Problems and Prospects of Non-Proliferation Regime

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Abstract

The nuclear non-proliferation regime is an extensive global framework of international accords, voluntary agreements, international institutions, export control arrangements and bilateral and multilateral initiatives, which have been designed to prevent the proliferation of nuclear weapons, contributing to arms control and disarmament. There are several arms control and disarmament treaties like Nuclear Non-proliferation Treaty, Comprehensive Test Ban Treaty and Fissile Material Cut-off Treaty. The NPT is the cornerstone of the non-proliferation regime. Along with that some multilateral formal and informal non-proliferation agreements like Nuclear Suppliers Group, International Atomic Energy Agency and Missile Technology Control Regime are also part of the international non-proliferation efforts. This paper attempts to highlight the current key issues facing the nuclear non-proliferation regime. An endeavor has also been made to discuss how the threats to the non-proliferation regime can affect the prospects for nuclear disarmament. A considerable portion of the study is devoted on finding solutions and suggesting some recommendation to the non-proliferation issues.

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Keywords: Nuclear Non-proliferation Regime, Nuclear Non-proliferation Treaty, Nuclear Suppliers Group, International Atomic Energy Agency, Missile Technology Control Regime.

Introduction

Since the beginning of the atomic age, one of the major challenges to international strategic stability, security, and peace is the nuclear weapons proliferation. Massive destructive power of nuclear weapons makes the containment of nuclear capability more important for the international community. Nuclear weapons usually serve as a deterrent against potential aggressor state in form of threat for massive retaliatory strike against any major attack. Simultaneously, spread of nuclear weapons could destabilize and undermine the existing balance of power or raise the possibility of accidental nuclear attack. An increasing concern for the consequences of proliferation of nuclear arms race in the Cold War period led to the establishment of the nuclear non-proliferation regime, intended to promote strategic stability and reduce the chances of nuclear weapons use.[1]

The Nuclear non-proliferation regime is an extensive global framework of international accords, voluntary agreements, international institutions, export control arrangements and bilateral and multilateral initiatives, which have been designed to prevent the proliferation of nuclear weapons, and thus contributing to arms control and disarmament.[2] Non-proliferation regime is very significant for stability in international strategic environment because the consequences of nuclear weapons use are unimaginable. Preventing the proliferation of nuclear weapons, working towards diminution and ultimately elimination of the

[1]Lettow, Paul. "Strengthening the Nuclear Non-proliferation Regime."*The Council on Foreign Relations, (2010):* 3-4.
[2] Meyer, Paul. "The Fragmenting Nuclear Nonproliferation Regime."*OpenCanada.org, (*2014). *Retrieved* from https://www.opencanada.org/features/the-fragmenting-nuclear-nonproliferation-regime/

existing nuclear weapons, consequently will benefit all the states of the international community. Non-proliferation regime is supported by a wide range of coalitions and security reassurances. The Nuclear Non-proliferation treaty (NPT) is the cornerstone of the non-proliferation regime.[3]

The early nuclear non-proliferation efforts were started after United States nuclear test at Alamogordo in 1945 when 'Baruch Plan' (1946)[4] sought to ban nuclear arsenal and internationalize the use of nuclear energy for peaceful purposes. Baruch Plan was the first attempt to control nuclear technology but it failed because of Soviet opposition and thus three more states acquired nuclear arsenals by 1952. From 1946 to 1953, there was no nuclear non-proliferation regime. On 8th December, 1953, the then President of United States, Eisenhower introduced the 'Atoms for Peace' policy,' which led to the establishment of 'Atomic Energy Act 1954'.[5] Atomic Energy Act opened new ways for the distribution of nuclear technology for peaceful purposes under bilateral as well as multilateral accords. Atoms for Peace Initiative and Atomic Energy Act paved the way for the establishment of Atomic Energy Commission Agency (IAEA) in 1957 which regulates atomic technology for peaceful purposes. However, two more countries became nuclear weapon states even after the creation of IAEA, which highlighted the fact that the proliferation of nuclear technology for peaceful purposes could not be separated from the spread of nuclear weapons.[6] In 1958, Ireland requested for the creation of a United Nation resolution for preventing 'further spreading of nuclear arsenal'.[7] In 1961, United Nations General

[3] Hewitson, Patricia. " Non-proliferation and Reduction of Nuclear Weapons: Risks of Weakening the Multilateral Nuclear Nonproliferation Norm." *Berkeley Journal of International Law, 21* (3) 2003: 406-407.
[4] Baratta, Joseph. "Was the Baruch Plan a Proposal of World Government?" *The International History Review, 7* (4) (1985): 592.
[5] Weiss, Leonard. "Atoms for Peace."*Bulletin of the Atomic Scientists,* 59 (6) 2003: 42.
[6] Ibid., p. 47.
[7] Baratta, p. 415.

Assembly passed a resolution 1655[8] which encouraged the countries to reach an agreement in order to forbid further transfer and pursuit of nuclear devices between states. After Cuban Missile Crisis of 1962, USA and USSR came closer to plug the way for further expansion of nuclear weapons. Ultimately, Ireland's resolution, adopted by the United Nations in 1961, became the direct pioneer of the Non-proliferation Treaty (NPT).[9]

In 1965, the Geneva disarmament conference initiated consideration of a draft of nuclear non-proliferation accord. By 1968, Geneva conference completed its negotiations and the non-proliferation treaty was opened for signature on 1st July, 1968.[10] On 5th March, 1970 the Non-proliferation Treaty (NPT) came into force with 43 member states, including three out of five nuclear weapon states i.e. USSR, UK and USA.[11] The treaty of non-proliferation of nuclear weapons (NPT) is the basis of international non-proliferation efforts. Today, nine states possess nuclear weapons i.e. USA, UK, Russia, China, France, India, Israel, North Korea and Pakistan and more than 30 states have the technical capability to rapidly acquire them.[12]

The paper outlines the key issues currently facing the non-proliferation regime. It also offers a novel perspective on how the threats to the non-proliferation regime can impact on the prospects for nuclear disarmament and to what extent nuclear renaissance presents major proliferation risks. Finally, the paper focuses on finding solutions to the nuclear non-proliferation issues.

