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INDIA AND THE NUCLEAR HIGH ROAD:

Nuclear Cooperation Agreements with Japan and Australia

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Executive Summary

The Monograph examines the processes that culminated in India's nuclear cooperation agreements (NCA) with Japan and Australia. In the aftermath of the India-specific Nuclear Security Group (NSG) exemption of September 2008, India entered into NCAs with many countries. Apart from the United States, India's NCAs with Japan and Australia have been the most contentious domestically within those countries. These agreements were achieved despite long-standing nuclear non-proliferation policy positions (with India's non-NPT member status a significant part of the hurdle), significant flux in their domestic nuclear industry (especially so in the case of Japan), and domestic political constituencies made up of those in favour of (for commercial/strategic reasons) or opposed to (due to non-proliferation implications among others) civil nuclear cooperation with India.

The 'slow embrace' of India's civil nuclear credentials by Japan — given the four years for negotiations to begin (after the December 2006 Joint Statement which talked about discussions regarding such an agreement with India) in addition to the six years it took for negotiations to bear fruit — took place despite the strategic context of increasingly closer economic, political, and security ties. While it took fewer than two years from the commencement of negotiations to the signing of the agreement — as against six years in the case of the India-Japan NCA — the process that led to the signing of the India-Australia NCA was contentious.

Having successfully overcome such hurdles on the nuclear high road, India is now finally on the cusp of realising its much-delayed nuclear power targets. Japanese reactor components (for imported French or American reactors) or Australian uranium (for both indigenous as well as imported reactors) can hope to be a part of the equation going forward. Apart from the goal of sustaining the forward momentum in India's nuclear energy sector, an additional variable that India flagged in securing NCAs with countries like Australia and Japan was that it will strengthen India's credentials for full membership of the NSG. While both Japan and Australia have supported India's entry into the

NSG, it has not materialised as of July 2019. However, India's entry into the Missile Technology Control Regime (MTCR), the Wassenaar Arrangement, and the Australia Group is testimony to the real progress India's diplomacy has achieved in the years since securing the historic NSG waiver.

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I am however solely responsible for the final content.

(S. Samuel C. Rajiv)

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Chapter 1

INTRODUCTION

The India-US Joint Statement on civil nuclear cooperation of July 18, 2005 marked the beginning of a fundamental transformation in India's interactions with the international nuclear order. President George W. Bush recognised India as a 'responsible state with advanced nuclear technology', and pledged to 'adjust' not only US laws and policies but also 'work with friends and allies to adjust international regimes to enable full civil nuclear energy co-operation and trade with India'.[1] On its part, India agreed to 'assume the same responsibilities and practices and acquire the same benefits and advantages as other leading countries with advanced nuclear technology such as the United States.'[2]

These included the separation of nuclear facilities into civilian and military-related, the placing of civilian facilities under International Atomic Energy Agency (IAEA) safeguards, signing the Additional Protocol (AP), continuing the moratorium on nuclear testing, working with the USA for the conclusion of a Fissile Material Cut-Off Treaty (FMCT), refraining from the transfer of enrichment and reprocessing (ENR) technologies to states that do not have them, the securing of 'nuclear materials and technology through comprehensive export control legislation and through harmonisation and adherence to MTCR [missile technology control regime] and NSG [Nuclear Suppliers Group] guidelines'.

India offered to place 14 out of 22 thermal power reactors (operating or under construction till then) under IAEA safeguards as part of its

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1 DAE, 'India-United States Joint Statement', July 18, 2005, at http://www.dae.nic.in/?q=node/61 (Accessed October 2, 2018).

2 Ibid.

'Separation Plan' (issued in March 2006).[3] India concluded a safeguards agreement with the IAEA (INFCIRC/754) in February 2009. India signed the AP in May 2009, and it entered into force in July 2014. As of September 2018, apart from the 18 reactors, 8 other facilities where nuclear material is used and/or stored are also under IAEA safeguards. Future reactors could also be placed under safeguards, while India would solely decide which reactors it would classify as 'civilian'.

With support from the USA, India secured the NSG waiver in September 2008, becoming the only state outside the nuclear non-proliferation treaty (NPT), and without having full-scope safeguards (FSS), allowed to engage in nuclear commerce with NSG member-countries. In the decade since the September 6, 2008, 'India-specific exemption' of the NSG, India's engagement with the non-proliferation regime has witnessed a significant change. India's interactions with the IAEA have been an important arena of such engagement, as indeed India's conclusion of civilian nuclear cooperation agreements with a significant number of countries.[4]

These path-breaking developments have significantly contributed to ending India's nuclear isolation, and have chipped away at the gates of the very technology denial/export control regimes whose primary creation rationale was to constrain India's access to such technologies. India securing membership of three out of the four major export control regimes is a significant barometer of that success. India became a member of the MTCR in June 2016, the Wassenaar Arrangement on

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[3] IAEA, 'Communication dated July 25, 2008 received from the Permanent Mission of India concerning a document entitled ''Implementation of the India-United States Joint Statement of July 18, 2005: India's Separation Plan'', INFCIRC/731, July 25, 2008, at https://www.iaea.org/sites/default/files/publications/documents/infcircs/2008/infcirc731.pdf (Accessed October 2, 2018).

[4] IAEA, 'Agreement between the Government of India and the International Atomic Energy Agency for the Application of Safeguards to Civilian Nuclear Facilities', INFCIRC/754, May 29, 2009, at https://www.iaea.org/sites/default/files/publications/documents/infcircs/2009/infcirc754.pdf (Accessed October 2, 2018).

Export Controls for Conventional Arms and Dual-Use Goods and Technologies in December 2017, and of the Australia Group (an informal grouping of countries that seeks to ensure that exports of its participant states do not contribute to development of chemical or biological weapons) in January 2018. Earlier, on June 1, 2016, India became a Subscribing State to the Hague Code of Conduct against Ballistic Missile Proliferation (HCOC). However, India's efforts to secure the NSG membership — and the significant counter-reactions that effort has generated — exemplifies the deep-set challenges that still have to be overcome on the nuclear high road.

As for bilateral nuclear cooperation agreements, in the aftermath of the NSG exemption, India has entered into such agreements with as many as 13 nations. These include France (September 2008), USA (October 2008), Russia (March 2010), Canada (June 2010), Argentina (September 2010), Kazakhstan (April 2011), Republic of Korea (July 2011), Australia (September 2014), Sri Lanka (February 2015), the UK (November 2015), Japan (November 2016), Vietnam (December 2016), and Bangladesh (April 2017). Since 2012, India has obtained nuclear fuel from Canada, France, Kazakhstan, Russia and Uzbekistan.

These agreements, in some cases, were achieved after overcoming a particular country's long-standing nuclear non-proliferation policy positions (with India's non-NPT member status a significant part of the hurdle), significant flux in that country's domestic nuclear industry, and domestic political constituencies made up of those in favour of (for commercial/strategic reasons) or opposed to (due to non-proliferation implications among others) civil nuclear cooperation with India. For the purposes of this monograph, the processes that culminated in India's nuclear cooperation agreements with Japan and Australia are examined in context of the decade since the India-specific NSG exemption. Both countries, which are under the US extended nuclear umbrella, most clearly exemplify the interplay of the dynamics noted above vis-à-vis civilian nuclear cooperation with a non-NPT member state like India.

Chapter 2

A Slow Embrace: Japan and Civil Nuclear Cooperation with India

The Government of Japan, led by Prime Minister Naoto Kan of the Democratic Party of Japan (DPJ), announced its decision to commence negotiations with the Government of India on an Agreement for Cooperation in the Peaceful Uses of Nuclear Energy on June 25, 2010. The first round of formal negotiations took place in Tokyo on June 28–29, 2010. This was in the immediate aftermath of both the countries establishing a Nuclear Energy Working Group under the 'Energy Dialogue' in April 2010 to 'exchange views and information on their respective nuclear energy policies from the energy, economic, and industrial perspectives'.[5] During Prime Minister Manmohan Singh's visit to Tokyo in December 2006, Japan pledged to 'continue to discuss the international civil nuclear cooperation framework with respect to India'.[6] During Prime Minister Singh's October 24–26, 2010 visit for the Annual Summit, the two countries affirmed that cooperation in this sector will open up new opportunities for further developing the India-Japan Strategic and Global Partnership.

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[5] MEA, 'Joint Statement between the Ministry of Economy, Trade and Industry of Japan and the Planning Commission of India on the Occasion of the Fourth Meeting of the Japan-India Energy Dialogue', April 30, 2010, at https://www.mea.gov.in/bilateral-documents.htm?dtl/3956/Joint_Statement_between_the_Ministry_of_Economy_Trade_and_Industry_of_Japan_and_the_Planning_Commission_of_India_on_the_Occasion_of_the_Fourth_Meeting (Accessed October 4, 2018).

[6] MEA, 'Joint Statement towards India-Japan Strategic and Global Partnership', December 15, 2006, at https://www.mea.gov.in/bilateral-documents.htm?dtl/6368/Joint_Statement_Towards_IndiaJapan_Strategic_and_Global_Partnership (Accessed October 4, 2018).

After some serious negotiations that went on for over six years between the two 'strategic and global partners', the Agreement between the Government of the Republic of India and the Government of Japan for Cooperation in the Peaceful Uses of Nuclear Energy was eventually signed on November 11, 2016, and it came into effect on July 20, 2017.[7] It is pertinent to note that while negotiations began under a DPJ-led government, they were concluded by the Shinzo Abe-led Liberal Democratic Party (LDP) and the New Komeito Party coalition government.

The Lower House of the Japanese parliament (Diet), the House of Representatives, approved the nuclear cooperation agreement (NCA) on May 16, 2017 while the Upper House (House of Councillors) did so (with 151 members in favour of the deal and 87 opposed) on June 7, 2017. India and Japan had earlier (in December 2015) announced that an agreement was reached; but it was after another 10 months that the agreement was finally signed. Prior to the India NCA, Japan had concluded such agreements with 13 countries, beginning with Australia in 1982 to the United Arab Emirates in 2014.

The 'slow embrace' of India's civil nuclear credentials by Japan — given the four years for negotiations to begin (after the December 2006 Joint Statement which talked about discussions regarding such an agreement with India) in addition to the six years it took for negotiations to bear fruit — took place despite the strategic context of increasingly closer economic, political, and security ties. This essay shows that India's efforts to conclude a NCA with Japan had to overcome the long-held positions on nuclear non-proliferation and disarmament, and nuclear cooperation with non-NPT member states, by Japanese policy makers, political parties, and civil society organisations. The negotiations also took place in the backdrop of significant flux associated with the Japanese nuclear industry — a major player with commercial and

[7] The text of the agreement is available at https://www.mea.gov.in/images/attach/Agreement_Nuclear_Energy_japan.pdf (Accessed October 4, 2018).

technological stakes in the global nuclear industry — in the aftermath of the Fukushima Daichi disaster of March 2011.

THE STRATEGIC CONTEXT

India and Japan decided to establish a 'Global Partnership' in August 2000, during the visit of Prime Minister Yoshiro Mori to India. Prime Minister Mori's visit was significant as it was the first high-level political interaction in the aftermath of the 1998 nuclear tests by India at Pokhran, which were strongly condemned by Japan and triggered trade and technology sanctions. It was also the first visit by a Japanese prime minister to India in nearly a decade, following the 1990 visit of Toshiki Kaifu. The 'Global Partnership' established in 2000 transformed into a 'Strategic and Global Partnership' in December 2006, during the visit of Prime Minister Singh to Tokyo.

Both sides affirmed that the new nomenclature was designed to 'impart stronger political, economic and strategic dimensions to bilateral relations, serve [the] long-term interests of both countries, enhance all-round cooperation, and contribute to greater regional peace and stability'.[8] India-Japan ties were later further elevated to a 'Special Global and Strategic Partnership' in September 2014, during the visit of Prime Minister Narendra Modi to Tokyo, which was his first overseas visit to a country outside of India's neighbourhood after he took over as Prime Minister a few months earlier.[9]

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[8] MEA, 'Joint Statement towards India-Japan Strategic and Global Partnership', December 15, 2006, at https://www.mea.gov.in/bilateral-documents.htm?dtl/6368/Joint_Statement_Towards_IndiaJapan_Strategic_and_Global_Partnership (Accessed October 4, 2018).

[9] MEA, 'Tokyo Declaration for India-Japan Special Strategic and Global Partnership', September 1, 2014, at https://www.mea.gov.in/bilateral-documents.htm?dtl/23965/Tokyo_Declaration_for_India__Japan_Special_Strategic_and_Global_Partnership (Accessed October 4, 2018).

Earlier, on October 22, 2008, India and Japan issued a Joint Declaration on Security Cooperation, which has been termed as a 'significant milestone in building [the] Asian power equilibrium'.[10] The document recognised their similar perceptions of the evolving security environment in the region, affirmed their 'deep respect' for each other's contribution 'in promoting peace, development and stability in Asia and beyond', recognised their mutual stakes in 'each other's progress and prosperity', reiterated their 'common commitment in pursuing disarmament and non-proliferation as partners seeking a peaceful nuclear-weapon free world, and working together against proliferation'.

The Joint Declaration lists out a comprehensive framework for security, involving nine 'elements for cooperation'. These range from information exchange and policy coordination on regional affairs as well as on long-term strategic and global issues, bilateral cooperation within multilateral frameworks, cooperation between the Coast Guards, and disaster management, among other areas. It is pertinent to note that one among the nine elements of cooperation is related to disarmament and non-proliferation issues. The first Joint Secretary/Director General-level Annual Dialogue on Disarmament and Non-Proliferation between the two countries was held in New Delhi in May 2006. The mechanisms tasked with carrying out cooperation in the security sphere included intensive consultations between the respective foreign and defence ministries.[11]

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[10] Brahma Chellaney, 'Toward Asian power equilibrium', *The Hindu*, November 1, 2008, at https://www.thehindu.com/todays-paper/tp-opinion/Toward-Asian-power-equilibrium/article15332945.ece (Accessed October 26, 2018); See also, Madhuchanda Ghosh, 'India and Japan's Growing Synergy: From a Political to a Strategic Focus', *Asian Survey*, 48(2), March/April 2008, pp. 282–302.

[11] MEA, 'Joint Declaration on Security Cooperation between India and Japan', October 22, 2008, at https://www.mea.gov.in/bilateral-documents.htm?dtl/5408/Joint_Declaration_on_Security_Cooperation_between_India_and_Japan (Accessed October 4, 2018).

Over the years, India and Japan have built an impressive framework of institutional links to carry forward their mutually beneficial cooperation. At the meeting between Prime Minister Mori and Prime Minister Manmohan Singh in December 2006, both countries decided to have annual summits between the two Prime Ministers in their respective capitals. Apart from the annual summits between the heads of state, they have institutionalised an Annual Defence Ministerial Dialogue, the National Security Advisers' dialogue, the '2+2' Dialogue (between the foreign and defence secretaries), the Defence Policy Dialogue, and the Service-to-Service staff talks — relating to interactions in the security sphere — along with robust interactions between the respective foreign ministers and finance ministers, among others.

As for economic interactions, India and Japan had hoped that bilateral trade, which was worth about US$ 3.6 billion in 2000–01 and just over $10 billion during 2009–10, will reach US$ 20 billion by 2020. Negotiations for a comprehensive economic partnership agreement (CEPA) were completed in October 2010, and the agreement was signed in February 2011. Bilateral trade stood at US$ 17.7 billion in 2018–19, with imports from Japan being more than double the exports from India. India is also the largest recipient of Japan's overseas development assistance (ODA) loans and grants. In 2015–16, these grants and loans totalled over INR 20,000 crores, while the amount of ODA assistance during 2011–15 stood at US$ 7554.59 million.[12]

Japan is involved in massive infrastructural and connectivity projects like the Delhi-Mumbai Industrial Corridor (DMIC), the Chennai-Bengaluru Industrial Corridor (CBIC), the Mumbai Ahmedabad High Speed Railway (MAHSR), the Western Dedicated Freight Corridor (DFC), among a host of other initiatives, indicating the wide ranging economic partnership between the two countries. The Delhi Metro is

[12] See MOFA, 'Amount of DAC Countries' and International Organizations' ODA Disbursements to India', at https://www.mofa.go.jp/files/000142555.pdf (Accessed October 4, 2018).

a shining example of Japanese assistance to India. During the visit of Prime Minister Modi in August-September 2014, Japan 'expressed its intention to invest 3.5 trillion yen (US$ 33 billion) of public-private investment in India over the next five year period as well as to double the number of Japanese companies operating in India (1229 as of October 2015) under the India-Japan Investment Promotion Partnership'.[13]

Japan and India hold similar views on such critical policy positions as those relating to freedom of navigation, the protection of sea lanes of communication (SLOC), and the importance of a rules-based global order. Both countries, along with Australia and the USA, make up the 'Quad' group of countries (originally an idea that was proposed by Prime Minister Abe in 2006, with the first meeting of the grouping taking place in May 2007) holding occasional dialogues on issues of common interest and concern.

Trilateral interactions between India, Japan, as well as the USA and India, Japan, and Australia also helps build congruence on regional political and security issues. For instance, the Japan-India-Australia Trilateral Dialogue at the Secretary/Vice-Minister level was held in Tokyo in February 2016, while the inaugural India-US-Japan Trilateral Ministerial Dialogue was held in New York on September 29, 2015. These countries have begun to engage in bilateral/multi-lateral military exercises like the Malabar, among others, frequently. Japan participated for the first time in the Malabar naval exercises (along with the USA) in October 2015. In October 2018, Japanese Maritime Self Defence Force (JMSDF) ships sailed to Visakhapatnam to participate in the third edition of the India-Japan maritime exercises, JIMEX 18.

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[13] Rajya Sabha, Unstarred Question No.196, 'Impact of Prime Minister's visit to Japan', February 25, 2016, at https://www.mea.gov.in/rajya-sabha.htm?dtl/26422/q+no196+impact+of+prime+ministers+visit+to+japan (Accessed September 21, 2018).

Despite the above noted convergences on bilateral and regional issues spanning economics and security, the decade it took to conclude the NCA is reflective of the enormity of the effort invested by India to bridge the policy divides flowing out of long-held orthodoxies to mutual benefit.

