

## The Indo-Japanese Nuclear Energy Cooperation: A Perspective from Pakistan

Ahmad Rashid Malik\*

### Abstract

*The benefits of the Indo-US nuclear cooperation agreement specifically for India would not be fully realized until Japan gives a clear go ahead by cooperating with India in the nuclear field. The process of the Indo-Japan nuclear cooperation was started after 2008. India has to comply with a number of conditions, however, before a deal could be struck with the nuclear-allergic Japan. The issue is sensitive and entails many complications. So far, India has been reluctant somewhat to oblige Japan with all necessary pre-conditions. If signed, the cooperation could be having drastic implications for the nuclear disarmament and non-proliferation efforts in South Asia and could severely discriminate Pakistan which also needs nuclear energy to uplift its economy.*

**Key words:** Energy, Comprehensive Test Ban Treaty, Non-Proliferation Treaty, War on Terror, Nuclear Suppliers Group, International Atomic Energy Agency.

### Introduction

This paper makes an attempt to analyse the Indo-Japanese nuclear cooperation leading them to conclude a treaty by allowing Japan to supply nuclear power components and plants to India. Nuclear talks have been taking place between the two countries since 2010.

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\*The author holds a doctorate from La Trobe University, Melbourne, Australia. He is former Fellow of the Japan Foundation in Tokyo, and the Korea Foundation at Yonsei University, Seoul, Republic of Korea. He is an expert on Pakistan-Japan relations.

If the agreement is signed, this would set the first example under which a non-signatory to the Non-Proliferation Treaty (NPT) and Comprehensive Test Ban Treaty (CTBT), India, would be assisted by Japan under a specific waiver. Japan expects that the deal would boost Japanese exports after two decades of stagflation of its economy. The paper argues that the agreement would severely affect the non-nuclear principles of Japan adopted in the 1960s and would be in non-compliance with agreed recommendation 12 from the 1995 NPTREC 'Principles and Objectives' as well as NPT Article III.2.<sup>1</sup> As explained in this paper, anti-nuclear norms set forth by Japan in 1967, 1974, and 1998 are contrary to the objectives of on-going Indo-Japan nuclear talks. Keeping these contrary developments in purview, the paper provides an analysis of the prospective Indo-Japan nuclear cooperation with reference to Pakistan's concerns.

### **Backdrop**

Japan is the only country in the world that has experienced the devastating effects of nuclear attacks. This has not been forgotten by Japan over the past seven decades after the dropping of the atomic bombs on Hiroshima and Nagasaki on 6 and 9 August 1945 respectively that killed between 80,000 to 140,000 people and 100,000 more were seriously injured.<sup>2</sup> As a victim of nuclear holocaust, Japan championed anti-nuclear movement worldwide.

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<sup>1</sup>12. New supply arrangements for the transfer of source or special fissionable material or equipment or material especially designed or prepared for the processing, use or production of special fissionable material to non-nuclear-weapon States should require, as a necessary precondition, acceptance of the Agency's full-scope safeguards and internationally legally binding commitments not to acquire nuclear weapons or other nuclear explosive devices.

<http://www.un.org/disarmament/WMD/Nuclear/1995->

[NPT/pdf/NPT\\_CONF199501.pdf](http://www.un.org/disarmament/WMD/Nuclear/1995-NPT/pdf/NPT_CONF199501.pdf) NPT, III.2: 2. Each State Party to the Treaty undertakes not to provide: (a) source or special fissionable material, or (b) equipment or material especially designed or prepared for the processing, use or production of special fissionable material, to any non-nuclear-weapon State for peaceful purposes, unless the source or special fissionable material shall be subject to the safeguards required by this Article.

<sup>2</sup>Hiroshima & Nagasaki Remembered. <http://www.hiroshima-remembered.com/>

When the People's Republic of China detonated a nuclear device in October 1964, Japan dismissed the idea that nuclear China was a threat to other Asian neighbours.<sup>3</sup> Using the Chinese logic, Japanese Prime Minister Eisaku Sato said to US President Lyndon Johnson in January 1965 that if the Chinese Communists had nuclear weapons, the Japanese should also have them. Johnson thought that public might not permit for that in Japan but the younger generation should be educated for achieving that end.<sup>4</sup> Understanding Japanese intentions, Johnson asked Japan to sign the NPT, which Japan ratified in 1976.

The three non-nuclear principles (*Hikaku San Gensoku*) of non-possession, non-manufacturing, and non-introduction into Japanese territory were formulated in 1967 and the House of Representatives of the Diet under Prime Minister Sato formally adopted these principles in 1971. On the other hand, the compelling factor behind acceptance of these principles had been the US occupation of Okinawa Island. It was believed that the US army possessed nuclear weapons and material and had them placed in Okinawa. Japan wanted that the United States should not carry out any nuclear activity on the soil of Japan and hence adopted these principles.<sup>5</sup> The US Government has acknowledged that nuclear weapons were stored on Okinawa during the Cold War.<sup>6</sup>

After Japan's voluntary self-restriction regarding non-nuclearization, India became the first country in 1974, which openly had defied these principles by conducting nuclear tests within three years of the adoption of this principle by Japan. An upset Japan, quickly rushed to pass sanctions against India. Unlike the Chinese nuclear case, Japan

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<sup>3</sup>John Welfield, 'Japan and Nuclear China', *Canberra Paper on Strategic and Defence*, no. 9 (Canberra: Australian National University, 1970), p. 12.

<sup>4</sup>Kurt M. Campbell, Robert J. Einhorn, & Mitchell Reiss, *The Nuclear Tipping Point: Why States Reconsider Their Nuclear Choices*. (Washington: Brookings Institution Press 2004), pp. 228–230.

<sup>5</sup>Based on discussion with Professor Takenori Horimoto, Contemporary South Asian Studies, Shobi University, Saitama-Ken, Japan, on August 17, 2010.