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[8] Schiff, Benjamin. *International Nuclear Technology Transfer: Dilemmas of Dissemination and Control.* Lanham Maryland: Rowman& Littlefield Publishers, 1984: 27.
[9] Ibid., p. 35.
[10] Smith, Roger. "Explaining the Non-proliferation Regime: Anomalies for Contemporary International Relations Theory."*International Organization,* 41 (2) (1987): 259.
[11] Spies, Michael. "Iran and the Limits of the Nuclear Non-proliferation Regime."*American University International Law Review* 22 (3) (2007):p.402.
[12] Ibid, p. 405.

Nuclear Non-Proliferation Regime

Currently, there are a good number of non-proliferation arrangements related to WMDs that are working internationally with the objective to stop the spread of nuclear material and technology. The rules of nuclear non-proliferation regime signify those actions which are allowed as well as prohibited for member states. In the Cold War period, two super powers, United States and the Soviet Union, worked hard for the non-proliferation of nuclear technology. Major arms control and disarmament treaties, several formal and informal nuclear export control regime i.e. Non-proliferation Treaty (NPT), Nuclear Suppliers Group (NSG), Missile Technology Control Regime (MTCR), Comprehensive Test Ban Treaty (CTBT), Chemical Weapon Convention (CWC), Australia Group, Wassenaar arrangement, and Fissile Material Cut-off Treaty (FMCT) are all part of international non-proliferation efforts.

The Nuclear Non-proliferation Treaty is an international treaty and a core component of the international non-proliferation regime. Nuclear Non-Proliferation Treaty (NPT) consists of a preamble and eleven articles that deal with the purpose to prohibit the spread of nuclear material and technology around the world.[13] Except India, Pakistan, Israel and North Korea, all other states are party to the treaty. The Nuclear Non-proliferation Treaty is unique among international arms control treaties as it identifies two classes of states: the one who manufactured and exploded a nuclear weapon before January 01, 1967 were recognized as Nuclear Weapon States (NWS) and all other states were considered as Non-nuclear Weapon States (NNWS).[14]

Article I and II of Nuclear Non-proliferation Treaty binds non-nuclear weapons states (NNWS) to neither receive nor develop nuclear weapons and the nuclear weapon states (NWS) to neither assist nor transfer

[13] Ibid., p. 407.
[14] Hewitson, p. 404.

sensitive nuclear technology to NNWS.[15] These two articles explicitly highlight the rule of non-proliferation as an obligation on all the member states. Article III of NPT requires non-nuclear weapon states to accept the International Atomic Energy Agency safeguards on all their nuclear facilities. According to the article IV, Treaty will not hinder the transfer of nuclear technology for peaceful purposes, especially for the developing countries.[16] As per article V of NPT, each party to the treaty ensures that potential benefits from nuclear explosive services shall be provided to all member states of the treaty. According to NPT article VI, all members of the treaty will pursue negotiation in good faith for the strategic arms reduction at an early date and ultimately complete elimination of strategic weapon under strict international control.[17] Article VII allows all member states to conclude regional treaties for the complete elimination of nuclear weapon from their territories.[18] Article VIII deals with the procedures of amendments of the treaty and it will be reviewed after every five years.[19] According to the remaining articles of NPT, the Treaty will be open to all states for signature at any time, and member states will be able to withdraw from the NPT at any time if treaty affects their supreme interest.

In sum, the NPT is based on three pillars: Non-proliferation, disarmament and peaceful cooperation. Non-nuclear weapon states as of 1967 agreed not to acquire nuclear weapons. Secondly, five nuclear weapon states ((USA, USSR, UK, China and France) were agreed neither to assist nor transfer nuclear technology to non-nuclear weapon states and will move towards complete disarmament.[20] Third pillar of the NPT is

[15] Siracusa, Joseph. "The Eight Pillars of the Nuclear Non-proliferation Regime and the search for Global Security." *Global policy,* (September 2012).
[16] Spice., p.410.
[17] Sokolski, Henry. "Reviewing the Nuclear Non-proliferation Treaty."*Strategic Studies Institute,* (May 2010): 237-242.
[18] Ibid., p.65.
[19] Ibid.
[20] Ibid., p.417.

NNWS will be able to access nuclear technology for peaceful use.[21] The Nuclear Non-Proliferation Treaty review conferences take place every five years in order to attain member state consensus on a final document on different problems pertaining to nuclear non-proliferation.

International Atomic Energy Agency (IAEA) is the second essential nuclear preventive mechanism in the comprehensive non-proliferation regime. It is the implementing body of the Nuclear Non-proliferation Treaty (NPT) which monitors compliance with the treaty and ensuring that non-nuclear weapons States (NNWS) do not use civilian nuclear technology for the development of nuclear weapon.[22] IAEA safeguards system consists of practices and agreements that permit the International Atomic Energy Agency to gain a clear picture of a state's nuclear related activities and decide whether those activities are posing a risk of nuclear proliferation. NNWS of NPT agree to accept International Atomic Energy Agency Safeguards comprehensively to their civil nuclear program for the purpose of monitoring, auditing and inspecting their peaceful energy nuclear programs within the territory of such state. Under this system, it is the responsibility of IAEA to give credible assurances that civil nuclear energy will not be used for the development of explosive nuclear devices. The IAEA safeguards system consists of safeguards agreements implemented in accordance with relevant treaties, the statute of the international atomic energy agency to the extent it is integrated into safeguard agreement, and practices of IAEA that have changed in the implementation of safeguard agreements.[23] Therefore, the success of this non-proliferation regime entirely depends on a universally applicable, verification and efficient monitoring system.