JAPAN'S NUCLEAR POLICY POSITIONS

As the only nation on earth that has suffered atomic bombings on the cities of Hiroshima and Nagasaki during the closing stages of World War II, Japan's nuclear policy positions have carried a lot of moral and political weight. Given the enormous death and destruction that Japan witnessed during that war, its American-imposed constitution — also called the 'Peace Constitution', which came into effect in May 1947, in Article 9, — affirmed that the 'Japanese people forever renounce war as a sovereign right of the nation and the threat or use of force as means of settling international disputes'.[14] Furthermore, the 1955 Atomic Energy Basic Law restricts Japan to exclusively peaceful uses of nuclear energy, with the Japan Atomic Energy Agency founded in 1956 tasked with the responsibility to do so.

However, the challenging security contexts in East Asia in general, and in Northeast Asia in particular — especially so after the Chinese nuclear test of October 1964 — made Japanese policy makers acutely conscious of the role nuclear weapons was occupying in the security dynamics of the region. Japanese government agencies conducted two reviews in 1968 (in the context of the entry into force of the NPT, and ahead of the 10 year renewal of the 1960 Japan-US security treaty) and in 1995 (in the aftermath of developments arising out of North Korea's withdrawal from the NPT in March 1993 as well as in the context of the indefinite extension of the NPT in 1995) as to the feasibility and suitability of a nuclear weapons arsenal for Japan. Both reports

[14] See 'The Constitution of Japan', November 3, 1946, at https://japan.kantei.go.jp/constitution_and_government_of_japan/constitution_e.html (Accessed September 24, 2018).

concluded that, given the presence of the American extended nuclear deterrent, an overt nuclear weapons posture would negatively affect Japan's security posture, and that the political and economic costs would be too high to bear for Japan.[15]

In the Treaty of Mutual Cooperation and Security between the USA and Japan, signed in September 1951, and updated in January 1960, both the parties, in Article III, pledged 'individually and in cooperation with each other, by means of continuous and effective self-help and mutual aid', to 'maintain and develop, subject to their constitutional provisions, their capacities to resist armed attack'. In Article V, Japan and the USA recognised

> that an armed attack against either Party in the territories under the administration of Japan would be dangerous to its own peace and safety, and declare[d] that it would act to meet the common danger in accordance with its constitutional provisions and processes.[16]

While it was not explicitly clear in the Treaty if the USA would come to Japan's 'mutual aid' to 'meet common danger' in response to both conventional and/or a nuclear attack on Japanese territory, US President Lyndon Johnson, in response to queries by Prime Minister Eisaku Sato during summit meetings in 1964, confirmed subsequently that it will indeed do so.[17] In the light of US clarifications that it had Japan covered

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[15] See Yuri Kase, 'The costs and benefits of Japan's nuclearisation: An insight into the 1968/1970 internal report', *Non Proliferation Review*, Summer 2001, pp. 55–68; See also, Michael J. Green and Katsuhisa Furukawa, 'New Ambitions, Old Obstacles: Japan and Its Search for an Arms Control Strategy', *Arms Control Today*, 30(6), July/August 2000, pp. 17–24, at https://www.armscontrol.org/act/2000_07-08/japanjulaug (Accessed September 7, 2018).

[16] Text of the treaty available at https://www.mofa.go.jp/region/n-america/us/q&a/ref/1.html (Accessed September 2, 2018).

[17] Kusunoki Ayako, 'The Satô Cabinet and the Making of Japan's Non-Nuclear Policy', *The Journal of American-East Asian Relations*, Vol. 15, 2008, pp. 31-32.

under its extended nuclear deterrent umbrella, Prime Minister Sato, in January 1968, articulated the key tenets of Japan's nuclear policy in the Diet, Japan's Parliament, which was later passed as a resolution in 1971 (but, as analysts note, without the sanction of the law).

The key tenets include the following: a) develop atomic energy for peaceful purposes; b) promote nuclear disarmament around the world; c) refrain from possessing, producing, or bringing nuclear weapons into Japan; and d) rely on the US nuclear umbrella for deterrence against all forms of nuclear attack.[18] The non-possession, non-production, and non-introduction pledge constituting the third tenet is popularly cited as making up the essential elements of Japan's non-nuclear policy.

Japan signed the NPT on February 3, 1970, and ratified it in June 1976. India's nuclear test of May 1974 added additional layers of complexity to the Japanese debate on the ratification of the NPT. Analysts note that the nuclear policy choices of the Sato Cabinet (1964–72), which included the signing of the NPT and securing an agreement with the USA to keep Okinawa nuclear-weapons free, apart from articulating Japan's non-nuclear principles, were necessitated by the imperative of balancing domestic political constituencies (for instance, with former Prime Minister Kishi Nobusuke in 1957 calling for Japan to go nuclear as a defensive measure, and hence in tune with the provisions of the Constitution), and national security considerations (the threat from China, and the distrust of Soviet and Chinese commitments towards nuclear disarmament, among others).[19]

In recent times, Japan has continued to weather occasional flux surrounding its nuclear policy positions, not just in relation to issues like nuclear cooperation with countries like India, but also as they have pertained to its own security choices. This was either due to North

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[18] Cited in Daniel I. Okimoto, 'Japan's Non-Nuclear Policy: The Problem of the NPT', *Asian Survey*, 15(4), April 1975, p. 313.

[19] Ayako, 'The Satô Cabinet and the Making of Japan's Non-Nuclear Policy', n. 17.

Korea's regional behaviour, or the debates pertaining to nuclear weapons in its journey towards being a 'normal' nation state, unencumbered by the constraints of the American-imposed constitutional provisions on its armed forces.

When the Democratic Peoples' Republic of Korea (DPRK) withdrew from the NPT in January 2003 (for the second time after its 1993 withdrawal), and embarked on a path of nuclear and missile brinkmanship, Japan viewed it as 'an extremely serious threat to peace and security not only for Japan but also for the East Asian region and the entire international community'.[20] Japan has been a critical participant in such formats like the Six Party Talks (held between 2003–2009) and at the United Nations, working to ensure that strong sanctions measures were put in place to constrain North Korea's behaviour.

An amendment to the Atomic Energy Basic Law in June 2012, introduced by a member of the LDP in the process of passing legislation to set up a new nuclear regulatory body in the aftermath of Fukushima, added the following clause as an appendix to the Basic Law: 'The safe use of atomic power is aimed at contributing to the protection of the people's lives, health and property, environmental conservation and national security'.[21] The use of the term 'national security' sets off debates domestically as well as in the Republic of Korea (RoK) about whether Japan wanted to keep open the possibility of acquiring nuclear arms. The government on its part denied such intentions, with Foreign Minister

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[20] See, MOFA, 'Japan's disarmament and non-proliferation policy', March 2008, 4th Edition, at https://www.mofa.go.jp/policy/un/disarmament/policy/pamph0812/1-1.pdf (Accessed September 14, 2018).

[21] Daniel Joyner, 'Japan's Nuclear Law and National Security', July 24, 2012, at https://armscontrollaw.com/2012/07/24/japans-nuclear-law-and-national-security/ (Accessed September 1, 2018); also see, Shamshad Ahmed Khan, 'Japan's (un)clear nuclear ambition', July 11, 2012, at https://idsa.in/idsacomments/Japansclearnuclearambition_sakhan_110712 (Accessed September 1, 2018).

Koichiro Gemba insisting that 'Japan's policy of not possessing nuclear weapons is unwavering'.[22]

Meanwhile, Japan's enormous plutonium stocks have continued to be the subject of much debate regarding Japan's nuclear intentions. Japan is the only state not possessing nuclear weapons that has re-processed spent fuel (at the Tokai Mura re-processing plant between 1981 and 2006; the massive Rokkosho plant is scheduled to become operational in 2022) — a point of contention with countries like South Korea also demanding similar privileges.[23] Reports in July 2018 noted that these stocks had reached 47 tonnes (with 37 tonnes stored in the UK and France for the purposes of reprocessing).[24] Some analysts believe that Tokyo was just a 'screw driver away', or 'six months away' from building a nuclear bomb of its own, if it makes the political decision to go on that path.[25] Others, like Jeffrey Lewis, note that such timeframes are most often than not misleading, as they are based on unverified/unnamed sources.[26]

Further, the IAEA spends the largest resources, in terms of money as well as personnel, in ensuring the exclusively peaceful nature of the Japanese nuclear programme. The IAEA drew a 'broader conclusion'

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22 MOFA, 'Press Conference by Minister for Foreign Affairs Koichiro Gemba', June 26, 2012, at https://www.mofa.go.jp/announce/fm_press/2012/6/0626_01.html (Accessed September 2, 2018).

23 Asahi Shimbun, 'Symposium: Japan's massive stockpile of plutonium casts shadow over non-proliferation efforts', January 10, 2014, at http://ajw.asahi.com/article/behind_news/AJ201401050011 (Accessed September 2, 2018).

24 Editorial, 'Reducing Japan's plutonium stock', July 7, 2018, at https://www.japantimes.co.jp/opinion/2018/07/07/editorials/reducing-japans-plutonium-stock/#.W73krdczbIU (Accessed September 2, 2018).

25 See for instance, Dennis Lee, 'A nuclear Japan: The push for weaponisation', *Harvard International Review*, August 20, 2013, at http://hir.harvard.edu/article/?a=10370 (Accessed September 2, 2018).

26 Jeffrey Lewis, 'How Long for Japan to Build a Deterrent?', December 28, 2006, at https://www.armscontrolwonk.com/archive/201339/japans-nuclear-status/ (Accessed September 2, 2018).

— verifying the 'completeness' (absence of undeclared nuclear activities in a NPT member state) and 'correctness' (non-diversion of nuclear material from declared nuclear activities) of Japan's nuclear activities, for the first time in 2004, which has since been renewed every year. However, it is widely accepted that Japan 'has accumulated a wide range of experience and expertise in satellite systems, rockets, and plutonium recycling. These capabilities function already as a "virtual deterrent" against other nuclear powers …'[27]

Meanwhile, the Rokkosho reprocessing plant is scheduled for completion by 2022, instead of the earlier time frame of 2018, with reports noting that the delay was due to the imposition of additional regulatory requirements.[28] Such plants are an issue of proliferation concern, as re-processing of spent fuel would lead to the accumulation of weapons-grade plutonium in Japanese hands. While such plutonium will continue to be under IAEA safeguards, Japan will have access to larger quantities of weapons-grade plutonium in case it takes the political decision to build the bomb — for instance, by leaving the NPT and nullifying its safeguards requirements with the IAEA. Currently, the majority of spent fuel from Japan's atomic power plants is stored onsite at French and British re-processing plants.

Further, analysts like Jacques Hymans argue that the large number of 'nuclear veto players' make it 'extremely difficult to change — and next to impossible to change quickly or quietly' extant Japanese nuclear policy.[29] These veto players for Hymans have, over the years, included the Japanese Atomic Energy Agency (JAEA), private industry — including electrical power utilities which, Hymans notes, actually 'own'

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[27] Green and Furukawa, 'New Ambitions, Old Obstacles: Japan and Its Search for an Arms Control Strategy', n. 15, p. 19.

[28] World Nuclear News, 'Further delay to completion of Rokkasho facilities', December 28, 2017, at http://www.world-nuclear-news.org/WR-Further-delay-to-completion-of-Rokkasho-facilities-2812174.html (Accessed September 20, 2018).

[29] Jacques E.C. Hymans, 'Veto Players, Nuclear Energy, and Non-proliferation: Domestic Institutional Barriers to a Japanese Bomb', *International Security*, 36(2), Fall 2011, pp. 154–189.

most of Japan's plutonium and not the government, and heavy industry (which has, since the 2006 takeover of Westinghouse by Toshiba, become the 'epicentre of global nuclear industry'), bottom-up opposition to nuclear power expansion as exercised by prefectural governors, among others.

While Japan was contemplating a variety of solutions to deal with the issue of spent fuel and disposal of radio-active waste pertaining to its enormous civil nuclear programme, in the aftermath of the Fukushima disaster (which resulted due to the Great East Japan earthquake in March 2011), voices urging Japan to get away from its nuclear power path were strongly raised. For instance, the proportion of the populace that wanted to shut down all nuclear power plants rose from 13 per cent in June 2011 to over 30 per cent in March 2013. Over 80 per cent believed in the possibility of serious nuclear accidents again occurring in Japan, if nuclear plants were re-started.[30]

The JAEA acknowledges that 'the accident greatly increased the level of distrust and anxiety about nuclear energy, not just in Japan, but also all over the world, causing a major shift in nuclear energy policies'.[31] It is interesting to note that one of the arguments of those in favour of continuing with the civilian nuclear power programme, like that of former Defence Minister Ishiba Shigeru of the LDP, is that commercial nuclear reactors are a 'tacit nuclear deterrent'.[32]

JAPAN AND INDIA'S NUCLEAR POLICY CHOICES

After India's first nuclear test on May 18, 1974, analysts note that all of Japan's main political parties sent letters of censure the very next day,

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[30] Cited in Tatsujiro Suzuki, 'Nuclear energy policy issues in Japan after the Fukushima nuclear accident', in Peter Van Ness and Mel Gurtov (eds.), *Learning from Fukushima: Nuclear power in East Asia*, ANU Press, 2017, p. 13.

[31] JAEC, 'Basic policy for nuclear energy', July 20, 2017, at http://www.aec.go.jp/jicst/NC/about/kettei/kettei170720_e.pdf (Accessed September 20, 2018).

[32] Cited in Fintan Hoey, 'Japan and Extended Nuclear Deterrence: Security and Non-proliferation', *The Journal of Strategic Studies*, 39(4), 2016, p. 485.

while the Japanese Parliament passed a protest resolution on May 20 itself, followed by the Foreign Ministry deciding not to grant any increases in the amount of ODA assistance to India, in tune with the Agency's charter, from that it granted in 1973.[33] Similarly, after May 1998, Japan strongly condemned India's tests, co-sponsored Resolution 1172 (along with Sweden, Costa Rica, and Slovenia), which was passed overwhelmingly by the United Nations Security Council (UNSC) on June 6, 1998, as well as imposed trade and technology sanctions against India and Pakistan. In his statement during the passing of Resolution 1172, Japan's Ambassador to the UN, Hisashi Owada, insisted that 'the risk of nuclear confrontation between the two countries could produce serious implications for the maintenance of international peace and security beyond the South Asian region'.[34]

Chief Cabinet Secretary, Kanezo Muraoka, after the first round of tests on May 11, told presspersons that Japan was 'deeply concerned about the potential harm to the stability of the region caused by the Indian nuclear testing', and announced a series of measures in protest. These included freezing all grant assistance, except that related to humanitarian or emergency purposes, and the withdrawal of the offer to host the India Development Forum (IDF), which was scheduled to be held in Tokyo under the aegis of the World Bank in end June 1998. After the second round of tests on May 13, Japan froze all yen loans to new projects, and pledged to 'examine cautiously loans extended to India by international financial institutions'.[35]

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[33] Okimoto, 'Japan's Non-Nuclear Policy: The Problem of the NPT', n. 18, pp. 319–320.

[34] UN, 'Security Council condemns Nuclear Tests by India and Pakistan', June 6, 1998, at https://www.un.org/press/en/1998/sc6528.doc.htm (Accessed September 7, 2018).

[35] MOFA, 'Comment by Chief Cabinet Secretary Kanezo Muraoka on the nuclear tests conducted by the Republic of India', May 15, 1998, at https://www.mofa.go.jp/announce/press/1998/5/515.html#1 (Accessed September 4, 2018).

Writing two years after the tests in the journal *Seminar*, while serving at the Indian Embassy in Tokyo at that time, External Affairs Minister Subrahmanyam Jaishankar noted that, 'the Japanese reaction to the Indian nuclear tests was surprisingly swift and exceptionally harsh', especially when compared to their reaction to the Chinese nuclear test in 1995, when only a 'part of the grant aid' was frozen.[36] For instance, while terming the August 17, 1995 Chinese test as 'extremely regrettable', Japan's Chief Cabinet Secretary added that 'Japan will have to cope with its future economic cooperation with China restrainedly, taking account of the present nuclear testing as well as part of our policy considerations'.[37]

In the aftermath of the October 1994 nuclear test by China, which followed the June 1994 test, Japan — Chair of the Ad Hoc Committee on a Nuclear Test Ban at the Conference on Disarmament (CD) — just 'conveyed its regret'.[38] After the May 17, 1995 nuclear test — most pertinently conducted by China just five days after the indefinite extension of the NPT in New York — the Ministry of Foreign Affairs (MOFA) spokesperson insisted that while Tokyo had conveyed its 'strong feelings' to Beijing on this issue, he also added 'We are not imposing any sanctions at all. We are sincerely hoping that our feelings should be well understood by the Chinese Government'.[39]

In the aftermath of India's May 1998 nuclear tests, Japan convened the 'Tokyo Forum' in August 1998 to discuss non-proliferation and

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[36] S. Jaishankar, 'India-Japan relations after Pokhran II', *Seminar*, at http://www.india-seminar.com/2000/487/487%20jaishankar.htm (Accessed September 20, 2018).

[37] MOFA, 'Comment by the Chief Cabinet Secretary on China's Nuclear Testing', August 17, 1995, at https://www.mofa.go.jp/announce/announce/archive_2/nuclear.html (Accessed September 4, 2018).

[38] MOFA, 'Diplomatic Bluebook 1993', at https://www.mofa.go.jp/policy/other/bluebook/1993/1993-2-2.htm (Accessed September 5, 2018).

