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Prithvi Narayan Shah Research Center
Directorate General of Military Training, Nepali Army
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Nuclear Weapons Prohibition Treaty: Towards the Peaceful Use

Nikhil Dongol*

Abstract

With the rapid advancement of technology, the demand for energy is ever-growing. In response to the growing need, nuclear power has emerged as a viable solution. At the same time, states tend to strategically rely on this as a policy of deterrence, mainly through the development of nuclear weapons. The International Atomic Energy Agency (IAEA) has been constantly advocating for the peaceful use of nuclear technology; however, there is rapid growth of these nuclear arsenals and, subsequently, an arms race. Enacting a robust legal framework is crucial to revitalize the core objective and prevent potential deviation. An extensive analysis of existing legal frameworks regulating nuclear energy/weapons is required, notably the Treaty on the Prohibition of Nuclear Weapons (TPNW), which is not prevalent in the existing scholarship. In this milieu, the paper aims to examine various national/international laws governing nuclear weapons and provide a holistic understanding of the legality surrounding the same. This paper explores how the International Law Framework regulates nuclear weapons and their prohibition and how it sets standards paving the pathway for their peaceful uses. In the national context, the paper analyses Nepal's laws and policies relating to the peaceful use of nuclear energy and its subsequent technologies. However, this paper does not attempt to provide a blueprint for implementing nuclear policy in Nepal; rather, it highlights the need to collaborate with IAEA and nuclear-advanced countries, the opportunities brought, and the inherent challenges associated with it. Methodologically, the research involves reviewing secondary data, focusing on laws/regulations concerning nuclear weapons and their ethical considerations. This doctrinal study involves comprehensive reviews of various legal frameworks, case narrative studies, and content analysis. The aim is to explore the existing legal regime governing nuclear weapons and its relation to atomic/nuclear diplomacy.

Keywords: *Nuclear energy, policy of deterrence, proliferation, nuclear weapons states, atomic diplomacy, peaceful uses*

* Assistant Director (Law), Nepal Insurance Authority
Email ID : nikdongol@gmail.com

Introduction

With the rapid advancement of technology and an ever-growing populace, the energy demand continues to upscale. Amid this demand, scientists have resorted to nuclear energy. Nuclear energy derives its name from the energy released from the nucleus, which consists of neutrons and protons. The energy from the nucleus can be produced in two ways: *firstly,* 'fission,' where nuclei of atoms split into several other atoms, or *secondly, '*fusion,' where two nuclei fuse. During both processes, a huge amount of energy is generated in the form of heat and radiation. For example, 1 kilogram (kg) of uranium-235 can generate around 24 million kilowatts (kWh) of heat, compared to 1 kg of coal and mineral oil, which generate 8 kWh and 12 kWh of heat, respectively (European Nuclear Society, 2024). Similar to power plants of fossil fuels such as coal, gas, and oil, this heat is then converted into electricity in a nuclear power plant.

Nuclear energy offers several advantages over its counterparts. Even the smallest quantity of uranium atoms has the potential to generate an enormous amount of energy. With reactor technologies and efficient nuclear waste management, it can be a clean power source and produce carbon-free electricity (Power, 2024). However, this nuclear energy is primarily generated from Uranium-235, which makes up less than one (1) % of the total world's uranium (World Nuclear Association, 2024). Although uranium has several natural isotopes, including uranium-238, which constitutes the majority of global uranium, it cannot sustain a fission chain reaction. In nature, uranium occurs in combination with other elements and does not exist in pure form. To increase the possibility of natural uranium undergoing a fission reaction, the concentration of uranium-235 in the given sample/mixed form must be increased through "*uranium enrichment*" (Uranium Enrichment, 2024).

In a nuclear power plant, only 3-5% enriched Uranium-238 is required, while nuclear weapons/bombs require uranium enriched up to 90%. (Depleted Uranium, 2024) Once enriched, uranium can serve as an effective nuclear fuel in power plants for 3-5 years. (Galindo, 2022) After that, it remains radioactive and must be disposed of according to stringent guidelines to ensure public health and environmental safety. Historically, nuclear power plants followed the development of nuclear weapons side by side; military knowledge eventually transferred to civilian use of nuclear energy (Campaign for Nuclear Disarmament, 2024).

