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The Evolution of Nuclear Weapon Laws and Their Impact on Present Day Conflicts

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Within this review paper, we will examine the evolution of nuclear weapon laws over the past few decades since their creation and their influence on present-day global conflicts; through the question of "The evolution of Nuclear Weapon Laws and their impact on present day conflicts". It will start by highlighting the creation of nuclear weapons and how the utilization of them in the absence of nuclear laws posed an international threat, leading to the development of a series of laws, treaties, and frameworks to prevent future nuclear conflict. Within this, We will go in-depth about the Treaty of Non-Proliferation of Nuclear Weapons (NPT), the Comprehensive Nuclear-Test-Ban Treaty (CTBT), the Treaty on the Prohibition of Nuclear Weapons (TPNW), and lastly The International Atomic Energy Agency (IAEA).

The paper will analyze how these very legal treaties and frameworks have acted as guides for signatory nations' own policies and laws for nuclear weapons, while also exposing possible loopholes and wrongdoings within these treaties. It further explores how all of the above has had a stark impact on present-day conflict with the help of case studies such as the nuclear ambiguity in Israel becoming a factor in the Israel-Iran wars, the Nuclear power of North Korea, etc. Hoping to highlight the effectiveness of nuclear weapon laws in preventing conflicts, and its possible success in maintaining international security in an increasingly precarious global situation.

A nuclear weapon is something everyone has heard, whether one knows what they actually are, we all have heard them whether in history classes or on the news in relation to politics of a country its words one is familiar with. Simple states: Nuclear weapons are explosive devices whose energy results from the fusion or fission of the atom [and] have the potential to destroy all civilization and the entire ecosystem of the planet{1}. There are primarily three types of nuclear weapons

- Nuclear Fission bombs known as Atomic bombs and explosive force is a result of fission. Nuclear Fission Bombs are masses of the element Uranium or Plutonium turned into a mass containing explosive capabilities spanning from 1 to five hundred kilotons of TNT(Trinitrotoulene, which is used in military equipment and armaments for explosion purposes).
- Nuclear Fusion weapons known as Thermonuclear bombs or hydrogen bombs. They use the heat created by Nuclear fission bombs to ignite nuclear fusion stage, and have larger explosive impact, the range falling in megatons rather than kilotons .
- Neutron Bombs are another type of thermonuclear bombs that release large amounts of radiation, but not as large an explosion. It aims to inflict a high amount of casualties with low amounts of infrastructure damage.

The whole concept of nuclear weapons are developed on the idea of mass destruction of land, health, economies and cities on a whole. They produce an enormous amount of energy, to quantify it, taking the example of the bombing in Hiroshima it was equivalent to 15 Kilotons of Chemical explosives. Due to their severe and long-lasting impacts and consequences it's not only vital to understand nuclear laws but also to understand how they evolve and are playing a critical role in the conflicts today whether alluded to or directly. This paper will be divulging into

a. How have nuclear weapon laws evolved since 1945?
b. What are the key legal instruments?
c. What impact do these laws have on modern conflicts?

Historical Context

"had I known that the Germans would not succeed in developing an atomic bomb, I would have done nothing."
-Albert Einstein

The creation of atomic weapons came in a moment of desperation for security. During World War II a Hungarian-German scientist, Leo Szilard, discovered the possibility of self-sustaining nuclear chain reactions.Following which a Jewish scientist, Meitner achieved nuclear fission of uranium with German Chemist Otto Hahn, leading to Germans holding the possible power of atomic diplomacy. The news reaching the states and referred scientist Szilar was followed by fear of the world heading towards grief. With this very fear, Albert Einstein was contacted and further sent a letter to Franklin D Roosevelt about the development and fear of Germany's probable Nuclear Diplomacy. Following this the Manhattan Project was started by order of President Franklin Rossevelt in 1942. By 1945 the USA was the first and only country holding an atomic monopoly in the world.

USA created the first atomic bomb on July 16, and dropped the atomic bomb 'little boy' of 12 kilotons TNT on August 6th on Hiroshima following which dropped 'Fat man' plutonium bomb of 20 kiloton yield on Nagasaki
Following USA's atomic diplomacy came Russia's in 1949. USA's actions following their atomic diplomacy led to a race for nuclear weapons and nuclear stockpile up as a way to secure countries security against other nuclear powers especially during the critical time of cold war. The arms race peaked in 1986 with both countries having a total of 70,500 nuclear weapons, enough explosive energy to destroy human life on Earth more than once. This all took a turn for the better with the development of Nuclear Weapon Laws starting with the Baruch Plan.
As of present day USA, Russia, China, UK, Pakistan and India are nuclear powers having conducted covert tests away from public knowledge. For tactical reasons most countries don't make it public knowledge of their nuclear weapon testing, with countries like Israel still not publicly acknowledging having Nuclear weapons. It's important to acknowledge, The threat of nuclear weapons to a country having nuclear weapons may not hold as much power, but it holds instead the looming threat of destruction of lives, land, economies and stability. Therefore it was critical to establish International Laws regarding the handling and deployment of this weapon of mass destruction.
Evolution of Nuclear Weapon Laws