[39] MOFA, 'Press conference by Press Secretary', May 23, 1995, at https://www.mofa.go.jp/announce/press/1995/5/523.html#3 (Accessed September 5, 2018).

disarmament issues. The Forum held four meetings between August 1998 and July 1999. Interestingly, analysts note that Japan had to convene the forum on its own accord after its efforts to be part of the UNSC permanent members meeting in Geneva on June 4, 1998, to discuss the situation arising out of the South Asian nuclear tests, were rebuffed by the US State Department. This was ostensibly on account of the fact that Japan's call for nuclear weapon states (NWS) to lay greater emphasis on their nuclear disarmament obligations as contained in Article VI of the NPT was viewed as echoing 'India's rhetoric and created unease in the [State] department'.[40]

In its final report of July 25, 1999, the Tokyo Forum, rather expansively, urged India and Pakistan to do the following:

> maintain a moratorium on nuclear testing; sign and ratify the Comprehensive Nuclear-Test-Ban Treaty; support prompt negotiation of a Fissile Material Cut-off Treaty; adopt and properly implement nuclear risk-reduction measures; suspend missile flight tests; confirm pledges to restrain nuclear and missile-related exports; cease provocative actions; and take steps to resolve the Kashmir dispute. In the long term, we urge India and Pakistan to accede to the Treaty on the Non-Proliferation of Nuclear Weapons as non-nuclear-weapon states.[41]

For Indian policy makers like Jaishankar, the reference to the Kashmir issue was part of Tokyo's 'vehement' international campaign, which unfortunately equated India with Pakistan (despite the latter's well known covert proliferation links with China), and ignored India's security

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[40] Green and Furukawa, 'New Ambitions, Old Obstacles: Japan and Its Search for an Arms Control Strategy', n. 15, p. 20.

[41] MOFA, 'Key recommendations', *Facing Nuclear Dangers: An Action Plan for the 21st Century*, The Report of the Tokyo Forum for Nuclear Non-Proliferation and Disarmament, July 25, 1999, at https://www.mofa.go.jp/policy/un/disarmament/forum/tokyo9907/key.html (Accessed September 4, 2018).

considerations which underpinned the nuclear tests. At the G8 Summit in Birmingham on May 17, 1998, Prime Minister Ryutaro Hashimoto was quoted as stating that 'countries that obey international community rules should be rewarded while those that do not should be punished'.[42]

Japan also took the lead in setting up the South Asia Task Force (SATF) of the G8 Foreign Ministers. Apart from officials of the G8 (including the EU), the other countries that participated in the Task Force meetings (chaired by Japan) included Argentina, Australia, Brazil, China, Ukraine, and the Republic of Korea.[43] Even during the 1999 Kargil conflict, at variance with the reactions from other G8 countries, Jaishankar writes that the 'Japanese approach put India and Pakistan on par, ignoring the central fact that the Line of Control had been violated …'[44]

The restrictions on yen loans for new projects were finally removed on October 26, 2001, in the aftermath of 9/11, when Japan recognised that it was 'vitally important that Pakistan remains stable and cooperative with the international society in this combat against terrorism'.[45] Satu Limaye writes that Japanese international activism in the aftermath of the South Asian tests was motivated by 'diplomatic and major power ambitions' (hence the desire to 'act' like a major power by trying to mediate on contentious issues between India and Pakistan, like Kashmir) as well as domestic considerations, flowing out of its unique nuclear history.[46]

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[42] Cited in Jaishankar, 'India-Japan relations after Pokhran II', n. 36.

[43] MOFA, 'The Third Meeting of the Senior Officials Task Force on Nuclear Tests by India and Pakistan', February 5, 1999, at http://www.mofa.go.jp/announce/announce/1999/2/205.html (Accessed September 4, 2018).

[44] Jaishankar, 'India-Japan relations after Pokhran II', n. 36.

[45] MOFA, 'Announcement by the Chief Cabinet Secretary on Discontinuation of Measures in Response to Nuclear Testing Conducted by India and Pakistan', October 26, 2001, at https://www.mofa.go.jp/region/asia-paci/india/announce0110.html (Accessed September 4, 2018).

[46] Satu P. Limaye, 'Tokyo's Dynamic Diplomacy: Japan and the Subcontinent's Nuclear Tests', *Contemporary Southeast Asia*, 22(2), August 2000, p. 327.

Japan has, since then, been regularly calling on India (along with Pakistan and Israel) to join the NPT as it believes that 'remain[ing] outside of the NPT regime weakens the value of the NPT as a norm'.[47] Japan has also followed strict export control polices to prevent the dissipation of Japanese nuclear or dual-use technologies to countries like India and Pakistan. The MOFA's document on Japan's disarmament and non-proliferation policy (March 2008) notes that care was taken even on such issues as the granting of visas to nuclear-related engineers from India and Pakistan.[48]

During the visit of Prime Minister Modi in September 2014, the Government of Japan, among other decisions, decided to remove six of India's space and defence-related entities from Japan's Foreign End User List. These included the Aeronautical Defence Establishment (ADE), the Defence Metallurgical Research Laboratory (DMRL), the Defence Research and Development Laboratory (DRDL), the Hindustan Aeronautics Limited (HAL), the Research Centre Imarat (RCI), and the Vikram Sarabhai Space Centre (VSSC).[49]

Earlier, in June 2010, 11 out of 26 entities were removed from the foreign end user entities list. These were Bharat Electronics Limited (BEL), the Centre for Advanced Technology, the Defence Research and Development Organisation, Godrej and Boyce Manufacturing, the ISRO Inertial Systems Unit, the ISRO Telemetry, the Tracking and Command Network, the National Aerospace Laboratories, the Nuclear Fuel Complex (NFC), the Nuclear Power Corporation of India (NPCIL), Rashtriya Chemicals and Fertilisers Ltd (RCF), and Terminal Ballistics Research Laboratory (TBRL).[50] Later, in September 2011,

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47 MOFA, 'Japan's disarmament and non-proliferation policy', n. 20.

48 Ibid.

49 The notification regarding removal of the six entities is available at http://www.meti.go.jp/policy/anpo/law_document/tutatu/140917kaisei/eibun.pdf (Accessed September 14, 2018).

50 Nirmala Ganapathy, 'ISRO, Godrej, BEL off Japan's blacklist', June 2, 2010, at https://economictimes.indiatimes.com/news/economy/foreign-trade/isro-godrej-bel-off-japans-blacklist/articleshow/6000880.cms (Accessed September 4, 2018).

seven more Indian entities were removed from the list, while entities like the ADE were added in 2010 (subsequently removed in September 2014).[51]

Currently, four entities of the Department of Atomic Energy (DAE) — the Bhabha Atomic Energy Centre (BARC), the Thal Heavy Water Board (HWB) facility, the Directorate of Purchase and Stores, and the Indira Gandhi Centre for Atomic Research (IGCAR), continue to be on the Japanese Foreign End User List.[52] The Ministry of Economy, Trade, and Industry (METI) notes that the 'presence on the list provides exporters with referential information on foreign entities for which concern cannot be eliminated regarding involvement in activities such as the development of weapons of mass destruction and other items'.[53]

In the aftermath of the Indo-US nuclear deal, the first Joint Secretary/Director General-level Annual Dialogue on Disarmament and Non-Proliferation between India and Japan was held in New Delhi in May 2006. Meanwhile, Prime Minister Manmohan Singh's visit to Japan in December 2006 was the first high level interaction between the two sides after the India-US Joint Statement of July 2005. Both sides affirmed that they were 'partners against proliferation', held that nuclear energy was a 'safe, sustainable and non-polluting source of energy in meeting the rising global demands for energy', and that 'international civil nuclear energy cooperation should be enhanced through constructive approaches under appropriate IAEA safeguards'.[54]

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51 'Japan drops seven more Indian companies from restricted list', September 1, 2011, at https://www.thehindu.com/news/national/japan-drops-seven-more-indian-companies-from-restricted-list/article2417353.ece (Accessed September 4, 2018).

52 METI, 'Review of the End User List', May 2, 2018, at http://www.meti.go.jp/press/2018/05/20180502001/20180502001-1.pdf (Accessed September 4, 2018).

53 Ibid.

54 MEA, 'Joint Statement Towards India-Japan Strategic and Global Partnership', December 15, 2006, at https://www.mea.gov.in/bilateral-documents.htm?dtl/6368/Joint_Statement_Towards_IndiaJapan_Strategic_and_Global_Partnership (Accessed October 4, 2018).

It is interesting to note that while the MOFA document on disarmament and non-proliferation, the fourth edition of which was released in March 2008, continued to insist that Japan is engaged in international civil cooperation only with those countries which had the comprehensive safeguards agreement (CSA) with the IAEA in place, while the December 2006 India-Japan Joint Statement noted above as well as the August 2007 Joint Statement only talks about 'appropriate IAEA safeguards'. As noted earlier, India concluded its safeguards agreement with the IAEA in February 2009, with some critics especially arguing against allowing India the discretion of placing current and future nuclear facilities under safeguards.[55]

At the same time, however, the March 2008 MOFA document affirms that,

> Japan understands the strategic significance of India and India's need to meet growing domestic energy demands … Japan intends to carefully take into account various factors, such as its implications for the international nuclear disarmament and non-proliferation regime and India's energy situation, and actively participate in the international discussions on this matter.[56]

Japan voted in favour of the September 6, 2008 decision to grant India the NSG exemption. Interacting with presspersons 10 days after the NSG decision, Foreign Minister Masahiko Komura stated that Japan took the decision in view of the 'overall situation' relating to India's growing GDP, the issue of global warming, the 'importance of India as a country', India maintaining 'its democratic system without any military coup', the record of 'properly manag[ing]' its nuclear resources, its moratorium on nuclear tests, as well as India agreeing for IAEA safeguards on its civilian nuclear reactors.[57] Negotiations between India

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55 Daryl G. Kimbal, Fred McGoldrick, and Lawrence Scheinman, 'IAEA-Indian Nuclear Safeguards Agreement: A Critical Analysis', *Arms Control Today*, July 30, 2008.

56 MOFA, 'Japan's disarmament and non-proliferation policy', n. 20.

57 MOFA, 'Press Conference by Minister for Foreign Affairs Masahiko Koumura', September 16, 2008, at https://www.mofa.go.jp/announce/fm_press/2008/9/0916.html (Accessed September 14, 2018).

and IAEA for a safeguards agreement had concluded by August 2008, and it was signed in February 2009.

Visiting New Delhi for talks with his counterpart S.M. Krishna for the 4th round of the India-Japan Strategic Dialogue in August 2010 (a few days ahead of the start of the first round of negotiations in June 2010 on the India-Japan NCA), Foreign Minister Katsuya Okada told press persons that the 'nuclear energy agreement with India is a very difficult issue, an issue for which it is not very easy to find answers'. He added that Japan had embarked on this path taking into consideration India's actions since the NSG exemption as well as in the backdrop of such issues as the need to mitigate climate change and address global warming concerns, bilateral relations between Japan and India, and Japan's energy and industrial policies.[58] The Japanese government continued to highlight these three considerations to justify its nuclear negotiations with India to its domestic audience.

Even after negotiations began between the two countries, the Japanese government continued to call on India (and Pakistan) to accede to the NPT as non-nuclear weapon states (NNWS) 'promptly and without conditions', at least till 2014.[59] While Japan has since then called on India to sign the Comprehensive Test Ban Treaty (CTBT), given that it is one of the eight states whose signature and ratification is essential for the CTBT to enter into force, it seems to have given up on urging India to join the NPT as a NNWS 'without conditions'.[60]

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[58] MOFA, 'Press Conference by Minister for Foreign Affairs Katsuya Okada', June 25, 2010, at https://www.mofa.go.jp/announce/fm_press/2010/6/0625_01.html (Accessed September 14, 2018).

[59] MOFA, 'Statement by H.E. Mr. Toshio Sano, Ambassador Extraordinary and Plenipotentiary, Delegation of Japan to the Conference on Disarmament, Geneva', May 1, 2014, at https://www.mofa.go.jp/files/000037362.pdf (Accessed September 14, 2018).

[60] See 'Statement by Nobushige Takamizawa, Ambassador of Japan to the Conference on Disarmament at the First Committee of the 72nd Session of the General Assembly, Thematic Debate: Nuclear Weapons', October 12, 2017, at https://www.disarm.emb-japan.go.jp/files/000300875.pdf (Accessed September 14, 2018).

The India-Japan NCA was achieved despite pressure and criticism from domestic constituencies opposed to such an agreement with India. Foreign Minister Katsuya Okada's remarks at his joint press conference with Foreign Minister Krishna in New Delhi in August 2010 indicate the huge gaps that had to be crossed before the deal could be consummated. Okada stated that 'the decision to launch the negotiations for the nuclear cooperation agreement was probably one of the toughest decisions that [he] had to make as Foreign Minister amongst the numerous decisions that I have made so far', and rhetorically enquired 'would it not run counter to that policy of Japan to seek a nuclear weapon free world, if we are to engage in nuclear cooperation with a country, India, that is not a member to [the] NPT?' He further stated that 'domestic criticism' to a possible nuclear deal with India was 'high', and that any future agreement will have to incorporate the 'philosophy of nuclear disarmament and non-proliferation'. He noted that Japan attaches importance to the efforts that India makes towards CTBT and FMCT.[61]

In the aftermath of the Fukushima disaster in March 2011, the meeting of the Nuclear Energy Working Group (NEWG), established as part of the India-Japan Energy Dialogue, was held in Tokyo in October 2012. Questions continued to be raised by the Japanese media as to the status and rationale for the negotiations with India on a NCA. In May 2013, MOFA's Deputy Press Secretary informed the press that India continuing to adhere to 'commitments and actions' pledged to the NSG is a 'pre-condition' for the continuation of civil nuclear cooperation between NSG countries like Japan and India.[62] These

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[61] MEA, 'Joint Press Interaction of EAM and FM of Japan', August 21, 2010, at https://www.mea.gov.in/bilateral-documents.htm?dtl/4426/Joint_Press_Interaction_of_EAM_and_FM_of_Japan (Accessed October 4, 2018).

[62] MOFA, 'Press Conference by Deputy Press Secretary Naoko Saiki', May 23, 2013, at https://www.mofa.go.jp/press/kaiken/kaiken24e_000004.html (Accessed September 14, 2018).

'commitments and actions' to the NSG included the separation of civilian nuclear facilities, the safeguards agreement with the IAEA, the signing of the Additional Protocol to the safeguards agreement, refraining from the transfer of enrichment and reprocessing technologies, an effective national export control system, harmonizing export control lists with NSG guidelines, continuing with the unilateral moratorium on nuclear testing, and the 'readiness to work with others' towards a fissile material control treaty (FMCT).[63]

The India Japan NCA encountered opposition from elements of the main opposition party, the Democratic Party of Japan (DPJ). The day it was passed, lawmaker Shinji Oguma argued in the Lower House of the Diet (May 16, 2017), that the NCA will only 'damage the credibility' of the NPT, and that it will be 'impossible in reality' for Japan to take back its nuclear equipment in case the deal is terminated if India conducts a nuclear test.[64] However, the ruling coalition — made up of the LDP and New Komeito Party — had an overwhelming majority in the 465 member House of Representatives (Lower House) with 312 members. In the 242 member House of Councillors (Upper House), the Abe government had 150 members.

After the two sides announced they had reached an agreement in December 2015, an Editorial in the *Mainichi* newspaper asserted that the Abe government has 'struggled to achieve a balance between its position as the only atomic-bombed country and its realistic benefits of helping Japanese companies enter the Indian nuclear energy market

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63 NSG, 'Statement on civil nuclear cooperation', at https://www.armscontrol.org/system/files/20080906_Final_NSG_Statement.pdf (Accessed September 4, 2018).

64 Reiji Yoshida, 'Diet endorses pact to export civil nuclear technology to India', *Japan Times*, June 7, 2017, at https://www.japantimes.co.jp/news/2017/06/07/national/diet-endorses-pact-export-civil-nuclear-technology-india/#.W8IU9tczbIU (Accessed September 14, 2018); See also 'Japan-India nuclear pact clears Lower House despite opposition concerns', *Japan Times*, May 16, 2017, at https://www.japantimes.co.jp/news/2017/05/16/national/politics-diplomacy/japan-india-nuclear-pact-clears-lower-house-despite-opposition-concerns/#.W8IXm9czbIU (Accessed September 14, 2018).

and keeping China in check'.[65] The paper was especially concerned that Japan's influence in the arena of nuclear disarmament and non-proliferation would be lost if Tokyo '[gave] tacit approval to India's possession of nuclear arms or facilitate nuclear proliferation'. Given that the India-Japan NCA does neither of these two, it was strange for the editorial to have expressed such concerns.

Japan Times termed it a 'risky nuclear deal' as it could 'compromise' Japan's position on North Korea, and 'reduce India's incentive' to join the NPT. Echoing *Mainichi*, it stated that the NCA with India, a de facto nuclear weapons state, was 'tantamount to Tokyo accepting the possession of nuclear weapons by a country that is not a party to the NPT, representing a major shift in Japan's nuclear policy'.[66] The editorial acknowledges that the move was conditioned by the 'desire of Japan's nuclear power industry, whose prospects in the domestic market were uncertain following the 2011 Fukushima crisis, to enter the growing market of nuclear power in India'. Ahead of the signing of the deal, the Mayors of Hiroshima and Nagasaki urged the Abe government to suspend negotiations, and urge India to ratify the NPT.[67] After the agreement was signed on November 11, 2016, *Mainichi* continued to be upset about the lack of incorporation of specific language in the agreement itself that would lead to the suspension of cooperation in the event that India conducted another nuclear test.[68]

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[65] 'Japan-India atomic cooperation agreement lacks guarantee for peaceful use', Editorial: *Mainichi*, December 16, 2015, at https://mainichi.jp/english/articles/20151216/p2a/00m/0na/007000c (Accessed September 14, 2018).

[66] 'The risky nuclear deal with India', Editorial, *Japan Times*, December 16, 2015, at https://www.japantimes.co.jp/opinion/2015/12/16/editorials/risky-nuclear-deal-india/#.W8IfY9czbIU (Accessed September 14, 2018).

[67] CNDP, 'Hiroshima and Nagasaki Mayors oppose India-Japan Nuclear Agreement', November 11, 2016, at https://www.cndpindia.org/hiroshima-nagasaki-mayors-oppose-india-japan-nuclear-agreement-statement-text/ (Accessed September 14, 2018).

[68] 'Editorial: Japan-India nuclear accord shows Japan's lacking will as A-bombed nation', *Mainichi*, November 12, 2016, at https://mainichi.jp/english/articles/20161112/p2a/00m/0na/004000c (Accessed September 14, 2018).