Nuclear Weapons

A nuclear weapon is a device that derives its energy from nuclear reactions, either nuclear fission chain reactions (atomic bomb) or combined nuclear fission and fusion reactions (thermonuclear/hydrogen bomb) (UNODA, 2024). Unlike conventional weapons, nuclear weapons release massive amounts of heat and energy. Their significance is best illustrated by the coining of the terms kiloton (1000 tons) and megaton (1000000 tons) to quantify their explosive power as compared to the conventional chemical explosive TNT.

Before delving into the legal framework governing nuclear weapons, it is important to understand how these weapons are defined in various treaties. The *Tlatelolco Treaty* defines a nuclear weapon as any device designed to release energy uncontrollably, possessing specific characteristics intended for warlike purposes (*Article 5*). The *Bangkok, Tlatelolco, Rarotonga,*

and *Semipalatinsk* treaties clarify that 'nuclear weapon' or 'nuclear explosive device' excludes means of transportation or delivery, as long as these can be detached from the weapon or device itself. As a result, missiles capable of delivering nuclear weapons are not prohibited under these treaties.

On 16 July 1945, the first nuclear test was conducted in the desert north of Alamogordo, New Mexico, where it released energy equivalent to 22 kilotons of TNT. Later, on 1 November 1952, the first fusion bomb, called '*Operation Ivy,*' was tested, and its explosion yielded energy of 10.4 megatons of TNT. In October 1961, the Soviet Union tested the largest-ever nuclear bomb, *'Tsar Bomba*, with a yield of approximately 50 megatons. This weapon possesses the capability to annihilate all civilization and wreak havoc on the entire ecosystem of the planet. Aware of this danger, Albert Einstein wrote a letter (the Einstein-Szilard letter) to US President Franklin D. Roosevelt, alerting him of the threat posed by Nazi Germany and the potential for them to develop nuclear fission as a weapon during the Second World War (WWII). (Einstein's Letter (1939), n.d.)

Though used in WWII, its research began even earlier. In 1939-40, Joiliot Curie's team filed a patent family covering various applications of atomic energy, including the first official document to explicitly refer to the potential use of a nuclear explosion in warfare (Radvanyi, 2008). In 1941, organized nuclear weapons research began in Britain and Canada under the "Tube Alloys" project, marking the first nuclear-weapon project officially proclaimed (Zangana, 2018). The Maud Committee (Brown, 2019) was established after Frisch/Rudolf Peierls calculated the critical mass of uranium-235, discovering that it was much smaller than early estimated, which can make the development of a deliverable bomb feasible (Laucht, 2012). In 1941, as a response to the attack on Pearl Harbour by Japan, the U.S. secretly initiated the Manhattan Project in collaboration with the UK and Canada (BS Web Team, 2023). Standing to date, the only strategic use of nuclear weapons in hostilities was the bombings of Hiroshima (*Little Boy,* consisting of uranium elements) and Nagasaki (*Fat Man*, consisting of plutonium elements) in Japan on 6th and 9th August 1945, respectively, leading to the Japanese surrender in WWII (CTBTO, 2024).

The mere existence of these weapons, with their unparalleled destructive power, has led to the development of a distinct discipline among military strategists and planners, known as *nuclear strategy*, which has its own logic and set of doctrines (Cochran, 2018). This strategy encompasses a set of policies focused on either preventing or engaging in nuclear warfare; one of them is deterring an attack by threatening nuclear retaliation, commonly referred to as the *strategy of nuclear deterrence*. In this context, nuclear weapons may be deployed as both strategic and tactical tools.