[21] Shaker, Mohamed."The Nuclear Non-proliferation Treaty Origin and Implementation 1959-1979. "*James Martin Center for Nonproliferation Studies 2* (1980).
[22] Defrancia, Cristian. "Enforcing the Nuclear Non-proliferation Regime: The Legality of Preventive Measures*." Vanderbilt Journal of Transnational Law 45* (2012):712.
[23] Ibid.

The Nuclear Suppliers Group (NSG) is the third significant mechanism of global nuclear non-proliferation regime which was founded on the sound basis of the Nuclear Non-proliferation Treaty (NPT). The explosion of a nuclear device on 18 May, 1974[24] by India increased concern about nuclear proliferation which prompted seven major nuclear supplier states i.e. United States, United Kingdom, Canada, Japan, France and the Federal Republic of Germany to collaborate for nuclear export controls, and also focus on the inspection of management of nuclear exports. The plutonium used in New Delhi's nuclear test was produced from reactors supplied by Canada and United States on the condition that it would be only used for peaceful civil purposes.[25] Consequently, Nuclear Suppliers Group was established (which was initially known as 'London Group'[26] because above mentioned states met with each other in London from 1975 to 1977). London Group was later officially known as Nuclear Suppliers Group (NSG). France's inclusion into NSG had particular significance because France was not part of Nuclear Non-Proliferation Treaty at that time. Nuclear Suppliers Group brought major nuclear supplier state France into the multilateral discussions on nuclear export with other major nuclear supplier's states. Currently, Nuclear Suppliers Group (NSG) consists of 48 States.[27]

NSG was developed with the aim to contribute in the global non-proliferation of nuclear weapons by implementing the two sets of guidelines for nuclear transfers and nuclear related supplies. The first set of Nuclear Suppliers Group guidelines deals with exports of items that are specifically designed for nuclear use e.g. nuclear material, non-nuclear material for reactors, nuclear reactors, equipment, and technology

[24] Nikitin, M., Kerr, P., & Hildreth, S. "Proliferation Control Regimes: Background and Status." *Congressional Research Service*, (2012).
[25] Ibid.
[26] Ibid.
[27] Schmidt, Fritz. "The Zangger Committee: Its History and Future Role." *James Martin Center for Nonproliferation Studies (CNG),* (1994).Retrieved from http://cns.miis.edu/npr/pdfs/schmid21.pdf.

related to each of the above mentioned items.[28] The second set of guidelines governs the supply of nuclear related dual-use items and technologies that could be used in unsafeguarded nuclear fuel cycle or nuclear explosive activity.[29] The Nuclear Suppliers Group guidelines are a complement to and consistent with global non-proliferation regime/treaties such as NPT, treaty of Tlatelolco, treaty of Bangkok, treaty of Rarotonga and treaty of Pelindaba.[30] The Nuclear Suppliers Group (NSG) Guidelines ensure that a nuclear export for civil purposes does not contribute to the production of nuclear weapons. NSG also facilitates the expansion of peaceful nuclear trade consistent with global nuclear non-proliferation norms. Nuclear Suppliers Group (NSG) member states obligate themselves to the conditions of export and further development of the application of nuclear energy for civil purposes.[31]

The objective of NSG is to ensure that nuclear supplies are carried out with proper physical protection, safeguards and other non-proliferation conditions.[32] The NSG also aims to restrict the supply of sensitive materials that can contribute to the nuclear explosive activities. In 1992, NSG developed guidelines for the export of dual-use nuclear equipment and technology which could make a considerable contribution to a nuclear explosive activity.[33] These dual-use guidelines also serve to develop a full-scope safeguards agreement with the International Atomic Energy Agency (IAEA) as a condition for the future export of trigger list items to any NNWS.[34] This decision guarantees that only NPT party states

[28] Ibid.
[29] Thranert, Oliver. "The Nuclear Suppliers Group at the Crossroads."*Centre of Security Studies*, (2013): 1.
[30] Ibid., p.2.
[31] Ibid.
[32] Anthony, I., Ahlstrom, C., &Fedchenko, V. *Reforming Nuclear Export Controls: What Future for the Nuclear Suppliers Group.* New York: Oxford University Press, (2007): 124.
[33] Hibbs, Mark. "The Unmaking of a Nuclear Smuggler."*Bulletin of the Atomic Scientists 62* (6) (2013): 35-41.
[34] Anthony, p.125.

and other states with full scope safeguards agreements could benefit from nuclear exports.[35] The approval of full-scope safeguards policy at NPT Review and Extension Conference (NPTREC)[36] in 1995 showed that the international society believes NSG played a vital role for the nuclear non-proliferation obligations and commitments.[37]

