

# India-Japan Civil Nuclear Deal: Challenges and Opportunities in the Indo-Pacific Region

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## Abstract

The Indian Foreign Policy of complete Disarmament was formed by J.L. Nehru, However, when India engaged in war with China in 1962 and Pakistan in 1965 & 1971, there was neither US and nor USSR presence in support of India. India tested nuclear devices in 1974 and 1998 at Pokhran and not signed NPT-1968 and CTBT-1996 based on the biased nature of the Treaty. Japan has shown a positive attitude towards India since 2001. Indian Deal of Civil Nuclear Agreement with the US and France in 2008 and changed provisions by NSG in its Meeting held in 2008 to grant green signal to the export of Nuclear Arsenal to India. It changed Japan's view towards India to contract of Civil Nuclear Cooperation. The Fukushima Disaster in 2011 delayed the Nuclear Pact and stopped all Nuclear Power Plants in Japan. Several Meetings concluded the Civil Nuclear Agreement between India and Japan on 11-12 November 2016.

**Keywords** - Civil Nuclear Deal, CTBT, NPT, Nuclear Supplier Group, Pokhran, The Fukushima

## Introduction

Japan was the first Asian nation to defeat a European country during the Mukden battle from 1904-1905. However, Japan faced devastation when the USA dropped two atomic bombs, Little Man on Hiroshima and Fat Man on Nagasaki, in August 1945. Despite the tumultuous events, India and Japan have enjoyed a long history of cultural, religious, and economic exchanges. Japan supported India's fight for independence from the British Empire during World War II, and India finally achieved independence on August 15, 1947. Following independence, India sought to forge relationships and treaties with various nations, including Japan. Both nations share common cultural traditions, such as Buddhism, and uphold values like democracy, pluralism, tolerance, and open societies, making them the oldest and largest democracies in Asia with significant political, economic, and strategic interests [1].

Japan, influenced by the devastation of the atomic bombings, abandoned its nuclear programs and advocated for non-proliferation of nuclear weapons. Conversely, India pursued an independent stance on disarmament in its foreign policy [2]. While Japan signed the Non-Nuclear Proliferation Treaty in 1968 and supported it strongly, India refrained from signing it, citing its discriminatory nature. India's foreign policy on nuclear weapons was further shaped by events such as the Sino-Indian War of 1962 and the India-Pakistan conflicts of 1965 and 1971, leading to India conducting nuclear tests in Pokhran in 1974 [3].

The Nuclear Supplier Group (NSG) was established in response to India's nuclear tests in 1974, aiming to curb the spread of nuclear weapons by controlling the export of nuclear-related materials and technology. India's subsequent nuclear tests in 1998 led to sanctions from the USA and other countries, including Japan, due to concerns about triggering an arms race in the Indo-Pacific region. However, these sanctions

were lifted in 2001 by President George Bush's visit to India, followed by efforts to improve relations, such as Japan's Prime Minister Yoshiro Mori's visit in 2002 and the establishment of the India-Japan Global Partnership [4].

Despite challenges, India and Japan pursued civil nuclear cooperation, culminating in the India-Japan Civil Nuclear Cooperation Agreement in 2016. This agreement, signed during Indian Prime Minister Narendra Modi's visit to Tokyo, marked a significant milestone in bilateral relations, reflecting shared interests in boosting economies and addressing energy needs [5]. The conclusion of this agreement underscored both the opportunities and challenges in the Indo-Pacific region.

### 1. Civil Nuclear Deal Between India and Japan

Nuclear Non-Proliferation Treaty was established in 1968 and came into being in 1970. It prescribed the provisions for non-signatory members of the treaty not to acquire nuclear weapons. It is a historical International Treaty. Its main objective is to prevent the spread of nuclear weapons and Weapons Technology to promote cooperation in the peaceful uses of nuclear energy and to further the goal of achieving nuclear disarmament and general and complete disarmament. The Treaty represents the only binding commitment in a multilateral treaty to the goal of disarmament by the nuclear-weapon States. Japan signed the NPT Treaty to prevent the world without nuclear weapons except for UNSC Permanent Members [6]. The Nuclear Suppliers Group was formed in 1974 in response to the Non-Signatory of NPT acquired nuclear weapons like India tested Nuclear Device in 1974 in Pokhran.

