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U.S.–India Nuclear Cooperation and Non-Proliferation

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The “Agreement for Cooperation Between the Government of the United States of America and the Government of India Concerning Peaceful Uses of Nuclear Energy”¹ (hereinafter referred to as “U.S.–India Nuclear Cooperation Agreement” or “123 agreement”) acknowledges a shift in international strategies and relations in both countries. As to India, it marks the end of nuclear isolation resulting from constraints, embargoes and controls and instead opens the path for nuclear commerce. With respect to the United States it entails a major geo-strategic ally in the evolving South-Asia region and promises large commercial benefits to the U.S. nuclear sector. This so called “nuclear deal” constitutes one of the major political, economic and strategic relationships developing between the two countries since 2001. It will lead to the separation of military and civilian nuclear installations in India, the latter to be placed under the safeguards system of the International Atomic Energy Agency (IAEA). It thus *de facto* accepts India in the club of nuclear weapon states within the meaning of the Treaty on the Non-proliferation of Nuclear Weapons (NPT)² although it is not party to this treaty, refuses adhering to it, officially possesses nuclear weapons and is not subject to a comprehensive system of safeguards.

A number of instruments which deal with the non-proliferation aspect of the nuclear co-operation between the United States and India, both domestically and internationally, have been concluded as a result of the Joint Statement between President George W. Bush and Prime Minister Manmohan Singh of 18 July 2005,³ followed by the U.S.–India Joint Statement of 2 March 2006.⁴ National legislation and international agreements were adjusted to allow nuclear co-operation with India for civilian purposes based on non-proliferation commitments. The inclusion of India into the non-proliferation regime outside the NPT highlights the flexibility given to international principles, especially taking into account the continued commitment to prevent the proliferation of weapons of mass destruction and related technologies.

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1. Text of the agreement is reproduced on page 41 of this Bulletin.
2. Michel, Q., “Critical Reflections on the Treaty on the Non-Proliferation of Nuclear Weapons”, *Nuclear Law Bulletin* No. 80, p. 26.
3. Text of the 2005 Joint Statement is reproduced on page 29 of this Bulletin.
4. www.whitehouse.gov/news/releases/2006/03/20060302-5.html.

The end of the Cold War together with the economic growth of Asia, especially in China and India, has led to a realignment of Western policies and strategies towards these countries.

The U.S.–India Nuclear Cooperation Agreement and the recent waiver by the Nuclear Suppliers Group (NSG)⁵ primarily aim at developing nuclear commerce with India but have wider implications in the areas of strategic policies and international affairs. The 123 agreement, whilst being a clear deviation from established non-proliferation principles and policies, will be especially relevant with a view to changing international geopolitical equations and strategies.

This article will examine the developments which led to the 123 agreement and its subsequent implementation in a wider context of international relations and non-proliferation. First, the article gives a brief introduction into the Indian nuclear programme, the legislative framework and the factors which necessitated nuclear cooperation between India and the United States. Secondly, it will address the implementation of the nuclear deal and subsequent developments. Finally, it will analyse the non-proliferation issues related to the implementation of the agreement.

I. Indian nuclear programme and legislative framework

Indian nuclear programme

The Indian nuclear programme has its origins in the early 1940s and has since grown to considerable dimensions in range and content, with facilities and activities spread all over the country, affecting the country's social, economic and political life. India has effectively used nuclear energy for societal developments, especially in the field of agriculture and medicine. It is a country which insisted on indigenous technology and resources, stressing the importance of self-reliance. This resulted in the development of the industrial backbone necessary for a nuclear power programme.

The Indian nuclear power programme encompasses three stages in order to exploit the full potential of its vast thorium deposits and with the objective of acquiring indigenous capabilities for mastering the entire nuclear cycle. The first stage envisaged power generation from pressurised heavy water reactors (PHWRs) together with research and development covering the front and back end of the nuclear fuel cycle. The available uranium deposits in India can only be used for generating 10 000 to 12 000 MWe from PHWRs. The success of the first stage resulted in the initiation of the second stage which was based on the development of fast breeder reactors using the plutonium derived from the spent fuel of the PHWRs. The experience gained in the 20 years of operation of the fast breeder test reactor led to the development of the prototype fast breeder reactor at Kalpakkam.⁶ The third stage of reactors will be based on thorium-uranium233 cycle.

In India, there are currently 17 nuclear reactors that contribute to less than 3.0% (4 120 MWe) of the total installed electrical capacity, and six nuclear power plants are under construction. The country has received foreign assistance from the United States, Canada and Russia in order to develop its nuclear power programme. The U.S.–India Agreement for Peaceful Nuclear Cooperation of 1963⁷

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5. NSG Statement on Civil Nuclear Cooperation with India, INFCIRC 734 (Corrected); text reproduced on page 83 of this Bulletin.
 6. Implementation of the India–United States Joint Statement of 18 July 2005: India's Separation Plan, tabled by the Government of India before the Indian Parliament on 7 March 2006.
 7. Agreement for Cooperation between the Government of the United States of America and the Government of India Concerning the Civil Uses of Atomic Energy, signed in Washington on 8 August

resulted in the commissioning of the two Tarapur nuclear power plants at Maharashtra in the 1960s by General Electric. Later in the 1970s, Canadian assistance was obtained for the construction of the 300 MWe twin PHWRs at Rawatbhatta, Rajasthan. Moreover, the two Light Water Reactors (LWR) being built at Kodankulam, Tamil Nadu benefit from Russian support.⁸

The unique nature of a nuclear programme has led to linkages between the military and civilian programmes across the expanse of the nuclear fuel cycle⁹ and the national industrial infrastructure. India's stance against the NPT has limited its possibilities to engage in international co-operation in the field of nuclear energy and has also caused the non-separation of its military and civilian facilities since available resources were limited. India consistently refused to sign the NPT, arguing that it is discriminatory and that it fails to completely ban nuclear weapons. India's strategic and geographic position, together with its experiences with neighbouring countries, has influenced its argument regarding complete disarmament. The nuclear test conducted by India in 1974 at Pokhran, the halted nuclear test in 1995 due to U.S. pressure and two nuclear tests in May 1998 have further isolated the Indian nuclear industry from obtaining international assistance and co-operation.