Use of Nuclear Weapons in Diplomacy

Atomic diplomacy refers to efforts to leverage the threat of nuclear warfare to achieve diplomatic goals (Office of the Historian, n.d.). Following the first successful atomic bomb test in 1945, U.S. officials immediately recognized the potential non-military benefits of American's nuclear monopoly, leading to a stronger position in post-war diplomatic negotiations with the

Soviet Union (Alperovitz, 1965). In the immediate post-WWII era, the U.S.'s confidence in its exclusive nuclear capability had significant ramifications for its diplomatic strategies. The presence of the bomb helped ensure Western Europe would rely on the U.S. to guarantee its security rather than seeking an outside accommodation with the Soviet Union. Even without stationing a large number of troops in Europe, the US could protect the region by extending its "nuclear umbrella" over areas it was willing to defend with nuclear force. Another instance of atomic diplomacy occurred in 1962, when the Soviets deployed nuclear missiles in Cuba in an effort to pressure the US into concessions in Europe (Alperovitz, 1965).

With the increase in efficiency, power, and miniaturization of weapons, nuclear weapons gained longer range throughout the globe. This led then US President Dwight D. Eisenhower to develop the doctrine *of retaliation.'*. Russia later developed the *'Dead Hand strategy,* designed to automatically launch Intercontinental Ballistic Missiles (ICBMs) in response to a nuclear attack by the enemy force, detected by radioactivity, light, seismic, and pressure sensors, even if the commanding structures were fully destroyed. With both Cold War blocs acquiring advanced nuclear capabilities and with their form of capacity and nuclear retaliation in hand, a new nuclear warfare strategy emerged: *'Mutually Assured Destruction*' (MAD), also known as *nuclear deterrence* (Gallois, 1961). MAD introduced the concept of a '*first strike'* and eventually a '*second strike,'* leading to the recognition that a nuclear war would result in utter social collapse for both parties. For instance, President Nixon refrained from using nuclear weapons in Vietnam, aware that Soviet retaliation on behalf of North Vietnam would devastate both countries (Kimball, 2006). Furthermore, the concept of *'no first use'* (NFU) also developed, where nuclear powers pledge to use nuclear weapons only in retaliation. Since a nuclear war is suicidal, rational states avoid initiating such conflicts.This policy is adopted by nuclear-armed nations, especially between the recent border disputes in India and China. This dynamic is also encapsulated in the *'stability-instability paradox*.'

This sort of brinksmanship escalated and culminated in early 1962 during the event known as the *Cuban Missile Crisis* when a US U-2 spy plane detected several launch sites for medium-range ballistic missiles constructed on the island of Cuba, located just off the southern coast of the US. Although the presence of nuclear weapons served as a deterrent, their diplomatic utility had limits, especially in the face of a potentially suicidal attack, often referred to as '*nuclear terrorism.'*

The countries that have detonated nuclear weapons and that, under various arrangements, openly declare possessing them are North Korea (2003), Pakistan (1998), India (1974), China (1964),

France (1960), the United Kingdom (1952), the Soviet Union (1949) (succeeded by Russia), and the United States (1945). Israel is suspected of having nuclear arms, although the country maintains a policy of deliberate ambiguity, never officially confirming that it does, in fact, have nuclear weapons. Iran is now also considered a nuclear-capable state, although many believe that it possesses and tested them. Belgium, Germany, Italy, the Netherlands, and Turkey are nuclear weapons-sharing states that hold nuclear weapons of NWS on their territories. South Africa is the only country that has developed, then renounced, and accordingly dismantled its

nuclear arsenal. This step was made possible by a treaty named the *Nuclear Weapons Non-Proliferation Treaty* of 1968 (Academy, 2014).

In this milieu, it is essential to examine the various legal frameworks governing nuclear weapons. This paper explores the regulation and legal status of nuclear weapons under international law, assessing the law as it exists (*lex lata*) rather than as it might ideally be (Mevrowtz, 1990).

***Treaty on the Prohibition of Nuclear Weapons* (TPNW)**

Entry into force on 22 January 2021, TPNW is the first legally binding international agreement to comprehensively ban nuclear weapons, with the objective of eliminating them as a whole. (*Article 4*) Having negotiated for 20 years, it is the only treaty that prohibits, under Article 1, any participation in nuclear weapon activities, including undertakings not to acquire, develop, produce, test, manufacture, possess, use, stockpile, or threaten to use nuclear weapons. It also prohibits encouraging, assisting, or inducing others to engage in any prohibited activities and forbids the deployment, stationing, and installation of nuclear-weapons on national territory or any other place under its control.