Nuclear Supplier Group convened a meeting at Warsaw in 1992, which framed guidelines for NPT countries that were not exporting nuclear material and nuclear technology to non-signatory countries of NPT. Comprehensive Test Ban Treaty came into force in 1996, but it was not signed by India, and Japan signed it. Then India again tested nuclear weapons in Pokhran in 1998, and Japan sharply criticised Japan, along with the USA, for imposing sanctions on India in June 1998. Sanctions uplifted by George Bush, President of America, in 2001.

India signed the Civil Nuclear Agreement with the USA in July 2005 under Section 123 of its Atomic Energy Act of 1954 and came into force in 2008 [7]. Hence, it was known as the 123 Agreement. It was a bilateral agreement between India and USA cooperation concerning the Peaceful use of Nuclear Energy. Such an agreement ended the denial of Civil Nuclear Energy to India. It envisaged that the USA would adjust its laws and policies and work with friends and allies to improve international regimes to enable full civil nuclear energy cooperation and trade with India. It is the first agreement of Civil Nuclear Energy with non-signatory of NPT and non-members of NSG. It also influenced Japan to come to the Table of Agreement with India for Civil Nuclear Cooperation. The First Energy Dialogue was held in Tokyo between India and Japan on 23 April 2007 in which Deputy Chairman of the Planning Commission of India M.S. Ahluwalia advocated that India wants to have Japan Cooperation in Nuclear Technology in the future, although it is aware that there are constraints on the issue', after the talk of potential civil nuclear energy cooperation between Japan and India.

The Nuclear Suppliers Group consists of 48 States like the USA, France, Russia, Britain, China, and Japan, and others had imposed prolonged restrictions on the export of Nuclear Power Plant Technology to India because of non-signatory of NPT. However, the group conducted an NSG Extraordinary Meeting on 8-9 May, 2008, in which it changed its rules and regulations 2008 and gave a green signal to the export of Nuclear Material and Technology to India. Japan took steps forward to admit the statement made by the Minister of the Ministry of External Affairs (MEA) Pranab Mukherjee on 5 May 2008 at IAEA Vienna as

the foundation of cooperation. In that speech, Mukherjee underlined India's commitment to a voluntary, unilateral moratorium on Nuclear Testing. It was a pre-condition for the collective decision of the NSG exempting India from the 1992 NSG Guidelines. Japanese Government agreed to its commitment of India towards responsible, careful behaviour for Nuclear Non-Proliferation, following viewpoints first to make sure Moratorium for not testing the Device of nuclear weapons. Second, India agreed with the New IAEA Guidelines Safeguarding Agreement for the Transparency of India's Nuclear Activity. Third, India follows the practice of a strict export control system, which is approved. The Liberal Democratic Party (LDP) coalition government supported the decision taken in the NSG Extraordinary Meeting held on 7-8 May 2008. The government of Japan showed a positive attitude to giving the green light to special treatment in India on 6 September 2008. Japan was ready to negotiate with India by giving written assurance in the Lower House of Japan by Prime Minister Taro Aso on 28 October 2008. It takes into account India's firm commitments to a minimum nuclear deterrent towards universal nuclear disarmament since 1998, and it is unimaginable that India will increase its nuclear weapons capacity contrary to these commitments.

The election was held in Japan in 2009 for the House of Representatives; after winning the election by, the Liberal Party of the Japanese coalition Government organised the first Meeting with Indian Officials for Nuclear Civil Cooperation on 28 June 2010 in Tokyo [8]. The Minister of the Ministry of Foreign Affairs, Katsuya Okada, who sought to start the negotiations, clearly stated in the 175th Meeting of the Budget Committee of the House of Councilors held on 5 August 2010 that continuing the status quo no longer makes sense in the dynamic environment. He emphasised that 14 major NSG member states have concluded or negotiated the Civil Nuclear Plant Technology Cooperation deal with India. Thus, Japan must also undertake negotiations with India to curtail further nuclear proliferation.