All nuclear weapon laws and treaties formed since 1946 have revolved around the main ideas of…

- Safety while developing handling such nuclear items, especially safety of humans and surrounding environment. The convention on Nuclear Safety is a treaty ensuring all countries ensure high safety while handling land-based nuclear place, according to the IAEA
- Security of the nuclear material, ensuring the prevention and detention of any acts done with nuclear matter for malicious purposes rather than productive. This again is legal binding and obligating under the convention on the Physical Protection of Nuclear Material and the Vienna convention on civil liability for nuclear damage
- Non Proliferation: i.e preventing the spread of nuclear weapons to other countries
- Promoting the use of Nuclear energy for sustainable instead of destructive purposes

Within these common principles began the evolution of Nuclear Weapon Laws with the Baruch Plan

Baruch Plan
The nuclear stockpile increased between the USA and USSR in 1946 during the cold war. The leaders including Bush, believed that in the absence of any regulations American and British lead would last no more than 3 or 4 years. Therefore on the basis of a report released by the US advisory committee-known as'Report on the International Control of Atomic Energy' or the Acheson–Lilienthal Report - America formulated the famously known, Baruch Plan.
The Baruch Plan was America's formal proposal for international control of atomic energy created by Bernard Baruch made at the newly-created United Nations Atomic Energy Commission on June 14, 1946. Following in the lines of the Acheson-Lilienthal Report the plan proposed creation of an international atomic development authority that would hold the power to license and inspect all nuclear development. It was, according to Baruch "the last, best hope of earth,". It however was rejected by the Soviet Union as the Soviets correctly perceived that under such implementation USA would continue to hold atomic monopoly until every aspect of the projects was approved and effectively applied. Following this came a proposal by the USA for a complete ban of nuclear weapons in fear of the USSR becoming an atomic power. Eventually these proposals fell on deaf ears with the USSR becoming an atomic power in 1949,thus bringing with it the failure of the first official proposal in regards to Nuclear Weapon at an international platform. However, the international Nuclear Weapon Laws battle was an uphill one, with the following Partial Test Ban Treaty successfully being put into place by 1963.

Partial Test Ban Treaty
The Partial Test Ban Treaty was one of the first legally binding treaties that came in 1963 following the failure of the Baruch Plan. This plan came into fruition due to growing public awareness of the side effects of merely testing nuclear weapons above ground , with there being environmental and health hazards. Following this understanding of the treaty, 3 main articles were stipulated: that parties of the treaty would prohibit, prevent and not carry out any nuclear testing in the atmosphere, space, or underwater only permitting underground testing. Though the treaty did not ban the creation of nuclear weapons(an unlikely action due to each country vying for their own security and protection),it instead slowed down production, and as a result even the arms race amidst a period of intense cold war rivalry, by implementing regulations. The treaty was signed by the powerful nuclear powers at the time, UK, USA and USSR by 1963.
While this treaty was a large step towards regulation of nuclear weapons the treaty failed to address that even underground testing releases radioactive radiations. In fact, proof of the treaty's shortcomings, came with the data that the number of nuclear states increased following 1963, with the nuclear arsenal doubling from then till 1970. Hence, while the treaty slowed down atmospheric testing of nuclear weapons, it did not put a complete halt to nuclear development, something which all treaties in the present day also have considerably failed to do.
Multilateral Frameworks

The nuclear multilateral framework is a system of international treaties, organizations, norms and legal institutions to control and regulate peaceful use of nuclear technology. Most if not all of these treaties are currently held up and abided by all signing parties. The foundation of these frameworks has been established on the basis of two prominent treaties; the Treaty on the non-proliferation of Nuclear Weapons and the Comprehensive Nuclear-Test-Ban Treaty. It also laid the foundation for the establishment of an international organization;the International Atomic Energy Agency (IAEA), established in 1957. It's important to note that not all of the treaties were signed by all nuclear powers, and would only be enforceable to the signing parties(hence in many situations may become ineffective)

Treaty on the Non-Proliferation of Nuclear Weapons

The treaty on the non-proliferation of nuclear weapons is the central treaty which aims to 'prevent the spread of nuclear weapons, to promote cooperation in the peaceful uses of nuclear energy and to further the goal of nuclear disarmament and general and complete disarmament.'