<sup>6</sup>Jesse Johnson, "In first, U.S. admits nuclear weapons were stored in Okinawa during Cold War", *The Japan Times* (Tokyo), February 20, 2016.

however, took harsh measures against the Indian detonation. Within five days of the explosion, Japanese Diet criticized India's action as most regrettable.<sup>7</sup> Japanese Foreign Ministry reaffirmed the importance they attached to prevent nuclear proliferation.<sup>8</sup> Above all, Japan realized that the NPT was undermined. Japanese public and media vehemently opposed the Indian nuclear test.<sup>9</sup>

Similarly, Japan equally opposed Indian and Pakistani nuclear tests conducted in May 1998 and levelled economic sanctions against them because these tests defied Japan's anti-nuclear principles adopted in 1967. Although Japan cooperated with Pakistan in various areas of mutual interests during 1974-98 but doubts were there about clandestine nuclear activities of Pakistan in the 1990s. However, during 1998-2005 Japan condemned both India and Pakistan for nuclear testing and imposed economic sanctions aimed at not offering new loans to them. Showing anger Japanese Empress Michiko cancelled her visit to India scheduled in September 1998. However, economic sanctions were later removed after Prime Minister Junichiro Koizumi visited Pakistan and India in April-May 2005. Japan's removal of sanctions was linked to support United States' efforts to 'War on Terror' (WoT). Within that period, Indo-US nuclear deal was struck on 18 June 2005. Koizumi paved the way for this deal by removing sanctions against India, and also against Pakistan. Japanese remained somewhat indecisive soon after the Indo-US nuclear deal of 2005. They did not enthusiastically welcome the deal.<sup>10</sup> Japan for the first time positively nodded the Indo-US nuclear deal when basic guidelines were changed at the International Atomic Energy Agency (IAEA) meeting held in August 2008. Since then there has been enhanced high-level strategic exchanges between Japan and India. Japan decided not to oppose the US-India

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<sup>7</sup>*Foreign Affairs Pakistan* (Islamabad: Research Directorate, Ministry of Foreign Affairs, n.d.), p. 44.

<sup>8</sup>Joint Press Statement issued at the end of the official visit of the Minister of State for Defence & Foreign Affairs, Aziz Ahmad, to Japan on 6-11 December 1971 in *Joint Communiqués 1947-1976* (Islamabad: Ministry of Foreign Affairs, 1998), p. 341-42.

<sup>9</sup>See Ahmad Rashid Malik, *Pakistan-Japan Relations: Continuity and Change in Economic Relations and Security Interests* (London: Routledge 2008), pp. 83-86.

<sup>10</sup>Ahmad Rashid Malik, 'Japan's Reaction to Indo-US Nuclear Deal', *The Nation* (Islamabad), April 6, 2006.

nuclear deal at a meeting of the 45-member Nuclear Suppliers Group (NSG) held at the end of August 2008.<sup>11</sup> Therefore, norms set forth in 1967, 1974, and 1998 were completely contrasted to the explanations put forward in 2008.

Commercialization of Japanese nuclear thinking also works. Given the fact that burgeoning Indian economy needs to generate more electricity, Japanese companies intend to take their share in Indian nuclear market instead of leaving it to the other sellers namely; the United States, Canada, South Korea, France, Russia, Great Britain, Mongolia, Kazakhstan, Argentine, and Namibia. At present, there are over 20 nuclear power reactors in India. This makes India the 12th largest producer of nuclear energy in the world and the third after South Korea and Japan in Asia.<sup>12</sup> It is expected that the Indian nuclear market electricity generation would grow to US\$ 100 billion by 2030. Hence Japan is of the view that it should not be left out in this multi-billion lucrative business. India has devised a strategy to build a nuclear capacity of 63,000 MW by 2030.<sup>13</sup> This makes Indian nuclear industry crucial for Japanese commercial interests. Japanese transnationals, namely Hitachi, Toshiba, and Mitsubishi Heavy Industries have been eyeing the Indian nuclear market.

For India, the deal with Japan would be essential because of the following two reasons:

- An Indo-Japan civil nuclear pact is crucial for the American and French companies to source reactor vessels from the Japan Steel Works (JSW). India finds deal with Japan is crucial for the importation of necessary parts to be used by the American and French firms and because the US nuclear corporations namely; GE and Westinghouse are now owned by Japanese companies such as Hitachi and Toshiba.

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<sup>11</sup> Ahmad Rashid Malik, 'Supporting Nuclearisation'. *The Nation* (Islamabad), August 24, 2008.

<sup>12</sup> World Nuclear Association, quoted by Juan Pablo Fuentes, 'Japan's nuclear crisis will alter global energy mix', *Moody's Analytics*, April 5, 2011.

<sup>13</sup> Takenori Horimoto, 'The Japan-India nuclear Agreement: Enhancing bilateral relations?' in *Asia-Pacific Bulletin* (Honolulu: East West Centre), no. 107, April 2011.

- Additionally, the deal would be successful because it would make an end to Japan's anti-Indian nuclear policy adopted after 1974 and 1998. Japan, however, would keep criticising nuclear policies of North Korea, Iran, and Pakistan.

### Japan's Nuclear Potentials

Japan attempted to develop its own indigenously developed nuclear program during World War II. For instance, during the 1930s, Japan developed a vast program for nuclear research. Japanese nuclear scientists cooperated with German and American nuclear scientists. Dr Yoshio Nishina of the Riken Institute, for instance, was involved in developing nuclear power into weapons. Japanese noble laureate physicist Bunsaku Arakatsu was another notable name in the field of nuclear research. Both were Albert Einstein's contemporaries. The Japanese-German clandestine cooperation in uranium was intercepted by the Americans just prior to the end of World War II.<sup>14</sup> The defeat in war put an end to the Japanese nuclear program. Report suggested that just prior to the end of World War II, Japan wanted to detonate a nuclear experiment in Hungnam, north-eastern Korea, on 12 August 1945, but Communist forces occupied the area.<sup>15</sup>

After defeat, United States did not allow Japan to work on nuclear program. The destruction of Hiroshima and Nagasaki and nuclear shield provided by the United States led Japan to champion the cause of non-nuclearization. Given historical scenario, nothing could be clearly stated about Japan's nuclear weapons program. A larger and 'credible' ambiguity has been maintained. Given useable uranium reactors in Japan, it can produce as many as 2000 nuclear bombs.<sup>16</sup>

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<sup>14</sup>“World War II: German Nuclear Transfers to Japan”, <http://histclo.com/essay/war/ww2/cou/ger/weap/wmd/nuc/gn-ajt.html> & Los Angeles Times (California), June 1, 1997.