The state party to this treaty is obligated to dismantle its nuclear weapons programs, including eliminating or irreversibly converting all related facilities (*Article 4*), as well as decommissioning weapons and gradually destroying nuclear arsenals-related programs. Additionally, the state shall conclude a Comprehensive Safeguards Agreement (CSA) with the International Atomic Energy Agency (IAEA) to ensure that declared nuclear material or activities within the state remain non-diverted. The treaty also provides provisions for victim assistance and environmental remediation associated with the use or testing of nuclear weapons (*Article 6*). To date, none of the NWS have signed the treaty, neither NATO member states nor those under the US nuclear umbrella (Disarmament, n.d.). However, it is significant in setting an international norm on nuclear disarmament and in its impact in the long run.

Under Article 5, the treaty mandates the state parties to take all appropriate administrative, legal, and other measures. Accordingly, Nepal, as a party to the treaty, proposed the third amendment to its *Money Laundering Prevention and Business Promotion Act* in 2080 BS. In addition, Article 17 of the treaty allows states to withdraw if an extraordinary event threatens their supreme interests, although this does not apply during armed conflicts.

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

Entry into force on 5 March 1970, the NPT aims at the prevention of nuclear proliferation with the ultimate objective of achieving nuclear disarmament. The treaty designates countries as *Nuclear Weapon States* (NWS), defined as those that had developed and tested nuclear explosive devices before 1 January 1967 (mostly P5 nations) and *Non-Nuclear Weapon States* (NNWS). This categorization represents a key bargain: NNWS commits not to acquire nuclear weapons while NWS agrees to share the benefits of peaceful nuclear technology (*Article 5*). Every 5 years, as per *Article 8*, a Conference of Parties (CoP) is held to review the treaty and to keep up with the treaty's purpose. At the 2012 Preparatory Conference for the 2015 NPT CoP,

the "Humanitarian Initiative" was proposed. This initiative aimed to prohibit nuclear weapons in totality and eventually led to the codification of a separate law.

The NPT places limits on specific activities of signatories to allow the transfer of civilian nuclear technology to member states while minimizing the risk of proliferation. (Review COP to the NPT Treaty, 2010). Further, the NPT guarantees all parties have the 'inalienable right' to pursue nuclear research, production, and peaceful uses of nuclear technology. (*Article 4*) Article 6 requires NWS to 'pursue negotiations in good faith' towards the reduction and eventual disarmament. To date, this treaty has been signed by an overwhelming majority of 191 countries, although North Korea withdrew as per Article 10. Additionally, Article 7 paves the path to conclude regional treaties aimed at creating areas free of nuclear weapons, known as Nuclear-Weapon-Free Zones (NWFZ).

Nuclear-Weapons Free Zones (hereinafter "NWFZ")

According to United Nations General Assembly (UNGA) 3472(XXX)B, an NWFZ requires two key components: (1) the complete absence of nuclear weapons within the zone and (2) the establishment of an international system for verification and control machinery. NWFZs serve as complementary machinery to broader disarmament efforts, non-proliferation, and the peaceful development of nuclear energy.

By ratifying an NWFZ treaty, states commit not to possess or accept 'nuclear weapons' or 'nuclear explosive devices' within their territories. To date, six (6) treaties establishing NWFZs have been concluded:

(a) *Treaty of Tlatelolco* (for the Prohibition of Nuclear Weapons in Latin America and the Caribbean, entered into force (EIF) on 25 April 1967);

(b) *Treaty of Rarotonga* (on the South Pacific NWFZ, EIF 11 December 1986);

(c) *Bangkok Treaty*(on the South-East Asia NWFZ- SEANWFZ, EIF 27 March 1997);

(d) *Pelindaba Treaty*(on the African NWFZ, EIF 15 July 2009);

(e) *Semipalatinsk Treaty*(on Central Asia NWFZ, EIF 21 March 2009); and

(f) *Antarctic Treaty* (in Antarctica, EIF 23 June 1961).