Established in 1968, at the time only five states were nuclear powers, and the main concern was safety of the world if the number of nuclear powers increased. Therefore, all countries wanted to prevent proliferation to other states, leading to the proposal of such treaty by Ireland's then Foreign Minister, Frank Aiken, who had suggested an agreement 'to prohibit the "further dissemination of nuclear weapons."'

It came into force in 1970, however it was only in 1992 when the last of the five "official" nuclear powers signed with the joining of France and China to the treaty. The Non-Proliferation treaty is one of the highest participating signatories, with 191 members signing.

The treaty has 11 articles divulging into the guidelines to be adhered to by all signing members; few of the critical ones are…

- Article I, II, and III all address the issues of proliferation of nuclear weapons
  - Article I: Obligation of Nuclear states not to provide, assist, or encourage non- nuclear states possession of nuclear weapons.
  - Article II: That Non-nuclear states would not accept, build or seek to get nuclear weapons
  - Article III: All countries should allow inspection from the International Atomic Energy Agency (IAEA) to ensure peaceful use of nuclear material, and they must sign a contract with the IAEA to make this work within timelines
- Article IV ensure that the treaty does not affect countries ability to produce and use nuclear energy for peaceful purposes
- Article VI: All countries should work toward disarming by
  - Stopping nuclear arms race within a small time duration
  - Complete disarmament of nuclear weapons
  - Creating a system of general disarmament under international control.
- Article X: The withdrawal clause
  - A country can leave the treaty, if think extraordinary events threaten their security, with 3 months notice
  - While there was a clause to ratify the treaty, in 1995 it was made permanent

While the treaty laid the foundation for International Nuclear Weapon Laws, helping limit the number of nuclear states and aiding in the establishment of regional treaties designating Nuclear-Weapon-Free Zones (NWFZs), such as in Latin America (Treaty of Tlatelolco) it did have criticisms and weakness that have led to failure of certain clauses. Primarily, the discrimination of disarmament of Nuclear and Non-nuclear states has led to the failure of Article VI (Complete Disarmament) with all nuclear countries still possessing nuclear weapons. Following this the absence of few nuclear-powers from this treaty showcases a threat to security of the world and limits the power of this treaty. Critically important, nuclear power nations of India, Pakistan, and Israel have not signed the treaty, with North Korea having left the treaty in 2003, citing that it was discriminatory in nature. This is because the treaty divides state parties into nuclear and non-nuclear countries. However, the only nuclear countries acknowledged are those that were nuclear before January 1, 1967, which were the 5 permanent members of the UN Security Council, USA, UK, China, France and Russia. This implied that India, Pakistan, Israel and North Korea would only be allowed to join if they give up their nuclear weapons and join as non-nuclear states. India and Pakistan have consistently refused to sign the NPT as it was viewed by them as discriminatory and not in line with equal disarmament. The fact that not all nations were required to disarm creates a power dynamic and a security concern. Its limited enforcement power is another weakness, evident in the case of Iran, a signing party's breach in treaty. Iran violated the NPT as well as the Joint Comprehensive Plan of Action (JCPOA) formulated with the USA by exceeding the limit of uranium it was allowed and disobeying article III of NPT by limiting IAEA's access to its nuclear facilities. Similar to this, North Korea, while not as current, also showcased NPT weakness. North Korea, withdrawn showcasing a significant loophole in the treaty,, and started testing weapons, becoming a nuclear power by 2026 that is not a part of NPT

Despite all its limitations NPT is a cornerstone treaty, and one that has almost universal membership. It along with the other treaties provides a legal and diplomatic framework for managing nuclear risk, even if the main goal of disarmament seems distant and unlikely. The treaties future effectiveness, depends completely on nuclear- states compliance with disarmament policies and their ability to enforce guidelines and violations within the global community

Comprehensive Test-Ban Treaty

Most if not all treaties were created with the same focus, to limit the possibility of countries developing nuclear weapons and counteract the development of new nuclear weapons, this treaty was no different

Opened for signatures in 1996, the comprehensive test ban treaty acted as a successor to the Partial Test Ban Treaty(1963) and the Threshold Test Ban Treaty (1974) and forms a core part of the broader non-proliferation regime alongside NPT.

Negotiations for a comprehensive test ban began at the World Disarmament Conference in 1994. By 1996 the UN General Assembly had adopted CTBT.

The main aims of CTBT built on the foundation of PTBT with total ban of all Nuclear explosions for military or civilian purposes in all environments, including underground testing. It also aimed to improve non-proliferation and put a complete stop to qualitative improvements in nuclear armaments.