<sup>15</sup>Zbynek Zeman, & Rainer Karlsch, *Uranium Matters: Central European Uranium in International Politics, 1900-1960*. (Central European University Press, 2008), p.

15. Taken from <[http://en.wikipedia.org/wiki/Japanese\\_nuclear\\_weapon\\_program](http://en.wikipedia.org/wiki/Japanese_nuclear_weapon_program)>, accessed September 17, 2013.

<sup>16</sup>Pankaj Mishra, 'Nuclear power: India shouldn't buy what Japan is trying to sell', *The Japan Times* (Tokyo), November 8, 2013.

Japan is completely energy-deficit country and imports 84 percent of its energy requirements.<sup>17</sup> Japan's nuclear power plants got a boost following the Middle East Oil Shock in 1973. Japan's total energy generation is 243 GW (243,000 MW), lowered down from 282 GW (282,000 MW) after 2011. Japan has built around 54 nuclear power plants. Japan's nuclear industry remained domestically focused but began to export nuclear power plants by the 1990s. Companies such as Mitsubishi, Hitachi, and Toshiba made alliances with foreign collaborators. According to the World Nuclear Association, Japan was ranked as the 13th largest producer of nuclear energy and 2nd largest in Asia after South Korea in 2010.<sup>18</sup> The following 54 nuclear reactors provided 46,148 MW<sup>19</sup> of electricity, generating around 31 percent power to Japanese industries and consumers until February 2011. These nuclear power plants were:

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<sup>17</sup>World Nuclear Association, 'Nuclear Power in Japan', October 28, 2013. <<http://www.world-nuclear.org/info/Country-Profiles/Countries-G-N/Japan/>>, accessed November 7, 2013.

<sup>18</sup>World Nuclear Association<<http://world-nuclear.org/info/Current-and-Future-Generation/Nuclear-Power-in-the-World-Today/>>, accessed November 7, 2013.

<sup>19</sup>The Federation of Electricity Power Corporation of Japan <[http://www.fepc.or.jp/english/nuclear/power\\_generation/plants/](http://www.fepc.or.jp/english/nuclear/power_generation/plants/)>, accessed December 10, 2013.

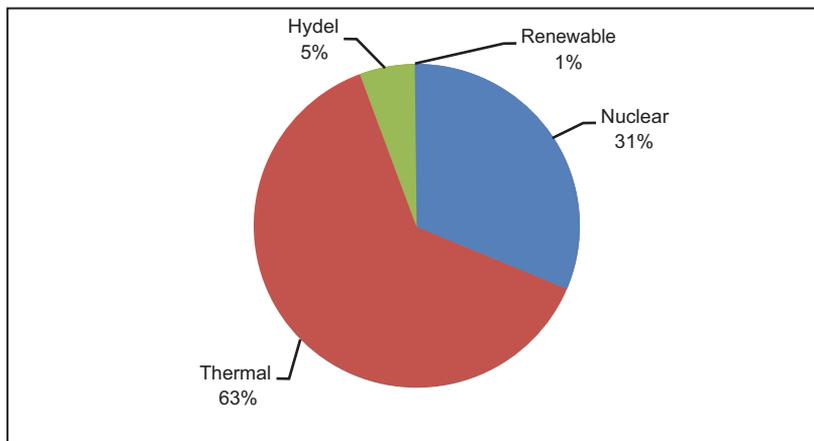
**Table 1: Japan's Nuclear Power Plants**

<b>Sites</b>	<b>Number Plants</b>
Higashidori	1
Onagawa	3
Fukushima Daiichi	6
Fukushima Daini	4
Tokai	1
Hamaoka	3
Ohi	4
Ikata	3
Sendai	2
Genkai	4
Shimane	2
Takahama	4
Mihama	3
Tsuruga	2
Shika	2
KashiwazakiKariwa	7
Tomari	3
Total Installed Capacity	46,148 MW

Source: Japan Atomic Industrial Forum (JAIF).

As stated above, Japan heavily reliant on nuclear energy prior to the Fukushima disaster, exceeding to 31 percent. At the same time, Japan generated 63 percent energy from thermal sources, whereas hydro power constituted only 5 percent of energy generation and renewables consisted mere 1 percent in its total generation capacity.

**Figure 1: Japan’s Energy Mix**



Source: Japan Agency for Natural Resources and Energy.

However, Japan’s nuclear safety had remained questionable. Over a dozen of nuclear incidents occurred in Japan during 1978-2011. These incidents occurred at the following sites:

**Table 2: Japan’s Nuclear Incidents**

Year	Incident
1978	Fukushima Daiichi Plant
1981	Tsuruga Nuclear Power Plant
1995	Monju Nuclear Power Plant
1997	Tokaimura
1999	Fukui Prefecture
1999	Tokai fuel fabrication facility
2000	Tokyo Electric Power Co
2002	Tokyo Electric Power Company’s
2002	Onagawa Nuclear Power Station
2004	Mihama-3 station
2006	Fukushima Daiichi Plant
2007	Kashiwazaki-Kariwa Nuclear Power Plant
2011	Fukushima Daiichi Plant

Following the deadly tsunami and an earthquake of 9.2 magnitude on 11 March 2011 in north-eastern Japan, nuclear plant meltdown at Fukushima questioned the safety of Japan's nuclear power plants. By March 2011, nuclear plants produced by 44.6 GW power. Officially, Japan announced around 19,000 deaths by tsunami. Over 140,000 people were evacuated from 20 km radius of the Fukushima Daiichi power plant. In October 2011 the government published a White Paper proposing that 'Japan's dependency on nuclear energy will be reduced as much as possible in the medium-range and long-range future'.<sup>20</sup> However, by May 2012 Japan shutdown all of its nuclear power plants but later restarted few of them. They were once again shutdown with the closing of the Kansai Electric Power plant on 15 September 2013.<sup>21</sup> With the shutting down of the entire nuclear plants in Japan, the country has been relying on the import of gas and oil to meet the deficiency. The use of oil import has increased along with trade deficit. Environmentally, carbon-dioxide omissions level has also increased due to use of oil for generation. Japan now is the only state among G-8 countries without any nuclear energy.