Legislative framework

The peaceful uses of nuclear energy are governed by the Atomic Energy Act.¹⁰ The first Atomic Energy Act was passed in 1948 but repealed in 1962 in favour of more detailed and comprehensive enactments "to provide for the development, control and use of atomic energy for the welfare of the people of India and for other peaceful purposes".¹¹ The current act empowers the Central Government to carry out all tasks associated with the use of nuclear energy. Thus, the Indian nuclear programme is completely dominated by government entities as it is the Central Government which enjoys exclusive control on all matters relating to nuclear energy.¹² The 1987 Amendment to the Atomic Energy Act¹³ was mainly introduced to remove the financial hurdles faced by the Department of Atomic Energy in building nuclear power plants, as the provisions under the earlier 1948 Act did not allow commercial borrowing. It set the stage for the formation of the nuclear power corporation which resulted in more transparency, since it adopted certain accounting principles which had not been present in nuclear power establishments until then.¹⁴

Updating its legal regime will be a priority for India, particularly with respect to nuclear third party liability laws which will be critical to the implementation of the agreement, especially for suppliers. The "Henry J. Hyde United States-India Peaceful Atomic Energy Cooperation Act of

1963 and entered into force 25 October 1963, reproduced in Brahma Chellaney, *Nuclear Proliferation: The US-India Conflict* (New Delhi: Orient Longman, 1993), pp. 318-327.

8. The PHWRs use natural uranium (containing 0.7% fissile ^{235}U) while the imported LWRs/BWRs use uranium enriched to 3-4% ^{235}U .
9. Indian Prime Minister Manmohan Singh's Suo-motu Statement in Parliament on Civil Nuclear Co-operation with the United States, 27 February 2006.
10. Atomic Energy Act 1962, No. 33 (15 September 1962) as amended by Acts No. 59 of 23 December 1986 and No. 29 of 8 September 1987, text available at www.dae.gov.in/rules/aeact.pdf.
11. *Ibid*, Preamble.
12. Union List, Constitution of India, List 1, Entry 6.
13. Atomic Energy (Amendment) Act No. 29 of 1987.
14. Sukumar Muralidharan, "Birth of Nuclear Power Corporation", 23 E.P.W. 190 (1986).

2006”¹⁵ accordingly calls upon India to ratify or accede to the Convention on Supplementary Compensation of 12 September 1997.¹⁶

The Indian Atomic Energy Act does not specifically deal with the question of compensating nuclear damage. On the contrary, Section 29 of the act provides that:

“No suit, prosecution or other legal proceeding shall lie against the Government or any person or authority in respect of anything done by it or him in good faith in pursuance of this Act or of any rule or order made under”.

This provision seems to confer immunity from legal action for acts in *good faith* and the question arises whether the Central Government will reject claims by third parties who have suffered injury or damages as a result of a nuclear incident and who bear the burden of proof. While the Supreme Court has ruled in favour of strict and absolute liability,¹⁷ the legal framework remains too vague to provide international suppliers with the assurances.

With respect to the international level, India is party/contracting state to the following international conventions in the field of nuclear energy

- Convention on the Physical Protection of Nuclear Material
- Amendment to the Convention on the Physical Protection of Nuclear Material
- International Convention for the Suppression of Acts of Nuclear Terrorism
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Convention on Early Notification of a Nuclear Accident
- Convention on Nuclear Safety

It remains to be seen if India will follow the pleas of some states to accede to the Comprehensive Nuclear-Test-Ban Treaty, an accession which “would bring the Treaty a further, very important step closer to entry into force”.¹⁸ Article XIV of the treaty provides that it will enter into force 180 days after the date of deposit of the instruments of ratification of the 44 states listed in Annex 2 to which India belongs. As of November 2008, there are three states (India, Pakistan and

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15. Henry J. Hyde United States-India Peaceful Atomic Energy Cooperation Act of 2006, Pub. L. No. 109-401 (18 December 2006), available at www.govtrack.us/congress/billtext.xpd?bill=h109-5682.
 16. *Ibid*, Section 103 (b)(3)(E).
 17. In *M.C. Mehta v Union of India* (A.I.R.1987 S.C.1099), the Supreme Court observed that where an enterprise is engaged in a hazardous or inherently dangerous activity and damage results to anyone on account of an accident while conducting the hazardous activity, the enterprise is strictly and absolutely liable to compensate all those who are affected by the accident. Probably the most important case on the question of nuclear damage is *M.K. Sharma v Bharat Electronics* (A.I.R 1987 S.C. 1792). In this case the Supreme Court specifically recognised the right of workers to compensation for injuries suffered as a result of a radiation incident as part of their fundamental rights to life and liberty, and directed the Union of India to provide insurance coverage.
 18. Germany’s Minister of Foreign Affairs, Frank Walter Steinmeier, at the 2008 CTBT Ministerial Meeting.

Democratic People's Republic of Korea) that have not signed and nine states that have not ratified the treaty, out of the 44 states listed in Annex 2.¹⁹

If a state is inconsistent with internationally recognised standards or procedures, even if its legislative framework is well developed and complete, it will have implications on trade, co-operation and assistance.

II. Why Nuclear Co-operation?

The nuclear co-operation between India and United States is a result of commercial and strategic interests.²⁰ It can also be attributed to the fact that changes in international relations caused both countries to reconsider their strategies.

I. Indian interests

For the last six decades, Indian interests and policies in nuclear energy were not highlighted at the international level, largely due to its stance with respect to the Non-Proliferation Treaty.²¹ India's refusal to sign the NPT has, to a significant extent, limited its role in international affairs as India was viewed as a country in the group of states which support clandestine nuclear programmes. As a result, in its effort to embark on peaceful uses of nuclear energy, it not only became difficult to obtain nuclear technology and resources from other countries but it was equally difficult to support developing countries through nuclear commerce.