There was the 4th Strategic Dialogue between India and Japan's Foreign Minister held in New Delhi on 22 August 2010. Indian Minister of Ministry of External Affairs (MEA) S. M. Krishna and Katsuya Okada collaborated to insert an explicit termination and cessation provision against India's nuclear testing in the future in the agreement. By 'adding the two conditions of the Agreement as termination and cessation by Japan would have to be "built-in" in the agreement through proper "wording" and "terminology,"' The Agreement might be viewed as a condition of the Japanese side to accept civil nuclear energy cooperation with India. The expectations of India and Japan were down because of the Nuclear Plant Disaster in Fukushima in 2011.

5<sup>th</sup> India and Japan meetings were held in New Delhi on Nuclear Civil Cooperation on 7-8 November 2013. The Counsellor to the Cabinet Secretariat, Prime Minister's Official Residence of Japan Tomohiko Taniguchi, made a statement that the conclusion of the agreement can happen in 'shorter than two years.' The 11th Asia-Europe Meeting (ASEM) held in India where the Deputy Press Secretary of the MOFA, Kochi Mizushima, stated that both sides 'shared the view that we need to continue to accelerate the negotiations' and 'need to have some kind of flexibility in order to conclude negotiations,' since 'both sides have domestic situations.'

A Summit was held between India and Japan in New Delhi on 25 January 2014 in which a Joint Statement was issued and mentioned continuous progress in the Negotiation of the Deal, and Both Governments were directed to exert extra efforts towards an early conclusion of it. The new statement made in the press by the director-general of press and public diplomacy of MOFA, Kuni Sato, on 26 January 2014, said that the difference between the two governments has narrowed down. This statement made clear to achieve the Final Deal. India and Japan signed the historical Deal of Civil Nuclear Cooperation for upgrading MOU at the Annual Summit. Consequently, the Japanese Government succeeded in approving the Diet

for the Nuclear Deal with India. Both countries had reached a broad Agreement for Civil Nuclear Cooperation during Abe's visit to India in December 2015.

During the second Annual Three Days visits of Prime Minister Narendra Modi to Japan on 11-12 November 2016, the Prime Minister of Japan and the Indian Prime Minister both reached the Conclusion of the Nuclear Civil Energy Cooperation Agreement on 12 November 2016, which came into force in July 2017. It was a historical Civil Nuclear Deal to fulfil India's aspiration to stand in the field of clean energy to reduce climate change and boost its economy. The deal would empower Japan to export Nuclear Equipment and Technology to India and Finance Nuclear Power Plant Technology under The Toshiba Company, which acquired the Westinghouse of the USA Company.

Japan had agreed to assist India in Nuclear Waste Management and could undertake joint manufacture of nuclear power plant components under the Make in India Initiative. India badly needs to expand its energy resources. India's present level of electricity production cannot cope with the rapidly increasing demands of the Economy. Instead, India is the third-largest importer of crude oil and the third-largest emitter of carbon dioxide. Since India seems nuclear energy would be cheap and clean. India has to go out to harness it. Presently, India's nuclear power accounts for only 3% of its total electricity output, but it wants to exceed its share by about 25% in the next 25 years. In order to realise that goal, India has plans to build about 80 new nuclear reactors in the coming decades. India's Department of Atomic Energy's target is to have 63GW of nuclear power capacity by 2032. All these things compelled India to make an agreement with Japan to expand its civil nuclear energy to boost the environment of the economy.

Indian Foreign Ministry stated that the 'Cooperation in the Peaceful Uses of Nuclear Energy' Pact provides for "the development of nuclear power projects in India and thus strengthening of energy security of the country. "The present agreement would open up the door for collaboration between Indian and Japanese industries in our Civil Nuclear Programme," it said. Former joint secretary (Disarmament) and ex-Indian ambassador to France Rakesh Sood said the pact "enables us to obtain high-quality components for nuclear reactors, especially ones that we are negotiating for with Westinghouse (Electric Co.) and (French) Areva SA." Abe and Modi insisted that the agreement will contribute to the peaceful use of clean energy. "This agreement sets a legal framework to assure that India acts responsibly for the peaceful uses of nuclear energy," Abe said, adding that it gets India to participate effectively in the non-proliferation treaty framework. "It is also in line with Japan's position to promote non-proliferation to create a world without nuclear weapons." Modi praised the signing as "a historic step in our engagement to build a clean energy partnership" that will help India to "combat the challenge of climate change" [9].