Meanwhile, Japan welcomed India becoming a member of the Hague Code of Conduct on June 1, 2016, and noted that 'it is in accordance with our nation's position' and that 'it will contribute to the reinforcement of the non-proliferation regime of the Asian region'.[69] Japan was a Co-rapporteur country in relation to India's application to become a member of the Wassenaar Arrangement (WA). India joined the grouping in December 2017 as the 42nd Participating state in a unanimous decision at the group's 23rd plenary meetings in Vienna. Japan welcomed the move as 'contribut[ing] to strengthening export controls on conventional arms and related dual-use goods and technologies in the Asian region'.[70] Japan also welcomed India's participation in the Australia Group as the group's 43rd member on January 19, 2018.[71]

Flux in the Japanese Nuclear Industry Post-Fukushima

The five decades-old Japanese nuclear energy industry faced its biggest challenge in the aftermath of the meltdown of reactors at the Fukushima Daichi nuclear power station of the Tokyo Electric Power Company (TEPCO). At the time of the accident, 55 operating nuclear plants accounted for 30 per cent of Japan's total electricity production. The government ordered the shutdown of all of Japan's nuclear power reactors, pending regulatory checks and balances. Japan's energy self-sufficiency fell down from 20 per cent in March 2011 to less than 6

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69 MOFA, 'India Becomes a Subscribing State to the Hague Code of Conduct against Ballistic Missile Proliferation (HCOC)', June 3, 2016, at https://www.mofa.go.jp/press/release/press4e_001168.html (Accessed September 25, 2018).

70 MOFA, 'India's participation in the Wassenaar Arrangement', December 8, 2017, at https://www.mofa.go.jp/press/release/press4e_001835.html (Accessed September 25, 2018).

71 MOFA, 'India's Participation in the Australia Group', January 22, 2018, at https://www.mofa.go.jp/press/release/press4e_001874.html (Accessed September 25, 2018).

per cent by 2014.[72] METI noted that Japan's energy self-sufficiency was 'the second lowest figure among 34 OECD countries'.[73]

Japan also had to foot huge additional foreign exchange for import of oil and gas from West Asian countries, among others. In the financial year 2011–12, Japan had to foot an additional bill of close to US$ 36 billion for import of energy due to the shutdown of nuclear power plants after Fukushima.[74] It is pertinent to note that the period post Fukushima also corresponded with the increased pressure of threat of European Union (EU) and US secondary sanctions on Iranian oil importing countries like Japan, China, and India.

A new nuclear regulatory authority (NRA) was established in October 2011. Nuclear power got a boost with the coming to power of the LDP, while the anti-nuclear DPJ (which pledged to wind down the role of nuclear energy in Japan's energy mix by 2040) lost heavily in the July 2013 general elections. Reports noted that the LDP won with big margins in each of the prefectures that had a nuclear power plant. The Shinzo Abe government, in the July 2017 'Basic Policy on Nuclear Energy' document has affirmed that even as the contribution of nuclear power to Japan's energy basket will continue to be reduced, nuclear energy will be an important 'base load' power source.

As on June 2018, of the 42 operable plants, 9 have begun operating after exhaustive safety reviews were conducted.[75] Nuclear energy is considered essential for Japan to achieve its Intended Nationally Determined Contribution (INDC) of 26 per cent reduction in carbon di-oxide emissions relative to the 2013 level (which was adopted at the

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[72] JAEC, 'Basic policy for nuclear energy', July 20, 2017, n. 31, p. 4.

[73] See also METI, 'Long term energy supply and demand outlook', July 2015, p. 3, at http://www.meti.go.jp/english/press/2015/pdf/0716_01a.pdf (Accessed September 28, 2018).

[74] Suzuki, 'Nuclear energy policy issues in Japan after the Fukushima nuclear accident', n. 30, p. 14.

[75] JAEC, 'Basic policy for nuclear energy', July 6, 2018, at http://www.aec.go.jp/jicst/NC/about/kettei/180706.pdf (Accessed September 28, 2018).

Paris Climate Change Summit in 2015) as well as reduce the huge import bill on oil and gas. In its July 2015 report 'Long Term Energy Supply and Demand Outlook', METI noted that even as geo-thermal, hydro, and bio-mass among other sources are expected to reduce Japan's dependence on nuclear power, it is still expected to account for 'approximately 20–22 per cent' of electricity production in 2030, down from the 30 per cent levels at the time of the Fukushima Daichi accident.[76]

Therefore, for reasons of climate change mitigation, ensuring energy self-sufficiency as well as reducing energy dependency, nuclear power is expected to continue to play an important role in Japan's energy mix. However, as of mid-2018, apart from the 42 operable nuclear power plants, only two reactors are under construction in Japan. Nine reactors are being planned, and three more have been proposed. Even as Japan was having a very difficult national conversation regarding nuclear power in the aftermath of Fukushima, countries like Germany, Italy, and Switzerland decided to gradually lessen their dependence on nuclear energy, even as countries in Asia (China and India primarily) have continued on their nuclear journey.

Thus, given the above dynamics, the business prospects for the Japanese nuclear energy industry in countries like India have been an important part of the debate post Fukushima. Analysts note that one of the drivers of successive Japanese government's policy outlook towards India was the need to ensure nuclear energy exports to maintain the business prospects of the Japanese industry. For instance, the DPJ government, which began nuclear negotiations with India in July 2010, viewed the export of nuclear plants as part of its economic growth strategy. Even as this imperative gained greater traction in the aftermath of Fukushima, Japanese nuclear plant manufacturers have gone through a significant amount of flux due to a combination of reduced business prospects domestically as well as in countries like the USA, compounded by bad business decisions relating to mergers and acquisitions, among others.

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[76] METI, 'Long term energy supply and demand outlook', July 2015, n. 73, p. 7.

Toshiba-Westinghouse

The travails of Toshiba-Westinghouse clearly illustrate the problems of the Japanese nuclear industry in the light of diminished business prospects post Fukushima. Toshiba took a 77 per cent stake of the US nuclear major Westinghouse, then owned by British Nuclear Fuels plc, in October 2006, in a deal worth US$ 5.4 billion, along with The Shaw Group, which took 20 per cent stake, and the remaining 3 per cent was held by the Ishikawajima-Harima Heavy Industries Co., Ltd (IHI). IHI manufactures a range of equipment related to nuclear power plant construction, including the containment pressure vessel, the reactor pressure vessel for both boiling water reactors (BWR) and pressurised water reactors (PWR). Toshiba subsequently sold off 10 per cent to Kazatomprom, while The Shaw Group Company's Nuclear Energy Holdings LLC (NEH) sold off its 20 per cent stake in the venture to Toshiba in October 2012, taking the Japanese major's stake in Westinghouse to 87 per cent.[77]

Analysts subsequently noted that the deal was highly over-valued. Westinghouse filed for bankruptcy protection a decade later, on March 29, 2017. Westinghouse's problems were the result of cost overruns, estimated to be over US$ 13 billion, relating to the building of four AP 1000 reactors in Georgia and South Carolina, respectively (the first nuclear power plants that were being built in the USA in over three decades).[78] Westinghouse had taken over the company building these reactors, Stone and Webster — the nuclear construction arm of Chicago Bridge and Iron (CB&I) — in October 2015, for US$ 229 million.

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[77] 'Toshiba cites as costly misstep purchase of Westinghouse, with ex-Baton Rouge partner The Shaw Group', *The Acadiana Advocate*, February 14, 2017, at https://www.theadvocate.com/acadiana/news/business/article_13d6a6dc-f2da-11e6-b2b8-473dcd353876.html (Accessed October 2, 2018).

[78] Jim Green, 'Update on the Toshiba/Westinghouse crisis', *Nuclear Monitor*, No. 843, May 10, 2017, at https://www.wiseinternational.org/nuclear-monitor/843/update-toshiba-westinghouse-crisis (Accessed October 2, 2018).

At the time of the acquisition of Stone and Webster, WEC stated that the vertical integration of Stone and Webster (given that both of them were already involved in building the four nuclear power plants but as separate entities) 'will support Westinghouse's growth in decontamination, decommissioning and remediation services; enhance the company's major nuclear project management and environmental services offerings; and add to its extensive innovation-driven engineering expertise'.[79] Stone and Webster was a part of The Shaw Group Company, which was acquired by CB & I in 2013 for US$ 3 billion. As noted above, The Shaw Group along with Toshiba had, in the first place, acquired Westinghouse in 2006.

The decision to acquire Stone and Webster was taken by Westinghouse to absolve the former's parent company (CB & I) of liability claims associated with cost overruns relating to the construction of nuclear power plants in Georgia and South Carolina, with the understanding that the electric utilities for whom the nuclear power plants were being built — South Carolina Electric & Gas Company (SCE&G) and Santee Cooper, South Carolina's state-owned electric and water utility — would not pursue lawsuits relating to delay in completing the projects. At the time of entering into the agreement, analysts note that Westinghouse valued Stone and Webster's working capital at over US$ 1 billion, with a clause stating that, at the time of closing the deal, if the figure was higher, Westinghouse would have to pay the additional 'post-closing costs' and, if lower, CB & I will have to pay the difference.

Later, Westinghouse charged CB & I of misrepresenting the firm's financials and demanded more than double that amount from CB & I.[80] CB & I meanwhile discounted Westinghouse's calculations and,

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[79] 'Westinghouse acquires CB&I Stone & Webster, Inc.', October 27, 2015, at http://www.westinghousenuclear.com/About/News/View/Westinghouse-Acquires-CB-I-Stone-Webster-Inc (Accessed October 2, 2018).

[80] Anya Litvak, 'Court rules against Westinghouse in nuclear acquisition deal', *Pittsburgh Post-Gazette*, June 28, 2017, at http://www.post-gazette.com/business/powersource/2017/06/27/westinghouse-bankruptcy-news-stone-webster-acquisition-chicago-bridge-iron-nuclear-power-plants-toshiba/stories/201706280068 (Accessed October 4, 2018).

instead, held that it was in fact owed US$ 428 million by Westinghouse.[81] In a big blow to Westinghouse, the Delaware Supreme Court (analysts note it is one of the few Courts of Chancery in the USA with jurisdiction over equity cases) in June 2017 ordered that the nuclear major could only seek an additional amount of US$ 70 million from CB & I.

Apart from its disastrous deal relating to Stone and Webster, the shares of Toshiba crashed in mid-2016 after the Japanese major announced that it would write-down (reduction in the estimated value of a company/entity) Westinghouse's nuclear reactor construction business (which it bought for US$ 5.3 billion in 2006) by US$ 2.3 billion.[82] Analysts noted that Toshiba's plan for Westinghouse when it agreed to pay over US$ 5 billion factored in the possibility of the company being able to secure contracts for as many as 45 new nuclear reactors over the next 15 years.[83]

The financial problems stemming from Westinghouse's bad acquisition decision of Stone and Webster, on top of Toshiba's over-valued acquisition of Westinghouse in 2006 — which was made worse by the downturn in the global nuclear industry business after Fukushima in March 2011 — followed the 2015 accounting scandal for the Japanese behemoth. Japanese regulators charged that Toshiba had inflated profits every year by as much as US$ 1 billion during 2008–2014. This scandal

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[81] Anya Litvak, 'Westinghouse scraps acquisition deal as parent company struggles', *Pittsburgh Post-Gazette*, January 21, 2017, at http://www.post-gazette.com/business/powersource/2017/01/21/westinghouse-scraps-acquisition-deal-as-parent-company-struggles/stories/201701210038 (Accessed October 4, 2018).

[82] 'Toshiba shares crash as nuclear write-down crisis deepens', BBC, January 19, 2017, at https://www.bbc.com/news/business-38674697 (Accessed October 8, 2018).

[83] Anya Litvak, 'Westinghouse worth $2.3 billion less, Toshiba says', *Pittsburgh Post-Gazette*, April 27, 2016, at http://www.post-gazette.com/business/powersource/2016/04/26/westinghouse-value-now-2-3-billion-less-toshiba-says/stories/201604260158 (Accessed October 14, 2018).

had led to the resignation of Toshiba's top management, including its Chief Executive Officer, among others, and to the downgrading of Toshiba's credit rating, which made it costlier to obtain loans for its businesses, which ranged from chip-making to railways.[84]

After Westinghouse filed for Chapter 11 bankruptcy in March 2017, its Chief Executive Officer, Jose Gutierrez, insisted that the move only related to the construction of the four reactors in Georgia and South Carolina, and was undertaken to 'reset the financial footprint' of the company. He continued to be hopeful of the AP 1000 designs garnering more business in countries like China, India, the UK and Turkey.[85] Four AP 1000 Generation III reactors are being built at Sanmen and Haiyang in China, while the company has provided 'technology and major equipment' for 20 nuclear power plants (14 in operation and six under construction) in South Korea.[86] Subsequently, in June 2018, Sanmen-I became the world's first AP 1000 reactor to achieve grid connection. Westinghouse's nuclear fuel business is also doing well, with 131 of the 450 reactors in operation in the world (nearly one-third) — including pressurised water, boiling water, and advanced gas-cooled reactors, using Westinghouse's nuclear fuel.[87]

In September 2017, Toshiba decided to sell 60 per cent of its leading chip business, Toshiba Memory — the world's second biggest maker of NAND chips after Samsung — to the US private equity firm Bain Capital, for US$ 18 billion, in order to recover liabilities arising out of

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[84] 'Toshiba chief executive resigns over scandal', *BBC*, July 21, 2015, at https://www.bbc.com/news/business-33605638 (Accessed October 14, 2018).

[85] 'Westinghouse aims for competitive future', May 25, 2017, at http://www.world-nuclear-news.org/Articles/Westinghouse-aims-for-competitive-future (Accessed October 14, 2018).

[86] See 'Westinghouse Asia', at http://www.westinghousenuclear.com/About/Regional-Operations/Asia (Accessed October 20, 2018).

[87] 'Innovation is key to industry's resilience, says Westinghouse', September 7, 2018, at http://www.world-nuclear-news.org/Articles/Innovation-is-key-to-nuclear-Industry,-says-Westin (Accessed October 4, 2018).

Westinghouse's bankruptcy.[88] After the bankruptcy filing, Toshiba paid US$ 3.68 billion to the owners of the Georgia nuclear power plant (where construction was not interrupted) in December 2017, and US$ 2.168 billion to the South Carolina owners (who decided to cease further construction of the two nuclear reactors) in January 2018.[89] After the settling of its obligations relating to the nuclear plants in the US, it was announced in January 2018 that Canada's Brookfield Business Partners (BBP) will buy Westinghouse for US$ 4.6 billion, as part of strategic restructuring mandated by the bankruptcy filing. The move was approved by the bankruptcy court of the Southern District of New York in March 2018.

Toshiba's existing businesses relate to the maintenance of Japan's domestic BWR facilities, elevators, train systems, and light systems. After getting out of the business of building full nuclear power reactors, and apart from maintenance work related to domestic reactors, Toshiba is also actively pursuing business opportunities in the supply of critical components for the nuclear industry. For instance, in October 2017, it concluded a MOU with Energoatom, the state-run nuclear power company of Ukraine which runs 15 nuclear power plants, and is building two more to supply turbine generators. Energoatom was seeking to replace the turbine generators at all of its reactors.[90]

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88 'Toshiba after the Westinghouse sale', January 5, 2018, at https://www.reuters.com/article/us-westinghouse-m-a-toshiba/explainer-toshiba-after-the-westinghouse-sale-idUSKBN1EU0S3 (Accessed October 14, 2018).

89 'Brookfield to buy Westinghouse for $4.6 billion', January 4, 2018, at http://www.world-nuclear-news.org/Articles/Brookfield-to-buy-Westinghouse-for-$4-6-billion (Accessed October 14, 2018); Toshiba Corporation, 'Regarding sale of Westinghouse-related assets held by Toshiba and the forecast for Toshiba's stakeholder's equity at the end of FY2017', January 18, 2018, at https://www.toshiba.co.jp/about/ir/en/news/20180118_1.pdf (Accessed October 14, 2018).

90 Toshio Kawada, 'Toshiba seeks deal in Ukraine to revive nuclear power business', *The Asahi Shimbun*, February 8, 2018, at http://www.asahi.com/ajw/articles/AJ201802080050.html (Accessed October 2, 2018).

Meanwhile, Toshiba America Energy Systems supplied steam turbine generators (STG) to the Georgia nuclear plant that is still being constructed. Reports in August 2018 noted that Toshiba, along with the Tokyo Electric Power Company (TEPCO) — the power utility responsible for Fukushima reactors, Hitachi and Chubu Electric Power Company —were planning to form an alliance to tap into the growing domestic as well as international market for nuclear power plant decommissioning and reactor maintenance work pertaining to BWRs in order to streamline costs as well as achieve better efficiencies.[91]

GE-Hitachi

The GE-Hitachi (GEH) business history also closely resembles the Toshiba-WEH story, with the decision to form the conglomerate taken barely a month after Toshiba acquired Westinghouse in October 2006. The company was incorporated in May 2007, with cross-shareholding companies formed in the USA (60 per cent GE; 40 per cent Hitachi), Canada, and Japan (80 per cent Hitachi; 20 per cent GE).[92] Both companies hoped to win at least close to 40 new nuclear orders by 2030, one quarter of the potential new orders that were expected globally, from countries like China, India, apart from the USA. Interestingly, these were tantalizingly close to the number of reactor orders that Toshiba-Westinghouse also hoped to secure when they formed their alliance.[93]

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[91] 'Japanese firms in talks over alliance on nuclear power: Sources', *Kyodo/Reuters*, August 22, 2018, at https://www.japantimes.co.jp/news/2018/08/22/business/corporate-business/japanese-firms-talks-alliance-nuclear-power-sources/#.W9Mc5tIzbIU (Accessed October 2, 2018).

[92] Hitachi, 'GE-Hitachi sign formation agreement for global nuclear energy business alliance', May 16, 2007, at http://www.hitachi.com/New/cnews/f_070516a.pdf (Accessed October 2, 2018).

[93] Daisuke Wakabayashi and Juro Osawa, 'Hitachi, GE Weigh Changes in Nuclear-Power Alliance', June 24, 2010, at https://www.wsj.com/articles/SB10001424052748704911704575326522226740104 (Accessed October 2, 2018).