The Indian position on nuclear non-proliferation has always been confusing and challenging to the international community. The gradual strengthening of the non-proliferation regime through controls over dual-use materials and the issues related to international terrorism have limited the options for India to receive nuclear fuel and technologies from NSG participating governments.²² The difficulties which India faced in obtaining nuclear materials and technology from Russia for the Kodankulam Nuclear Power Plant is a clear example of this point. Further, the non-availability of nuclear fuel and the limitation in developing uranium mines due to environmental issues have affected the plant load factor of nuclear power plants.

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- 19. See Annex 2 states at www.ctbto.org.
 - 20. For instance after the Second World War, the United States initially advocated complete restriction of the dissemination of information related to nuclear energy, even to allied countries, as it failed to find agreement and co-operation for the use of nuclear technology and resources. The development of advanced nuclear technologies and the use of nuclear explosive devices by other allies resulted in the policy shift, initiated by the "Atoms for Peace" speech delivered by U.S. President D. Eisenhower in December 1953, promoting the various peaceful applications of nuclear energy, while at the same time restricting the capability to have nuclear weapons only to major powers. Similar approaches for strategic and commercial interests resulted in the transfer of nuclear technology for civil uses to different countries across the world.
 - 21. India is a non nuclear weapon state (NNWS) under the 1968 Non-Proliferation Treaty (NPT) even though it has conducted nuclear tests and possesses nuclear weapons. According to Article III.2 of the NPT, state parties shall not transfer nuclear material or single use equipment and material to NNWS except subject to IAEA Safeguards.
 - 22. In international nuclear trade, constraints are imposed by the Nuclear Supplier Group Guidelines, IAEA Safeguard Agreements INFCIRC/153, Small Quantity Protocol, 1974, Model Additional Protocol (INFCIRC/540) and United Nations Security Council Resolution 1540 (2004).

India follows a three-stage nuclear programme in order to use the country's modest uranium and vast thorium resources. The indigenously developed fast breeder technology, part of the second stage, is currently still a prototype. Moreover, the small capacity of indigenously developed Indian reactors necessitated nuclear co-operation to obtain larger reactors and to boost the energy output.²³

India is ambitious in terms of its increasing energy demand and wishes to fuel its growing economy without depending on imported fossil fuels as part of its energy security goals. The utilisation of nuclear energy becomes a key policy matter when considering other issues, such as the commitments under the Kyoto Protocol²⁴ and the need for energy security and diversity.

2. *United States' interests*

With 104 operating nuclear power plants the United States has the largest number of reactors, but over the last two decades there have been no major projects for building new ones. This forced domestic companies to focus on overseas markets. Given India's aims to enhance its nuclear power programme, the American nuclear industry actively lobbied for the passing of the United States–India Nuclear Cooperation Approval and Nonproliferation Enhancement Act²⁵ in both the U.S. Congress and Senate. It is estimated that if American vendors obtain at least two of the planned eight 1 000 MWe nuclear reactors in India by 2012, it could add 3 000 to 5 000 new direct jobs and 10 000 to 15 000 indirect jobs in the U.S., as well as business opportunities for U.S. companies, including General Electric and Westinghouse.²⁶

The change in the United States' foreign policy after 11 September 2001 has also worked as a strong catalyst for the conclusion of the nuclear deal with India. Strategic changes in U.S. foreign policy came as a result of the challenges posed by global terrorism and the need for international co-operation to fight against it. The support given by India in containing the threats caused by the fundamentalist forces in Afghanistan, even before the deployment of the United Nations-mandated International Security Assistance Force (ISAF), also worked as a common platform for strengthening the relationship between India and the United States.

Economically and strategically the United States is now focussing its attention on Asia where it lacks strong alliances and presence, compared to its position in Europe and the Middle East. It became apparent that a "strategically stable Asia" can only be achieved if India is given a role on the international stage and is made part of the non-proliferation regime. This is evident from the importance given to the Next Steps in Strategic Partnership (NSSP) initiative launched in January 2004 covering initiatives in three specific areas, namely, civilian nuclear activities, civilian space programmes and high-technology trade. Vast economic growth together with India's strong and vibrant democracy makes it a natural ally for Western democracies.

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- 23. An average indigenously developed Indian reactor is of 220 MWe which is small when compared with other countries.
 - 24. India ratified the Kyoto Protocol on 26 August 2002 which entered into force on 16 February 2005.
 - 25. United States–India Nuclear Cooperation Approval and Nonproliferation Enhancement Act, Pub. L. No. 110-369 (8 October 2008), available at www.govtrack.us/congress/billtext.xpd?bill=h110-7081.
 - 26. U.S. Department of State's Response to Questions for the Record Submitted by Chairman Tom Lantos House Committee on Foreign Affairs, See response to Questions 1 and 2, available at www.hcfa.house.gov/110/press090208.pdf.

III. 2005 Joint Statement and its implementation

The negotiations between India and the United States resulted in the Joint Statement between President George W. Bush and Prime Minister Manmohan Singh of 18 July 2005,²⁷ which provided a shared understanding through reciprocal bilateral and international co-operation to transform their existing relationship into a global partnership. Co-operation in nuclear energy is in the limelight of that statement even though it covers several areas such as economy, energy and environment, democracy and development, non-proliferation and security and high technology and space. The importance of the Joint Statement is that it recognises India's nuclear weapons programme and non-proliferation record by acknowledging its need for the same benefits and advantages as countries possessing advanced nuclear technologies.

The reciprocal commitments to nuclear energy, which are more political than legal, focus on the strengthening of the non-proliferation of weapons of mass destruction and on energy co-operation to overcome India's growing energy deficit. The main commitments on the part of India include:

- The identification and separation of civilian and military nuclear facilities in a phased manner.
- To place its civilian facilities under IAEA safeguards and sign an additional protocol.
- To continue its unilateral moratorium on nuclear testing.
- To work with the United States towards the conclusion of a multilateral Fissile Material Cut-Off Treaty.
- To refrain from the transfer of enrichment and reprocessing technologies to states that do not have them and to support international efforts to limit their spread.
- To ensure that the necessary steps have been taken to secure nuclear materials and technology through comprehensive export control legislation and through harmonisation and adherence to the Missile Technology Control Regime (MTCR) and the Nuclear Suppliers Group (NSG) guidelines.