The Nuclear Suppliers Group (NSG) requires International Atomic Energy Agency (IAEA) safeguards as a requirement for provision of nuclear supply, with full scope safeguards as the norm, physical protection against stealing of sensitive items of the nuclear fuel cycle, national control laws and restraint on enrichment, a common control list, and reprocessing plant assistance to countries of proliferation concern.[38] The NSG Guidelines for nuclear exports, which supplier states agreed upon in 1977 and transmitted them to the international atomic energy agency Director General in January 1978, envision additional export control restraints beyond those given in NPT. These restraints forbid the utilization of nuclear exports from being used in any explosive nuclear device; oblige physical protection of nuclear[39] materials and facilities, uranium enrichment and heavy water production and control of re-transfer of nuclear materials. Nuclear Suppliers Group (NSG) in 1992 at Warsaw meeting adopted the statement on Full-Scope Safeguards which require the application of IAEA safeguards on all nuclear related sources and especially fissionable material in recipient countries present and future nuclear activities.[40] Hence, Nuclear Suppliers Group is the valid instrument of nuclear non-proliferation efforts at global level. The NSG non-proliferation regime is a voluntary association whose guidelines are

[35] E1Baradei, Mohamed. "Saving Ourselves from Destruction."*New York Times,* (12 February, 2004).
[36] Ibid.
[37] Ibid.
[38] Hibbs, Mark. "The Future of the Nuclear Suppliers Group."*Carnegie Endowment for International Peace, (2011):7.* Retrieved from http://carnegieendowment.org/files/future_nsg.pdf
[39] Ibid., p.9.
[40] Hibbs, p.11.

not binding on any member state nor has any formal system to enforce compliance.

The MTCR is the fourth layer of the non-proliferation regime. It is an informal and non-treaty association of countries that have an established policy of limiting the spread of missiles and missiles related technology. Efforts for the missile technology control regime were started since 1970's when the United States government became aware of the dangers created by the missile program of third world nations. Several events such as South Korea's ballistic missile test (1978), Iraq's attempt to purchase retired rocket stages from Italy in 1979 and New Delhi's SLV-3 test in 1980 particularly contributed to the United States apprehensions.[41] The US concerns were met by the then President Reagan's administration which consequently, led to the development of MTCR in 1987 with the help of G7 States such as United States of America, Germany, Great Britain, Italy, Canada, Japan and France.[42] According to the guidelines, Missile Technology Control Regime's (MTCR) purpose is to reduce the threat of nuclear proliferation by controlling the missiles and missile technology transfers which contribute to the development of unmanned nuclear weapon delivery systems. Eventually, the aim of MTCR was to 'limit the risk of proliferation of the delivery systems for weapons of mass destruction by controlling export that could make any contribution to delivery systems for nuclear weapons'.[43]

Presently, thirty four states are member of MTCR including Russia. The Missile Technology Control Regimes (MTCR) members have released guidelines for the control of certain missile technologies. According to the guidelines, MTCR member states would refrain from the transfer of banned items on both voluntary and independent basis. The guidelines

[41] Scheffran, J., & Karp, A. *The National Implementation of the Missile Technology Control Regime – The US and German Experience.* Amsterdam: Vu University Press, (1996):.39.
[42] Ibid.
[43] Fialka, John. "Allies to Curb Flow of Missile Technology."*Wall Street Journal,* (1987).

also summarize the essential criteria to review missile related transfer applications; for instance, nature of the recipient country's missile and space program, development of a nuclear delivery system and any appropriate multilateral treaty. The Missile Technology Control Regime (MTCR) presently supplies the central institutional arrangement with international norms for dealing with missile explosion. But now international society recognizes the proliferation of missiles and missile technology as a central security issue and the comprehensive political changes observed over the past three years demand a reassessment of the MTCR strength, weakness and capability to combat missile expansion in a new changing global order.[44]

The fifth most important layer of the international non-proliferation regime is the Comprehensive Test Ban Treaty (CTBT)[45]. The comprehensive nuclear test ban treaty prohibits nuclear explosions by all of its member states. CTBT was negotiated in the Conference on Disarmament (CD) at Geneva and the majority of the states, party to the CD, expressed their will to support the treaty.[46] The idea for the establishment of CTBT originated in the mid 1950's when apprehension about the fallout from the nuclear test was increased. During 1958 to 1963 both the super powers of Cold War, USA and USSR leaders attempted to negotiate full ban on all the nuclear test detonations but failed to finalize the deal.[47] However, these attempts led to the establishment of Partial Test Ban Treaty (PTBT). After three decades, negotiation for comprehensive test ban of nuclear weapon was concluded in the form of CTBT. On 24 September 1996, the treaty was

[44] Mistry, Dinshaw. *Containing Missile Proliferation: Strategic technology, security regimes, and international cooperation in Arms Control.* Washington: University of Washington Press, (2003).
[45] Nikitin, Beth, Mary. "Comprehensive Nuclear Test Ban Treaty: Background and Current Developments." *Congressional Research Service*, (2016): 1. Retrieved from https://fas.org/sgp/crs/nuke/RL33548.pdf
[46] Ibid., p.2.
[47] Ibid., p.3.

opened for signatures. It is still not entering into force because entry into force requires a minimum of 44 states' ratification of the treaty.[48] The forty four countries had nuclear facilities at the time the treaty (CTBT) was negotiated and adopted. Till August 2011, 35 out of 44 states have ratified the CTBT but nine states still need to do so. These nine states are Pakistan, India, China, Democratic Republic of Korea, Indonesia, Iran, Egypt, Israel and United States of America.[49]

A proposed international treaty that bans the production of highly enriched uranium (HEU) and plutonium, but has not been concluded and formalized yet is Fissile Material Cut-off Treaty (FMCT). The then US President Clinton gave a speech in UNO in September 1993 and called for the establishment of multilateral agreement that may prohibit the production of fissile materials for nuclear weapons or outside global safeguards. United Nation General Assembly in December 1993 adopted a resolution 48/75L, which was related to the negotiation of a multilateral, non-discriminatory and universally effective verifiable treaty that prohibits the production of fissile material for nuclear arsenals.[50]