Additionally, Mongolia has unilaterally declared a nuclear-weapon-free state while Antarctica is free of weapons of mass destruction (WMDs). In this context, Nepal's proposal by the late King Birendra to declare Nepal a "*Zone of Peace*" also holds a place in Nepal's diplomatic history.(Anupam, 2020)

Treaties that limit and control nuclear weapons

Amid the escalating nuclear arms race and testing between Cold War rivals, especially following the Cuban missile crisis, all nuclear and many non-nuclear states signed the Treaty Banning Nuclear Weapon Tests in Under Water, in Outer Space, and in the Atmosphere *(Partial/Limited Test Ban Treaty*, EIF 10 October 1963), pledging to refrain from nuclear weapons tests in the atmosphere, outer space, or underwater; however, the treaty permitted underground tests. Later in 1996, a *Comprehensive Nuclear Test Ban Treaty* (10 September 1996) was signed,

prohibiting all sorts of testing of nuclear weapons. Other significant treaties include the *Anti-Ballistic Missile Treaty* (1972), *Outer Space Treaty* (1967)*, Intermediate-Range Nuclear Forces* (INF) Treaty, *Strategic Offensive Reductions Treaty* (SORT), *Strategic Arms Reduction Treaty* (START), *Strategic Arms Limitation Treaty* (SALT), and the recently proposed *Fissile Material Cut-Off Treaty* (FMCT), among others.

United Nations (UN) Instances on Nuclear Weapons

UNGA has adopted numerous resolutions addressing the humanitarian pledge for the prohibition (*UN Doc.A/RES/70/48*), use of nuclear weapons (*UN Doc.A/RES/1653(XVI), A/RES/39/148 D*), and the goal of total nuclear disarmament (*UN Doc.A/RES/67/56*, *A/RES/50/70 C*, *A/RES/50/71 E*, *A/RES/37/100 C*). UNGA has declared that the use of nuclear weapons is a direct violation of the UN Charter, especially laws of humanity and rules of international law (*UN Doc.A/RES/1653(XVI)*). Additionally, it has called for the total prohibition of the use and manufacture of nuclear-weapons and all types of WMDs, together with the conversion of existing stocks of nuclear-weapons for peaceful purposes (*UN Doc.A/RES/808(IX) A*), which was also iterated in para 8-13 of the preamble of TPNW. Although these resolutions do not form hard law as compared to the treaties and conventions, they are considered as 'soft law,' which can be deemed as customary practices due to their overwhelming support from the voting states (ICJ Statute, Article 38(1)(b)).

Nuclear Weapons under International Humanitarian Law (IHL)

IHL consists of two main branches: firstly*, Hague Law,* which is a set of rules covering the prohibited/limited means and methods of warfare, and secondly, *Geneva Law,* which is a set of rules on the protection of individuals in armed conflict (war victims) and how they are protected (ICRC, n.d.). They constitute the bunch of law under Public International Law (PIL). In its 1996 ruling on the *Legality of the Threat or Use of Nuclear Weapons* (1996 Nuclear Weapons Case), the International Court of Justice (ICJ) stated that the use of nuclear weapons would violate the international law governing armed conflict, particularly the principles and rules of IHL. These rules include limits on the choice of methods or means of warfare (Rostow, 1995), the rule of distinction [*API Article 48, 52, CIHL Rule 1, 7; GCIII Article 4/A(1)(2)*], the prohibition against indiscriminate attacks [*API Article 48, 51(4), CIHL Rule 12*], the rules on proportionality and precautions in the attack [*API Article 58(c), CIHL Rule 14, 22*], the prohibition on the use of weapons causing superfluous injury/ unnecessary suffering [*GCIV Article 23(e), API Article 35(2) CIHL Rule 70*], and the rules for the protection of the natural environment [*API Article 35(3), 55; CIHL Rule 45*] (John Loretz, 2020).

Due to their inherent nature, nuclear weapons are considered incompatible with all these principles of IHL (Sheldon, 1996) as affirmed in the Nuclear Weapons case (1996 Nuclear Weapons Case, p. 96). Their use often involves excessive force far beyond what is necessary to weaken the enemy's military forces. [*API Article 35(2)*] In the only case reviewing the atomic bombings of Hiroshima and Nagasaki, the Tokyo District Court decided that the US use of atomic bombs during WWII violated customary international law by causing unnecessary suffering. (*Shimoda v. State (Japanese Government), 1964)* Nuclear weapons are *per se* indiscriminate

and, therefore, a military advantage they offer can never justify the humanitarian concerns they uphold, violating Articles 48 and 51 of *API*. *Martens Clause* may also serve as an important guiding principle in this regard.