The commitments on the part of United States include:

- To work to achieve full civil nuclear energy co-operation with India as it realises its goals of promoting nuclear power and achieving energy security.
- To seek agreement from Congress to adjust U.S. laws and policies and work with allies to adjust international regimes to enable full civil nuclear energy co-operation and trade with India, including but not limited to expeditious consideration of fuel supplies for safeguarded nuclear reactors at Tarapur.
- To consult with its partners regarding India's participation in the International Thermonuclear Experimental Reactor (ITER) project and in the Generation IV International Forum with a view toward India's inclusion.

27. Text of the 2005 Joint Statement is reproduced on page 29 of this Bulletin.

The 2005 Joint Statement lays the cornerstone for successive agreements, statements and acts at the national, bilateral and international level.

I. The Hyde Act

The so called Hyde Act of 2006²⁸ enacted by the United States Congress consisted of two titles, the “Henry J. Hyde United States-India Peaceful Atomic Energy Cooperation Act of 2006” and the “United States Additional Protocol Implementation Act”. The former dealt with nuclear co-operation with India, and the latter related to the implementation of the additional protocol in the U.S.

The Hyde Act, introduced by the former Republican member of the U.S. House of Representatives Henry J. Hyde, modified the requirements under the U.S. Atomic Energy Act to allow for the proposed nuclear co-operation agreement with India and to implement the 2005 Joint Statement. Even though the act has no authority over India, it provided the U.S. administration with a framework for engaging with India in order to achieve its commercial and strategic interests. The four key goals of the act, as pointed out by the U.S. President are:²⁹

- 1) The strengthening of energy co-operation between India and United States will provide the foundation for a new strategic partnership.
- 2) The promotion of economic growth which will allow investment from American businesses in India’s civilian nuclear industry creating new jobs in America as well as new customers abroad.
- 3) Environmental protection by helping India to reduce emissions from coal based electricity generation through nuclear power generation.
- 4) Safeguarding American non-proliferation interests by opening Indian civilian nuclear facilities to international inspection.

The Hyde Act identifies preventing the proliferation of nuclear weapons and other weapons of mass destruction, including the means to produce and deliver them, as critical objectives of United States foreign policy.³⁰ The act recognises the implementation of the Non-Proliferation Treaty as a keystone of U.S. non-proliferation policy since it was successful in preventing the acquisition of nuclear weapons and maintaining a stable international security situation. Moreover, it highlights the potential challenges to the global non-proliferation regime posed by countries outside the NPT since they do not have any obligations under the NPT.³¹ Nevertheless, the act sees U.S. interests as protected when entering into an agreement with a non-NPT country under Section 123 of the Atomic Energy Act of 1954 if, a) the country has demonstrated responsible behaviour regarding the non-proliferation of technology related to nuclear weapons, b) the country has a functioning and uninterrupted democratic system of government with a foreign policy which is congruent to that of the U.S., c) the country is induced to improve protection against the proliferation of nuclear technology

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28. *Op.cit.*, the act passed by the 109th Congress in its 2nd Session included the Hyde Act and the United States Additional Protocol Implementation Act.
 29. US President George W. Bush’s Statement at the signing of the Henry J. Hyde US-India Peaceful Atomic Energy Cooperation Act.
 30. Section 102(1) of the Hyde Act.
 31. *Ibid*, Section 102(4).

related to nuclear weapons and refrain from actions to further its nuclear weapon programme and d) it provides greater political and material support to U.S. global and regional non-proliferation objectives.³²

With respect to South Asia, the act acknowledges the need for containing the risk of proliferation or a regional arms race as well as the need for a moratorium on the production of fissile material for explosive purposes by India, Pakistan and the People's Republic of China.³³ Other major policy initiatives include concluding a treaty banning the production of fissile material for nuclear weapons to which both India and the U.S. shall be parties and securing India's participation in the Proliferation Security Initiative, implementing export control laws in line with the Wassenaar Arrangements and finally, the ratification of or accession to the Convention on Supplementary Compensation of 12 September 1997.³⁴

The act further authorises the U.S. President to make a “determination” in order to waive the requirements under Section 123 of the Atomic Energy Act which are based on steps taken by India to provide a credible plan:

- To separate civil and military nuclear facilities, materials and programmes.
- To file a declaration regarding its civil facilities and materials with the IAEA.
- To place its civilian nuclear facilities under IAEA safeguards in perpetuity.
- To make progress in the conclusion of an additional protocol with IAEA.
- To work with and support the U.S. and international efforts to prevent the spread of advanced nuclear technology (enrichment and reprocessing technology) to any state that does not already possess them.
- To conclude a multilateral treaty on the cessation of the production of fissile materials and to enact and enforce a comprehensive export control regime.

Finally, the waiver requires an NSG decision by consensus to permit the supply to India of nuclear items covered by its guidelines.³⁵

One of the major implications of this act for India is the obligation on the U.S. President to inform fully and currently the appropriate congressional committees of any significant Indian nuclear activities. This also includes “significant changes in the production by India of nuclear weapons or in the types or amounts of fissile material produced; and changes in the purpose or operational status of any unsafeguarded nuclear fuel cycle activities in India”.³⁶ Moreover, the President has to submit an annual report covering India's nuclear activities, its compliance with U.S. policies and possible fissile

32. *Ibid*, Section 102(5) and (6).

33. *Ibid*, Section 103(b).

34. *Ibid*, Section 103(b) (3).

35. *Ibid*, Section 104(a) and (b).