The future of Japan's nuclear power reactors is uncertain under the Liberal Democratic Party (LDP) government, while the opposition Democratic Party of Japan (DPJ) plans to shut down all nuclear reactors by 2030. Fukushima was the last of nuclear safety culture in Japan that caused unprecedented havoc. Nevertheless, the Abe Government is still at a point where it is 'unrealistic and irresponsible' to completely phase out the entire nuclear energy. He, however, pointed out that reliance on nuclear energy could be reduced.<sup>22</sup> It is still not clear that if Japan would adopt a zero-nuclear energy policy in future or not. The Fukushima plant has not been cleaned yet and radioactive leakage still affects the environment and people. Under this situation Japan needs to review and rethink its supply of nuclear technology to India.

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<sup>20</sup>*Bloomberg Business Week*, October 27, 2011.

<<http://www.businessweek.com/news/2011-10-27/nuclear-promotion-dropped-in-japan-energy-policy-after-fukushima.html>>, accessed November 7, 2013.

<sup>21</sup>*Asahi Shimbun* (Tokyo), September 15, 2013.

<sup>22</sup>*The Japan Times* (Tokyo), November 1, 2013.

## India's Nuclear Market

India's total power generation is 225 GW (225,000 MW). The country started commissioning its nuclear power plants by 1969. So far twenty nuclear power plants have been built and four are under construction including some for military purposes with a total installed capacity of 4780 MW. These are located at the following sites:

**Table 3: India's Nuclear Power Plants**

1. Tarapur Atomic Power Station (TAPS), Maharashtra
2. Tarapur Atomic Power Station (TAPS), Maharashtra
3. Tarapur Atomic Power Station (TAPS), Maharashtra
4. Tarapur Atomic Power Station (TAPS), Maharashtra
5. Rajasthan Atomic Power Station (RAPS), Rajasthan
6. Rajasthan Atomic Power Station (RAPS), Rajasthan
7. Rajasthan Atomic Power Station (RAPS), Rajasthan
8. Rajasthan Atomic Power Station (RAPS), Rajasthan
9. Rajasthan Atomic Power Station (RAPS), Rajasthan
10. Rajasthan Atomic Power Station (RAPS), Rajasthan
11. Madras Atomic Power Station (MAPS), Tamilnadu
12. Madras Atomic Power Station (MAPS), Tamilnadu
13. Kaiga Generating Station (KGS), Karnataka

<sup>23</sup><http://www.power-technology.com/projects/kaiga-station/> and <http://nuclear-energy.net/situation/nuclear-power-india.html>

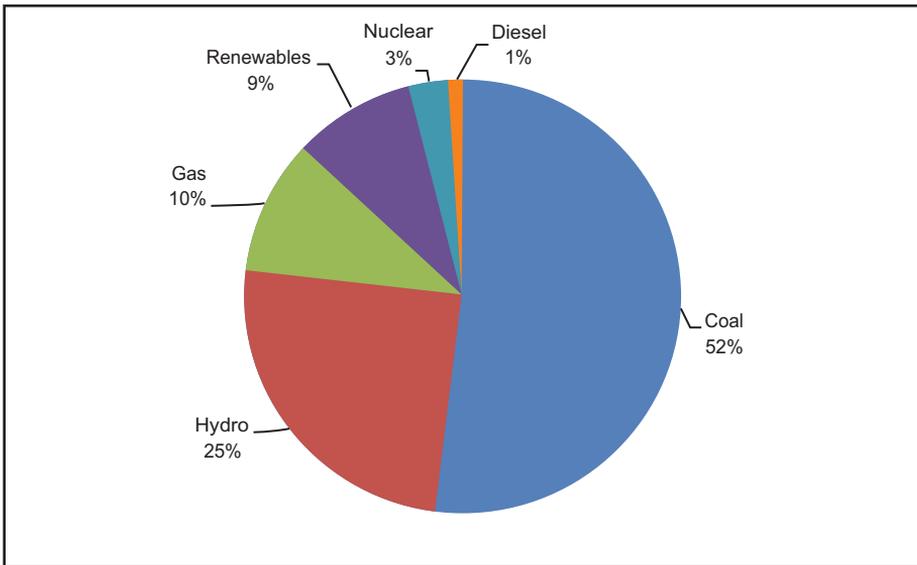
14. Kaiga Generating Station (KGS), Karnataka
15. Kaiga Generating Station (KGS), Karnataka
16. Kaiga Generating Station (KGS), Karnataka
17. Narora Atomic Power Station (NAPS), Uttarpradesh
18. Narora Atomic Power Station (NAPS), Uttarpradesh
19. Kakrapar Atomic Power Station (KAPS), Gujarat
20. Kakrapar Atomic Power Station (KAPS), Gujarat
Total Installed Capacity 4780 MW

Source: Compiled by the author using multiple references.

Unlike Japan, India heavily depends on coal energy for power generation, which constitutes 52 percent of its energy mix. The second largest source of its energy production is hydro generation i.e., 25 percent. The use of India's thermal energy is only 11 percent. Renewables constitute 9 percent of India's energy mix. India produces 3 percent nuclear energy out of its energy mix.<sup>24</sup>

<sup>24</sup>India Natural Resources Defence Council. Also see International Energy Agency, *World Energy Outlook: Special Report*, p. 62. [http://www.worldenergyoutlook.org/media/weowebiste/2015/IndiaEnergyOutlook\\_WEO2015.pdf](http://www.worldenergyoutlook.org/media/weowebiste/2015/IndiaEnergyOutlook_WEO2015.pdf)

Figure 2: India's Energy Mix



Source: India Natural Resources Defence Council.

India intends to produce 25 percent of energy through nuclear power by 2050 that will increase its nuclear generation capacity to 63,000 MW by 2032.<sup>25</sup> Presently, most of Indian nuclear reactors are small with indigenous technology but it intends to build large reactors with foreign assistance and cooperation. For this purpose, India has been signing agreements with foreign countries for the supply of nuclear plants. The Indo-American nuclear agreement, initiated in 2005, was the first step towards creating a foundation for cooperation in nuclear energy for India. After India-specific waivers were adopted by the IAEA in 2008, other countries in the world have also started cooperating with India including Japan.

The foremost factor behind the Indo-Japanese nuclear cooperation is the increasing strength of 'Indian economy'. The second factor is the 'Sino-Pakistan-North Korean nexus'.

