

v. Non-use of nuclear weapons against non-nuclear weapon states;

vi. However, in the event of a major attack against India, or Indian forces anywhere, by biological or chemical weapons, India will retain the option of retaliating with nuclear weapons;

vii. A continuance of strict controls on export of nuclear and missile related materials and technologies, participation in the Fissile Material Cutoff Treaty negotiations, and continued observance of the moratorium on nuclear tests.

viii. Continued commitment to the goal of a nuclear weapon free world, through global, verifiable and non-discriminatory nuclear disarmament.

3. The Nuclear Command Authority comprises a Political Council and an Executive Council. The Political Council is chaired by the Prime Minister. It is the sole body which can authorize the use of nuclear weapons.

E. **Timeline of India's Nuclear Weapon Policy**

1940s–1960s: Foundations and Peaceful Intentions

- **1948**: Atomic Energy Commission established by PM Nehru, emphasizing peaceful nuclear energy.
- **1954**: Department of Atomic Energy (DAE) created.
- **1962**: Sino-Indian War prompts strategic rethink.
- **1964**: China conducts its first nuclear test; India begins reassessing its policy.
- **1968**: India refuses to sign the NPT, calling it discriminatory.

1970s: Emergence of Nuclear Capability

- **1974**: *Smiling Buddha* — India conducts its first nuclear test at Pokhran, labelled a "peaceful nuclear explosion."
- **Late 1970s**: India faces global sanctions and the formation of the Nuclear Suppliers Group (NSG).

1980s: Strategic Ambiguity

- India develops nuclear capabilities while maintaining public ambiguity.
- **1983**: Launch of IGMDP (Integrated Guided Missile Development Programme) under Dr. A.P.J. Abdul Kalam.

1990s: Formal Weaponization

- **1998**: *Pokhran-II* nuclear tests — India declares itself a nuclear weapons state under PM Atal Bihari Vajpayee.
- **1999**: Draft Nuclear Doctrine announced — introduces:
  - *No First Use (NFU)* policy
  - *Credible Minimum Deterrence*
  - Retaliation-only strategy

2000s: Strategic Engagement

- **2005–2008**: India negotiates the Indo-U.S. Civil Nuclear Agreement.
- **2008**: NSG grants India a waiver, enabling civilian nuclear trade despite NPT non-membership.

2010s: Doctrinal Stability

- Development of nuclear delivery platforms: *Agni* missile series and *Arihant*-class nuclear submarines.
- **2014–2019**: NFU policy comes under debate; some officials hint at possible flexibility.

2020s–Present: Regional and Strategic Adaptation

- India continues to refine and modernize its nuclear triad.
- **2022–2024**: India reaffirms commitment to NFU amid tensions with China and Pakistan.
- Emphasis on maintaining strategic deterrence while supporting non-proliferation principles.

NOTE: The main purpose of Appendix that has been given to showcase a holistic and coherent reading and understanding.