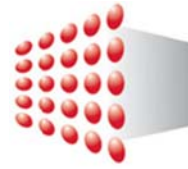


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India and the Nuclear Suppliers Group

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ABSTRACT

India is now the only country that can trade in nuclear materials without being a signatory to the Nuclear Non-proliferation Treaty. The Nuclear Suppliers Group waiver allows India to buy uranium for its existing reactors, as well as technologies to reprocess spent fuel and help reduce radioactive waste. The NSG waiver was a prerequisite for a proposed nuclear trade agreement between the US and India. In October 2008, an agreement was reached which completely lifted a three-decade moratorium on American nuclear trade with India. President Obama re-affirmed American commitment to this agreement in November 2009.

KEY WORDS

India, Nuclear Suppliers Group, Electricity, Power Plants, Uranium

1. In September 2008 the 45-member Nuclear Suppliers Group (NSG), an international nuclear supplier export control consortium, lifted an embargo on nuclear commerce with New Delhi. The NSG was formed, and the embargo was put in place, immediately following India's testing of a nuclear bomb in 1974.¹ The country has large-scale nuclear research capacity. Besides nuclear power plant design and construction, there are uranium mining and milling, production of heavy water, uranium enrichment, fuel fabrication, reprocessing and waste management. India is known to have considerable weapons-grade plutonium, nuclear weapons and intermediate-range ballistic missiles to deliver them.² In April 2007 and May 2008, India successfully tested longer range missiles capable of delivering nuclear warhead payloads.³
2. India is now the only country that can trade in nuclear materials without being a signatory to the nuclear non-proliferation treaty (NPT).⁴ The waiver allows India to buy uranium for its existing reactors, as well as technologies to reprocess spent fuel and help reduce radioactive waste.
3. In the run-up to the NSG vote in September 2008, there was considerable tense global and national discussion of India's case, but now it is a 'done deal'. The waiver was granted on the basis of India's promise to adhere to a strict non-proliferation policy and in recognition of its huge electricity requirements at a time when the world is anxiously trying to stem climate change. Proponents of sales to India argue that it will help India reduce its currently very heavy dependence on coal.
4. The questions now are a) where will India get the uranium it requires and b) is the NSG effective?

NSG Waiver for India

5. The NSG waiver was a prerequisite for a proposed nuclear trade agreement between the United States and India. In March 2006, President Bush declared that the United States and India were “closer than ever before”, and that the partnership had “the power to transform the world”.⁵ The US had much to gain from improved ties: India is the world’s largest democracy, is an enormous and accelerating economy (and hence market for American goods and services), is an obvious partner in the war on terrorism, and is a counterweight against a rising China. Then in October 2008, a final agreement was reached which completely lifted a three-decade moratorium on American nuclear trade with India.

6. Under the agreement, the US is to share civilian technology and material with India in exchange for India’s opening its civilian reactors (but not its military ones) to the International Atomic Energy Agency (IAEA) inspectors. Specifically, it will permanently place all future civilian and breeder reactors under IAEA safeguards, though it retains the sole right to the designation of a reactor as either civilian or military. Existing military facilities and stockpiles of nuclear fuel will be exempt from inspection. India also agreed to continue its moratorium on nuclear weapons testing and to strengthen the security of its nuclear arsenals.⁶ India had signed the “Additional Protocol”, opened for signing in 1998, which permits inspection not only of nuclear facilities and material, but also research and development activities. This Protocol requires complete details on nuclear fuel cycles and the manufacturing and exporting of nuclear-related equipment and technology.

7. In November 2009, President Barack Obama re-affirmed American commitment for “the early and full implementation of our civil nuclear cooperation agreement”. The perception is that India is now being treated as a responsible power which is a

natural ally to American interests.⁷

8. Canada, the original source of fissile material for India's first nuclear tests, had blocked all nuclear sector collaboration with the subcontinent. However, also in November 2009, an agreement was signed allowing Canadian firms to export and import "controlled" nuclear materials, equipment and technology to and from India.⁸ The Indian Prime Minister pledged that everything would be used for civilian purposes only and that there would be no repeat of the 1974 deception.

India's Uranium Requirements

9. India currently suffers a serious shortfall in electricity supply, estimated at 15% and growing.⁹ Presently, only 3% of the country's electricity is generated from nuclear power plants. About two-thirds (68 per cent) is generated from coal, 15 per cent from hydropower, 8 per cent from natural gas, 4 per cent from oil and 2 per cent from renewables.¹⁰ There are now 17 reactors in six states.¹¹ However, due to difficulties in procuring uranium, they together operate at less than 50% capacity.¹²
10. India has 54,000 tons of uranium resources categorised as "reasonably assured" and another 23,500 tons as "estimated additional resources".¹³ The country will necessarily need to import more uranium in the future.
11. The existing mines are in Jharkhand and Andhra Pradesh and Madhya Pradesh. Efforts in Madhya Pradesh are complicated, however, by Naxalite inhabitants.¹⁴ There are also deposits in Meghalaya, but there are high environmental risks. Exploitation of the reserves at Domiasaiat is hampered by their proximity to the

border with Bangladesh and heavy annual rains. There is considerable anti-mining campaigning within India. The federal and state governments face stiff opposition on many fronts.

12. The first plant was commissioned in 1969.¹⁵ If India had not faced difficulties in procuring uranium, it would likely by now have many more nuclear power plants. So keen is the government to provide electricity to the masses this way, that despite the problems in obtaining uranium, another six plants, including a fast breeder reactor, are under construction and Prime Minister Manmohan Singh has stated that nuclear power could reach 40 GW, or about a third of India's total generation. The target for 2020 is to generate 20,000 MW (20 GW) of electricity from nuclear power. This would require 78,000 tons of uranium.
13. India has 290,000 tons of thorium reserves, or about a quarter of the world total.¹⁶ Much effort is being devoted to trying to utilise these instead of uranium. The goal is to develop an advanced heavy-water thorium cycle.