<sup>25</sup>World Nuclear Association, 'Country Profiles', <http://www.world-nuclear.org/information-library/country-profiles/countries-g-n/india.aspx> See also Dr Rajaram Panda, 'India and Japan: Exploring Strategic Potentials', *Journal of Defence Studies*, vol 4, no. 4, (October 2010), p. 100.

The third factor is to 'counter China'. So the India-Japanese collaboration will counter and balance the power in the region *vis-a-vis* China, Pakistan, and North Korea. India-US deal was another factor, which has been viewed by European powers and Australia as a 'stabilising' factor. So Japan follows US suit in South Asia by bringing India to centre-stage. Moreover, Japanese companies are eager to take their share of Indian nuclear market for trade. It is uneasy for other companies pursuing nuclear projects in India without Japan's participation. For Japan, it is the best way of overcoming its domestic recession.<sup>26</sup>

### The Nuclear Talks

Soon after the Indo-American nuclear deal, Japan started considering the extension of nuclear cooperation to India. The Tokyo-based Japan's Forum for International Relations in its 29th Policy Recommendations namely 'India's Leap Forward and Japan', suggested extending Japan's cooperation in nuclear field to India in its report in September 2007. However, none was drawn from the anti-nuclear lobby. Similar to US-India nuclear deal, recommendations were India-specific. Japan realised that it should extend economic relations to India through East Asia networking. Trade and investment with India should seek new initiatives and Japanese corporations should adopt business models for India. Japan should extensively explore Indian information technology industry and its human resources, and should cooperate with India in its nuclear energy market for peaceful purposes.<sup>27</sup>

The reasons put forward in these recommendations were that many countries have been entering into nuclear agreements with India and its growing industry needs more energy. Kazakhstan, Namibia, Mongolia, Argentina and Canada clinched nuclear deals with India. Also talks for cooperation with Australia and South Korea have been underway.

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<sup>26</sup>Prakash Pillai, 'Factors determining Indo-Japan Relationship: Civil Nuclear Cooperation', in *Issue Brief*, Centre for Air Power Studies, September 29, 2010, pp. 2-3.

<sup>27</sup>The Japan Forum for International Relations, *The 29th Policy Recommendations: India's Leap Forward and Japan* (Tokyo: The Japan Forum for International Relations), September 2007, pp. 18.

Manufacturing of components for nuclear reactors such as control rods, stainless steel, alloy fabrication titanium, zirconium based alloys, heat exchanges, steam generators, and large capacity turbo generators are still beyond the capacity of Indian industry. Hence the support of Japan was needed. To reduce global warming, India needs to convert to nuclear energy, the report suggested. The recommendations mentioned that 'Japan's technology and expertise in generating and ensuring the safety of nuclear power is among the best in the world, so it is in excellent position to cooperate with India in these areas'.<sup>29</sup> However, the post-Fukushima nuclear position of Japan was just contrary to this claim and it appeared that Japan possesses the worst type of nuclear safety policy to regulate its nuclear reactors. Policy recommendations suggested that Japan must cooperate with India in this field because there is political significance of this cooperation and also because India lacks resources to generate energy. Besides dealing with global warming, there is a need to cooperate in science and technology and contribution to be made by Japanese corporations in the nuclear field. Policy recommendations appreciated India's "disarmament" and "non-proliferation" policy. Recommendations, however, did not mention about Japanese reactions and sanctions drawn against India in 1974 and 1998. Such events were not part of the report. The report urged 'the Japanese Government to carefully consider policy measures that would be effective, while at the same time, cooperating with India on this issue and calling on countries regardless of possession of nuclear weapons, NPT's original objectives, and nuclear disarmament'.<sup>30</sup>

In order to strike a nuclear deal, visits of Japanese Prime Ministers Yoshiro Mori and Junichiro Koizumi to India in August 2000 and April 2005 respectively were the turning points in giving the idea of global partnership between the two countries.<sup>31</sup>

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<sup>28</sup>D. Gnanagurunathan, 'India-Japan Civil Nuclear Cooperation Agreement: A Saga of Interests Eclipsing Ideals', *Mainstream*, Vol. Ixviii, No. 49, November 2010, p. 2.

<sup>29</sup>The Japan Forum for International Relations.

<sup>30</sup>*Ibid*, p. 19.

<sup>31</sup>Dr Rajaram Panda, 'India and Japan: Exploring Strategic Potentials', *Journal of Defence Studies*, vol 4, no. 4, (October 2010), p. 91.

Some understanding was built with the regime of the Democratic Party of Japan (DPJ) during 2009-12. In December 2009, South Korea won a bid of US\$ 40 billion in the Middle East and it also signed a nuclear deal with India, therefore, Japan also decided to compete with South Korea in emerging global nuclear market.<sup>32</sup> Prime Ministers of both Japan and India have met several times since 2006. It was roughly the same time when Prime Minister Shinzo Abe and Foreign Minister Taro Aso floated the idea of the *Arc of Freedom and Democracy* that was not well taken by other Asians because they thought that the idea was similar to Japan's wartime politico-military philosophy of the "Greater East Asia Co-Prosperty Sphere". The idea was instantly dropped but the initiative of the civilian nuclear cooperation continued to grow.

So far eight summits have been held up to 2013 in Tokyo and New Delhi where they discussed comprehensive strategic partnership. They also meet at other fora such as the G-20 Summits, East Asia Summits (EAS), and Association of South East Asian Nations (ASEAN) to enhance their strategic cooperation. Former Indian Prime Minister Dr. Manmohan Singh met with Prime Minister Ikeda Hatoyama in April 2010 in Washington on the sidelines of the Nuclear Security Summit to discuss possibilities of nuclear cooperation. The ice-breaking decision, however, was taken at the side of G-20 Summit in Toronto, Canada, on 26 June 2010, where for the first time, Manmohan Singh and Japanese counterpart Naoto Kan discussed global security situation and also agreed on the need to deepening of bilateral ties.