36. *Ibid*, Section 104(g)(1)(C) and (D).

material production together with the annual reports on proliferation prevention³⁷ and progress towards regional non-proliferation.³⁸ Thus, even though the act is U.S. domestic legislation, it brings Indian nuclear activities in relation to foreign countries and in relation to developing fissile materials for nuclear weapons indirectly into the purview of the nuclear co-operation agreement. However, the Indian position³⁹ regarding the annual report is that it is against the letter and spirit of the 2005 Joint Statement, since the need for certification turns the permanent waiver into an annual one.

2. *India's Separation Plan*

India's most crucial commitment is the identification and separation of its civilian and military nuclear facilities and programmes in a phased manner which is a requisite under the 2005 Joint Statement. To this end it laid out a Separation Plan⁴⁰ of 2 March 2006 designed to provide guidance to the separation process. The plan outlines that the Indian nuclear programme was intertwined with civilian and military initiatives and the fact that its strategic programme is embedded in a larger undifferentiated programme. The identification of purely civilian facilities without any strategic implications poses a particular challenge to India since it has developed its nuclear programme without a dedicated military approach.

The separation of civilian nuclear facilities is to be carried out in a credible, feasible and implementable manner. The plan provides that the separation is to be consistent with India's national security as well as its research and development requirements, without being prejudicial to the three-stage nuclear programme.⁴¹ Moreover, the plan stresses that it is India's decision to determine civilian facilities and accept IAEA safeguards based on the principle of reciprocity since the reciprocal actions by the U.S. to lift trade restrictions depend on the application of IAEA safeguards.

The main criterion for subjecting a facility to IAEA safeguards will thus be its impact on India's national security and whether it has any strategic significance. In this respect, a civilian facility will not be placed under IAEA safeguards if it is located in a larger hub of strategic significance. For this reason, the Indian Government decided to permanently shut down the CIRUS research reactor in 2010 and to shift the fuel core of the APSARA research reactor, obtained from France, to place it under safeguards by 2010. These reactors were part of the Bhabha Atomic Research Centre (BARC) which is treated as a larger hub of strategic significance. The major features of the identified separation plan are as follows:

- India will identify and accept IAEA safeguards for 14 thermal power reactors between 2006 and 2014.

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37. Annual Report on Proliferation Prevention under Section 601(a) of the Nuclear Non-Proliferation Act of 1978.
 38. Annual Report on Progress Toward Regional Non-Proliferation under Section 601(a) of the Foreign Assistance Act.
 39. Statement of Indian Prime Minister in Rajya Sabha (Council of States, the Indian Parliament's Upper House) on the India-U.S. Nuclear Agreement on 17 August 2006 at Paragraph 13(iii), available at www.pmindia.nic.in/speech/content.asp?id=367.
 40. Implementation of the India-United States Joint Statement of 18 July 2005: India's Separation Plan, tabled by the Government of India before the Indian Parliament on 11 May 2006, INF/CIRC/731 of 25 July 2008; text is reproduced on page 33 of this Bulletin.
 41. *Ibid.*

- It will not accept safeguards on the fast breeder programme, including the Prototype Fast Breeder Reactor (PFBR) and the Fast Breeder Reactor (FBTR) which are at the research and design stage.
- It will place all future thermal power reactors and civilian breeder reactors under safeguards.
- Reprocessing and enrichment capabilities together with other facilities associated with the strategic programme's fuel cycle will not be part of the separation plan.
- The separation is linked to the United States' assurances regarding fuel supplies and its guarding against any future disruption of fuel supplies.

3. U.S.-India Nuclear Cooperation Agreement

The U.S.-India Nuclear Cooperation Agreement of 27 July 2007⁴² constitutes the legally binding instrument and establishes the necessary legal framework following the political commitments of the 2005 Joint Statement. It is also called 123 agreement since the United States entered into the agreement in accordance with Section 123 of the U.S. Atomic Energy Act.⁴³

In the preamble, the parties affirm that the co-operation is to take place between two states with advanced nuclear technology, both having the same benefits and advantages and both committed to preventing weapons of mass destruction.⁴⁴ The agreement reflects their desire to develop co-operation based on mutual respect for sovereignty, non-interference in internal affairs, equality, mutual benefit, reciprocity and due respect for each other's nuclear programmes.

The scope of the agreement covers only the peaceful uses of nuclear energy and its purpose is defined as enabling full civil nuclear energy co-operation. The term *full* has been questioned as being too ambiguous;⁴⁵ however the relevant areas of co-operation are defined in Article 2.2. as not intended to be exclusive. Whether other areas will fall under *full* co-operation under this agreement will be subject to interpretation based on the intention or assumed intention of the parties. In legal terms the reference to *full* may serve as an indication for inclusion. However, as to dispute settlement (see Article 15 of the agreement), it is clear that political and economic implications will be stronger than a strict interpretation of the literal words.

The agreement also provides a detailed framework regarding the transfer of information on issues as broad as, for example, "research, development, design, construction, operation, maintenance and use of reactors, reactor experiments, and decommissioning" [Article 3(a)] while allowing each party to define restricted data which shall not be transferred [Article 3(4)]. Nuclear trade is subject to Article 4 of the agreement requiring the parties to facilitate both nuclear trade between themselves and

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42. Agreement for Cooperation Between the Government of the United States of America and the Government of India concerning peaceful uses of nuclear energy ("123 agreement"). Text of the 123 agreement is reproduced on page 41 of this Bulletin.
43. Text of Section 123 of the U.S. Atomic Energy Act is reproduced on page 87 of this Bulletin.
44. Preamble of the 123 agreement.
45. Rao, K. R., "Present scenario of the nuclear deal", *Current Science*, Vol. 93, No. 5, 10 September 2007.

trade between third countries and either party, whereas the actual party to reach out to third countries (especially the NSG members) is the United States. In order to accelerate trade, the parties also agree that authorisations, including export and import licences, should not be used to restrict trade and to inform and consult each other should the authorisations not be granted within a two and four months period respectively [Article 4(2)]. Article 5 deals with the transfer of nuclear material, non-nuclear material, equipment and components, limiting the transfer of special fissionable material to low enriched uranium except for small quantities. In this article, the United States conveys its commitment to the reliable supply of fuel to India and to create the necessary conditions for India to have assured and full access to fuel for its reactors. To this end, the U.S. commits itself to adjust its domestic laws and practices of the NSG.⁴⁶

The agreement includes a mechanism to prevent the disruption of fuel supplies in such a manner that the United States agreed to take additional steps to further guard against disruption, according to Article 5(6)(b)(i)-(iv):

- To incorporate fuel supply assurance in the agreement that would be submitted to the U.S. Congress.
- To join India in seeking to negotiate with the IAEA an India-specific fuel supply agreement.
- To support Indian effort to develop a strategic reserve of nuclear fuel;
- To jointly convene a group of friendly supplier countries such as Russia, France and the United Kingdom to pursue such measures as would restore fuel supply to India.