As the name suggested the Treaty is extremely comprehensive having a preamble, 17 articles, two annexes, and a Protocol with two further annexes. The most important articles and guidelines within the treaty are…

- Article I: Prohibits any type of nuclear test or nuclear explosion of any sort, being applied in all environments; underground, underwater, in the atmosphere, and in space. This allows for coverage of the loop hole in the Partial Test Ban Treaty, by inclusion of underground testing.
- Article IV: Critical this Article allowed for enforcement of these guidelines by establishing an extensive verification system which included an International Monitoring System with over 300 stations around the world to detect nuclear explosions through

vibrations in different environments, and an International Data Centre to analyse the data from the systems. Though the treaty is not in function due to Annex 2, the CTBT organization in Vienna is functioning and its monitoring system detected all of North Korea's Nuclear tests, highlighting its efficiency of verification.

- Article V: Allows for on-site inspection in event of suspicion of violation of treaty, however it must be approved by at least 30 of the 51 executive council members.
- Annex 2: The most critical clause within the treaty. It requires a specific list of all 44 countries' ratification to put the treaty into force. These 44 countries are classified as those that were members of the disarmament conference in 1996 and countries which have nuclear power or research reactors indicating nuclear capability. This clause allows for a sort of veto group to be formed in the form of these 44 countries. The strategy behind this is that with those countries that possess the capability to develop nuclear weapons becoming legally bonded ensures the treaty's effectiveness. However, this also means that if even one country from the 44 chooses not to ratify the treaty it is not put into force. This strict clause is the primary reason the treaty has not entered into force nearly three decades after being opened for signature. In relation to this, in the present day the United States, Iran,Israel,China and Egypt all have signed but not ratified the treaty.

Along with the limitation in the treaty of annex 2, it is also not signed by critical nuclear countries;India, Pakistan and North Korea. These three countries have chosen not to sign this treaty as well, India and Pakistan citing discrimination within the treaty between nuclear and non-Nuclear countries. India by then had become a nuclear power and North Korea and Pakistan soon followed. India specifically, had a dramatic exit and rejection of the treaty in 1996, where India walked out.The countries objections centered on the treaty's entry-into-force provision, which required ratification by all 44 nuclear-capable states listed in Annex 2, effectively giving each state veto power over the treaty's implementation. Despite this, the treaty was signed not at the Conference on Disarmament due to India's objection, instead Australia requested that the UN General Assembly take up the treaty, leading to its adoption in September of 1996

Another limitation of the treaty is that while the CTBT bans explosive testing, it does not explicitly ban computer simulations, laser-driven experiments, or subcritical tests, which some nuclear states continue to use for weapon modernization, a primary example being USA under its Stockpile Stewardship Program). This technical loophole raises questions about whether the CTBT can fully halt qualitative arms advancement.

However, despite these limitations the CTBT remains one of the most ambitious disarmament efforts having taken place, with near global- acceptance of complete ban on nuclear testing. Yet its failure to enter into force due to annex 2 draws global attention to the omnipresent conflict between universal security and national strategic security, which has battled for decades tracing back to factors leading to the world war's as well. Without immediate resolution to this dilemma the treaty remains powerful but an incomplete pillar of the international nuclear disarmament framework.

Treaty on the Prohibition of Nuclear Weapons

This treaty is the epitome of putting words into action, as it made history by becoming the first treaty to explicitly ban nuclear weapons in July, 2017, which was then put into force in 2021. With the lack of action within the treaties, the TPNW was formed due to growing frustration within the non-nuclear states and the slow progress on disarmament under the NPT. The treaty originated from the Humanitarian Initiative. The failure of the 2015 NPT review conference to advance disarmament, led to the creation of the Humanitarian Initiative that was started to direct global attention towards the unspeakable civilian suffering, indiscriminate damage, and long-term environmental degradation caused by nuclear bombs. The initiative was endorsed by over 127 countries, aiding in putting public and diplomatic pressure. Apart from this, previous treaties also had visible legal gaps , and a sense of indifference towards the lack of disarmament that TPNW was able to fill. After negotiation in UN headquarters, New York in 2017, the treaty opened to signatures by 2017, with 122 of the 130 participating countries signing, Netherlands having voted against and Singapore abstaining. As expected none of the Nuclear countries joined or signed the treaty, as were unwilling to disarm. The treaty required a mandatory of 50 ratification which after attaining was enforced in January of 2021.