However, the agreement is limited to peaceful commercial use, and Tokyo can terminate it if India conducts a nuclear weapon test in the future.

## 2. Nuclear Policy Approach of India and Japan

We emphasised the comparative analysis of India and Japan's Approach to Nuclear Policy. India had framed its approach to Global Nuclear Disarmament since Independence and had taken a public and vocal stance against nuclear weapons. The first Prime Minister of India, Pandit Jawaharlal Nehru, propounded the idea of a complete ban on tests of nuclear weapons. India's call for a ban on Nuclear Testing in 1954 led to the Partial Test Ban Treaty (PTBT-1963). However, because of the deteriorated conditions near the border of India in the 1960s, Many Politicians and Bureaucrats felt the need to acquire nuclear weapons to expel the threat of external nuclear actors. Jawaharlal Nehru was totally against nuclear weapons and considered the role of nuclear deterrence for Indian National Security. India could not sign NPT-1968

because of the discriminatory nature of the Treaty and underlined the lack of a clear plan for Nuclear Disarmament as a reason not to sign this Treaty. India acquired nuclear weapons in 1974 based on facts that there was neither Washington nor Moscow's presence to deter the external threat from the neighbours to Indian National Security during the 1960s.

Similarly, the Prime Minister of India, Rajiv Gandhi, stated the Nuclear Weapons Free and Non-Violent World Order at the Third special session on disarmament at the UN General Assembly in June 1988. Rajiv Gandhi recommended in the Action Plan that "there was a call for Treaty which would give a legal effect to the binding commitment of Nuclear Weapons States to eliminate all Nuclear Weapons by the years in 2010". There was Negotiation at the Conferences on Disarmament for the Comprehensive Test Ban Treaty (CTBT-1996) [10]. While India had been part of the Conference where it was involved in the negotiation, it got a setback after observing that the Final Draft of the Treaty failed to act as a stepping stone towards Nuclear Disarmament. There was a critical development in 1995 when NPT was extended indefinitely. According to A. Vinod Kumar, India, was calling for the elimination of the NPT after 1995 and was expecting the NPT to be changed by another treaty that would lead to the termination of nuclear weapons. However, after the Life Span of the NPT was extended indefinitely without the Nuclear Weapons States (NWS) having to commit to the termination of their respective Nuclear Arsenal in a given timeline, India was not ready to sign the CTBT-1996, India was compelled to conduct Test of Nuclear Weapons in 1998, reaction bitterly came from Japan and terminated ODA to India and along with the USA to impose sanctions over India.

India has framed a policy of No First Use (NFU) of nuclear weapons under India's Doctrine and Diplomacy. Official Declaration was announced in 1994 when the Indian Government shared a non-paper with Pakistan that included an agreement on the No First Use of Nuclear Capability [11]. India finally pledged a Formal Nuclear Doctrine in January 2003. There was concern about the sanctity of India's commitment to Nuclear Disarmament for gradual integration into Universal Nuclear Architecture. India was invited by NSG to discuss putting its entire Nuclear Programme under IAEA Safeguards Guidelines in 2008 for making the separation of its Weapons and Civilian Energy Programmes. It made India informally accepted as the nuclear-weapon State. It also influenced Japan to conclude the Civil Nuclear Deal with India. India is considered a responsible Nuclear State. The responsibility for nuclear weapons is determined by secure Non-Proliferation zones such as control of export of Nuclear Material or Equipment to other countries and practising pragmatic commitments like Unilateral Voluntary Moratorium of not conducting Nuclear Tests and credible minimum nuclear deterrent assuring non-first of nuclear weapons and joining negotiation towards the of a Fissile Material Cut-off Treaty (FMCT) with Nuclear Weapons States (NWS) [12]. It is possible from the following factors that India maintains its regional stability, increases the electricity supply from Nuclear Energy and does not halt its technological development, imagines a good non-proliferation regime, assuring universal and non-discriminatory nuclear disarmament that may lead to a world without nuclear weapons or even concluding a treaty to abolish nuclear weapons. All these factors made India a responsible Nuclear State.