With these laws and regulations in hand, it is crucial to consider the standpoint of Non-Nuclear Weapons State (NNWS), especially from the perspective of the least developed countries like Nepal.

Nepal

Nepal is a committed party and active participant in several key international treaties and protocols on disarmament, including the *Partial Test Ban Treaty* (PTBT), *Outer Space Treaty, 1925 Geneva Gas Protocol, Nuclear Non-Proliferation Treaty* (NPT), *Seabed Treaty, Chemical Weapons Convention* (CWC), *Biological Weapons Convention* (BWC), and *the Small Quantity Protocol, and is a signatory to the Comprehensive Nuclear Test Ban Treaty* (CTBT) and *Treaty on the Prohibition of Nuclear Weapons* (TPNW). Additionally, Nepal became a member of IAEA in July 2008. In line with the IAEA objectives, Nepal adopted the *National Nuclear Policy 2064* (2007), the first of its kind in the National Nuclear Legal Framework, aiming to regulate, control, and monitor the peaceful use of nuclear energy. Following IAEA guidelines, the policy has the objective to enhance overall national welfare while ensuring public safety.

To reinforce its commitment, Nepal recently classified nuclear weapons under "weapons of mass destruction" in the proposed third amendment to the *Money Laundering Prevention Act, 2064*. More recently, with the help of the IAEA Legislative Assistance Program, Nepal has adopted *the Radioactive Materials (Use and Regulation) Act, 2020*, and its *Rules, 2022,* in compliance with the IAEA Framework. Further, in 2012, Nepal signed a Technical Cooperation Agreement with the IAEA aiming to achieve Sustainable Development Goals (SDGs) by leveraging peaceful nuclear applications to enhance the quality of life and economic prospects. On 26th September 2022, the Country Programme Framework (CPF) was signed for 2022-27, identifying five (5) priority areas to support national development goals.

Realizing the prospect of improving public health and living standards of the people through the peaceful use of nuclear technology, the *Ministry of Environment, Science, and Technology* (MoEST), with the role of promoter, regulator, and facilitator, has adopted a *National Nuclear Policy* to promote social and economic prosperity. The policy undertakes to R&D, regulate, control, and monitor the development and use of nuclear energy, as well as enhance national capacity in terms of human resources and physical infrastructures in nuclear science. The policy also aims to generate awareness and establish a national information system to collect, store, and disseminate information in the field of nuclear science.Nepal has integrated this policy to use nuclear in medicine, food, and agriculture. Specific applications include setting national standards for radiation levels in food materials, producing high-yielding breeds by ionizing radiation, pest control, fertilizer production, and food preservation, among others. This policy has also been instrumental in making available nuclear medicine in Nepal, particularly medicine used in treating cancer patients. To oversee the implementation of

this policy, a *Nuclear Steering Committee* has been set up under MoEST to provide necessary directives and guidance.

In accordance with Policy 5.6, Nepal has enacted *the Radioactive Materials (Use and Regulation) Act, 2077,* and *Rules, 2078,* which emphasize safety in the import, export, sale, purchase, storage, transport, utilization, and radiation handling of uranium and other radioactive substances. This Act reiterates that these radioactive sources and their related technologies are to be used solely for peaceful and humanitarian purposes (*Section 3*). A separate regulatory body is established (*Section 4*) to manage *administrative functions* (notification, authorization, review and assessment, inspection, and enforcement) as well as *technical aspects* (occupational and public protection, medical exposure, radioactive waste management, transport security, emergency preparedness, and response).