The main aims of this treaty is to ban the use, threat of use, development, testing, production, acquisition, possession, stockpiling, transfer, and stationing of nuclear weapons or explosive devices. It aims to do all this by stigmatizing and creating a universal norm against Nuclear weapons, and by promoting disarmament. Unlike the other treaties this treaty has a comprehensive legal framework adhering to a time-bound disarmament goal and victim and clean up assistance post the nuclear bombings. The critical articles within the treaty which highlight these are…

- Article 1: Acts as the legal core of the treaty, in line with the aim. To prohibit any country in any circumstance to
- Develop, test, produce, manufacture, acquire, possess, or stockpile nuclear weapons.
- Transfer or receive nuclear weapons
- Use or threaten to use nuclear weapons.
- Assist, encourage, or induce others to do any of the above.
- Host nuclear weapons on their territory.
- Article 3:
- Article 4: Nuclear-States must remove nuclear weapons from operational statues and remove them within a certain time frame. This article remains ineffective, with none of the nuclear powers signing this treaty
- Article 5: Signatory Countries must pass laws within their own country to ensure effective implementation of this treaty
- Article 6: Provision of medical, psychological, and economic aid to victims of nuclear weapons bombing such as those still suffering in Hiroshima and Nagasaki. Also provisions for clean up of contaminated environments, This article is one unique from other treaties. Highlighting how this treaty is a shift away from the Cold-War era of the treaties for security purposes and instead towards treaties framed around human consequences, rights, environmental protection and international Humanitarian Law.
- Article 17: Like the other treaties TPNW has the inherent limitation of a withdrawal clause. Allow countries to leave with a prior 12 month notice. However, it does provide a restriction of withdrawal during armed conflict, allowing for some semblance of safety from nuclear wars during that time from signatory parties.

- Article 18: Critically the Treaty highlights that it does not aim to override any other international treaties, however does allow for deferment under the pretence that such treaties fail to continue following stick to the existing guidelines along the lines of disarmament and non-proliferation

These treaties and guidelines are adhered to and supported by non-nuclear States and Humanitarian NGOs. It however faces opposition from nuclear-States for clear reasons, as well as all of NATO except the Netherlands. NATO rejected the treaty citing direct conflict with their nuclear deterrence doctrine. Within this Doctrine NATO relies on nuclear weapons for collective defence and hosts multiple US nuclear weapons which violates Article 1. Thus NATO refuses to completely prohibit use or threat of use due to NATO countries current security environment, having faced threats from Russia and North Korea, hence these powerful countries are not currently part of the treaty.

The most widely acknowledged limitation of this treaty as mentioned, is that no nuclear state has signed it deeming it ineffective in actually preventing nuclear bombing along with that it lacks any enforcing and verification body such as the CTBT Organization or the IAEA Safeguards.

Overall, this treaty highlights a change in the present day regarding International Nuclear Treaties. Not only has it taken an action approach, that by many is criticised as symbolic more than enforceable, but also represents a change in the target of these treaties away from countries strategic interest towards International Human Rights and Environmental protection. A lot of this switch has to do with the nature of the representatives of the treaty, the TPNW is mostly driven by smaller states and NGO's instead of large Nuclear powers and Bodies with vested interest or biases.

Customary International Laws and UN Resolutions

Customary International Laws and UN resolutions are extremely important to help properly evaluate international Nuclear weapon Laws. Customary International Laws help fill in any legal gaps left by treaties by making long standing practices legally binding. In the case of Nuclear weapons it showcases how overtime there has been an evolution in global norms even without the presence of any formal legal agreements. It heavily influences states' own actions whether to justify or restrain nuclear action. An example of this is how while not legally stated in a treaty, there is a near global taboo on using nuclear weapons post world war II, however with time and present day conflict it can be seen how even this Customary International Law has started to erode. UN Resolutions have the same effect, while they are not legally binding they help in setting a political tone and have in numerous events influenced international law development. These can be further evaluated within these case studies of customary International Laws and UN Resolutions

UN Charter on Peace and Disarmament

The UN charter has the main goals, as indicated through their articles 1 and 2 of the Charter of maintaining international peace and security. The charter mentions a lot of details surrounding nuclear weapons and their disarmament, specifically within article 11 and 26.Article 11 empowers the assembly to make recommendations regarding disarmament and arms control. Article 26 , provides power to the security council to formulate plans regarding regulation of armaments to maintain peace with minimum resources allocated for weapons. While this charter does not directly relate to international Laws it provides a moral and legal basis on which the Nuclear Weapon treaties were formulated with the larger picture of peace and collective security. Its vitality can be seen by the fact that within treaties like the NPT and TPNW their preambles acknowledge and abide by the objectives and underlying legal framework of the UN charter

ICJ 1996 Advisory Opinion on nuclear weapons

Another vital event which has influenced the present day International Nuclear Weapon Laws is the ICJ 1996 Advisory Opinion on nuclear weapons.Having been the first and only time the International Court of Justice has formally addressed nuclear weapons, its statement was influential. While the court stopped short of declaring use or development of nuclear weapons as illegal they did state that such usage would "generally be contrary to the rules of international law," , especially to the principles of International Humanitarian Law. Their stronger stance was taken by unanimously confirming that all states are legally obligated to pursue negotiations toward nuclear disarmament in good faith. While this Advisory Opinion is in no way legally binding, it does improve the normative development of International Nuclear weapon Laws and led to the eventual emergence of TPNW. It provided an understanding of how Judicial bodies have contributed to shaping nuclear laws away from legal treaties. Further strengthening the understanding that away from legalities, non-binding treaties and customary laws have allowed for an evolution in International Nuclear Weapon Laws by shaping the conduct of states and global norms.