Even though the United States treats these commitments as political, based on the U.S.-India Initiative,⁴⁷ the agreement technically provides India with the option to obtain a lifetime supply of fuel; first, through the development of a strategic reserve [Article 2(2)(e)], secondly by nuclear material transfer for the lifetime operation of reactors [Article 5(4)], thirdly through corrective measures according to Article 5(6)(c), and fourthly through continued validity of commitments even after the agreement is terminated [Article 16(3)].

Article 6 provides for nuclear fuel cycle activities including enrichment up to 20% in the isotope 235 of uranium, and irradiation of plutonium, uranium-233, high enriched uranium and irradiated nuclear material transferred as a result of the agreement. India can further reprocess or alter the form or content of material transferred with the consent of the U.S. provided India establishes a new national reprocessing facility for reprocessing IAEA safeguarded nuclear material.

The peaceful use of nuclear materials, equipment and components transferred pursuant to the agreement is reaffirmed by prohibiting their use for any explosive device or research and development or for any military purpose.⁴⁸ Moreover, safeguards will be maintained as long as the material or equipment transferred pursuant to the agreement remains in the jurisdiction of the co-operating

46. Article 5.6(a) of the 123 agreement.

47. Modified Reporting to Congress under Section 105, The United States-India Nuclear Cooperation Approval and Non-proliferation Enhancement Act. See also U.S. Department of State's Response to Questions for the Record Submitted by Chairman Tom Lantos House Committee on Foreign Affairs, See response to Question 16.

48. *Ibid*, Article 9.

country, a provision in fact aimed at India only.⁴⁹ In effect, the application of safeguards in perpetuity to nuclear materials, components and technology obtained or produced as a result of the agreement as well as the commitment not to divert it for any military purpose or for developing nuclear explosive devices is the foundation of the nuclear co-operation.

The key commitments for India include separation of nuclear installations between military and peaceful uses as well as entering into India-specific IAEA safeguard agreements.⁵⁰ In return, the United States provides assurance regarding the creation of the necessary conditions to have full access to fuel India's reactors.⁵¹

Going beyond its strict scope, the agreement also addresses environmental protection and commits the parties to co-operate in following best practices for minimising the impact on the environment of any radioactive, chemical or thermal contamination arising from peaceful nuclear activities (Article 11).

The agreement shall remain in force for a period of 40 years with additional periods of 10 years, and both parties have the option to terminate prior to its expiry by giving one year's advance written notice to the other party. The termination and cessation of co-operation are covered in great detail in Article 14 with the aim to possibly consult and continue co-operation so that it can be developed on a stable, reliable and predictable basis.⁵² The United States would only contemplate terminating the agreement as an extreme measure limiting to certain specific instances.⁵³ The commitment on either party to avoid any action that affects the co-operation under Article 2 and the need for consultation regarding non-compliance demonstrate the confidence in the emerging alliance between India and the United States.

4. *India-specific IAEA safeguards agreement*

The U.S.–India Nuclear Cooperation Agreement, based on the 2005 Joint Statement, resulted in the required⁵⁴ agreement between the IAEA and the Government of India for the application of safeguards to civilian nuclear facilities of 7 July 2008 (India-specific IAEA safeguards agreement).⁵⁵ The 35-nation IAEA Board of Governors approved the India-specific IAEA safeguards agreement by consensus on 1 August 2008.⁵⁶

49. *Ibid*, Article 10.

50. *Ibid*, Article 10.

51. *Ibid*, Article 5(6)(a). In this respect under Article 5(6)(c), the India-specific IAEA safeguards agreement guards against withdrawal of safeguarded nuclear material from civilian use and also allows India to take corrective measures for uninterrupted operation of its civilian nuclear reactors in the event of disruption of foreign fuel supplies.

52. *Ibid*, Article 13.

53. U.S. Department of State's Response to Questions for the Record Submitted by Chairman Tom Lantos House Committee on Foreign Affairs, See response to Question 16.

54. Article 5(6)(c) of the 123 agreement.

55. An Agreement with the Government of India for the Application of Safeguards to Civilian Nuclear Facilities of 7 July 2008 (GOV/2008/30). Text of the agreement is reproduced on page 57 of this Bulletin and may be found at www.hcfa.house.gov/110/press091108g.pdf.

56. See summary note on page 27 of this Bulletin.

Carrying out safeguards is a statutory function of the IAEA.⁵⁷ Article III.A.5 of the IAEA Statute authorises the agency to “establish and administer safeguards designed to ensure that special fissionable and other materials.... are not used in such a way as to further any military purpose; and to apply safeguards, at the request of the parties, to any bilateral or multilateral arrangement, or at the request of a State, to any of that State’s activities in the field of atomic energy”.

The India-specific IAEA safeguards agreement is based on the IAEA’s INFCIRC/66-type safeguards agreement⁵⁸ for facilities of non-NPT signatories brought under safeguards either unilaterally or under some bilateral or multilateral co-operation agreement. It is also called an “umbrella” agreement since it provides that any facility notified by India to the IAEA over time will become subject to safeguards under the agreement.⁵⁹

India’s basic undertaking is to ensure that none of the items subject to the safeguards agreement (defined in paragraph 11) “shall be used for the manufacture of any nuclear weapon or to further any other military purpose and that such items shall be used exclusively for peaceful purposes and shall not be used for the manufacture of any nuclear explosive device”. The reciprocal undertaking on the part of the agency is to apply safeguards to the items and “to ensure that no such item is used for the manufacture of any nuclear weapon or to further any other military purpose and that such items are used exclusively for peaceful purposes and not for the manufacture of any nuclear explosive device”, paragraphs 1 and 2.