Masaharu Hanyu, President of Hitachi-GE Nuclear Energy, was cited as stating that the two giants were 'coming together at the right time, at the right place and in the right circumstances'.[94] Unfortunately, events down the line could not have been farther from the initial expectations. GEH was offering BWRs, as against PWR's like rivals Toshiba-Westinghouse or France's Areva, which initially seemed to have better business prospects as compared to BWRs, at least prior to Fukushima. GEH (Canada) was sold off to BWXT Canada Ltd. in August 2016. The 1520 MWe economically simplified boiling water reactor (ESBWR) got US regulatory approval only in October 2014 — nearly three years after the US Nuclear Regulatory Commission (NRC) gave approval to Toshiba-Westinghouse's AP 1000 Gen III reactor (in December 2011). As of November 2018, no ESBWR is in construction anywhere in the world. The North Anna nuclear power plant Unit 3 in Virginia will be an ESBWR, as and when construction begins. The US NRC gave permission for the reactor in mid-2017.

KEY ELEMENTS OF THE INDIA-JAPAN NCA

The NCA, concluded on November 11, 2016, goes a long way in addressing the major concerns of the Japanese government and civil society organisations on the content of the NCA, including on the rights and obligations of each party if the Agreement needs to be terminated or cooperation needs to cease, prior to the expiration of the Agreement in 40 years —that is, on November 11, 2056. The Agreement can be extended for periods of 10 years each subsequently.

Article 14, the longest article of the Agreement with nine sub-paragraphs, deals with the termination of the NCA prior to the expiration or the cessation of cooperation. Termination will require one year's written notice to the other party, a period during which they can hold consultations to 'consider carefully the circumstances that may lead to

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[94] See, 'GE and Hitachi form nuclear energy unit', *The New York Times*, July 10, 2007, at https://www.nytimes.com/2007/07/10/business/worldbusiness/10iht-hitachi.1.6586445.html (Accessed October 2, 2018).

the termination of this Agreement or cessation of cooperation …' Further, India and Japan may take into account whether the circumstances that may lead to termination or cessation 'resulted from a party's serious concern about a changed security environment or as a response to similar actions by other states which could impact national security' (14[2]). This clearly is an acknowledgement of the imperative of situating India's possible reaction to additional nuclear tests by Pakistan.

Article 14 also deals with the 'right of return' of nuclear material, non-nuclear material, equipment transferred pursuant to this Agreement, and special fissionable material recovered as a by-product, in case of expiration or cessation. The Agreement notes that the exercise of such a right 'would have profound implications for the relationship between the Parties'. It, therefore, incorporates language regarding the need to have consultations prior to taking such an extreme step, the need to specially consider the implication on India's energy security, the impact on on-going contracts and projects (Paragraph 5), and also provides for compensation in terms of 'fair market value' of items/materials being asked to be returned as well as the costs of such removal (Paragraph 6).

The reprocessing rights granted to India under IAEA safeguards, in the 'national reprocessing facilities'[95] that India pledged to establish to reprocess safeguarded nuclear material, are also 'subject to suspension by either Party in exceptional circumstances' (Paragraph 9). However, the suspension period will be kept to the minimum, and 'for not longer than three months unless extended by the Party seeking suspension for specific reasons conveyed in writing …' If the suspension extends beyond six months, there is provision for compensation for adverse impact on the Indian economy (Paragraph 9).

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[95] See, US State Department, 'Agreement for Cooperation between the Government of the United States of America and the Government of India Concerning Peaceful Uses of Nuclear Energy', Article 6(iii), October 10, 2008, at https://www.state.gov/documents/organization/122068.pdf (Accessed October 14, 2018).

All of the nuclear material, non-nuclear material, equipment transferred pursuant to this Agreement, special fissionable material recovered as a by-product, will be under IAEA safeguards or 'appropriate verification measures' agreed to by India and Japan (Article 4[3]). Article 3 states that cooperation as part of this Agreement will be only for peaceful and non-explosive purposes, and nuclear material, non-nuclear material, equipment transferred pursuant to this Agreement, special fissionable material recovered as a by-product 'shall not be used other than for peaceful purposes; nor shall they be used for any nuclear explosive device, for research on or for development of any such explosive device'.

Japanese critics of the India-Japan NCA, as the Editorials in some of the major newspapers cited earlier showed, flagged as one of their main concerns what they believed was the non-inclusion of explicit language requiring the cessation of nuclear cooperation with India in case New Delhi conducts a nuclear test. As noted above, Article 3 prohibits India from using Japanese material/technology for nuclear weapons-related activities. Over and above the provisions of the Agreement, both countries exchanged a 'Note on Views and Understanding' which affirms the September 5, 2008 statement of then External Affairs Minister, Pranab Mukherjee, as constituting 'an essential basis for cooperation between the two states under consideration'.[96] The September 5, 2008 statement, issued ahead of the plenary meeting of the NSG that granted the India-specific exemption, reaffirmed India's 'steadfast commitment' to the total elimination of nuclear weapons, and 'to a voluntary, unilateral moratorium on nuclear testing'.[97]

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[96] The document is available at https://www.mofa.go.jp/mofaj/files/000202921.pdf (Accessed October 4, 2018).

[97] See MEA, 'Statement by External Affairs Minister of India Shri Pranab Mukherjee on the Civil Nuclear Initiative', September 5, 2008, at https://mea.gov.in/in-focus-article.htm?18806/Statement+by+External+Affairs+Minister+of+India+Shri+Pranab+Mukherjee+on+the+Civil+Nuclear+Initiative (Accessed October 4, 2018).

In the 'Note on Views and Understanding', the Japanese delegation stated that 'an Indian action in violation of the September 5 statement could be viewed as a serious departure from the prevailing situation, which could result in the suspension of the reprocessing of nuclear material'. Further, Japan reiterated that it 'reserves the right to contest India's claim of compensation for the adverse impact on the Indian economy due to disruption in electricity generation and the disruption of contractual obligations …' In his September statement, Pranab Mukherjee further stated that India had an 'impeccable non-proliferation record', and reiterated that India will 'not be the source of proliferation of sensitive technologies, including enrichment and reprocessing transfers'.

The various paragraphs of Article 14 deal in an extensive manner with issues relating to the voluntary expiration/cessation of the Agreement, essentially in response to such actions as a possible Indian nuclear test. Despite these provisions, the fact that the Japanese side seems to have insisted upon and secured an additional 'Note' with references to the September 5, 2008 statement that includes India's unilateral moratorium on nuclear testing, is indicative of the care they took to address the concerns of domestic constituencies that clamoured for the specific reference to a possible Indian nuclear test in the text of the Agreement itself.

JAPAN AND INDIA'S CIVIL NUCLEAR PLANS

Toshiba-Westinghouse

After the India-Japan NCA was signed, Minister of State (MoS) in the Prime Minister's Office (PMO), Jitendra Singh, informed the Rajya Sabha that,

> The Agreement would enable India to benefit from Japan's advancements in civil nuclear domain and its extensive supply chain, and would open up opportunities for collaboration between Indian and Japanese industries to advance India's civil nuclear programme through the construction of nuclear power plants, thereby meeting the country's clean energy targets. The Agreement will also help foster cooperation in basic and applied research regarding peaceful uses of nuclear energy and nuclear safety.

> Overall, the Agreement underlines the strength of the Strategic and Global Partnership between India and Japan.[98]

Even as negotiations were going on between the two governments, talks were held between NPCIL and the Japanese-American nuclear power conglomerates who were hoping to be a part of India's nuclear story. An MOU between Westinghouse Electric Company (WEC) and NPCIL was initially signed in 2009 to establish AP 1000 (1208 mw) light water reactors. The reactors secured design certification for the first time by the US NRC in December 2011, nine months after Fukushima. The initial site where the six were planned to be constructed was at Mithi Virdi, in the state of Gujarat.

However, as noted earlier, the MoS Jitendra Singh informed the Lok Sabha (July 2016) that the WEC will set up reactors at Kovvada. Later, in January 2018, he told the Rajya Sabha that discussions with the WEC were in progress to set up the six units of 1208 MW each at Kovvada.[99] As noted earlier, by January 2018, Toshiba Nuclear Energy Holdings (TNEH (US), the holding company of WEC, changed ownership from Toshiba to Brookfield WEC Holdings LLC (BWH). However, analysts note that Japanese companies like Japan Steel Works (JSW) and even Toshiba (which is still involved in maintenance of Japanese nuclear power reactors, mostly BWR's) or IHI, are an important part of the components supply chain for the reactors at Kovvada, and indeed for the French reactors at Jaitapur or the possible GEH reactors at Mithi Virdi.

Later, in March 2018, MoS Jitendra Singh informed the Lok Sabha that while techno-commercial offer has been submitted to NPCIL by WEC, 'progress in these discussions will depend upon the finalization

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[98] Rajya Sabha, Starred Question No. 177, 'Indo-Japan nuclear deal', December 1, 2016, at http://164.100.47.5/qsearch/QResult.aspx (Accessed September 20, 2018).

[99] PIB, 'Agreement between Westinghouse and NPCIL', January 4, 2018, at http://pib.nic.in/newsite/PrintRelease.aspx?relid=175345 (Accessed September 20, 2018).

of techno-commercial aspects of the project acceptable to the Indian side, and upon establishing the viability of the project'.[100] Meanwhile, during the meeting between President Donald Trump and Prime Minister Modi in Washington (June 26, 2017), India and the USA announced the establishment of a Strategic Energy Partnership. The inaugural meeting of the partnership was held on April 17, 2018 in New Delhi, and was co-chaired by the Minister of Petroleum and Natural Gas, Dharmendra Pradhan, and the US Energy Secretary, Rick Perry. The two sides 'reaffirm[ed] their strong commitment to early and full implementation of our civil nuclear partnership, including the Westinghouse civil nuclear project at Kovvada'.[101]

GE-Hitachi

GE-Hitachi Nuclear Energy India Private Limited was incorporated on March 22, 2011 — ironically, just 10 days after the disaster at Fukushima Daichi. Earlier, in March 2009, GEH entered into a MOU with NPCIL and Bharat Heavy Electricals Limited (BHEL) regarding the building of the 1,350 MW advanced boiling water reactors (ABWR) in India.[102] However, seven years down the line, in 2016, GEH was pitching for the 1520 MWe ESBWR which, as noted earlier, got US regulatory approval only in October 2014. GE-Hitachi signed a MOU with BHEL in January 2011 for cooperation in making components like steam generators for higher size reactors. BHEL makes such components (steam generators, turbine generators) for 220 MWe and 540 MWe reactors of NPCIL.

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100 PIB, 'Status of Nuclear Cooperation Agreement between India and USA', March 28, 2018, at http://pib.nic.in/newsite/PrintRelease.aspx?relid=178155 (Accessed September 20, 2018).

101 PIB, 'India-US Strategy Energy Partnership Joint Statement', April 17, 2018, at http://pib.nic.in/PressReleaseIframePage.aspx?PRID=1529335 (Accessed September 10, 2018).

102 T. Subhash, 'GEH signs initial pacts with NPCIL for ABWR', March 23, 2009, at https://economictimes.indiatimes.com/industry/energy/power/geh-signs-initial-pacts-with-npcil-for-abwr/articleshow/4306452.cms (Accessed September 10, 2018).

In July 2016, MoS Jitendra Singh informed the Lok Sabha that while the Mithi Virdi site 'continues to be designated for setting up nuclear power reactors in technical cooperation with USA', the WEC will set up reactors at Kovvada, Andhra Pradesh.[103] Given that only two companies from the USA were in the fray to build nuclear power plants in India — GE Hitachi Nuclear Energy (GEH) and WEC, and with WEC being the designated firm for the Kovvada units — GEH was expected to be the firm that builds the units at Mithi Virdi.

However, the Chairman of the Department of Atomic Energy (DAE), Sekhar Basu, was cited as stating (June 2016) that India will not give permission to the setting up of nuclear power plants by foreign suppliers that 'did not have a reference plant' in operation.[104] GEH's ESBWR reactor has not been constructed anywhere in the world as yet. On its part, GEH maintained that it continued 'to have a strong interest in providing our technology to India for the eventual construction of multiple' ESBWRs. '[T]he path forward requires a sustainable regulatory environment, which would include a nuclear-liability law that channels liability to plant operators consistent with global best practices'.[105]

Whatever might be the prospects of the ESBWR reactor at Mithi Virdi, the GE group of companies are suppliers of critical equipment even for the European Pressurised Reactors (EPR), slated to be built at Jaitapur. GE Power and the French power utility EDF entered into a strategic cooperation agreement in June 2018 to build 'conventional islands' for each of the six reactors. GE noted that it was 'the main

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[103] PIB, 'Nuclear power projects at Mithi Virdi', July 20, 2016, at http://pib.nic.in/newsite/mbErel.aspx?relid=147339

[104] Rajesh Kumar Singh and Richard Clough, 'India won't buy GE reactors lacking reference plant: DAE Secretary', June 29, 2016, at https://www.livemint.com/Industry/wHexcve79onMa0DW9MBJNM/India-wont-buy-GE-reactors-lacking-reference-plant-DAE-sec.html (Accessed September 10, 2018).

[105] Singh and Clough, 'India won't buy GE reactors lacking reference plant: DAE Secretary', Ibid.

supplier of conventional-island components for many French power plants, like Flamanville-3 as well as Hinkley Point C in the UK'.[106]

Japan Steel Works

JSW set up its India office in 2011. The company entered into a technology transfer agreement in May 2014 with Larsen and Toubro Special Steels and Heavy Forgings (LTSSHF), which is a joint venture between L&T and NPCIL. NPCIL holds 26 per cent stake in the JV, which was formed in 2009. The JV with JSW 'covers [the] transfer of critical technology for steel melting & heavy forgings made from ingots up to 200 MT, for hydrocarbon, thermal power, steel and cement sectors'.[107]

The 200 MT forging capability that was intended to be achieved was much higher than LTSSHF's then capacity of producing heavy forgings weighing up to 120 MT. It is pertinent to note that reports in 2009 noted that India's forging capacity was limited to only 12.5 MT.[108] Apart from LTSSHF and JWS, other Indian companies, like Bharat Forge, teamed up with France's Areva to set up a JV in January 2009 to produce heavy forgings that could be used in nuclear power plants. BHEL was also interested in teaming up with this JV. However, given the diminished business prospects since then, it does not seem to have worked out for these three companies.

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[106] 'EDF and GE sign a strategic cooperation agreement for the planned construction of 6 EPRs in India', June 26, 2018, at https://www.genewsroom.com/press-releases/edf-and-ge-sign-strategic-cooperation-agreement-planned-construction-6-eprs-india (Accessed September 12, 2018). The 'conventional island' houses the turbine generator, which extracts thermal energy from pressurised steam generated by steam generator, which is part of the 'nuclear island'.

[107] JSW, 'The Japan Steel Works, Ltd. enter into Technology Collaboration Agreement with L&T Special Steels and Heavy Forgings Pvt. Ltd.', May 27, 2014, at http://www.jsw.co.jp/en/news/20140527_001.html (Accessed September 12, 2018).

Reports note that JSW holds close to 80 per cent of the world market for the supply of ultra-heavy forgings, like shell flanges for reactor pressure vessels. The company has some of the largest production facilities in the world, including a 14,000-ton press. The headwinds in the global civilian nuclear industry have affected the JSW's business prospects too, with the company witnessing a 50 per cent drop in orders in 2016 (US$ 173 million) from the previous year.[109] However, in FY 2017 orders increased by over 33 per cent from FY 2016.

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[108] Sushmi Dey and Subhash Narayan, 'BHEL may team up with Bharat Forge, Areva in new venture', March 13, 2009, at https://economictimes.indiatimes.com/industry/energy/power/bhel-may-team-up-with-bharat-forge-areva-in-new-venture/articleshow/4257932.cms (Accessed September 2, 2018).

[109] See, JSW, 'Steel and Energy products business', http://www.jsw.co.jp/en/ir/segment.html (Accessed September 12, 2018).

Chapter 3

A Contentious Embrace: Australia and Civil Nuclear Cooperation with India

India and Australia signed the agreement on 'Cooperation in the Peaceful Uses of Nuclear Energy' on September 5, 2014, which came into force on November 13, 2015. The Australian Parliament passed the Civil Nuclear Transfers to India Act in December 2016. On October 17, 2012, while announcing the commencement of negotiations with India for a NCA, the Julia Gillard government stated that it would exempt India from its policy of allowing the export of uranium only to those countries which have signed the NPT.

The first round of negotiations was held on March 19, 2013. These developments followed the decision of the Australian Labour Party national conference in December 2011, which reversed the decision of the previous Kevin Rudd government not to sell uranium to non-NPT members like India. While it took fewer than two years from the commencement of negotiations to the signing of the agreement — as against six years in the case of the India-Japan NCA — the process that led to the signing of the India-Australia NCA was contentious (some Australian commentators have even called it 'bitter').

It is to be noted, though, that while formal negotiations began in October 2012, the debates surrounding the possibility of selling uranium to India began in the aftermath of the Indo-US nuclear deal. The Liberal coalition government led by John Howard agreed, in principle, to the sale of uranium to India in August 2007 (a few months before it lost the elections to Labour in December 2007). However, the Labour

Party government of Prime Minister Kevin Rudd overturned the decision in 2008.[110]

After formal negotiations began, echoing the contentions of 2008, those in favour of civil nuclear cooperation with India touted the economic benefits of such cooperation, while those opposed to it flagged India's NPT non-membership and implications for the non-proliferation regime. Civil society groups with long-standing opposition to Australia's uranium exports on account of the environmental impact of mining and the threat to the Aboriginal way of life (given that areas where the uranium mines are being operated are an important arena of the heritage of the Aboriginal population), among others, also weighed in on the debate.

THE STRATEGIC CONTEXT

India and Australia established a 'Strategic Partnership' in November 2009. Prime Minister Modi's November 2014 visit to Australia (to attend the G20 Summit at Brisbane) was the first ever visit by an Indian Prime Minister since Rajiv Gandhi's 1986 visit. Prime Minister Modi's visit was in the immediate aftermath of Prime Minister Tony Abbot's September 2014 visit to India. Since Prime Minister Modi's visit, Prime Minister Malcolm Turnbull visited in April 2017, while five Australian Foreign Ministerial-level visits have taken place since 2009. External Affairs Ministers Krishna and Salman Khurshid visited Australia in August 2009 and October 2013, respectively.