Additional institutional arrangements such as the *Direction Committee* (*Section 6*) and *Nuclear Research Centre* (*Section 54*) are provisioned. Any person shall obtain a license from a regulatory body to conduct any sort of activities, practice, or mechanism involving radioactive sources and related acts. The act mandates that the Government of Nepal (GoN) establish a national-level plan for disaster preparedness and management related to radioactive substances. (*Section 32*) It has paved the way for the determination of conditions as well as guidelines for the import or export of radioactive substances (Section 34), and it strictly prohibits the importation of radioactive waste into Nepal (*Section 36*). Radioactive substances can be categorized based on security sensitivity and established criteria/standards (*Section 45*) for physical protection. At this outset, an appropriate nodal point shall be designated to ensure effective coordination among various ministries, departments, agencies, and stakeholders involved in nuclear-related activities in Nepal.

Additionally, GoN enacted *Nuclear Materials Regulatory Directives, 2072 BS (2015 AD)* to regulate the import, export, transportation, storage, and use of nuclear materials. The directive has strictly prohibited the use of nuclear material for destructive or military purposes. These laws have been drafted primarily to ensure the peaceful or medicinal use of imported radioactive substances and for research centers associated with local mineral resources. Notably, a substantial deposit of uranium has been identified/discovered in the Upper *Mustang* region of Nepal. Preliminary studies, corroborated by the IAEA, indicate that this deposit spans over an area of 3 km in width and 10 km in length and may be of the highest grade (Nepal, 2017), *Mines and Minerals Act, 2042 BS* (1985 AD) has categorized uranium as a "very precious mineral."

Table 1: Uranium Deposits in Nepal (Nepal, 2017)

S.N.	Headings	Information
1.	Main Deposits of Uranium	*Chunikhel, Jagat, Panchmane, Gagalphedi*, and *Thumki*, in *Shivapuri* area (Kathmandu), *ChandiKhola, Chiruwa Khola*, and *Tinbhangale*, (*Makwanpur*); *Jamari Gad, Bangabagar, Baggoth, Gorang* (*Baitadi*); *Mardar Khola* and *Panpa Khola* (*Chitwan*); *Buka Khola* (*Sindhuli*); and traces in different section of *Mustang* and *Chamliya* River (*Darchula*)

2.	Quality and Quantity	Uranium deposits of about three (3) kilometers (km) in width and ten (10) km in length in *Lomanthang* are of very high quality. (Department of Mines and Geology (DMG), 2015)
3.	Licensing	DMG has not issued licenses yet

The above table illustrates the presence of substantial deposits of uranium minerals in Nepal. Numerous instances corroborate this presence. Nepal Police has occasionally intercepted illegal smuggling of precious uranium from and via the country. During the monarch's suspension of political parties, former Prime Minister *Girija Prasad Koirala* mentioned possible uranium smuggling from Nepal to Israel to fund weapons and ammunition necessary for the insurrection. This is written in the book *Aafnai Kura* from *Jagdamba Prakashan* (Mulmi, 2021) Many incidents involving Uranium-238 smuggling through Nepal have also been reported. (Himalayan News Service, 2022) There is no doubt that Nepal needs to utilize the deposit in the national interest and the upliftment of the economy; however, these incidents illustrate a significant risk Nepal faces in potentially becoming a source of raw uranium (a prerequisite for nuclear weapons) for nuclear-armed states. Additionally, they underscore the need for Nepal to adopt a careful and nuanced approach to balance the benefits of nuclear technology with its potential risks. Nepal's policy shall address its need for nuclear technology, avoiding a potential playground of the NWS state in their search for raw uranium resources.

On the other hand, Nepal directly contributes to the security architecture of permanent member countries of the UN, including the UK (Gorkha regiment), the US (perimeter security at Afghanistan, Iraq, and Lebanon), France, Russia (Army), and India (Thapa, 2024). They all possess nuclear weapons and have a developed nuclear technology infrastructure. However, Nepal's relationships with all 7 nuclear power nations remain complex. Strained ties include recent diplomatic tensions with Israel (Bhattarai, 2023, Republica, 2024, North Korea Smith, 2023, The Kathmandu Post, 2023, US Miklian, 2008, Giri, 2022, Ghimire, 2022, China epardafas, 2024, Poudel, 2024, India Paudyal, 2013, Gupta, 2024, Pakistan, UK BBC, 2015, Stone, 2015, Russia Kharel, 2024, Samiti, 2023). These diplomatic gaps limit Nepal's opportunities for knowledge (know-how) and information exchange, technological collaboration, and best practices sharing on nuclear technologies.