Further, as soon as Japan lost its economic position to China in June 2010, it desperately went ahead for nuclear negotiations with India at least to save its political face if not economic one. Japan also wanted to become an equal partner to that of the United States, which has signed a nuclear deal with India. This was also the first strategic dimension Japan and India discovered in order to contain China. Later on this issue became an important agenda point at the Prime Minister-level annual

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<sup>32</sup>D. Gnanagurunathan, 'India-Japan Civil Nuclear Cooperation Agreement: A Saga of Interests Eclipsing Ideals', *Mainstream*, Vol. Ixviii, No. 49, November 2010, p. 3.

talks between India and Japan. However, much more delicate discussions were held at the Working Group-level between the two countries to chalk out details about the prospective agreement.

So far a number of rounds of talks were held between the two countries. On 28 June 2010, India and Japan commenced first round of negotiation on core issues between the two in Tokyo where India was represented by Joint Secretary Gautam Bambawale from Ministry of External Affairs of India, while Deputy-Director General Mitsuru Kitano of the Japanese Ministry of Foreign Affairs led the Japanese side. The second round of discussion was held on 21 August 2010 in New Delhi, where Japanese Foreign Minister Katsuya Okada met Indian Minister for External Affairs, S.M. Krishna. Japan insisted on India's signing of NPT/CTBT but India insisted on its moratorium.<sup>33</sup> Given the fact that India has not signed the NPT/CTBT, its moratorium raised many questions. Okada said that Japan would cut-off deal with India if it will conduct a nuclear testing again.<sup>34</sup> If tension with Pakistan or China escalates, India may begin with another nuclear testing. Some Indian scientists have also been calling for new testing in the wake of the failed nuclear tests in 1998.<sup>35</sup> It is difficult for Japan to make sure that no more testing will be carried out by India.

Talks were put on hold after the Fukushima meltdown. Another round of talks was resumed in November 2011, eight months after the Fukushima disaster. Nuclear Energy Working Groups were formed. The biggest obstacle is that India is not a signatory to the NPT. India emphasized that its non-proliferation record was enough. Japan insisted on NPT to be signed by India and asked that India could neither use the technologies and equipment for military purposes nor transfer them to a third party. This was also the key principle in US-India nuclear energy cooperation.<sup>36</sup>

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<sup>33</sup>*The Hindu* (Chennai), October 10, 2010

<sup>34</sup>*BBC News* (London), August 22, 2010.

<sup>35</sup>Yukifumi Takeuchi, 'Facing the risks of India's nuclear exemption', *Asahi Shimbun* (Tokyo), March 11, 2012.

<sup>36</sup>*People's Daily Online* (Beijing), October 28, 2010.

The fourth round of talks was held on 3 September 2013. The Indian side was led by Bambawale, and Joint Secretary, Disarmament and Internal Security, D. B. Venkatesh Verma. The Japanese side was led by Makita Shimokawa, Deputy Director General, Southeast and Southwest Asian Affairs Department and Special Representative in charge of the Japan-India Nuclear Energy Cooperation Agreement, Ministry of Foreign Affairs.<sup>37</sup> Japan once again insisted on India's signing of the NPT but India reiterated on its moratorium. As no consensus was evolved between them, they decided to speed up talks.<sup>38</sup> At the same time, Japan's National Regulatory Authority (NRA) has prepared new safety guidelines to prevent natural disaster or terrorist activities. India also reviewed the post-Fukushima situation and its implications for nuclear cooperation with Japan.<sup>39</sup> Therefore, both countries have been pursuing nuclear negotiations and discussing possibilities and constraints of nuclear cooperation but without any tangible outcome yet. A Memorandum of Understanding (MoU) was signed on 12 December 2015 in New Delhi during Prime Minister Abe's official visit to India. However, certain technical and legal issues must be resolved before a final agreement could be signed.<sup>40</sup>

Besides doubts about India's unilateral moratorium on nuclear testing and constant refusal to sign the NPT/CTBT, many more objections also surfaced:

1. Given the Indian refusal to declare moratorium on fissile material production, cooperation in the Fissile Material Cut-off Treaty (FMCT) talks is questionable.
2. It is impossible to strictly separate civilian and military nuclear facilities.
3. The use of uranium could lead to proliferation.
4. Safeguards protocol could hardly work in awkward situations.
5. India has a proliferation record. The nomination of two Indian

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<sup>37</sup>*The New Indian Express* (Chennai), September 19, 2013.

<sup>38</sup>*Global Post* (Beijing), October 10, 2013.

<sup>39</sup>*Deccan Herald* (Bangalore), September 19, 2013)

<sup>40</sup>World Nuclear News (WNN), December 14, 2015.

firms, Goel Scientific Glass Works and Garg Scientific Glass Industries, clandestinely supplied prohibited material to the Syrian Scientific Research Centre (SSRC) for proliferation of chemical weapons technology.<sup>41</sup>

6. The 1974 nuclear test also poses a concern about India's proliferation tendencies.

### Assessment

There is a criticism prevailing against Japan's extending nuclear cooperation to India. By signing the deal, Japan would lose its strength in global anti-nuclear community. One fails to understand Japan's 'wisdom' behind extending nuclear cooperation to India. People angrily reacted to the deal in Japan. Both the Hiroshima and Nagasaki Peace Declarations in 2013 on the anniversary of the nuclear bombings on Japan mentioned the Indo-Japan agreement as a departure from Japan's long standing policy to respect NPT and promote nuclear disarmament internationally.<sup>42</sup> The Nagasaki Declaration deplored that 'Japan's cooperation with India would also provide North Korea, which withdrew from the NPT and is committed to nuclear development, with an excuse to justify its actions, hindering efforts toward the denuclearization of the Korean Peninsula'.<sup>43</sup> Echoing similar concerns, Hiroshima's mayor lamented in his statement that the Indo-Japan agreement is likely to hinder nuclear weapons abolition. Over 335 civil groups in Japan issued a statement saying that they were outraged by decisions of the government of Japan and India who were going ahead with negotiations for a nuclear cooperation agreement.<sup>44</sup> Keeping this in view, the Indo-Japanese nuclear cooperation would also affect the South Asian nuclear dynamics that will further fuel the nuclear arms race between India and

Pakistan and would provide an ultimate legitimacy for India's nuclear test in the future. Therefore, Indo-Japan nuclear agreement would contribute to destabilize the Asian continent by promoting the ill-conceived strategy of India and Japan against China.

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<sup>41</sup>Momin Iftikhar, "Proliferation and India", *Nation* (Islamabad), February 15, 2011.