In March 1995, Conference on Disarmament (CD), agreed on a mandate for a committee to start negotiation for the development of FMCT. Since the Conference on Disarmament requires consensus of all member states for any action to take place, negotiations for FMCT has not yet taken place; while preliminary negotiations are ongoing. FMCT was considered a natural next step on the arms control program which was negotiated after CTBT. It's also an important pillar of non-proliferation regime. Treaty like FMCT would effectively ban the future production of fissile material for explosive and restrict the number of nuclear weapons that could be manufactured. The target states of Fissile

[48] Kimball, D., &Reif, K. "Fissile Material Cut-off Treaty (FMCT) at a Glance."*Arms Control Association,* (2013).
[49] Ibid.
[50] Mustafa, Qasim, Malik. "FMCT and Pakistan: Futuristic perspectives." *Institute of Strategic Studies Islamabad,* (2014): 1-2.

Material Cut-off Treaty are USA, UK, China, Russia, India, Pakistan, North Korea and Israel.[51] Hence, the CTBT and FMCT are the two important components of the nuclear non-proliferation regime and provide the foundation for complete nuclear disarmament.

Achievements of Nuclear Non-Proliferation Regime

The nuclear non-proliferation regime enhanced the peace and security of international community and strengthens the norms of nuclear non-proliferation. The Nuclear Non-Proliferation Treaty is the foundation of the global non-proliferation regime which includes the legal restrictions framework, export controls, safeguards and other mechanisms that assist in prevention of nuclear proliferation. Due to the efforts of the non-proliferation regime, importance of peaceful nuclear energy has grown, and international community expected to bring the civil nuclear energy benefits to the greatest number of people. During Nuclear Non-proliferation Treaty existence, there have been some important nuclear non-proliferation successes. Inheritors of nuclear arsenal states Ukraine, Belarus and Kazakhstan had agreed to destroy their nuclear weapons and joined NPT after the USSR disintegration in 1990's.[52] South African apartheid government destroyed it's secretly developed nuclear weapons and joined the non-proliferation regime NPT.[53]

South Africa is quite possibly the best example of a country choosing of its own consensus to accede to the NPT. In 1993,[54] South African President de Klerk publicly revealed the South African nuclear program. In addition to disclosing the program, de Klerk also announced the deactivation of both the program and the six warheads it had produced.

[51] Ibd.
[52] Ibid. , p.143.
[53] Doyle, James. *Nuclear Safeguards, Security and Non-proliferation: Achieving Security with Technology and Policy.* United Kingdom: Butterworth- Heinemann, (2008): 10-15.
[54] "South Africa: Nuclear Weapons Program." *Global Security Organization.*(April 28, 2005). Retrieved from http://www.globalsecurity.org/wmd/world/rsa/nuke.htm

Additionally, all nuclear facilities were made accessible for IAEA inspection and the entire program was verified as disabled prior to South Africa signing the NPT. South Africa's unilateral dismantlement of its nuclear program is a unique event in global politics, and is the only time a country has willingly revoked its nuclear arms after having developed them, and is truly the best example of the success of the NPT.[55]

In late 2003, United States' invasion of Bagdad and banning the shipment of thousands of centrifuges parts, Libya agreed to destroy its hidden nuclear weapon programme unilaterally and gradually reintegrate with international society for non-proliferation purpose. Now Libya is cooperating with International Atomic Energy Agency (IAEA) efforts to authenticate the scope of its nuclear programme and to guarantee that remaining facilities are fully secured and safeguarded.[56]

Beyond these successful examples of the non-proliferation regime, many other states i.e. Japan possessed nuclear financial and technical resources from decades but yet they have refrained from acquiring nuclear arsenal. Another accomplishment of international non-proliferation regime is the successful nuclear talks with Iran for the limitation of its sensitive nuclear activities. Iran's nuclear interest and efforts had started from 1950's when Shah of Iran received technical support from USA for peaceful nuclear programme. Iran signed Nuclear Non-proliferation Treaty but after Iranian revolution in 1979, Iran increased its interest in nuclear technology and covertly established a broad nuclear fuel cycle with sophisticated enrichment capacity which became a cause of concern for international community in 2002.[57] The US and UN Security Council placed sanctions on Iran from 2002 to 2015. In

[55] Ibid.
[56] Hibbsop, p.45.
[57] Lettow, Paul. "Strengthening the Nuclear Non-proliferation Regime."*The Council on Foreign Relations,* (2010):3-7.

response nuclear non-proliferation regime members P5+1[58] won a considerable success in stopping Iran's nuclear weapon program. P5+1 and Iran agreed on the Parameters of a Joint Comprehensive Plan of Action (JCPOA)[59] which significantly limits Iran's stockpile of uranium used to make reactor fuel. Iran nuclear deal also stops the nuclear arms race in the Arab World because Saudi Arabia, Israel and Egypt could seek to make nuclear bomb before Tehran gets a chance to.[60]

It is a major breakthrough in the history of non-proliferation that contributed to creating a more positive environment. In the civil nuclear field, cooperation among states is expanding rapidly. Due to the efforts of international non-proliferation regime, several regions became the nuclear weapon free zones, which are free from the burden of nuclear arsenals. Nuclear weapon free zones include the Tlateloco treaty which covers Latin America, Pelindaba treaty covers Africa and lastly newly negotiated Central Asia Nuclear Weapon free zone treaty.[61] Latin America is also the only region where all nuclear facilities are under International Atomic Energy Agency safeguards.[62] Nuclear Non-proliferation Treaty encouraged the USA and Russia to take considerable actions of several arms control and arms reduction programs which contribute to halt the nuclear arms race between United States and Russia, thus establishing greater stability.[63]