While Japan approaches a world without nuclear weapons is different from the Indian Perspective. The Japanese Government criticised India's possession of nuclear weapons. This is against the essential provision of the NPT Treaty because Nuclear Weapon States should be privileged to the permanent members of the United Nations Security Council (UNSC), the USA, the UK, France, Russia, and China. Japan believed that NPT could realize the ultimate goal of nuclear abolition. Japan was worried about the Civil Nuclear Cooperation with India because of the non-signatory of NPT and the Peaceful Nuclear Weapon



Test in 1974. It is the concern of promoting its Policy of domestic Nuclear Non-Proliferation Zone, and mainly it is the export policy of Nuclear Material to those countries which are a signatory of NPT. It was evident in 1983 that Japan denied assisting the USA when it gave India its Nuclear Plant of light water reactor at Tarapur. Japan emerged to criticize further the Nuclear Test of India in 1998 by saying it would deteriorate the security environment of the Indo-Pacific region, pose a threat to the Nuclear Non-Proliferation States, and undermine international Peace and Security. Japan took a step forward to accept the draft of the Resolution of UNSC 1172 on 6 June 1998 to condemn Indian steps of testing nuclear weapons, and Japan supported the move of sanctions with the US over India and Pakistan. They should consider the Non-Nuclear Weapon States, and they should be compelled to join NPT-1968 and CTBT-1996 without delay and conditions. Presently, North Korea is posing a Nuclear Threat to Indo Pacific Region.

Indian agreement of Civil Nuclear Cooperation with the US in 2008 and France in 2008 and few changes in NSG provisions changed the Japanese Approach towards India. India recognised as a strategic partner by the Japanese Government in terms of maintaining international peace and security from the broader Perspective and one of the biggest business partners [13]. Japan was ready to negotiate a Civil Nuclear Cooperation deal with India with full faith and confidence. Japanese Government ensured its Civil Nuclear Cooperation by 3S are Safeguards, Safety and Security for Nuclear Non-Proliferation and peaceful use of Nuclear Energy. It can be understood that Japan was so hesitant to take responsibility for exporting Nuclear Technology and Material or Equipment and recognise the right to enrichment and reprocessing of spent fuel by Non-Nuclear Weapon States which were not able to initiate producing civil nuclear energy and were non-signatory to NPT. There was a bilateral agreement between Japan Jordan and Vietnam. It mentioned in Article 2.3 that “spent Nuclear Fuel Reprocessing, conversion of Plutonium, and production of material and Plutonium shall not transfer.” Article 9 states that “material transferred, and nuclear material recovered or produced as a by-product shall not be enriched or reprocessed within the jurisdiction of the receiving country.” It was against that Turkey is an exceptional Country to give a right of enrichment and to reprocessing of Nuclear Materials or Equipment transferred by Japan. However, Turkey Energy Minister Taner Yildiz rejected exercise rights, expressing that “we do not have any project regarding Nuclear Fuel and Uranium Enrichment.” These things made the Japanese Government restrain its Civil Nuclear Energy Cooperation with India to reflect a strong commitment to Nuclear Non-Proliferation in the World.

### **3. Comparison between India and Japan Civil Nuclear Power Plant Energy**

There is a comparative analysis of Japan and Indian Nuclear Power Plant Energy. Japan is a leading Country in Nuclear Power plants, which is working very effectively to make an economically stable country worldwide. Japan is the third most prosperous country, while India is the fifth richest country in the world. Both try to maintain their capacity to produce electricity for economic development [14].

**3.1 India - India is recognised as the Nuclear Weapon State** without the sign of NPT and a member of NSG. India is the fifth-largest economic country in the world depending on crude oil import. India has signed the Civil Nuclear Agreement with 14 countries to spread its Economic Growth by generating Electric Power use for Peaceful Purpose to reduce dependency on 70% import of Crude oil and coal. India currently has seven operational Civil Nuclear Power Plants that are generating electricity 6780 Mega-Watts . The Indian Department of Atomic Energy has set a target to achieve 63 Gigawatts (GW) by 2032. These Civil Nuclear Power Plants are working to contribute to the Economic Development of India. As mentioned in the table, these Civil Nuclear Plants are functional in the following Places.