Case Studies

India- Pakistan Nuclear Doctrine

India and Pakistan are two countries which have played a vital role in nuclear Weapon laws, by not participating or signing any treaties regarding them. As pointed out, both countries have not signed NPT, TPNW or CTBT. This is mainly because both countries became Nuclear states post cold war, and by that time did not fall under the categorisation of Nuclear States according to NPT and CTBT, therefore not signing either treaty. The upsurge in the requirement of nuclear weapons by both countries was due to the deep-rooted conflict and security land dispute over the region of Kashmir. This ongoing conflict persists till date with high tension and in many cases security conflict leading to armed conflicts, the most recent being Pahalgam attacks on India which led to armed conflict and International intervention.

India's Nuclear Doctrine

India formalized its nuclear doctrine in 2003 on the basis of three critical principles; credible minimum deterrence, a declared "No First Use" (NFU) policy, and the non-use of nuclear weapons against non-nuclear states.

- No First Use policy: India Pledges not to use nuclear weapons on any countries, unless it attacks them first
- Credible Minimum Deterrence: India aims to maintain only enough nuclear weapons to to deter its adversaries, in other words the minimum possible

The Doctrine overall is civilian-controlled with centralized command, only the Prime Minister being able to authorize a nuclear strike

While India has refrained from signing any treaties, the doctrine in some ways aligns with the goals of disarmament and restraint goals of treaties such as the TPNW. Even with these implementation, which clearly highlight India's stance of holding Nuclear weapons only to maintain security against their adversaries, its refusal to join legal frameworks highlights the limitation of current nuclear laws in influencing regional powers

Pakistan Nuclear Doctrine

Unlike India, Pakistan has no official doctrine. This is intentional to create ambiguity around the country's nuclear intentions. Opposing India's principles, it has a First Use Policy, has Tactical Nuclear weapons and a full spectrum deterrence.

- First Use Policy: Rejecting NFU policy it retains the right to use nuclear weapons first especially if it perceives a threat
- Presence of Tactical Nuclear Weapons:These are there to deter conventional attacks from neighboring countries, targeting India mainly
- Full Spectrum Deterrence: covering strategic, operational, and tactical levels.

Pakistan, similar to India, has not signed any of the treaties,it also has taken a non-humanitarian approach by following First Use policy, which directly conflicts with International Humanitarian Principles, and International Nuclear Law. Along with this their principles increase the probable risk of an escalation , which supported with their lack of legal commitment can heighten instability.

The current conflict and relationship between India and Pakistan in relation to Nuclear Weapons can be explained through a phenomenon of Stability-Instability Paradox articulated by Glenn Snyder. The paradox in relation to these countries explains that when two rival countries both possess nuclear weapons the risk of any large-scale war substantially decreases, due to deterrence. However, this also increases the amount of lower-intensity conflicts, as each side makes the assumption that the nuclear threshold would not be crossed. As a result of this while full scale war is deterred the amount of proxy wars, cross-border skirmishes, or limited military action increases. This can be seen in all present day conflicts between India and Pakistan. Overall India and Pakistan are key examples of how nuclear weapon laws unevenly evolve due to major regional conflicts. It also highlights the primary dilemma of most countries when it comes to disarmament of Nuclear Weapons, the difficulty between national security concerns and Global Disarmament efforts. In this case, their policies showed that national security concerns override global disarmament efforts. These contrasting doctrines highlight the limitations of international nuclear law, which fails to regulate or restrain nuclear behavior in such volatile regional contexts. Regardless of the nature of either country's doctrines, their absence in the International Nuclear Legal Framework , leaving room for dangerous doctrines and probable arms race.

Russia–Ukraine War and the Budapest Memorandum (1994)

The primary cause of this unrelenting war is the Budapest Memorandum deal made with Ukraine regarding Nuclear weapons. After the Soviet Union was dissolved in 1991 Ukraine was given the third largest Nuclear arsenal in the world. This power held by Ukraine, led the Nuclear powers of Russia, UK and USA to sign the Budapest Memorandum on Security Assurances on December 5, 1994. This Memorandum revolved around Ukraine relinquishing control over its nuclear arsenal. In exchange for relinquishing control of the third largest nuclear arsenal in the world and joining the NPT the signatories pledged to Ukraine that they would respect Ukraine's Independence, refrain from threat or use force against Ukraine, abstain from economic coercion and Seek immediate United Nations Security Council action if Ukraine became the victim of aggression or a threat (especially involving nuclear weapons). Following this Ukraine voluntarily disarmed, and this was marked as a landmark success for the Non-Proliferation system as a country had voluntarily disarmed.