[58] Kerr, Paul. "Iran's Nuclear Programme: Status." *Congressional Research Service*, (2016): 28. Retrieved from https://fas.org/sgp/crs/nuke/RL34544.pdf
[59] Yadlin, Amos.,&Golov, Anver. "A Nuclear Iran: The Spur to a Regional Arms Race." *Institute for National Security Studies 15* (3) (2012): 10-17.
[60] Ibid.
[61] Kerr, Paul. "Iran's Nuclear Program: Tehran's Compliance with International Obligations."*Congressional Research Service*, (23 February, 2017).
[62] Ibid.
[63] Kimball, Daryl. "The Future of the Nuclear Nonproliferation Regime."*Arms Control Association*, (2005). Retrieved from https://www.armscontrol.org/events/ 20050219_ AAAS

Current Issues and Challenges for Non-Proliferation Regime

Despite the considerable accomplishments mentioned above, the nuclear non-proliferation regime such as Nuclear Non-proliferation Treaty (NPT), Fissile Material Cut-off Treaty (FMCT), Comprehensive Test Ban Treaty (CTBT), International Atomic Energy Agency safeguards system and other nuclear export control agreements, are under immense stress. The most serious problem faced by the non-proliferation regime is non-compliance with the non-proliferation rules by states seeking to make nuclear arsenals. For example, in January 2003, the Democratic People's Republic of Korea (DPRK) notified the UN Security Council of its decision to withdraw from the Nuclear Non-proliferation Treaty (NPT), and declared that its revocation would be effective from the next day.[64] North Korea is the only case of a state withdrawing from the NPT after signing it.

Before 2003, DPRK had been covertly working on the development of nuclear arsenal for many years despite of its succession to the non-proliferation treaty. Therefore, Democratic People's Republic of Korea (DPRK) efforts to acquire nuclear weapons before its effective withdrawal from NPT violated Nuclear Non-proliferation Treaty Article II and III.[65] Five rounds of Six Party Talks (including United States, Democratic Republic of Korea, China, Japan, Russia and South Korea) from 2003 to 2007 were aimed to halt the North Korean nuclear weapons program but failed to achieve its objective because North Korea conducted nuclear test in October 2006. Presently, the facts of DPRK breach of non-compliance of nuclear non-proliferation treaty are evident.[66]

[64] Melissen, Jan. "Ending the North Korea Nuclear Crisis: Six Parties, Six Perspectives." *Netherlands Institute of International Relations 'Clingendael',* (2008):9-13.Retrieved from http://www.clingendael.nl/sites/default/files/20081022_cdsp_korean_nuclear_crisis.pdf
[65] Ibid., p. 21.
[66] Ibid.

Unfortunately, Democratic People's Republic of Korea (DPRK) is not the only state to have violated Nuclear Non-proliferation Treaty (NPT) Article II and Article III, and its International Atomic Energy Agency (IAEA) safeguards agreement.[67] But recently, the DPRK took a step back by announcing that they would temporarily halt the testing of their nuclear weapons and missile systems which can be considered as a North Korean initial move towards nuclear non-proliferation.

On the other hand, Iran also has violated these NPT obligations and has yet to discard the capacity to create fissile material for use in nuclear weapons. Therefore, Tehran remains a member party to a treaty (NPT) which poses a greater challenge to the non-proliferation regime.[68] Consequent to the public disclosure of many of its secret activities which had started in 2002, Iran was found to be in violation of IAEA Board of Governors safeguards agreement in 2003[69]. In September 2005[70], Tehran was again found in breach of safeguards agreement by the Board of International Atomic Energy Agency[71] and, in February 2006 its violations of safeguards agreement was reported to the United Nation Security Council. United Nation Security Council adopted a resolution 1696[72] in July 2006 which demanded that Tehran verifiably suspend all reprocessing and enrichment activities, including research and development. This resolution also imposed sanctions on Iran.[73]

[67] David Fischer, "The DPRK's Violation of its NPT Safeguards Agreement with the IAEA," *IAEA*, 1997, https://www.iaea.org/sites/default/files/dprk.pdf
[68] Bajoria, Jayshree.,&Xu,Beina. "The Six Part Talks on North Korea's Nuclear Program." *Council on Foreign Relations, (2013).*Retrieved from http://www.cfr.org/proliferation/six-party-talks-north-koreas-nuclear-program/p13593
[69] Goldschmidt, Pierre. "Concrete Steps to Improve the Non-proliferation Regime*."* *Carnegie Endowment for International Peace, (2010):* 3-17. Retrieved from http://carnegieendowment.org/files/improve_nonpro_regime.pdf
[70] Ibid.
[71] Ibid.
[72] Sauer, Tom. (2006). "The Nuclear Non-proliferation Regime in Crisis."*Peace Review: A Journal of Social Justice18* (3) (2006): 333-335.
[73]Albright, Dom. "Iran's Nuclear Program: Status and Uncertainties." *Institute for Science and International Security (ISIS),* (March 2007): 3-7.