SN.	Civil Nuclear Power Plants	Electricity Generation in MG	States
1	TARAPUR	1400.00 MG	MAHARASHTRA
2	RAWATBHATA	1180.00 MG	RAJASTHAN
3	KUDANKULAM	2000.00 MG	TAMIL NADU
4	KAIGA	880.00 MG	KARNATAKA
5	KAKRAPAR	440.00 MG	GUJARAT
6	KALPAKKAM	440.00 MG	TAMIL NADU
7	NARORA	440.00 MG	UTTAR PRADESH
		Total = 6780 MG	

**Source:- Atomic Energy Regulatory Board**

### 3.2 Japan –

Japan was the only country in the world where the Nuclear Bomb was dropped. After that, Japan abandoned its Nuclear Programmes and signed NPT-1968 to promote a World without nuclear weapons. Japan started its Civil Nuclear Programme after passing the time for the peaceful use of Electric Generation. Japan is a country that believes in the provisions of NPT not to export Nuclear Material or Equipment and Technology. When NSG observed India as a responsible state for the Non-Proliferation of nuclear weapons and started Green Signal to India to export Nuclear Material. 2008 deal of the US with India opened the gate for Japan, making cooperation with India. Before Fukushima, about 50 Civil Nuclear Power Reactors were functional in Japan. The Fukushima disaster in 2011 created devastation in Japan, which compelled Japan to block all Nuclear Reactors and delayed India & Japan's Civil Nuclear Cooperation. Japan was ready to agree with India on Civil Nuclear Cooperation even if India was not a signatory of NPT and was a non-member of NSG.

SN.	Civil Nuclear Power Plants	Electricity Generation in MG	Status
1	GENKAI	2919.00 MG	Operational
2	IKATA	890.00 MG	Operational
3	OHI	2254.00 MG	Operational
4	SENDAI	1780.00 MG	Operational
5	TAKAHAMA	3304.00 MG	Operational
		Total = 11147 MG	

### Source - World Nuclear Association

The issue of Nuclear Safety has emerged in the Civil Nuclear deal with India. Japan has taken the initiative to start its Nuclear Reactors, and only five Nuclear Power Plants with 9 Nuclear Reactors are functional in Japan. Currently, the capacity of Civil Nuclear Energy is only 11147 Mega-Watts. Japan has a Civil Nuclear agreement with about 17 countries, with those who are a member of NPT except India. India was

the only country that achieved Japan's agreement of civil Nuclear Energy without the non-member of NSG and non-signatory of NPT & CTBT. Japan has reduced its target of dependency on Nuclear Power from 22% to 20% of electricity generation by 2030. Five Nuclear Plants are functional as mentioned in the table.

#### **4. Challenges and Opportunities in the Indo-Pacific Region: -**

**Challenges** -There are challenges and opportunities for Civil Nuclear Cooperation between India and Japan in the Indo-Pacific Region. We must mention that challenges come in the way of both countries to curb them for developing creative and clean electric energy.

4.1 First, India's Nuclear Weapons Programme has been framed under the responsible actor of the nuclear Non-Proliferation Regime without the signatory member of the NPT and restrained regional and international agreement of Civil Nuclear Cooperation with the signatory countries of NPT like Japan. Even if NSG has provided a green signal of clean waiver, improving its capability to interact with most Nuclear Weapon States, restrictions prevent its full potential of a Civil Nuclear Agreement with the World Community.

4.2 Second, Japan was hesitant to deal with India in Civil Nuclear Cooperation because of fear of future testing of nuclear weapons in the Indo-Pacific Region, which is a region of Peaceful environment for National Security. After the peaceful test of nuclear weapons by India in 1998, the relationship between India and Japan, along with regional countries, became worse. The USA and Japan came forward to impose economic sanctions over India.