Strengthening cooperation with these nuclear weapons states is of utmost significance to utilize the available uranium deposit for civilian purposes and even reduce the nuclear threat, as the national security domain now extends beyond traditional land security to include cyberspace, artificial intelligence, and data security. Emerging threats such as deepfake technology, misinformation, disinformation, and the ultimate nuclear outbreak further complicate the security landscape.Further, the reliance on the UN security measures is increasingly limited by the sovereignty of its member states (Reuters, 2024), with discussions around the UN Security Council Reform (UNGA, 2023) becoming more frequent. For these reasons, adequate collaboration and diplomatic ties with these nuclear powers are the need of the day.

Conclusion

Disarmament obligations for nuclear weapons states remain a point of contention and are challenging to enforce. Unless the international community takes proactive steps to establish

a transparent and effective regulatory system, states will continue to bypass the existing prohibition/non-proliferation regime, justifying nuclear weapons use on grounds of deterrence and self-defense inherent under the principle of state sovereignty. Since the very foundation of the UN Charter and especially after the Peace of Westphalia in 1648, states have recognized one another as sovereign and equal, with no single state having the authority to judge another's internal affairs. As iterated by the *Nuclear Weapons case*, when the state's survival is at stake, customary international law does not outrightly prohibit nuclear weapons use. Additionally, no international law limits/restricts the level of armaments a sovereign state can possess, as discussed in the ICJ *Nicaragua case*. At this outset, the IAEA in collaboration with NNWS shall take this matter collectively to the UNGA forum to remind NWS states of the disarmament/ denouncement obligation.

Recently a *non-liquet* scenario of nuclear weapons use has been mitigated by the TPNW, which has entered into force and prohibits nuclear weapons use in all circumstances. It prohibits the signatory parties from developing, testing, producing, stockpiling, stationing, transferring, using, and threatening nuclear weapons. Further, it forbids any assistance or encouragement of these prohibited activities. For signatories, nuclear-armed states, the treaty provides for a time-bound framework to negotiate the verified and irreversible elimination of their nuclear weapons program. However, its enforcement/verification mechanisms are a vacuum. On the other hand, several states possess nuclear warheads, and many are on the verge of acquiring them. Gauging their population and size, this nuclear weapon-possessing tendency may be considered another customary practice. However, the culmination of 20 years of negotiation into a legally binding international norm cannot be neglected, and even NWS does not negate the fact that the ultimate peace lies in the world without nuclear weapons. Therefore, this treaty can be a vanguard to pressurize NWS and their allies and gradually initiate bi/multilateral step-by-step talks to balance their security concerns, eventually building trust and confidence in their step towards the disarmament goal. Moreover, this treaty can complement the NPT regime and help to debunk the false narratives amid the treaty itself. In the long run, the treaty can serve to discourage investment in weapons production even to non-party states.

Having said that, we could not disregard the vitalness of the peaceful uses of nuclear energy and nuclear technologies. They are indispensable for the advancement of humankind and raising human welfare, particularly for developing and least-developed countries like Nepal in achieving the *2030 Agenda* for SDGs. Moreover, its peaceful and civilian use has not been negated by the existing international law and can significantly contribute to fields such as medicine, public health, agriculture, food security, water resource management, sustainable energy, and the environment, enhancing overall human well-being and quality of life. Likewise, Nepal, with its limited use of nuclear technology and firm stance on nuclear disarmament, has streamlined its laws and mechanisms with these objectives and goals in order to reap maximum benefits from this new development of science and technology within the framework for peaceful cooperation. At this outset, the IAEA's cooperation and partnerships with NWS for knowledge and information sharing, technological expertise, and best practices are crucial for maintaining nuclear utility as well as keeping safety and security intact. Nepal can designate the existing regulatory body as a focal point of nuclear activities for the efficient and effective

implementation of its nuclear policy. In addition, it is equally important to strengthen and properly implement the clear prohibition of nuclear weapons under TPNW for a path toward nuclear disarmament, ultimately building a safe, secure, and peaceful world to live in.

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