The other major challenge faced by the non-proliferation regime is the emergence of non-state actors and nuclear terrorism. The non-proliferation regime must become more proficient to tackle with nuclear terrorism. Existing threats to regime from non-state actors has raised the question over the capability of non-proliferation regime to address these threats. According to Nuclear Non-proliferation Treaty (NPT) Article VI, each state party to the treaty should refrain from transfer of sensitive nuclear material but there is no assurance that this rule can be sustained in a world where non-state actors are gradually challenging the sovereignty of the state.[74] All this contributes to the uncertainties about the nuclear attack which may be conducted by the non-state actors (terrorist). Gradually, the power of non-state actors is increasing but the non-proliferation regime has not yet developed the capacity to exercise control over non-state actors which highlights the importance of global initiatives i.e. Nuclear Security Summit. These initiative can help to build a more committed and coordinated international effort against the threat of nuclear terrorism.[75]

The favouritism exercised in the application of the nuclear non-proliferation principles of Non-Proliferation Regime (NPR) as an instrument of great powers strategic and foreign policies has raised questions about the sincerity behind regime creation and successive implementation. Nuclear deal between United States and India undermined the efforts of non-proliferation as it breached NPT Articles I and II and violated its prime objective to avoid nuclear proliferation. Furthermore, New Delhi's potential inclusion in NSG, after the special waiver to India from NSG guidelines, is upsetting existing nuclear strategic stability and triggering Pakistan to indulge in a arm race in order to create credible deterrence, which pose sever challenges to the

[74] Rodhan, Nayef. "Proliferation, Non- State Actors and the Impact on Global Security." *Geneva Centre for Security Policy* (19) (2006): 5.
[75] Goldring, Natalie. "Role of the non-proliferation regime in preventing non state nuclear proliferation."*Institute of Energy and Environmental Research, (2002).* Retrieved from http://ieer.org/wp/wp-content/uploads/2002/04/npt-goldring.pdf

international non-proliferation regime. Similarly, the state-specific safeguards present a biased institutional mechanism of the non-proliferation regime and challenges the non-proliferation activities. Above mentioned discrimination prompts the Non-Nuclear Weapon States party to the NPT to opt out of the Nuclear Non-proliferation Treaty or breach the treaty obligations and acquire nuclear weapons. New Delhi's accumulation of uranium, through agreements with NSG member states i.e. Canada, Australia, based on special waiver, is generating huge pressure on Islamabad to maintain deterrence stability of South Asia. Due to such type of decisions, states give priority to their own national interest instead of the common interest of the international community, which is the objective of non-proliferation regime.[76]

The Nuclear Non-proliferation Treaty fails to give any broad plan for disarmament of the nuclear weapon states. NPT Article VI[77] includes only the commitment that nuclear weapon states member to NPT will pursue negotiation in good faith for effective measures concerning the elimination of nuclear arms race at an early date which may ultimately lead towards nuclear disarmament. But no efforts have been done so far. Now commitments to disarmament must move further than negotiations 'in good faith'. Along with Non-nuclear Weapon States (NNWS), significant mistrust flows from the fact that Nuclear Non-proliferation Treaty prevents them from developing nuclear arsenal, despite the need that nuclear weapon states move steadily and slowly towards nuclear disarmament. Thus, survival of the treaty depends on the establishment of a comprehensive and non-biased framework. If international society had prioritized addressing the world's humanitarian crisis over obtaining deadly nuclear weapons, development of nuclear arsenal might have been brought to an end.[78]

[76] Pervaiz, Beenish. "Challenges and Solutions for Non-proliferation*." Bulletin of the Atomic Scientist,* (22 Nov, 2012). Retrieved on 20th March, 2017.
[77] Neil, Andrew. "Nuclear Weapons and Non-proliferation: Is Restraint Sustainable?" *Security Challenges* 5(4) (2009): 39-57.
[78] Ibid.

The central bargain of the NPT – that NWS would disarm if non-nuclear weapon states (NNWS) assured not to acquire nuclear weapons – has been undermined due to the low progress on disarmament internationally. There are no enforcement measures and specified penalties for non-compliance given in international non-proliferation regimes. The Western countries make discriminative strategies and practice different rules according to different regions and states on their own interest which aggravate dissatisfaction among developing countries. Particularly, the United States adopts double standards. On the one hand, it prohibits other states to transfer missiles and technology by defining them sensitive regions/nations; while on the other hand, it continues to export missile technology to specific nations of the same region which fulfill the US national interest. Another issue faced by the non-proliferation regime is the lack of confidence bonds among regimes party states which is essential for the progress in nuclear arms control. International atomic energy agency safeguards depend on the political will of the member states which ensure that adequate resources are provided for the IAEA safeguards operation and to ensure that safeguards are impartially applied.[79]

The current international nuclear non-proliferation regime also faces the issue of universal applicability. Some states of the international community refused to join the non-proliferation regime and still develop nuclear arsenals secretly or publically. This fault of the non-proliferation regime was exposed after the nuclear tests conducted by South Asian states India and Pakistan. Globalization makes states more economically interconnected and interdependent. Much of the nuclear transfer technology for peaceful purposes could be used for military purposes. The export control for dual-use technology is difficult to implement in practice which make non-proliferation regimes less effective.[80] Currently,

[79] Abe, Nobuyasu. "The Current Problem of the NPT: How to Strengthen the Non-proliferation Regime." *Strategic Analysis 34* (2) (2010): 219.
[80] Miller, Marvin., & Scheinman, Lawrence. "Israel, India and Pakistan: Engaging the Non-NPT States in the Nonproliferation Regime."*Arms Control Association, (2003).* Retrieved from https://www.armscontrol.org/act/2003_12/MillerandScheinman

nuclear non-proliferation regime is fulfilling the interests of Western powers rather than other countries. Developing states are met with unfair treatment. Only a small number of states parties to the regimes make rules and demand that the others abide by them. Thus the effectiveness and authority of the non-proliferation regimes get reduced.[81]

Presently, greatest challenges to the non-proliferation regime are the existing international stockpiles of fissile material including highly enriched uranium, and plutonium. Major Powers like United States and Russia are cooperating on nuclear threat reduction program. This program secure and lock down existing global stockpiles but these efforts are inadequate to speed up the program as swiftly as the menace should dictate. In short, strengthening nuclear non-proliferation regimes promote security and peace in the world. In order to strengthen non-proliferation, practical measures should be taken to improve the non-proliferation regime in order to make them more reasonable.