<sup>42</sup>DiaNuke.org < <http://www.dianuke.org/why-the-india-japan-nuclear-agreement-is-a-bad-idea/> >, accessed December 9, 2013.

<sup>43</sup>Ibid.

<sup>44</sup>Ibid.

The leading newspaper of Japan *Asahi Shimbun* made the point that the Japanese Government should ask India to sign the NPT and CTBT before offering it a nuclear deal.<sup>45</sup> The paper said that 'a nuclear cooperation agreement between Japan and India would further undermine the effectiveness and relevance of the NPT system'.<sup>46</sup> *The Japan Times* advised the Government to rethink over nuclear cooperation with India.<sup>47</sup> India has no comprehensive safeguard agreement with the IAEA, which could allow the IAEA to inspect nuclear-related equipment and fissile materials in a signatory nation and requires it to provide relevant data.<sup>48</sup> India also wants Japan to ensure that the potential agreement would not affect India's nuclear program. Commenting on the MoU, *The Japan Times* advised that Japan should avoid nuclear risk deal with India.<sup>49</sup> The paper further said that the 'Japanese government needs to ensure a clear mechanism to prevent India from using the technology provided by Japan to enhance its nuclear weapons capabilities'.<sup>50</sup> An Indo-Japan nuclear agreement would be the final seal of approval for a nuclear weapons state outside the NPT.<sup>51</sup>

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<sup>45</sup> *Asahi Shimbun* (Tokyo), May 25, 2013.

<sup>46</sup> *Ibid.*

<sup>47</sup> *The Japan Times* (Tokyo), June 3, 2013.

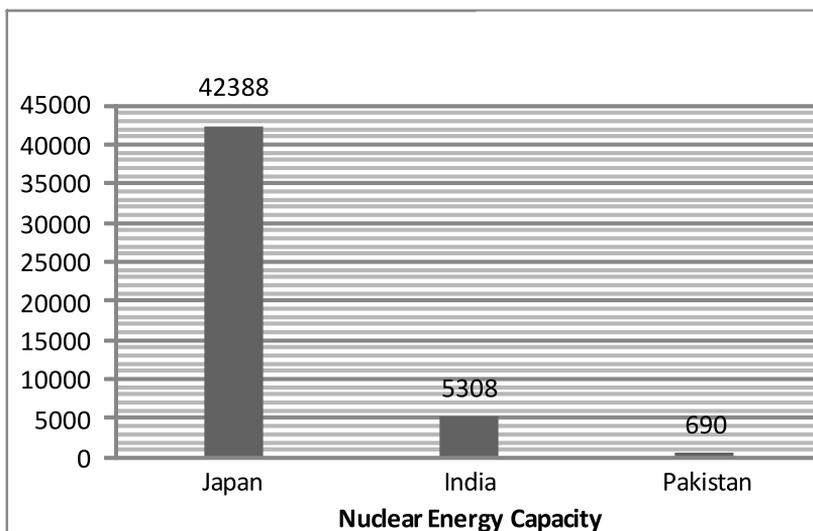
<sup>48</sup> *Ibid.*

<sup>49</sup> *The Japan Times* (Tokyo), December 16, 2015.

<sup>50</sup> *Ibid.*

<sup>51</sup> See Kumar Sundaram, "Seventy Years After Hiroshima, Will an India-Japan Nuclear Deal Set Back Global Nonproliferation Efforts?", <http://www.truth-out.org/speakout/item/33994-seventy-years-after-hiroshima-will-an-india-japan-nuclear-deal-set-back-global-nonproliferation-efforts>. Accessed February 8, 2016.

**Figure 3: Nuclear Energy Capacity of Japan, India, & Pakistan**



Source: “Nuclear Share of Electricity Generation in 2015”. International Atomic Energy Commission (IAEA)  
<https://www.iaea.org/PRIS/WorldStatistics/NuclearShareofElectricityGeneration.aspx>

**Table 4: Nuclear Power Plants and Capacity Percentage to Power Generation**

Country	Number of Reactors	Percentage Share
Japan	43	0.5
India	21	3.5
Pakistan	3	4.4

Source: “Nuclear Share of Electricity Generation in 2015”, International Atomic Energy Commission (IAEA)  
<https://www.iaea.org/PRIS/WorldStatistics/NuclearShareofElectricityGeneration.aspx>

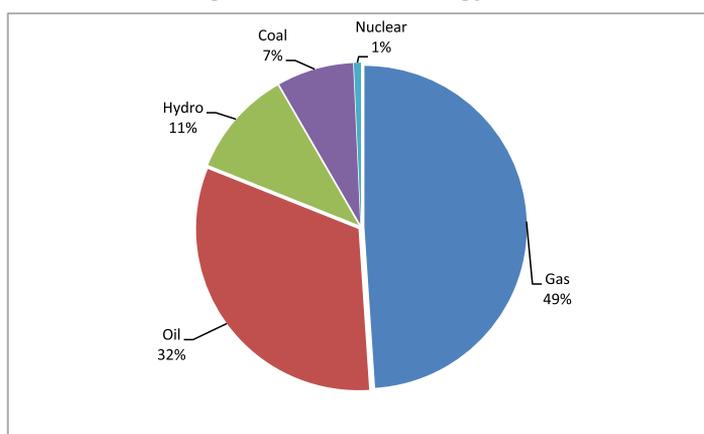
According to the 2015 IAEA data, there are 43 nuclear reactors in Japan, 21 in India, and 3 in Pakistan. Japan shut down all its nuclear

power plants after Fukushima in 2011 and only one nuclear power plant at Sendai was restarted in 2015.<sup>52</sup> Therefore, the percentage share of Japan's nuclear energy generation has drastically decreased to 0.5 percentage of the total generation capacity.

### The Pakistan's Perspective

Pakistan faces enormous energy crisis both for its consumers and industry. Shortage of electricity, particularly in summer peak, leads to load-shedding and closure of industrial plants. The Government has been making concerted efforts to obtaining energy from multiple sources such as the CASA 1000, the Turkmenistan-Afghanistan-Pakistan-India gas pipeline (TAPI), and Iran-Pakistan gas pipeline (IP). Government also wants to enhance local nuclear generated energy. The present nuclear-based energy production is 690 MW or just 4 percent of Pakistan's energy mix. The country aims at generating 3880 MW by 2017 thus increasing nuclear capacity to 4605 MW. At the moment, the country produces around 49 percent energy from gas. The oil-based energy production is the second largest source i.e. 32 percent. Hydro is the most economical generation of energy with only 11% of production in Pakistan. The coal-based energy production is around 7 percent, which is likely to increase in the near future. Therefore, nuclear energy could play a crucial role in generating energy in Pakistan (see Figure below).