4.3 Third, the Fukushima disaster of the Nuclear Power Plant created havoc in Japan in 2011, which is an experience of the danger of Nuclear Power plants. While India had already experienced the Bhopal Gas Tragedy of 1984, which gave a new wave of debate among the People, it may not compensate for the victims of the Bhopal Gas Tragedy. Therefore, both country faces the demonstration of not involve in Deal of Nuclear Trade. Nuclear Liability Law is the biggest hurdle in the Future agreement of Nuclear Arsenal. India USA Agreement of Civil Nuclear Cooperation formed under the Indian Domestic Nuclear Liability Law, which also becomes a big problem in Future Agreements with other countries. According to India's Civil Liability for Nuclear Damage Act of 2010, the Operator of Nuclear Power Plant-Nuclear Power Corporation of India Ltd can sue suppliers and manufacturers in case of an incident. It has emerged as the biggest hurdle in the technology supply by most countries.

4.4 Fourth, Environmental Challenges have become pivotal during the deal of Civil Nuclear Cooperation. It may be dangerous to the water and atmosphere when the accident happens. It may lead to the challenge of the high net of Technological Safety and Monitoring on the Operator's side.

4.5 Fifth, there is the biggest concern of the Safety of Nuclear Installations relating to radiation leakage or waste material disposal. When India was installing the Nuclear Power Plant at Kudankulam, a protest emerged against it, which was built with the assistance of Russia. Safety of Nuclear and Non-Nuclear Material posed challenges to India and Japan under the Provisions of IAEA concern for the deal of Nuclear Cooperation like Chernobyl and Fukushima. The Fukushima disaster in Japan created concern about global Nuclear Safety by being a technologically advanced country. Anthropogenic factors and natural factors both caused the disaster, likely the failure of the cooling system and containment of radioactive release, which resulted in mass migrants of about one lakh people. The demonstration was started based on various reasons like environmental degradation, land acquisition as well as rehabilitation, diversion of water to Plant, etc.



4.6 Sixth, Indian membership to the Nuclear Supplier Group is challenged by way of a veto by China, but Japan supported full-fledged membership of India to the NSG. On 29 May 2013, Taniguchi councillor stated that Prime Minister Abe recognised India's sound Non-Proliferation record. India and Japan made a joint statement on 29 May 2013 that Japan's commitment to continue to work to prepare the ground for India's full membership in the international export control regime-The NSG, The Missile Technology Control Regime, The Australia Group, and The Wassenaar Arrangement. The Foreign Secretary of India Ranjan Mathai has expressed that Japan has unequivocal cut support to prepare India to enter the Regimes as a full-fledged member without accession to the NPT-1968 and CTBT-1996.

4.7 Seventh, the Japanese coalition government supported the Civil Nuclear Pact. At the same time, the opposition criticised and voted against it based on the contention that India is a non-signatory of CTBT and NPT. It said that the pact would damage the credibility of the NPT and help India to acquire nuclear weapons, Nuclear Technology, and Material or Equipment. The agreement concerned the Nullification Clause, if India conducts the test of nuclear weapons, it will be understood as an act of violation of the pact because Japan will automatically withdraw from the Agreement of Civil Nuclear Cooperation of 2016.

## 5. Opportunities -

There are the following Opportunities for Civil Nuclear Cooperation between India and Japan in the Indo-Pacific Region. The region has to give impetus to the strategic role of India and Japan because both are the Economically Powerful States in the region.

5.1 First, the Civil Nuclear Agreement between Japan and India created a way of becoming the best business partner in the field of Nuclear Trade. India has only natural resources and depends on 70% of crude oil and coal imports to fulfil its electricity needs. Thus, India seeks to reduce climate change through the Civil Nuclear Agreement with Japan. India had a severe need to agree with Japan to boost Economic Growth by generating Electric Power through Civil Nuclear Power Plant.

5.2 Second, India presently has 5.7 Gigawatts (GW) of Nuclear Power Generation Capacity, which is now expected to reach 63 GW of Nuclear Power Capacity by 2032, as declared by India's Department of Atomic Energy Target. Besides, India's primary goal is to boost Nuclear Power Energy to nearly 25% of all electricity in the country by 2050. Therefore, the Japanese Civil Nuclear Agreement will play a pivotal role in achieving the target of Indian Nuclear Power Capacity.