The Future Prospects of the Nuclear Non-Proliferation Regime

Disarmament and universality are the two fundamental themes of the non-proliferation regime, especially the NPT. Non-proliferation regime will be strengthened and maintained in future only if these two important themes of the regime are addressed properly. Universality of non-proliferation previously focused on Israel but after nuclear test by India and Pakistan, international society expected to push universality to include Islamabad and New Delhi as well.[82] The future status of any missile non-proliferation regime is complicated by the fact that the states that pose greatest threat to this regime are not part of any missile export

[81] Perkovich, George. "The End of the Non-proliferation Regime?"*Carnegie Endowment for International Peace, (2006):*362.Retrieved from http://carnegieendowment.org/files/perkovich_current_history.pdf

[82] Davis, Zachary. "Nuclear Proliferation and the Future of the Non-Proliferation Treaty: Coping with the Best and Worst Cases." *Irish Studies in International Affairs 6 (1995):* 16.

control regime. Iran and North Korea are among such states. International community started Six Party Talks with North Korea in 2003, soon after the North Korea announced its intention to withdraw from NPT, and exerted pressure on it to limits its missile program only for peaceful use. But these talks were not successful for a long period of time and North Korea resumed its nuclear program.[83]

NSG rules need to be strengthened and reinforced because nuclear technology transfer and nuclear black market raise questions on the long term relevance of the Nuclear Suppliers Group. The future prospect of the CTBT is also uncertain because United States Senate does not ratify it. However, Japan played a significant role in promoting the CTBT by dispatch of official delegations to non-ratifying states to convince them for the ratification of the treaty.[84] Recently, Russia ratified the Comprehensive Test Ban Treaty (CTBT), which is a hopeful sign and may well convince China and USA to follow suit. Though, both Pakistan and India are still cautious about signing the CTBT.[85]

Conclusion

International non-proliferation regime was established in different times to deal with different issues. The rules of nuclear non-proliferation regime are mentioned in different treaties and agreements such as Nuclear Non-proliferation Treaty (NPT), Nuclear Suppliers Group (NSG), Comprehensive Nuclear Test Ban Treaty (CTBT), Fissile Material Cut-off Treaty (FMCT) and Missile Technology Control Regime (MTCR) and signify those actions which are allowed as well as prohibited for states party to the regime. It is established with the objective of prevention of nuclear

[83] Landau, Emily., & Bermant, Azriel. (2014). "The Nuclear Non-proliferation Regime at a Crossroads."*Institute for National Security Studies*, (2014).
[84] Davis, p.19.
[85] Duarte, Sergio. "The Future of the Comprehensive Nuclear Test Ban Treaty."*UN Chronicle XLVI* (1) (2009).Retrieved from https://unchronicle.un.org/article/future-comprehensive-nuclear-test-ban-treaty

weapons at an early stage and ultimate elimination of nuclear weapons. NPT, which is a corner-stone of the non-proliferation regime, stipulates that NNWS will not seek to develop nuclear arsenals, and nuclear weapon states will work towards nuclear disarmament and all states parties to the treaty have direct access to nuclear technology for peaceful use. CTBT and FMCT are the two main instruments of non-proliferation regime that have never come into effect because of resistance of USA and other nuclear weapons states. Entry into force of these two instruments would further strengthen the non-proliferation principles and make it harder for states to acquire nuclear weapons. Globalization brought the international non-proliferation system to a moment of serious crisis. The non-proliferation regime is facing serious challenges from both non-state actors and rouge states. But international society is cooperating to handle these threats. Nuclear non-proliferation regime reinforces the generally shared rule that the expansion of nuclear weapons produce security dilemma for the states.

In spite of the lack of development in measures of arms control, the state parties to the non-proliferation regime continued to regard the NPT as serving their essential national interest. MTCR represent one component of missile non-proliferation efforts which is insufficient to deal with all missile technology transfer issues. Hence, other integrated efforts will be required to produce both consensuses on and practice to deal with licit and illicit delivery system exports. These efforts should include flight test notifications and demand side curbs e.g. regional security assurances and space launch services. IAEA safeguards play a significant role in the international society's efforts to ensure that nuclear energy is used in NNWS for only peaceful use. By deterring countries from developing nuclear arsenals, safeguards have the capability to prevent proliferation. Deterrence can only be successful if countries believe that noncompliance has a high possibility of being detected and carries big consequences. Once again the dynamics of proliferation are at an important stage. After the nuclearization of South Asia, North Korea

and Iran nuclear programs increase the fear of a new wave of nuclear proliferation. International society should tackle these problems through the combination of international non-proliferation agreements as global community did after Chinese nuclear test in 1965.

Hence, the non-proliferation regime is the successful story of the history which has been attempting to keep a huge majority of states from developing the nuclear weapons through establishing rules under which a small number of states manage nuclear technology. The non-proliferation regime has been overcome by one state that acquired nuclear arsenal illegally which is North Korea. The international non-proliferation system is being challenged by another country Iran and has been bypassed by three states Israel, India and Pakistan. Future progress on nuclear non-proliferation and complete disarmament will require greater cooperation among nuclear weapon states.