Figure 4: Pakistan's Energy Mix



Source: Pakistan Water & Power Development Authority.

<sup>52</sup>The Guardian (London), August 11, 2015.

**Table 5: Pakistan's Nuclear Power Plants**

KANUPP-Karachi 125	
Chashma 300	-I
Chashma 300	-II
Total Capacity 725 MW	

Source: World Energy Association, 'Nuclear power in Pakistan'. <[www.world-nuclear.org/info/Country-Profiles/Countries-O-S/Pakistan/](http://www.world-nuclear.org/info/Country-Profiles/Countries-O-S/Pakistan/)>. The capacity of KANUPP has reduced to 80 MW. *Jang* (Rawalpindi), January 6, 2013.

**Table 6: Pakistan's Proposed Nuclear Power Plants**

Chashma-III 340
Chashma-IV 340
Chashma-V 1000
Karachi Coastal-I 1100
Karachi Coastal-II 1100
Total Capacity MW 3880

Source: Ibid.

On the contrary, Japan does not cooperate with Pakistan on its civil nuclear energy program. The biggest impact of the changed Japanese anti-nuclear policy was the invention of 'discrimination' in its policy for the first time. Earlier, Japan has exercised a complete anti-nuclear indiscrimination particularly towards India, Pakistan, Democratic Peoples Republic of Korea, and Iran. Therefore, the Indo-Japan nuclear cooperation would have serious implications for non-proliferation.

The NPT system is designed to limit the membership of the Nuclear Club to the five original nuclear powers (United States, Russia, Britain, France and China), while requiring them to make serious efforts toward nuclear disarmament.<sup>53</sup> Other countries are allowed to receive foreign nuclear technology for peaceful use in return for refraining from possessing nuclear arms.<sup>54</sup> In this context, the Indo-Japanese nuclear cooperation has been intending to weaken the NPT system because India is non-signatory to the NPT and CTBT. As a champion of NPT, how Japan would be viewed after it signed deal with India? In 2008, in response to prodding by the United

States, which wanted to export nuclear power technology to India, the NSG, including Japan, approved an exception to the non-proliferation principles to allow India to receive nuclear power technology from other nations.<sup>55</sup> This was how Japan itself has given a dent to its non-nuclear principles.

On the other hand, Japan has a weak nuclear plants safety system. Around a dozen of incidents have taken place including the Fukushima incident in 2011. Japan itself is in the process of developing a nuclear plants safety culture, which however will take a very long time. Similarly, India experienced around six nuclear plants incidents since 1987. Incidentally, Pakistan has a track record of nuclear safety and it faced only a single but minor incident at the Karachi Nuclear Power Plant (KANUPP), assisted by Canada, when it imposed a seven-hour emergency after heavy water leaked from a feeder pipe to the reactor in October 2011.<sup>56</sup> The leakage took place during a routine maintenance shut down, and the emergency was lifted seven hours later, after the affected area was isolated. There was no exposure to radiation.<sup>57</sup>

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<sup>53</sup> Arms Control Association, "Nuclear Nonproliferation Treaty (NPT)"

<<https://www.armscontrol.org/documents/npt>

<sup>54</sup> *Asahi Shimbun*, (Tokyo) May 25, 2013.

<sup>55</sup> *Ibid.*

<sup>56</sup> *The Nation* (Islamabad), October 21, 2011.

<sup>57</sup> *Dawn* (Islamabad), October 20, 2011.

These incidents suggested that Pakistan has a better nuclear plants' safety culture than Japan and India. But yet Pakistan faced the consequences of India's nuclear blast in 1974 that led Great Britain and France to cancel their nuclear power plants cooperation with Pakistan too. So did a cooperative plan with the Soviet Union was ended. It is China that has assisted Pakistan in installing nuclear power plants at Chashma (Chashma-I & II) and installing two more (Chashma III & IV), and two at Karachi (Coastal II & III).<sup>58</sup>

Similar to India, Japan may consider cooperating with Pakistan in generating nuclear power to meet the growing demand of industry and consumers. During President Asif Ali Zardari's visit to Tokyo in 2011, Pakistan asked Japan to offer similar treatment to Pakistan,<sup>59</sup> which Japan offered to India but Japan showed some hesitation in this regard.

With KANUPP to be decommissioned by 2019 and to meet the growing electricity shortage, Pakistan intends to generate 40,000MW electricity by 2050.<sup>60</sup> The Pakistan Atomic Energy Commission (PAEC) has been planning to build KANUPP II and III to produce 2000 MW electricity with indigenous technology. China has been cooperating with Pakistan in these projects. Prime Minister Nawaz Sharif performed the groundbreaking ceremony of both these plants in November 2013 to produce 2,200MW electricity.<sup>61</sup>

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<sup>58</sup>World Nuclear Association, "Nuclear Power in Pakistan", <<http://www.world-nuclear.org/information-library/country-profiles/countries-o-s/pakistan.aspx>>

<sup>59</sup>*The Express Tribune* (Islamabad), February 21, 2011.

<sup>60</sup>*Dawn* (Islamabad), September 17, 2015.

<sup>61</sup>*Ibid*, November 27, 2013.

## Conclusion

The present Indo-Japanese relations hinges on nuclear cooperation but the two could not evolve an agreed legal framework for cooperation in the past ten years. Fukushima meltdown added additional worries as Japan itself faces nuclear energy safety problems and entails many complications. The question of the Indo-Japan nuclear cooperation is a political and diplomatic stumbling block. Japan should refrain from commercialising its nuclear export, which has serious implications against the non-proliferation regime too. It should provide non-nuclear energy options to India and should focus on the long-term implications for its nuclear cooperation with India within the Asia-Pacific non-nuclear context. In this whole spectrum, the Indo-Japanese nuclear cooperation would have implications for Pakistan.