5.3 Third, International Markets have been given opportunities to sell Nuclear Material or Equipment and Technology after the conclusion of the Trade Agreement of Civil Nuclear Cooperation with the US in 2008 and Japan in 2016. India also negotiated with other countries like Russia, France, Britain, etc. These countries paved the way for enhancing India's Electrical Power Energy to maintain rapid economic and population growth needs. Japanese Prime Minister Shinzo Abe administration is behind India and Japan Deal to boost the export of Japanese Power Plant Technology as the main business instruments to derive the Nation's Growth.

5.4 Fourth, Japanese Companies will supply Nuclear Materials, Equipment and Technologies to India only for Peaceful and Non-Developing nuclear weapons. The companies will grant services of designing, building, and operating Power Plants and also finance the Nuclear Power Plant. There will be opportunities to manage India's Nuclear Waste and the possibility of jointly taking responsibility for manufacturing Nuclear Power Plant components under Make in India Initiative [15].

5.5 Fifth, the Civil Nuclear Agreement was finalized to combat climate change by building a Cleaner and Greener India and a reliable energy security system. It will make a robust Indian Nuclear Energy Sector and open the door to begin a global Nuclear Network. It seeks stability in the Power Resources of Economy and make citizens depend on Nuclear Energy.

## Conclusion

India and Japan are economically powerful countries in the Indo-Pacific region. This region has Geopolitical importance in influencing the regional politics of the Indo-Pacific region. India is the fifth powerful economic country, while Japan is the third largest economic power. Economic issues compelled both countries to agree on Civil Nuclear Cooperation. The US dropped Atomic Bomb at two places of Japan, Hiroshima on 6 August 1945 and Nagasaki on 9 August 1945 by the name of Little Man and Fat Man, to end WW II in 1945. It has resulted in the devastation in Japan, which compelled it to abandon its nuclear programmes. Japan signed the Nuclear Non-Proliferation Treaty 1968, which stated that nuclear weapons should be limited to the permanent members of the UNSC and the export of Nuclear Material or Equipment and Technology only to members of the NPT, not without the signatory of the NPT. Japan objected to the Indian Peaceful Nuclear Test in 1974 based on creating the environment of the Nuclear Arms Race in the Indo-Pacific Region. NPT-1968 could not sign by India based on the discriminatory nature of NPT-1968 and CTBT-1996. Pokhran Nuclear Weapons Test in 1998 was also bitterly criticised by Japan and, along with the US, imposed Sanctions on India in June 1998. Sanctions were uplifted from India in 2001 by the visits of US President George Bush.

India started the negotiation of Civil Nuclear Agreement 123 with the USA in 2005 and finalised it in 2008 and also with France in 2008. NSG Meeting was held in 2008, and it showed the green light for the export of nuclear material and technology to India. All these events led Japan to talk to India about civil nuclear energy for the first time in 2008. The Fukushima disaster of 2011 delayed the deal between India and Japan because of large numbers of street protests against the Nuclear Power Plant by which Japan shut all Nuclear Power Plants and Nuclear Reactors. Several annual summits were held between India and Japan to reach the Conclusion of the Civil Nuclear Agreement in November 2016. Japan re-started its Five Nuclear Power Plants after the events of Fukushima in 2011. It has a net electric capacity of 11147 Mega-Watts with five Nuclear Power Plants. Japan seeks to reduce its dependency on Electric Generation from 22% to 20% by 2030. India has operated seven civil nuclear power plants with 6780 Megawatts (MW) of energy. Department of Atomic Energy of India aims to achieve 63 Mega-Watts (MW) by 2032. The issue of Nuclear Safety emerged between India and Japan during the Deal of Civil Nuclear Cooperation. Now, Japan has to transfer its Nuclear Material or Equipment and Technology and Finance Nuclear Power Plant to India. The agreement concluded based on whether India will conduct the Nuclear Weapon Test in the Future. Japan will turn down the agreement and withdraw all Nuclear Technology from India.

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