Despite only two prime ministerial visits in the past 32 years from the Indian side (1986 and 2014), and seven from the Australian side (Prime Minister Bob Hawke in 1989; twice by Prime Minister John Howard in 2000 and 2006; Kevin Rudd in 2009; Julia Gillard in 2012; Tony Abbott in 2014; Malcolm Turnbull in 2017), institutional interactions bilaterally as well as at multi-lateral fora have become frequent and robust in recent times. Thus, such interactions seem to have overcome

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[110] Rajya Sabha, Unstarred Question No. 1582, 'Refusal of Australia to supply uranium', March 10, 2011, at https://www.mea.gov.in/rajya-sabha.htm?dtl/14442/q1502+refusal+of+australia+to+supply+uranium (Accessed July 10, 2016).

successfully the 'important gap in both Australian and Indian strategic understanding', as flagged by a report of the Australian Strategic Policy Institute in 2005.[111]

India and Australia constituted the 2+2 Foreign Secretaries and Defence Secretaries Dialogue in December 2017, to be held annually. The second 2+2 Dialogue was held in Canberra in October 2018. The 11th edition of the Foreign Ministers Framework Dialogue, the main bilateral institutional mechanism of interaction between the two countries, was held in July 2017 at New Delhi. The inaugural Defence Policy Dialogue was held in December 2010. The defence interactions are robust, encompassing Annual Staff Talks (between the respective Army, Navy, and Air Force delegations), while the inaugural naval exercises, Australia-India Exercises (AUSINDEX) were held off the coast of Bay of Bengal in 2015. The 2017 edition was held off the coast of Freemantle in July 2017. The third instalment of AUSINDEX was held in April 2019, off the coast of Chennai. An Australian naval ship participated in the 10th edition of MILAN exercises conducted by the Indian Navy in March 2018. The fourth round of the India-Australia Maritime Dialogue was held in November 2018.

Bilateral exercises between the Special Forces of the two countries took place in October 2016. The Indian Air Force (IAF) took part for the first time in Exercise Pitch Black, the multi-national air exercises conducted by the Royal Australian Air Force (RAAF), in July 2018. The IAF contingent was made up of four Sukhoi-30 MKI fighter planes and a C-130 and a C-17 transport aircraft, and a 145-member contingent including a Garud commando team.

Other significant institutional interactions that have taken place in the recent past have included the 5th round of India-Australia Bilateral Dialogue on Disarmament, Non-Proliferation and Export Control

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[111] See ASPI, 'Shared Interests: Australia–India relations into the twenty-first century', December 2005, at https://www.aspi.org.au/report/shared-interests-australia-india-relations-twenty-first-century (Accessed November 12, 2018).

(held in Canberra on November 1, 2018); the 2nd Cyber Policy Dialogue (July 2017); and the 10th meeting of the Joint Working Group on Counter-terrorism (June 2018). The Memorandum of Understanding on Cooperation in Combating International Terrorism and Transnational Organized Crime was signed during the visit of Prime Minister Turnbull in April 2017, while the Framework on Security Cooperation was signed in November 2014. The security cooperation framework is intended 'to guide closer bilateral collaboration across the security spectrum, including in defence, counter-terrorism, cyber policy, disarmament and non-proliferation and maritime security'.[112] For David Brewster, the Framework

> represent[s] an important step in the difficult task of moving the Australia-India partnership past rhetoric to the operational level. If the engagement continues, the relationship could become an important pillar in Australia's strategic posture, and indeed potentially a pillar of regional security architecture in the Indo-Pacific.[113]

Analysts note that India began to figure prominently in Australia's strategic calculations since the mid-1990s, after the opening up of the Indian economy.[114] In 2009, in the document 'Defending Australia in the Asia-Pacific Century: Force 2030', the Australian Department of Defence described India as one of Australia's key strategic partners, along with the USA and Japan, significantly in the same paragraph which flags China's assumption of a greater role in regional as well as

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[112] MEA, 'Joint Statement during Prime Minister's visit to Australia', November 18, 2014, at https://www.mea.gov.in/bilateral-documents.htm?dtl/24267/joint+statement+during+prime+ministers+visit+to+australia+november+1618+2014 (Accessed November 12, 2018).

[113] David Brewster, 'The Australia–India Framework for Security Cooperation: Another Step Towards an Indo-Pacific Security Partnership', *Security Challenges*, 11(1), 2015, p. 48.

[114] See Ian Hall, 'India in Australia's 2016 Defence White Paper', *Security Challenges*, 12(1), 2016, pp. 181-185, at https://www.regionalsecurity.org.au/resources/Documents/SC%2012-1%20Hall.pdf (Accessed July 28, 2016).

on the world stage.[115] The Force 2030 document affirms that 'strategic stability in the [Asia-Pacific] region' was 'best underpinned by the continued presence of the United States through its network of alliances and security partnerships, including with Japan, the Republic of Korea, India and Australia.'[116] The document affirms the need to strengthen defence cooperation and 'to understand Indian strategic thinking'.

Meanwhile, according to analysts like Ian Hall, the Defence White Paper in 2013 took a much more 'cautious line' on India. The Paper noted that Australia's 'key strategic interests in South Asia are counter-terrorism, nuclear non-proliferation, and the maintenance of peace between India and Pakistan', with the last issue flagged as an Australian strategic interest. The imperative of maintaining peace between India and Pakistan as an Australian strategic interest was not there in the 2009 Paper. However, the 2013 Paper affirmed that, 'over time, India will become a very important partner in building security in the Indian Ocean and broader Indo-Pacific region'.

At the same time, the 2013 White Paper affirmed that Australia had 'important strategic interests in the security of Pakistan …'[117] These interests included those relating to terrorism, growing radicalisation, and 'potential threats to the security of Pakistan's nuclear weapons'. The interests vis-à-vis Pakistan as expressed in the 2013 White Paper seem to be in contrast to the statement of the then Australian High Commissioner to Pakistan in 2008 — that Canberra 'recognize[d] India as an emerging major power; India is our 9th largest trading partner; Pakistan is 42nd.'[118]

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[115] DoD, 'Defending Australia in the Asia-Pacific Century: Force 2030', at http://www.defence.gov.au/whitepaper/2009/docs/defence_white_paper_2009.pdf, p. 95 (Accessed July 28, 2016).

[116] Ibid, p. 43.

[117] DoD, '2013 Defence White Paper', at http://www.defence.gov.au/whitepaper/2013/docs/WP_2013_web.pdf, p. 16 (Accessed July 28, 2016).

[118] Cited in Zorica McCarthy, 'Australia's Security Policy', *Pakistan Horizon*, 61(3), July 2008, p. 43.

While the 2016 White Paper continued to flag the India-Pakistan relationship as one of South Asia's 'major points of tension', unlike the 2013 Paper (which dramatically stated that 'large-scale India-Pakistan conflict cannot be ruled out')[119], the 2016 iteration uses more qualifying language when it notes that 'tensions between India and Pakistan, potentially fuelled by terrorist activities, could have a wider regional and possibly global impact that would affect Australia's security'.[120]

The educational links between the two countries have assumed significance in recent times, with Indian students studying in Australia accounting for nearly 12 per cent of all Indian students studying overseas (87,115 students out of 752,725 worldwide). The Indian student community strength in Australia is about half of the number of Chinese students in Australia. Only Canada (with 124,000 students) and the USA (with 211,703 students) account for more numbers of Indian students than those studying in Australia.[121] The Australia-India Strategic Research Fund (AISRF) was established in 2007, with both countries committing over US$ 100 million on over 300 collaborative projects in the past decade.[122]

Both countries highlight converging interests and values (democracy, respect for rule of law, among others) that account for the robust nature of their institutional interactions, encompassing not just bilateral

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[119] DoD, '2013 Defence White Paper', n. 117, p. 16.

[120] DoD, '2016 Defence White Paper', at http://www.defence.gov.au/whitepaper/Docs/2016-Defence-White-Paper.pdf, p. 62 (Accessed July 28, 2016).

[121] MEA, 'Indian students studying in foreign countries', July 26, 2018, at https://www.mea.gov.in/Images/attach/ru964.pdf (Accessed November 12, 2018).

[122] MEA, 'India-Australia Joint Statement during the State visit of Prime Minister of Australia to India', April 10, 2017, at https://www.mea.gov.in/bilateral-documents.htm?dtl/28367/indiaaustralia+joint+statement+during+the+state+visit+of+prime+minister+of+australia+to+india (Accessed November 12, 2018).

issue areas like trade, energy, and education but spanning regional and global issues like the need for a rules-based order to help in common growth, prosperity, and stability in the Indo-Pacific, and in UNSC reform. India and Australia are engaged in trilateral as well as quadrilateral interactions with Japan and the USA.

The Australian government's 2017 Foreign Policy White Paper notes that 'the future balance of power in the Indo–Pacific will largely depend on the actions of the United States, China and major powers such as Japan and India.'[123] The Paper points out that China and India already account for 40 per cent of Asia's economic activity, and that India is the world's fastest growing major economy.

Total bilateral trade in 2017–18 was just over US$ 18 billion, with nearly 75 per cent of the volume being imports from Australia.[124] Nearly 67 per cent of those imports (US$ 9.3 billion out of US$ 13.9 billion) were made up of mineral fuels and bituminous substances (coal).[125] Indian officials and political leaders have long pointed out that 'the trade imbalance with Australia was the second largest that India had with any of its trading partners'.[126] India was the fifth biggest export market for Australia (during 2017–18), after China (US$ 116 billion), Japan (US$ 47 billion), South Korea (US$ 23 billion) and the USA (US$ 21 billion).[127]

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123 See, '2017 Foreign Policy White Paper: Opportunity, Security, Strength,' at https://www.fpwhitepaper.gov.au/ (Accessed October 20, 2018).

124 See, 'Export Import Data Bank', at http://commerce-app.gov.in/eidb/iecnt.asp (Accessed November 20, 2018).

125 Ministry of Commerce and Industry, 'Export-Import Data Bank', November 15, 2018, at http://commerce-app.gov.in/eidb/Icntcom.asp (Accessed November 20, 2018).

126 MEA, 'Joint Statement of Australia-India Foreign Ministers' Framework Dialogue', January 20, 2011, at https://www.mea.gov.in/press-releases.htm?dtl/777/joint+statement+of+australiaindia+foreign+ministers+framework+dialogue (Accessed November 12, 2018).

127 DFAT, 'Annual Report 2017–18', at https://dfat.gov.au/about-us/publications/corporate/annual-reports/Documents/dfat-annual-report-2017–18.pdf, p. 52 (Accessed October 12, 2018).

While the Comprehensive Economic Cooperation Agreement (CECA) talks began in 2011, both sides have not yet been able to stitch together a mutually beneficial agreement, despite several rounds of talks. The issue of agricultural subsidies has, apparently, been a sticking point. The report 'An India Economic Strategy to 2035', authored by former Australian High Commissioner to India, Peter Varghese, notes that 'negotiating positions are too far apart to make the conclusion of a CECA a realistic objective in the near term.'[128]

The India-Australia Joint Statement issued at the end of PM Modi's visit in November 2014 insists that 'energy is a central pillar of the economic relationship'.[129] Both countries have instituted an Energy Dialogue to take advantages of opportunities in the sector. The Australia-India mining partnership at the Indian Institute of Technology-Indian School of Mines (IIT-ISM), Dhanbad, involves R&D collaboration as well as training and technology transfer. Indian companies have begun to invest significantly in Australian mining activities as well as in the operation of ports.[130] Australia has also become a member of the International Solar Alliance.

AUSTRALIA'S NUCLEAR POLICY CHOICES

Australia has had a unique relationship with the atom. Between 1952 and 1963, the UK conducted as many as 12 nuclear tests and related experiments on three sites (two in South Australia and one on Montebello Island off the coast of Western Australia), with a cumulative yield of 181 kilo tonnes (with the largest being a 98 KT test).[131] The

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[128] DFAT, 'An India Economic Strategy to 2035: Navigating from Potential to Delivery', April 2018, at https://dfat.gov.au/geo/india/ies/pdf/dfat-an-india-economic-strategy-to-2035.pdf, p. 336 (Accessed October 20, 2018).

[129] MEA, 'Joint Statement during Prime Minister's visit to Australia', n. 112.

[130] MEA, 'India-Australia relations', July 2013, at https://mea.gov.in/Portal/ForeignRelation/India-Australia_Relations.pdf (Accessed October 12, 2018).

[131] See, Australian Radiation Protection and Nuclear Safety Agency, 'British nuclear weapons testing in Australia', at https://www.arpansa.gov.au/understanding-radiation/sources-radiation/more-radiation-sources/british-nuclear-weapons-testing (Accessed October 2, 2018).

tests included Britain's very first nuclear test, on October 3, 1952, conducted on Montebello. Despite political support from Australian governments, the tests became a subject of much public scrutiny after it was realised that the clean-up of the area by the British, after the test sites were abandoned, was done in a haphazard manner. The tests were also conducted without much consideration to the safety of the original Aboriginal inhabitants of the land, by either the Australian or the British governments. Finally in 1993, both the governments paid a compensation of nearly US$ 40 million (US$ 30 million by the British and US$ 9 million by the Australian government) to the Aboriginal people.[132] The land was given back to the original inhabitants only in 2009.

While uranium was first found in Australia in 1894, the first major mine (Rum Jungle in the Northern Territories) was run from 1949–1963, largely to supply uranium to the nuclear weapons programmes of Australia's allies, the UK and the USA. The then Australian Prime Minister, Robert Menzies, was cited as stating at the time of opening of the Rum Jungle that,

> part of our security in the present tremulous condition of world safety depends upon the superiority of the Free World in terms of these dreadful instruments. And Australia, by making a contribution of this kind … is itself making a powerful contribution to international defence.[133]

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[132] James Griffiths, 'Australia is still dealing with the legacy of the UK's nuclear bomb tests, 65 years on', CNN, October 15, 2018, at https://edition.cnn.com/2018/10/14/australia/australia-uk-nuclear-tests-anniversary-intl/index.html (Accessed October 2, 2018); See also Jon Donnison, 'Lingering impact of British nuclear tests in the Australian outback', BBC, December 31, 2014, at https://www.bbc.com/news/world-australia-30640338 (Accessed October 2, 2018).

[133] See Marty Harris, 'The origins of Australia's uranium export policy', December 2, 2011, at https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/BN/2011-2012/UraniumPolicy#_ftnref11 (Accessed November 2, 2018).

While some analysts note that Anglo-British cooperation on nuclear weapons testing and research was the result of the 'special relationship', others argue that it was more reflective of Australia's own 'determined' efforts — which included extending support to British geo-political interests ranging from the Suez crisis to South East Asia, among others, to have a nuclear arsenal of its own, after the end of the Second World War'.[134] Some analysts went to the extent of flagging even the possibility of conventional threat from Communist China (via Indonesia) as one of the reasons why Australia should not foreclose its nuclear weapons option.[135]

The Liberal Country Party (LCP) was not in favour of signing the NPT when the treaty was opened for signature in 1968, as it felt that it would prevent the country from acquiring nuclear weapons.[136] The government of Prime Minister John Gorton even negotiated a secret deal with the French for a uranium enrichment plant.[137] Later, the LCP did sign the NPT in February 1970, it but did not ratify it. The Australian Labour Party (ALP), which explicitly held the position that Australia should not pursue nuclear weapons, ratified the NPT in January 1973, with analysts noting that the decision was one of the first acts of the new government after taking over the reins of power. Australia signed the safeguards agreement with the IAEA in July 1974.

While at the one end of the spectrum, Australia contributed significantly to the British nuclear weapons effort and hesitated to sign the NPT initially, at the other end, Australian nuclear history is marked by rigorous

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[134] Wayne Reynolds, 'Rethinking the Joint Project: Australia's Bid for Nuclear Weapons, 1945–1960', *The Historical Journal*, 41(3), September 1998, pp. 853–873.

[135] W. C. Wentworth, 'Australia and Nuclear Weapons', Review of A. C. Ross and P. King, *Australia and Nuclear Weapons*, *The Australian Quarterly*, 39(1), March, 1967, pp. 113–116.

[136] Keith D. Suter, 'The Uranium Debate in Australia', *The World Today*, 34(6), June 1978, p. 229.

[137] Jeffrey S. Landis and Jeffrey S. Lantis, 'Elections and Enduring Realities: Australia's Nuclear Debate', *Arms Control Today*, 38(3), April 2008, p. 24.

opposition to French nuclear testing in the Pacific as well as an embargo on the visit of US nuclear powered warships at Australian ports. French nuclear testing in the Pacific began after the French lost the Algerian War and, subsequently, were deprived of test facilities they had built in the Algerian Sahara.

Some analysts explain Australia's opposition to French testing as the result of Canberra being in the 'Anglo-Saxon' camp, especially given that it supported British nuclear testing in the Pacific during 1957–58.[138] Meanwhile, the LCP government banned the entry of US nuclear powered warships at Australian ports in 1971, a policy which was continued by the subsequent government till 1976. US nuclear powered warships made a total of 14 visits between 1960 and 1971; but the LCP government imposed the moratorium on account of issues relating to safety, among others.[139]

As for Australia's record on arms control and non-proliferation/disarmament initiatives, as noted earlier, the country joined the NPT in February 1970, and ratified the treaty in January 1973. Australia is a signatory to the 1985 Rarotonga Treaty (South Pacific Nuclear Weapon Free Zone Treaty) and has vigorously championed such disarmament initiatives as the Comprehensive Test Ban Treaty (CTBT). The Canberra Commission was a significant effort to address the intractable issues associated with nuclear disarmament. Prime Minister John Keating constituted the Canberra Commission in the aftermath of the French decision of 1995 to resume nuclear testing in the South Pacific.[140]

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138 Nic Maclellan, 'The Nuclear Age in the Pacific Islands', *The Contemporary Pacific*, 17(2), 2005, p. 364.