However it's important to note that this memorandum was not a treaty, instead a political agreement that lacked enforcement but had moral and legal weight. The lack of enforcement or consequences on breaking this agreement, are what led Russia to break the memorandum and invade Ukraine in 2014 and 2022 kicking off the war.

In 2014, Russia invaded Crimea, breaching Ukraine's sovereignty and violating the Budapest Memorandum. Following that in 2022 Russia launched a full-scale invasion, further undermining the commitments of the Memorandum.

While the memorandum was not legally binding it relied on the spirit of international law and the NPT regime, both of which were violated by Russia. This violation not only is a large factor playing into current day war but also raised the questions about whether nuclear disarmament agreements are reliable, the credibility of non-binding international security assurances and the effectiveness of current nuclear weapon Laws in preventing aggression.

These same questions are what further undermine nuclear weapon Laws presently…

- Ukraine had disarmed in return for security assurance but got invaded. This may deter future nuclear powers such as India, Iran, etc from disarming as they may not find the reliability in these agreements. Instead, it may provide them with a reverse incentive, to continue holding nuclear weapons and increasing the view of its necessity.
- Moreover, it highlights the weakness of international law and Non-proliferation regimes. If powerful countries can violate agreements and face no repercussions the legitimacy of the treaties and the global goal of disarmament falls weak .

The main takeaway from this case and the Budapest memorandum is that without enforcement, even well-intentioned agreements may fail to prevent nuclear-related conflicts.

USA-Iran Conflict

One of the most relevant case studies in the present day is the conflict between the USA and Iran that can be traced back to Nuclear weaponization policies. Iran was one of the countries apart of the NPT, and therefore had to abide by the policy of no development of Nuclear weapons. Despite being a signatory of NPT, there was extensive evidence and international concern that Iran was running a covert nuclear weapons Program. This suspicion was heightened when the International Atomic Energy Agency (IAEA) reported that Iran's uranium enrichment had far exceeded civilian energy needs, reaching levels close to weapons grade. While Iran has denied these allegations, multiple intelligence and IAEA reports found credible evidence that Iran's nuclear work included designing and testing bomb components. Due to this suspicion on July 14, 2015 P5 plus Germany signed the Joint Comprehensive Plan of Action (JCPOA), often referred to as the Iran nuclear deal with Iran. The Main objective of this deal restricts Iran nuclear program to peaceful use in exchange for relief from international sanctions.
The deal entitled Iran to only 36.7%uranium enrichment for 15 years, and a stockpile of Uranium of only 300kg (a 97% reduction) for 15 years, further Iran was barred from producing highly enriched uranium or weapons-grade plutonium. In exchange, after confirmation from the IAEA that Iran was complying, the United Nations, the European Union and USA lifted nuclear related sanctions which had been placed on Iran, allowing Iran to trade oil, access global finances and unlock billions of frozen assets.
While the JCPOA was not a formal treaty it was backed by UN Security Council Resolution, providing the agreement and the mentioned clauses legal weight.
Under President Trump in 2018, USA withdrew from the JCPOA and reinstated sanctions on Iran, specifically targeting its oil banking and other sectors.Not only did this impact Iran's economy but it forced multiple MNCs to disengage from Iran due to risk of Secondary sanctions. In response to these actions, Iran progressively breached the JCPOA by increasing its Uranium stock beyond the agreed thresholds, developing advanced nuclear machinery and resuming activities at previously limited Nuclear sites. By 2021, Iran had restricted IAEA access to its nuclear facilities. By the present year of 2025, Iran's expected "breakout time"to produce Nuclear weapons has been reduced to weeks.
As a result of all these events, Iran progressively expanded its nuclear work and responded more aggressively to perceived threats, raising fears among neighboring countries and rivals, notably Israel and the Gulf Arab states. This has not only become a contributing factor in escalating tensions between Israel and Iran, eventually leading to war but has also showcased the fragility of international nuclear agreements.

The breakdown of JCPOA overall has made the likelihood of military conflict more likely, with Iran gaining increasing Nuclear enrichment, USA involvement with Israel in the War and an evident shift in USA, Israel and Iran's from diplomacy to military readiness. This case study is playing out in present time with threats from all countries of nuclear bombing highlighting how lack of enforcement mechanisms, withdrawal loopholes, and strategic mistrust can derail even successful arms control efforts. Even with legal evolution and evolution of Human rights it does not guarantee compliance or enforcement of these laws. Instead it reveals how state behavior is still driven by national interest and power dynamics, even within supposedly binding international frameworks.