The purpose of safeguards under the agreement is “to guard against withdrawal of safeguarded nuclear material from civilian use at any time” and to facilitate the implementation of relevant bilateral or multilateral arrangements to which India is a party.⁶⁰

As to termination, paragraph 29 of the India-specific IAEA safeguards agreement refers to the provisions of GOV/1621 of 20 August 1973 according to which safeguards are for an unlimited time and a unilateral termination of safeguards is not possible until any supplied material and items have been removed from the inventory. Accordingly, paragraph 32 provides that safeguards shall be terminated on a facility after both India and the IAEA have jointly determined that the facility is no longer usable for any nuclear activity from a safeguards point of view.

Commentators criticised the note in the preamble of the India-specific IAEA safeguards agreement that “India may take corrective measures to ensure uninterrupted operation of its civilian nuclear reactors in the event of disruption of foreign fuel supplies”.⁶¹ The terms *corrective measures* have been questioned as too ambiguous, leaving room for the interpretation that India could withdraw certain facilities from the scope of the agreement if fuel supplies to India are interrupted. However, the preamble of a legal instrument cannot be interpreted against the express and more specific provisions on termination as well as the reference to GOV/1621.

57. Buechler, C., “The future of safeguards under INFCIRC/66/Rev.2”, *IAEA Bulletin*, 1/1988.

58. INFCIRC/66/Rev.2.

59. Paragraph 14 of the India-specific IAEA safeguards agreement.

60. *Ibid*, Paragraphs 3 and 4.

61. Kimball, D.G., McGoldrick, F., Scheineman, L., “IAEA-Indian Nuclear Safeguards Agreement: A Critical Analysis”, published on Arms Control Association, www.armscontrol.org.

5. NSG Statement

Following the conclusion and approval of the India-specific IAEA safeguards agreement on 6 September 2008, the Nuclear Suppliers Group (NSG) unanimously adopted a policy to allow its participating governments civil nuclear co-operation with India, the so called Statement on Civil Nuclear Cooperation with India.⁶²

The 1974 explosion of nuclear warheads by India triggered the termination of most international civil assistance to India, it lead to the 1978 U.S. Nuclear Non-proliferation Act requiring full-scope safeguards as a condition of nuclear supply and finally it triggered the creation of the Nuclear Suppliers Group whose identity is closely linked to India. The NSG is a group of nuclear supplier countries which seeks to contribute to the non-proliferation of nuclear weapons through the implementation of guidelines for nuclear exports and nuclear related exports.⁶³

The NSG applies two sets of guidelines which aim “to ensure that nuclear trade for peaceful purposes does not contribute to the proliferation of nuclear weapons or other nuclear explosive devices which would not hinder international trade and cooperation in the nuclear field”.⁶⁴ The Guidelines for Nuclear Transfer⁶⁵ governs the export of items that are especially designed or prepared for nuclear use, and the second set constitutes the Guidelines for Transfers of Nuclear-Related Dual-Use Equipment, Materials, Software and Related Technology.⁶⁶

As an exception to its guidelines, NSG participating governments have adopted a policy to allow civil nuclear co-operation with the IAEA-safeguarded Indian civil nuclear programme. The statement highlights the voluntary commitments by India, such as its unilateral moratorium on nuclear testing, its separation of civilian nuclear facilities in a phased manner, the conclusion of a safeguards agreement with the IAEA, the commitment to sign and adhere to an additional protocol with respect to India’s civil nuclear facilities, refraining from transferring enrichment and reprocessing technology, instituting a national export control system and harmonising its export control lists and guidelines with NSG guidelines.

Participating governments may now transfer trigger list items and/or related technology and transfer nuclear-related dual-use equipment, materials, software and related technology to India for peaceful purposes and for use in IAEA safeguarded civil nuclear facilities. They shall notify each other of approved transfers of A and B items (listed in INFCIRC/254/Part 2 as revised) and they are invited to exchange information.

6. U.S.-India Nuclear Cooperation Approval and Nonproliferation Enhancement Act

On 8 October 2008, the U.S. Congress passed the United States-India Nuclear Cooperation Approval and Nonproliferation Enhancement Act.⁶⁷

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- 62. INFCIRC/734 (Corrected); statement is reproduced on page 83 of this Bulletin. See also the summary note on page 28 of this Bulletin.
 - 63. www.nuclearsuppliersgroup.org.
 - 64. www.nuclearsuppliersgroup.org/guide.htm.
 - 65. INFCIRC/254, Part 1.
 - 66. INFCIRC/254, Part 2.
 - 67. *Op.cit.*, See also the summary note on page 27 of this Bulletin.

This act gives congressional approval to the U.S.-India Nuclear Cooperation Agreement and also strengthens the United States' non-proliferation laws relating to peaceful nuclear co-operation. The act urges the Government of India to sign and adhere to an additional protocol with the IAEA at the earliest possible date (Section 103). The U.S. Nuclear Regulatory Commission may issue licences for transfers to India, once the India-specific IAEA safeguards agreement has entered into force and India has filed a declaration of its civilian nuclear facilities under IAEA safeguards (Section 104). Further, Section 123 of the Atomic Energy Act is amended by adding a paragraph which obliges the President to keep the Foreign Affairs Committees of House and Senate fully and currently informed of any initiatives or negotiations relating to agreements pursuant to this section.⁶⁸

IV. Nuclear deal and non-proliferation issues

The 123 agreement has *de facto* uplifted India to the status of a nuclear weapon state under the Non-proliferation Treaty without its being a party to it. Moreover, the NSG waiver of 6 September 2008 removes completely the restrictions placed on NSG participating countries for nuclear co-operation with India. However, the dual-use of nuclear technology for military as well as peaceful purposes together with the challenges raised by international terrorism has highlighted several issues that may dilute the existing principles of the international non-proliferation regime.