139 See The Parliament of the Commonwealth of Australia, The Senate Standing Committee on Foreign Affairs, Defence and Trade, 'Visits to Australia by nuclear powered or armed vessels: Contingency planning for the accidental release of ionizing radiation', 1989, p. 13, at https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Foreign_Affairs_Defence_and_Trade/Completed_inquiries/pre1996/nuclear_warship_visits/index (Accessed November 5, 2018).

140 'Report of the Canberra Commission on the Elimination of Nuclear Weapons', *Arms Control Today*, 26(6), August 1996, pp. 35–37.

Australia holds that it is a supporter of the 'progressive approach' towards nuclear disarmament and non-proliferation, and favours risk reduction measures and greater transparency among NWS. Australia is an active member of initiatives such as the 12 nation Non-Proliferation and Disarmament Initiative (NPDI). The NPDI, made up of Canada, Chile, Germany, Mexico, the Netherlands, Nigeria, the Philippines, Poland, Turkey and the United Arab Emirates, was established by Japan and Australia in the aftermath of the 2010 NPT Rev Con. Australia was the first country to receive the IAEA's 'broader conclusion', way back in 2000, and has received this determination every year since. Such a finding is an affirmation from the world nuclear regulatory body that there was no 'diversion of declared nuclear material from peaceful nuclear activities and no indication of undeclared nuclear material or activities'.[141]

Even as it has championed such disarmament and non-proliferation measures, Australia continues to rely on the extended US nuclear deterrent. Specifically, one of the reasons cited by Australia for its non-support to the 2017 Treaty on the Prohibition of Nuclear Weapons (TPNW) is that it is ''inconsistent with its US alliance obligations''.[142] Analysts have, however, pointed out that such views reflect a fundamental misunderstanding of the TPNW commitments, and their impact on Australia's alliance commitments with the USA. They note that Australia's membership of treaties banning cluster munitions or chemical weapons does not, for instance, have any impact on the Australia-US military relationship.[143] Further, Australia contends that

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[141] ASNO, 'Annual Report 2017-2018', at https://dfat.gov.au/about-us/publications/corporate/annual-reports/asno-annual-report-2017-18/asno-annual-report-2017-18.pdf (Accessed May 12, 2019), p. 91.

[142] Department of Foreign Affairs and Trade (DFAT), 'Australia and nuclear weapons', at https://dfat.gov.au/international-relations/security/non-proliferation-disarmament-arms-control/nuclear-issues/Pages/australia-and-nuclear-weapons.aspx (Accessed May 21, 2019).

[143] Aiden Warren, 'Rethinking Australia's Middle-Power Nuclear Paradox', *Arms Control Today*, May 2019, at https://www.armscontrol.org/act/2019-05/features/rethinking-australia%E2%80%99s-middle-power-nuclear-paradox (Accessed May 20, 2019).

the TPNW does not involve the participation of NWS, and has weaker safeguards provisions than the NPT, among other objections.[144] Meanwhile, analysts continue to debate the possibility of the country pursuing a nuclear-powered submarine fleet, with help from the UK or the USA. This was in the context of the French winning a bid in 2016 to build 12 diesel electric submarines to replace the six ageing Collins class diesel submarines. [145]

AUSTRALIA'S URANIUM INDUSTRY DYNAMICS

Australia holds a quarter of the world's uranium resources and is currently the world's third biggest uranium exporter, after Kazakhstan and Canada. Australia exports uranium to countries like China, France, Japan, South Korea, Russia, the United Kingdom, and the USA. The three active mines are Ranger (in the Northern Territory), the Olympic Dam, and the Three Mile operations, both in South Australia, accounting for 9 per cent of total world production.[146]

Australia has a strong history of debate regarding the commercial sale of its uranium, and its possible environmental, economic as well as proliferation implications. The Ranger Uranium Environmental Enquiry of 1975, headed by Justice Walter Russell Fox, was one of the earliest examinations of Australia's uranium export policy with regard to the Ranger uranium mine. It is interesting to note that the Enquiry took place in the background of India's May 1974 peaceful nuclear explosion

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144 Ibid.

145 Wayne Reynolds, 'An Astute Choice: Anglo-Australian Cooperation on Nuclear Submarines in Historical Perspective', *Security Challenges*, 9(4), 2013, pp. 21–44; Marcus Hellyer 'Is it Time for Australia to Buy US Nuclear Powered Attack Submarines?', September 26, 2018, at https://nationalinterest.org/blog/buzz/it-time-australia-buy-us-nuclear-powered-attack-submarines-32027 (Accessed November 10, 2018).

146 'World Rankings of Australia's mineral resources and production as at December 2017', Geoscience Australia, at https://www.ga.gov.au/scientific-topics/minerals/mineral-resources-and-advice/aimr/world-rankings (Accessed May 12, 2019).

(PNE), and the decision of the then Australian government to enter into commercial deals to sell Australia's uranium to the Japanese nuclear industry, from 1974–1986.

The Fox Commission explicitly forbade the sale of Australia's uranium to a non-NPT member state, reiterated the importance of 'the fullest and most effective safeguards' as well as 'fully adequate back-up safeguards applying to the entire civil nuclear industry in the country supplied. Australia should work towards the adoption of this policy by other suppliers [of nuclear material].'[147] In May 1977, Prime Minister Malcolm Fraser accepted the recommendations of the Fox enquiry committee (which had submitted its First report by that time) and formulated a formal uranium export policy, which required the sale of uranium to non-nuclear NPT member states that 'accept IAEA safeguards, covering the whole of their civil nuclear industry'. Nuclear weapon states were required to give an assurance that they will not divert Australia's uranium to explosive purposes. Australian consent was also required for re-export to third countries, enrichment beyond 20 per cent U-235, re-processing of nuclear material without Australian consent was forbidden, and provisions were provided for 'fall-back' safeguards, including by Australia itself, in case IAEA safeguards ceased to apply under any circumstances.[148]

The Labour Party (then in the opposition) criticised the policy's announcement before the final report of the Fox Commission was released and just ahead of PM Fraser's trip to the USA.[149] Questioning

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147 Harris, 'The Origins of Australia's Uranium Export Policy', n. 133.

148 Malcom Fraser, 'Government policy on nuclear safeguards: Ministerial statement,' House of Representatives, Debates, May 24, 1977, pp. 1700–1705, at https://parlinfo.aph.gov.au/parlInfo/download/hansard80/hansardr80/1977-05-24/toc_pdf/19770524_reps_30_hor105.pdf;fileType=application/pdf#search=%22hansard80/hansardr80/1977-05-24/0003%22 (Accessed November, 2018).

149 John Paul Keating, 'Government policy on nuclear safeguards: Ministerial statement,' House of Representatives, Debates, May 24, 1977, pp. 1705–1707, Ibid.

the government's trust in the ability of the IAEA to police compliance of bilateral nuclear cooperation agreements, John Paul Keating, the Shadow Minister for Minerals and Energy, replying to Fraser, specifically highlighted the Indian nuclear test of May 1974 as an example of a 'bilateral agreement which did not stop the Indians from effectively developing a nuclear device'.[150]

The fortunes of the Australian uranium industry have been subject to domestic political considerations, as well as domestic dynamics in the countries importing Australia's uranium. For instance, Australia is a big exporter to the USA, accounting for nearly 1/4th of US imports in 2017.[151] In recent years, such huge exports to the US market have come under a cloud, with the US Commerce Secretary, Wilbur Ross, opening an investigation in July 2018 as to whether the country's uranium import policy, compromises 'national security'. This was on account of pressure from the US domestic uranium mining companies — Energy Fuels and Ur-Energy, both headquartered in Denver, Colorado — which had to lay off significant work force due to low demand.[152] Less than 10 per cent of the uranium used by US nuclear power plants in 2017 was sourced locally. The main grouse of these US-based uranium producers was that the USA was buying uranium from companies in Russia and Kazakhstan, which were either state-owned or state-subsidized.[153]

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150 Ibid.

151 Tom DiChristopher and Lori Ann LaRocco, 'Trump administration opens investigation into uranium imports, potentially teeing up new tariffs', July 19, 2018, at https://www.cnbc.com/2018/07/18/trump-administration-opens-uranium-import-probe-new-tariffs-possible.html (Accessed May 20, 2019).

152 Esmarie Iannucci, 'Australia's Minerals Council unfazed by US uranium investigation', July 19, 2018, at https://www.miningweekly.com/article/australias-minerals-council-unfazed-by-us-uranium-investigation-2018-07-19 (Accessed May 20, 2019).

153 'Energy Fuels and Ur-Energy Jointly File Section 232 Petition with U.S. Commerce Department to Investigate Effects of Uranium Imports on U.S. National Security', January 16, 2018, at http://www.energyfuels.com/news-pr/energy-fuels-ur-energy-jointly-file-section-232-petition-u-s-commerce-department-investigate-effects-uranium-imports-u-s-national-security/ (Accessed May 22, 2019).

Meanwhile, domestic political considerations largely seem to determine the policies relating to the banning of uranium mining or the removing of such bans. For instance, the ban on the commercial mining of uranium in New South Wales, which was put in place by the Labour Party in 1982, was lifted in 2012 when the Australian Liberal Party came to power in that state. Meanwhile, the Western Australian government, in April 2015, lifted a six-year ban imposed on uranium mining that was imposed in 2008, and approved a new mine. Australian states like Tasmania and Victoria continue to ban uranium mining.

These states have, however, limited prospects of discovering uranium resources — given that they have zero tonnes of reasonably assured resources (RAR) that could be economically recovered at less than US$ 130 per tonne (as defined by the Australian agencies). Analysts note that political considerations — with left-wing governments or those seeking to get the support of 'Green' voters, largely determine such provincial governmental decisions on uranium mining. The rate of production from Australia's uranium mines has also seen a decline in recent years. In 2006–07, for instance, uranium production from three operational mines (Ranger, Olympic Dam, and Beverly) was 9577 tonnes. In 2016–17, it was 7526 tonnes.[154]

For a country blessed with enormous uranium resources, Australia does not have commercial nuclear power plants to take advantage of such resources. A combination of factors ranging from the presence of abundant coal resources to the growing strength of the anti-nuclear movement during the 1980s and 1990s, has contributed to Australia not privileging nuclear power in its energy mix. Since 1998, there has been a federal ban on the setting up of nuclear power plants. The Australian Radiation Protection and Nuclear Safety Act 1998 imposes prohibitions on certain nuclear installations, while the Environment Protection and Biodiversity Conservation Act 1999 explicitly prohibits the setting up of a nuclear power plant, a reprocessing plant, a fuel fabrication plant, or an enrichment plant.

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[154] 'Australia's Uranium Mines', February 2019, at http://www.world-nuclear.org/information-library/country-profiles/countries-a-f/appendices/australia-s-uranium-mines.aspx (Accessed May 14, 2019).

Industry groups, like the Mineral Councils of Australia, argue that minor amendments to such laws can be brought forth to ensure that Australia takes advantage of nuclear power which, in their view, is a reliable and proven technology with zero carbon emissions.[155] Opponents of nuclear power, like the Climate Council, point out that nuclear power is expensive, requires a lot of water (an issue of significance in a drought prone continent), and takes a lot of time to build, among other reasons.[156]

Reports of some Commissions (like the Uranium Mining, Processing and Nuclear Energy Review Taskforce 2006), have also recommended the establishment of nuclear power plants to mitigate climate change problems. While the federal government has not yet taken such views positively, provincial governments (for instance, like that of South Australia), which has over 80 per cent of the country's uranium resources, also do not support the removal of prohibitions on the establishment of nuclear power as a clean source of energy.[157] This was in response to the various recommendations of the Nuclear Fuel Cycle Royal Commission (NFCRC), established by the South Australian government in March 2015, which explored aspects relating to the feasibility of setting up nuclear power plants, the management of radioactive waste, among other issues.

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[155] Mineral Councils of Australia, 'Removing the prohibition on nuclear power', September 2017, at https://minerals.org.au/sites/default/files/180605%20Removing%20the%20prohibition%20on%20nuclear%20power.pdf (Accessed May 20, 2019).

[156] 'Nuclear power stations are not appropriate for Australia, and probably never will be', January 23, 2019, at https://www.climatecouncil.org.au/nuclear-power-stations-are-not-appropriate-for-australia-and-probably-never-will-be/ (Accessed May 20, 2019).

[157] 'Response to the Nuclear Fuel Cycle Royal Commission', Government of South Australia, November 2016, at http://assets.yoursay.sa.gov.au/production/2016/11/15/04/14/54/d66e8e3d-fadf-4c6e-a5c4-e793f60abe1e/Government%20Response%20-%20NFCRC.pdf (Accessed May 14, 2019).

Australia's Uranium Exports: Quantity (Tonnes) and Value (US$ Million)

2008–2018

Year	Quantity	Value
2008–2009	10114	1033
2009–2010	7555	758
2010–2011	6950	610
2011–2012	6918	607
2012-2013	8391	823
2013–2014	6701	622
2014–2015	5515	532
2015-2016	8417	926
2016–2017	7081	596
2017–2018	7343	575

Source: ASNO, 'Annual Report 2017–2018', at https://dfat.gov.au/about-us/publications/corporate/annual-reports/asno-annual-report-2017-18/asno-annual-report-2017-18.pdf (Accessed May 12, 2019), p. 26.

AUSTRALIA AND INDIA'S NUCLEAR POLICY CHOICES

An essential part of Australia's complex history relating to nuclear issues has been the country's support to the international non-proliferation regime architecture. Therefore, Australia was highly critical of India's 1974 as well as 1998 nuclear tests. When India blocked the consensus at the 1996 CTBT session in Geneva, Australia expressed its unhappiness at the development. At the same time, given the growing Australia-India synergy in the Asia-Pacific as well as the growth in the bilateral relations, coupled with the possibility of good business prospects for the Australian uranium industry, Australia supported the Indo-US nuclear deal.

However, as noted earlier, Australia-India nuclear negotiations did not begin until five years after the NSG exemption. Then Australian Foreign

Minister, Stephen Smith, at a press conference in Tokyo in February 2008, emphatically insisted that the government 'will not authorize the export of uranium to a country which is not a party to the NPT'.[158] Indian policy makers impressed upon Canberra that unless there was some forward movement on the nuclear issue, the India-Australia strategic partnership, reached in 2009, will not fully materialise. The then Indian Foreign Minister, S.M. Krishna, stated as much at the 7th India-Australia Foreign Minister's Framework Dialogue in Canberra in January 2011.

> It is important to realize that the strategic partnership will not reach its full potential without some progress being made in the area of nuclear energy. I would be interested in hearing from you, at some point today, on how you see the issue evolving in Australia over the next few months.[159]

However, the Joint Statement issued at the end of that Framework Dialogue, surprisingly, does not make any mention of the nuclear trade issue, but reiterates the 'importance of cooperation in the resources and energy sector'. The Statement only flags the holding of the first biennial Australia-India Energy and Minerals Forum in 2010 in Perth which, it notes, builds on the 2008 agreement that set the stage for cooperation on the five strategic Action Plans (Coal, New and Renewable Energy, Mining and Minerals, Power, Petroleum and Natural Gas).[160]

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158 Cited in Brahma Chellaney, 'Australia-India-Japan-U.S. Quadrilateral Initiative: An idea that will survive the current vicissitudes', February 21, 2008, at https://chellaney.net/2008/02/21/australia-india-japan-u-s-quadrilateral-initiative-an-idea-that-will-survive-the-current-vicissitudes/ (Accessed October 1, 2018).

159 'Opening Remarks of EAM at the Seventh India-Australia Ministers' Framework Dialogue', MEA, January 20, 2011, at https://www.mea.gov.in/Speeches-Statements.htm?dtl/295/opening+remarks+of+eam+at+the+seventh+indiaaustralia+ministers+framework+dialogue (Accessed November 14, 2018).

160 'Joint Statement of Australia-India Foreign Ministers' Framework Dialogue', MEA, January 20, 2011, at https://www.mea.gov.in/press-releases.htm?dtl/777/joint+statement+of+australiaindia+foreign+ministers+framework+dialogue (Accessed November 14, 2018).

When asked in Parliament about the delay on the part of Australia to commit to an agreement with India for the supply of uranium, Minister of State for External Affairs, E. Ahmed ,stated in the Rajya Sabha on March 10, 2011 that,

> The Australian government has clarified that its stand on the issue emanates from the Labour party's deeply held views on Nuclear Non-Proliferation Treaty (NPT) and is not India specific. The Labour government's policy of sale of uranium permits sale only to countries that have signed NPT.[161]

The Julia Gillard government was finally able to reverse the 2008 decision of the Kevin Rudd government and secure the support of her party, the Labour Party, at the party's December 2011 Plenary, with a narrow majority of 208 voting in favour and 185 voting against.[162] Gillard's argument was that the Indo-US nuclear deal and the NSG exemption 'effectively lifted the de facto international ban on co-operation with India in this area. Consequently, for us to refuse to budge is all pain with no gain.'[163] Labour granted India an exception as 'an important strategic partner for Australia'.[164] Analysts have termed the Australian-Indian nuclear export deal as a 'key barometer of the evolution of Australian nuclear policy.'[165]

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161 Rajya Sabha, Unstarred Question No. 1582, 'Refusal of Australia to supply uranium', n. 110.

162 Crispin Rovere and Kalman A. Robertson, 'Australia's Uranium and India Linking Exports to CTBT Ratification', *Security Challenges*, 9(1), 2013, pp. 51–52.

163 Cited in AFP, 'Australia moves to lift India uranium ban', November 14, 2011, at https://www.mea.gov.in/articles-in-foreign-media.htm?dtl/16410/australia+moves+to+lift+india+uranium+ban (Accessed July 6, 2016).

164 Daniel Flitton, 'Australia backs India to join nuclear supplier club, China hesitates', June 23, 2016, http://www.smh.com.au/world/australia-backs-india-to-join-nuclear-supplier-club-china-hesitates-20160623-gpq1pq.html (Accessed July 6, 2016).

165 Jeffrey S. Landis and Jeffrey S. Lantis, 'Elections and Enduring Realities: Australia's Nuclear Debate', ACT, 38(3), April 2008, p. 28.