Future of Nuclear Weapon Laws

Nuclear Weapon Laws are currently failing to hold power and achieve goals in regard to Nuclear Weapons Internationally, as seen through the case studies. Hence, there is a vital need for reforms in nuclear weapon laws in regard to enforceability and universal application. As of right now the legal framework is inconsistent, unenforceable and lacks power to prevent violations or compliance. This in turn weakens the entire Non-proliferation regime and global peace and security

Limitations such as lack of enforceability, lack of universal acceptance, and divide between nuclear and non-nuclear states have really diminished the power of these International Laws. While the power of these treaties, such as CTBT are evident and may technically be effective, political factors remain a hindrance, acting as obstacles towards the end goal of complete prohibition of Nuclear Weapons. Furthermore, the rapid technological advancement in the world today is not to be forgotten. These advancements have led to advancements in the nuclear field exposing gaps in regulations and allowing for development of modern Nuclear arsenals without any explicit treaties violating it.

Substantiating their lack of enforceability is the fact that most nuclear weapon treaties, like the NPT, CTBT, and Budapest Memorandum rely on voluntary compliance, diplomatic pressure, and good faith. They lack any strong enforcement policies or consequences for violations. This can be seen with the facts that countries like North Korea were able to withdraw from NPT and build a nuclear arsenal with no repercussions. It's important to note that a treaty is only as strong as its enforceability, with lack of enforcement of nuclear weapon laws all these treaties no longer remain functional, instead becoming symbolic in nature.

A key limitation of these treaties, that infinitely weakens it is the lack of universal acceptance. Key treaties such as CBT and TPNW have not been universally signed or ratified, with CBT having not been ratified in accordance to Annex 2, and TPNW having not been signed by any of the nuclear states or NATO countries(except Sweden). Universal participation in these treaties is absolutely critical because it aids in creating global norms and level the playing field for nuclear and non-nuclear states.
Overall a legal regime that lacks enforcement and is not joined by all parties it seeks to regulate lacks any real power and is highly insufficient to manage the complex nuclear threats of the 21st century.

Away from the Legal frameworks and legalities of this, there are the enforcing bodies which were seen as contributors in formation, enforcement and organizations governing these Legal treaties. These Organizations are the IAEA and the UN Security Council(UNSC). Both, as can be seen through the numerous studies and Treaties, are the backbone of nuclear governance. However, their legality is undermined by trivial legal authorities and political realities. Legally, while the IAEA has the right to verify compliance of countries and UNSC the right to enforce it, the reality is different. These bodies' actions in a lot of situations, is instead shaped by power politics, strategic alliances and a veto system that traces back to the most powerful countries in the world right now, the P5. Finding the balance between legal norms and political interest is vital for these bodies to effectively

implement the treaties once they are reexamined. As of right now, the power scale between Legal norms and political interest is tipping ever so evidently towards political interest with countries persistently violating the treaties and UNSC or IAEA having no power or footing to prevent it. These limitations in no way criticize or belittle how vital these organizations and legal frameworks have been in bringing the world to where it is now, in many ways without these, nuclear wars would have been inevitable and put the world in constant fear.

The modern conflicts of Russia-Ukraine, India- Pakistan and USA- Iran illustrate the influence of these legal frameworks in guiding the trajectory of these disputes. The central issue is the failure to universally adopt treaties and enforce these laws perpetuates mistrust and incentivizes nuclear armament in face of unguaranteed security.

Overall, the evolution of International nuclear weapon laws are a lasting symbol of the international effort made to balance the pursuit of global security with countries' own diplomatic and security interests. All the way from the Cold War, where control treaties were formulated with NPT and Partial Ban Treaty, to present day with more humanitarian driven frameworks such as TPNW the trajectory highlights a slow shift from managing nuclear weapons and focusing on strategic security to now advocating for complete prohibition and aid in respect to Nuclear weapons. Yet, in many ways not much has evolved, with history repeating itself in present day conflicts; threats of nuclear war hanging over countries, impending doom, lack of cooperation and adherence still rearing their head, essentially still struggling in reaching the goal of complete elimination of the threat of nuclear war.

For Nuclear weapon Laws to move beyond a mere symbol of global peace, it requires reforms within its enforcement policies, universal participation and adaptability to emerging new advancements. If these enforcements are not put in place within an adequate time frame, these treaties will fade further and further into futility, providing a gap for probable nuclear escalations. The path forward for International Nuclear Weapon Laws lies in building a solid political consensus and accountability in achieving these goals of disarmament, a challenge as important to conquer now as at any other point in the nuclear age.

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