Possible Sources of Uranium

14. There has been considerable debate in recent years within Australia about selling uranium to India. It has the world's largest reserves, about 40% of the world total, followed by Canada. However, it has a policy not to sell nuclear fuel to countries that have not signed the NPT. The Liberal Party, led by John Howard, agreed to supply about 20,000 tons of uranium per year to China beginning in 2010. In August 2007, it agreed to sell to India subject to the finalisation of the US-India civil nuclear deal and conclusion of a bilateral Australia-India nuclear safeguards agreement with the IAEA. However, the Labour government, led by Kevin Rudd, overturned it when they came to power in November 2007.¹⁷

15. The various state governments within Australia disagree over the mining of uranium. It is opposed in Western Australia and Queensland, but is allowed in South Australia and the Northern Territory. The latter, of course, stand to gain millions in royalties. In 2006, a major deal was signed to sell uranium to China. Australia itself has no nuclear power plants. Many citizens believe that Australia should greatly reduce the use of fossil fuels for electric power generation in favour of nuclear power.¹⁸

16. Ironically, the Rudd government backed India at both the IAEA and NSG. However, it cannot sell to India because of India's non-NPT status. Thus Australia's position seems hypocritical: it refuses to sell uranium to India, but the NSG waiver authorizes the sale of uranium and other nuclear-controlled goods to India by other countries.

17. Alas, Australia is not the only vendor of uranium. It can easily sell to other countries and India can potentially buy from Russia, Kazakhstan (has 15% of the world's reserves), South Africa, Canada (presently the world's largest supplier), Brazil and Nigeria. At the time of writing Russia and France had both agreed to sell uranium to India.

Is the NSG Still Effective?

18. The NSG and NPT are replete with inconsistencies. For example, the NSG imposes restrictions on Iran in an attempt to prevent it from building nuclear weapons despite Iran's already having signed the NPT. China, an NSG member since 2004 is planning to sell two nuclear reactors to Pakistan through an agreement reached prior to 2004. China is purported to have already given Pakistan instructions for bomb-making. Canada, with large reserves of uranium, would like

to acquire the necessary technology to enrich the uranium it exports, but the NSG bars this. Brazil is refusing to sign the Additional Protocol and is limiting access to an enrichment plant.

19. Now that India has succeeded in getting a waiver, India can import the uranium it needs for its nuclear power plants and make all the weapons it wants. Though the government has promised to use the nuclear materials exclusively for peaceful purposes, there is nothing preventing it from carrying out nuclear weapons testing. Israel and Pakistan could well start pressing for a similar exemption.

20. Since the waiver, it has become even more apparent that the criteria for the transfer of uranium-enrichment and plutonium-reprocessing technologies are not clear.¹⁹ India insists that the waiver means that all restrictions are off now. However, there remains great concern among the international community that technology supplied to India for making civilian fuel could also be used to produce fissile material.

21. Nuclear power is possibly facing a new frontier. With the threat of global warming, countries such as India which need to greatly expand their electricity output, are more seriously than ever looking to nuclear power. There is an acute need for new international binding agreements to monitor nuclear research and activities. The world is not the same place that it was in the 1970s when the NPT was ratified and the NSG was created.

References

- 1 To make the bomb, India used plutonium harvested from a heavy water reactor supplied by Canada and the United States. Another bomb was tested in 1998.
- 2 Many reports have been produced by the Institute for Science and International Security, the US Department of Defence, Jane's Intelligence Review, etc.
- 3 Nuclear Threat Initiative, India Profile at http://www.nti.org/e_research/profiles/India/Missile/index.html [Dec. 2009].
- 4 The purpose of the Treaty on the Non-Proliferation of Nuclear Weapons, also known as the Nuclear Non-Proliferation Treaty (NPT or NNPT), 1968, is to limit the spread of nuclear weapons. Five of the 189 countries party to the treaty have nuclear weapons: the United States, United Kingdom, France, Russia and China. There are only four non-NPT states: India, Israel, Pakistan and North Korea. India and Pakistan have both tested nuclear bombs. Israel has had a policy of opacity and North Korea withdrew from the Treaty. India could not sign the NPT in 1968 because it already had nuclear weapons. India believes the NPT is discriminatory because it allows only the five countries (which happen to be the permanent members of the UN Security Council) to legally possess nuclear weapons.
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- 7 Malini Parthasarathy “Fully Committed to Implementing Civil Nuclear Deal, Says Obama” *The Hindu Online* ed., 25 Nov. 2009 <http://www.hindu.com/2009/11/25/stories/2009112561990100.htm> [Dec. 2009].
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- 11 World Nuclear Association, “Nuclear Power in India”, Nov. 2009 at
<http://www.world-nuclear.org/info/inf53.html> [Dec. 2009].
- 12 *Ibid.*
- 13 *Ibid.*
- 14 Regarded as terrorists in India, the Naxalites are communist groups that originated in West Bengal but have spread to the rural areas of central and eastern India.
- 15 See World Nuclear Association at <http://www.world-nuclear.org/info/inf53.html> [11 Nov. 2008].
- 16 *Ibid.*
- 17 Under the South Pacific Nuclear Free Zone Treaty of 1985, Australia is bound not to sell nuclear materials/equipment to countries that refuse to open all of their nuclear facilities to international inspections.
- 18 Australia’s breakdown of electricity generation is approximately: 92% thermal, 7% hydro and 1% other renewable.
- 19 “When Nuclear Sheriffs Quarrel”, *The Economist*, 1 Nov. 2008, pp. 60-61.

About the Authors

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