The India-Australia NCA was tabled in the Australian Parliament on October 28, 2014. The agreement was subject to rigorous debate at the Australian Parliament's Joint Standing Committee on Treaties (JSCOT) in November 2014.[166] A wide cross-section of civil society, industry, anti-nuclear groups, representatives of the Aboriginal populations (on whose land uranium mining was taking place), provincial governments keen on cashing in on the demand from the expected surge of construction of civilian nuclear industry in India, environmental groups, religious groups, among others, submitted their views on the NCA.

Groups like the Australian Conservation Foundation (ACF), Friends of the Earth, the Uniting Church of Australia, the Justice and International Commission, the Gundjeihmi Aboriginal Corporation, the International Campaign against Nuclear Weapons (ICANW), Australia, expressed opposition to the India-Australia NCA. For instance, the ACF charged that Australian uranium will free up India's domestic sources of uranium for use in India's nuclear weapons.[167] The ICANW charged that the NCA will tarnish Australia's credibility, and undermine its non-proliferation and disarmament objectives.[168]

The report of the JSCOT acknowledges that the India-Australia NCA

> can double the size of Australia's nuclear mining sector. In terms of export income, it could add up to $1.75b to the Australian economy. It could increase the number employed in uranium mining from 4,000 at present to 8,000.[169]

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166 See The Parliament of the Commonwealth of Australia, 'Report 151: Treaty tabled on October 28, 2014: Agreement between the Government of Australia and the Government of India on Cooperation in the Peaceful Uses of Nuclear Energy', at https://www.aph.gov.au/Parliamentary_Business/Committees/Joint/Treaties/28_October_2014/Report_151 (Accessed July 6, 2016)

167 Ibid, p. 26.

168 Ibid, pp. 26–27.

169 Ibid, p. vii.

The Report flagged benefits to the mining industry of states like South Australia, Western Australia, and Queensland. However, the JSCOT report recommended that the government should continue to pursue with India certain non-proliferation issues (CTBT; FMCT; the development of thermonuclear weapons), those relating to nuclear safety (including relating to an 'independent' nuclear regulatory authority); and enquired from the government whether the NCA 'breached Australia's obligations under the Rarotonga Treaty'. Article 3 of the South Pacific NWFZ requires signatories 'not to take any action to assist or encourage the manufacture or acquisition of any nuclear explosive device by any State'.

The Australian Safeguards and Non-Proliferation Office (ASNO) clarified that the India-Australia NCA does not violate any of Australia's treaty obligations. Critics of the agreement (like John Carlson, a former head of the Australian safeguards authority) insisted that it was a 'missed opportunity' to get more non-proliferation concessions from India in return for Australia's uranium, including signing of the CTBT. In its response to Report 151 in November 2015, the Australian government defended the agreement, and highlighted the fact that India and Australia share the same objectives of nuclear disarmament, and pointed out that India's continued moratoria on nuclear testing 'helps prevent the development of thermonuclear weapons because the development of such weapons relies on explosive nuclear testing to prove and refine weapon design'.[170] The Civil Nuclear Transfers to India Act 2016 was finally passed in December 2016, paving the way for the sale of Australian uranium to India.

KEY ELEMENTS OF THE AUSTRALIA-INDIA NCA

The India-Australia NCA recognises Australia's possible role as a long-term, reliable supplier of uranium to fuel India's civilian nuclear programme. It underlines the 'shared belief' of both the countries that

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[170] 'Australian Government response to the Joint Standing Committee on Treaties report: Report 151', November 11, 2015, at https://www.aph.gov.au/Parliamentary_Business/Committees/Joint/Treaties/28_October_2014/Government_Response (Accessed July 17, 2016).

cooperation in peaceful nuclear energy use should be consistent with the 'respective international obligations' of each state. While the scope of the agreement primarily relates to the supply of uranium, it also envisages cooperation in the fields of radiation use in industry, agriculture, medicine, and environment as well as in such areas as radiation safety and radioactive waste management. Such cooperation could include joint research and development (R&D), the transfer of technology, the training of personnel, apart from the supply of uranium.

The NCA gives India the right to re-process Australian uranium under IAEA safeguards, and at facilities India promised it would construct (as part of the India-US nuclear NCA) to specifically re-process foreign origin nuclear material. Australian critics of the NCA have been particularly upset with the re-processing clause as, in their view, the clause compromises Australia's safeguard standards by not, for instance, requiring the return of Australian uranium in the case of a breach of the agreement.[171] The right of return of nuclear material/components, in the case of a breakdown of the agreement, is a key feature of the India-Japan NCA, as pointed out in the section dealing with the key elements of that agreement, as indeed the India-US NCA also. The provisions requiring the return of nuclear materials in case of breach of the agreement are present in the Australia-UAE NCA of April 2014, for instance, and in the Australia-Ukraine NCA of June 2017.[172] Both the NCA's, with the UAE and Ukraine, it is significant to note, were concluded just prior to and in the immediate aftermath of the Australia-India NCA.

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171 John Carlson, 'Is the Abbott Government abandoning Australia's nuclear safeguards standards for India?' October 1, 2014, at http://www.lowyinterpreter.org/post/2014/10/01/Is-the-Abbott-Government-abandoning-Australias-nuclear-safeguards-standards-for-India.aspx (Accessed July 17, 2016).

172 See Article XV, 2(b), 'Agreement between the Government of Australia and the Government of the United Arab Emirates on Cooperation in the Peaceful Uses of Nuclear Energy', April 14, 2014, at http://www.austlii.edu.au/au/other/dfat/treaties/ATS/2014/10.html (Accessed May 22, 2019).

While the enrichment of uranium below 20 per cent U-235 is permitted, any percentage above that will have to be done with prior Australian consent. Australian consent is also required for the possible transfer of Australian origin nuclear material to a third state, and that too after obtaining assurances that Agency safeguards are being implemented in that state, and that adequate physical protection measures are in place. The Australia-UAE NCA provides for such enrichment or reprocessing of Australian nuclear material outside UAE territory, since the UAE has renounced the option of having reprocessing facilities on its territory as part of its nuclear policy. Australia provides generic, long-term consent for reprocessing to countries like Japan and to the European Atomic Energy Community (EURATOM).

The NCA will be in force for 40 years (that is, till 2054), and can be renewed automatically for a period of 20 years. The agreement can be terminated by giving prior notice of one year, and by providing the reasons for seeking such a termination, with both parties noting that such a situation is 'extremely unlikely'. The NCA required both parties to establish an 'Administrative Arrangement' to effectively implement the terms and conditions of the NCA. The administrative arrangement was completed on November 13, 2015, thus paving the way for the transfer of Australian uranium to India. This was just ahead of the meeting between Prime Ministers Modi and Turnbull on the side lines of the G20 Summit in Turkey.

This was a significant achievement as there was some debate among critics of the NCA as to the nature of the oversight India was willing to provide as regards Australian origin nuclear material (AONM). Australia insists that a country importing its nuclear material provides periodic reports as to the movement of its nuclear material within the fuel cycle of the country importing that material, over and above that country's accounting reports to the IAEA. The AONM designation is largely applied to nuclear material supplied to a NWS recognised as such by the NPT, as an additional layer of nuclear material accountancy, to prevent the possibility of such material or its derivatives being used advertently or inadvertently for weapons purposes by the NWS.

The Australia-India NCA does not have provisions for such specific reports (and it is not in the public domain whether the Administrative

Arrangement related to the implementation of the NCA has such provisions) but incorporates standard language which stipulates that the items supplied will remain subject to IAEA safeguards, in tune with the safeguards agreement entered into by India with the IAEA on February 2009.

CHAPTER 4

GOING FORWARD

MoS (PMO), Prithvi Raj Chavan, told the Rajya Sabha in April 2010 that work on light water reactors based on international cooperation with countries like the USA would start in 2012, and construction would be finished in six years (by 2018).[173] Obviously, not much progress has been made in realising the fruits of such international collaboration. While issues like nuclear liability, domestic opposition to the siting of nuclear plants, among other issues, have hogged the limelight as factors that have led to such delays. It is not often flagged that India had to overcome some serious reservations to cooperation in the civil nuclear field with countries like Japan and Australia, due to a combination of domestic political dynamics, non-proliferation policy stances, as well as a significant downturn in the global nuclear industry in the aftermath of Fukushima.

The Toshiba-Westinghouse saga is symptomatic of the flux the Japanese nuclear industry had to undergo, with Toshiba eventually opting out of the business of building whole nuclear power reactors overseas by January 2018, though it (and other Japanese nuclear reactors component suppliers, like JSW) continue to be major equipment suppliers to nuclear plants worldwide.

Having overcome such hurdles on the nuclear high road, India is now finally on the cusp of realising its much-delayed nuclear power dreams. Currently, nine power reactors are at various stages of being built, to be completed by 2025. Additionally, financial sanction was accorded

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[173] Rajya Sabha, Unstarred Question No. 2918, 'MOU's signed by NPCIL', April 22, 2010, at http://www.dae.nic.in/writereaddata/rsus220410.pdf (Accessed May 14, 2019).

in June 2017 for 12 new nuclear power reactors, expected to be built by 2031.[174] The government expects the installed nuclear power capacity to increase to 13480 MW by 2024–25, from 6780 MW at the end of December 2018.

Japanese reactor components (for imported French or American reactors) or Australian uranium (for both indigenous as well as imported reactors) can hope to be a part of the equation going forward. The Australian safeguards office, ASNO, at the time of the JSCOT hearings, estimated that India's uranium requirements could go up to 2000 tonnes by 2025 itself. India's NCAs with Japan, Australia, and indeed with major uranium suppliers like Canada, will allow the country not to be dependent on domestic sources of uranium. It is pertinent to note that the then MOS (PMO), Mr. Narayanasamy, in November 2012, attributed the shortfall in meeting nuclear power generation targets in the XI Five Year Plan (2007–2012) to the 'non availability of indigenous uranium in the required quantity, delay in fruition of international cooperation resulting in delay in availability of imported uranium …' among other reasons.[175]

The 12 new reactors that will be built for which approvals have been accorded (Gorakhpur, Haryana 3 and 4; Mahi-Banswara, Rajasthan 1-4; Kaiga, Karnataka 5 and 6; Chutka, Madhya Pradesh 1 and 2; Kudankulam, Tamil Nadu 5 and 6) as well as the eight reactors under construction (Kakrapar, Gujarat 3 and 4; Rawatbhata, Rajasthan 7 and 8; Kudankulam, Tamil Nadu 3 an 4; Gorakhpur, Haryana 1 and 2) will be under IAEA safeguards and will, therefore, be eligible to receive fuel from foreign suppliers.

Currently, eight reactors with total installed capacity of 2400 MW, which are not under IAEA safeguards, are being powered by domestic

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[174] PIB, 'Atomic energy production', December 12, 2018, at http://pib.nic.in/newsite/PrintRelease.aspx?relid=186317; PIB, 'Proposals for New Atomic Power Plants', January 3, 2019, at http://pib.nic.in/newsite/PrintRelease.aspx?relid=187135 (Accessed May 14, 2019).

[175] Rajya Sabha, 'Target of atomic energy', November 22, 2012, at https://rajyasabha.nic.in/rsnew/Questions/ShowQn.aspx (Accessed May 14, 2019).

uranium. These include the Tarapur Atomic Power Station 1 and 2, the Madras Atomic Power Station 1 and 2, and the Kaiga Atomic Power Station 1-4. The remaining 14 reactors (a few of them under construction) that were placed under IAEA safeguards (under India's Separation Plan in 2006) have been receiving foreign fuel in the aftermath of the NSG waiver. Indeed, since 2009, India has received more than 9600 MT of uranium fuel from Canada, Russia, France, Uzbekistan, and Kazakhstan.[176] MoS (MEA), General (Retd.) V.K. Singh, told the Rajya Sabha in August 2015 that

> The operationalization of the Agreement [India-Australia NCA] offers possibilities of long term reliable uranium supplies from Australia to India that can facilitate sustainable development of the country's nuclear energy programme including building up of strategic fuel reserves.[177]

This is even as the DAE has ambitious plans to increase uranium ore production in the country by nearly 10 times the current figures, by 2032. The government, however, does not disclose the current amount of total uranium production in the country, stating that such facts are 'not in the public interest'.[178] The DAE notes that it has established the presence of over 300,000 tonnes of uranium oxide (equivalent to 250,000 tonnes of uranium) found in 'low-grade' deposits across the country, primarily in Jharkhand, Andhra Pradesh, Karnataka, Rajasthan, and Meghalaya.[179] The Uranium Corporation of India Limited currently operates eight uranium mines, and three processing plants in Jharkhand and Andhra Pradesh.

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[176] PIB, 'Shortage of nuclear fuel', January 4, 2018, at http://pib.nic.in/newsite/PrintRelease.aspx?relid=175347 (Accessed May 12, 2019).

[177] Rajya Sabha, 'Civil nuclear deal with Australia', August 6, 2015, at https://www.mea.gov.in/rajya-sabha.htm?dtl/25668/q+no1961+civil+nuclear+deal+with+australia (Accessed September 20, 2018).

[178] Lok Sabha, 'Uranium production', December 19, 2018, at http://loksabhaph.nic.in/Questions/QResult15.aspx?qref=74725&lsno=16 (Accessed May 14, 2019).

[179] Lok Sabha, 'Uranium production', July 25, 2018, at http://loksabhaph.nic.in/Questions/QResult15.aspx?qref=70010&lsno=16 (Accessed May 14, 2019).

As against India's uranium deposits, Australia's deposits are estimated to stand at nearly 2.2 million tonnes.[180] Australia's uranium exports during 2017–18 stood at 7,342 tonnes of uranium ore concentrate (UOC), valued at US$ 575 million. During 2008–09, Australia exported over 10,114 tonnes of UOC worth US$ 1 billion. In its Annual Report 2017–18, ASNO notes that the rise in reactor productivity worldwide and the high levels of uranium production, among other factors, are continuing to keep uranium prices at their lowest in decades.[181]

Given some of the challenges that the Australian uranium industry itself is facing, including in the form of pushbacks to such imports from domestic US uranium producers as noted in earlier sections, the growth and forward trajectory of India's nuclear industry will be keenly anticipated in that country. Reports in July 2017 cited Australia's Foreign Minister as stating that the first shipment of Australia's uranium to India was 'on its way', to fuel India's existing nuclear reactors under IAEA safeguards.[182] A test sample of UOC was sent to India for chemical analysis in July 2017. The ASNO Annual Report 2017–2018 confirms that, as on December 2017, AONM (natural uranium specifically), was present in India, apart from Canada, China, South Korea, Japan, the EU, and the USA. On its part, the Indian nuclear industry is finally seeing some forward movement a decade after the NSG waiver. India also received the first shipment of nuclear fuel from Canada in December 2015.

Even as the nuclear industry is on the cusp of taking off, there has been a quantum growth in the contributions of renewables like solar and wind to the overall power equation. Given India's massive energy requirements, both of these developments are to be welcomed. For instance, solar energy increased from 2.63 GW in 2014 to over 22

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180 ASNO, 'Annual Report 2017–18', n. 141, p. 25.

181 ASNO, 'Annual Report 2017–18', n. 141, pp. 25-26.

182 James Bennett, 'Australia quietly makes first uranium shipment to India three years after supply agreement', July 17, 2017, at https://www.abc.net.au/news/2017-07-19/australia-quietly-makes-first-uranium-shipment-to-india/8722108 (Accessed October 24, 2019).

GW in June 2018. Wind power increased to 32 GW from 21 GW in 2014. Renewable energy accounted for 75 GW of electricity generated as of December 2018, inclusive of 15 GW from bio-power and small hydro-power, apart from wind and solar.

Therefore, even as nuclear power accounted for just 2 per cent of the country's totalled installed capacity as of December 2018, renewable energy accounted for over 21 per cent of the total installed capacity (which stood at 347 GW).[183] The government has set an ambitious goal of reaching 175 GW of renewable power by 2022. The country expects to source 40 per cent of its energy requirements from renewables by 2030, as per its commitments given at the time of signing the Paris Accord on Climate Change. However, some analysts point out that while the growth in the share of renewables is to be welcomed, there are still some imponderables associated with renewable energy — like lack of economically feasible and technologically viable storage solutions.[184] The government maintains that nuclear energy, despite being capital intensive to set up, is cost-effective in the long run, and is a viable and clean energy source.[185]

Apart from the goal of sustaining the forward momentum in India's nuclear energy sector, an additional variable that India flagged in securing NCAs with countries like Australia, and indeed with Japan — 'a country with advanced nuclear technology and an important member of NSG' — was that it 'strengthens India's credentials for full membership of the NSG'.[186] While both Japan and Australia have

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[183] PIB, 'Year End Review: Ministry of New and Renewable Energy', December 10, 2018, at http://pib.nic.in/newsite/PrintRelease.aspx?relid=186228 (Accessed May 12, 2019).

[184] Atanu Mukherjee, 'Getting over the renewables delusion', May 8, 2019, at https://energy.economictimes.indiatimes.com/energy-speak/getting-over-the-renewables-delusion/3558 (Accessed May 14, 2019).

[185] PIB, 'Viability of nuclear power projects', August 1, 2018, at http://pib.nic.in/newsite/PrintRelease.aspx?relid=181351 (Accessed May 14, 2019).

[186] Rajya Sabha, Question No. 1766, 'Indo-Japan nuclear agreement leading to NSG membership', December 1, 2016, at http://164.100.47.4/newrsquestion/ShowQn.aspx (Accessed October 14, 2018).

supported India's entry into the NSG, it has not materialised as of May 2019. However, India's entry into the MTCR, the Wassenaar Arrangement, and the Australia Group is testimony to the real progress India's diplomacy has achieved in the years since securing the historic NSG waiver.

Apart from the United States, India's nuclear cooperation agreements with Japan and Australia have been the most contentious domestically within those countries. The 'slow embrace' of India's civil nuclear credentials by Japan — given the four years for negotiations to begin (after the December 2006 Joint Statement which talked about discussions regarding such an agreement with India) in addition to the six years it took for negotiations to bear fruit — took place despite the strategic context of increasingly closer economic, political, and security ties. While it took fewer than two years from the commencement of negotiations to the signing of the agreement — as against six years in the case of the India-Japan NCA — the process that led to the signing of the India-Australia NCA was contentious. Having successfully overcome such hurdles on the nuclear high road, India is now finally on the cusp of realising its much-delayed nuclear power targets.

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