A main challenge to the NSG waiver was the possibility of similar claims coming from other countries, such as Pakistan, Iran and the Democratic People's Republic of Korea. However, the commitment shown by India on non-proliferation of nuclear technology and resources to countries having clandestine programmes distinguishes it from other countries. Even though there was no international obligation regarding transfers of indigenously developed technology, India was committed to preventing the spread of sensitive nuclear technology, even to Iran, with which it always enjoyed good bilateral relationships.⁶⁹

The 2005 Joint Statement will further involve India in global non-proliferation efforts through specific commitments. The implementation of the 123 agreement will raise the total installed nuclear capacity under safeguards from the present 19% to 65%.⁷⁰ The agreement deviates from the strict approach to non-proliferation principles by acknowledging India's nuclear weapon capability and the availability of facilities covering the full nuclear fuel cycle for military purposes. Thus, it differentiates India from a non nuclear weapon state (NNWS) under the NPT by granting India the option to separate military nuclear facilities and to continuously operate them similar to the five nuclear weapon states.

Both the 123 agreement and the NSG Statement on Civil Nuclear Cooperation urge India to conclude an additional protocol regarding its civil nuclear facilities. It will be based on the 2005 Joint Statement which leaves the strategic programme outside its purview. The possible additional protocol will be modelled after those entered into by nuclear weapon states under the NPT. It will be a further evidence of India's position as a nuclear weapon state outside the NPT but operating within the guidelines imposed by the non-proliferation regime.

68. Text of Section 123 of the Atomic Energy Act is reproduced on page 87 of this Bulletin.

69. The Guidelines for Nuclear Transfer (Exports) notified by the Indian Department of Atomic Energy [No. AEA/27(1)/2005-ER] reflect the export controls followed by Nuclear Suppliers Group and IAEA Safeguards.

70. India's Separation Plan, *op.cit.*, at No. 14 (i); text is reproduced on page 33 of this Bulletin.

In this respect, the allegation that the agreement would increase the availability of indigenous nuclear material for India's military programme shall be analysed. Following the agreement, India will place most of the existing civilian nuclear facilities, which earlier had strategic significance, under the additional protocol which provides the IAEA with additional information and access related to the absence of undeclared activities. Once it has been declared as a civilian nuclear facility, subject to the agreement, the safeguards can only be terminated through a joint determination by India and the IAEA or as per the agreement that the material is no longer usable.

In this regard, India's approach towards the expired U.S.-India Agreement for Peaceful Nuclear Cooperation of 1963 or the "Tarapur Agreement" is of significance. Initially, the United States supplied two nuclear reactors and low enriched uranium (LEU) fuel which was later discontinued due to the absence of full-scope IAEA safeguards under the Nuclear Non-Proliferation Act of 1978. India's voluntary application of IAEA safeguards over the reactors, after the expiry of the agreement in 1993, further underlines the non-proliferation commitments on the part of India.

The apprehension that the nuclear deal will fuel an arms race in the region needs careful consideration when analysing the unresolved boundary disputes between India and China on the one hand and the volatile relation with Pakistan on the other hand. International sanctions and export control regimes failed to prevent, *inter alia*, India's attainment of missile and advanced nuclear explosive technology which, in itself, demonstrates the ineffectiveness of conventional approaches. The agreement thus imparts the international non-proliferation principles into India's policies and imposes specific international commitments, even though right from the beginning the Indian nuclear weapons policy was based on the concept of a "credible minimum restraint" and "no first-use".

The non-proliferation efforts of the U.S. had originally been targeted against India and Pakistan but the nuclear co-operation between India and United States also brings China into the picture. For example the Hyde Act expressly recognises the need for a moratorium on the production of fissile material for nuclear explosive purposes by India, Pakistan and the People's Republic of China.⁷¹ The absence of China in the listing of friendly supplier countries in case of a disruption of fuel supply to India⁷² points at the strategic importance given to the agreement. Moreover, when India made a formal diplomatic protest against China with regard to its role in the NSG meeting, it resulted in the Statement on Civil Nuclear Cooperation with India.⁷³ This highlights the growing rivalry between the two emerging Asian powers even though there is rapid growth of bilateral co-operation in the commercial field. Thus, the U.S.-India nuclear co-operation, to an extent, acknowledges the role of the three countries to foster non-proliferation efforts in the region.

The 123 agreement does not explicitly touch upon the issue of a future nuclear test by India since any reference to it in the agreement would create a political backlash for the Indian government, putting the nuclear co-operation at risk. The NSG Statement on Civil Nuclear Cooperation explicitly recognises India's commitment to continue its unilateral moratorium on nuclear testing and its readiness to work with others towards the conclusion of a multilateral Fissile Material Cut-Off Treaty (FMCT) for co-operation.⁷⁴ The United States could invoke Article 14 of the 123 agreement in response to an Indian nuclear test, cease the nuclear co-operation and request the return of transferred

71. Section 103(b) of the Hyde Act.

72. Article 5. 6(b)(iv) of the 123 agreement.

73. NSG Waiver: India Issues Demarche to China, The Times of India, 7 September 2008, www.timesofindia.indiatimes.com/articleshow/3455968.cms.

74. NSG Statement, *op.cit*, at 2(g).

materials including fresh fuel. Thus, instead of abolishing the right to test nuclear devices, the agreement and related instruments indirectly refer to that right through responsibility, continued co-operation and commercial interests.

As far as the Indian government's stance on disarmament is concerned, it is based on the Rajiv Gandhi Action Plan⁷⁵ which provides commitments towards non-discriminatory global nuclear disarmament rather than regional non-proliferation or regional disarmament. Regarding the moratorium on the production of fissile material, India affirms its commitment to negotiate a Fissile Material Cut-Off Treaty but links its acceptance to the question of how far it addresses its security interests as well as the treaty's ability to provide a non-discriminatory, multilateral and internationally verifiable treaty. Furthermore, India treats its possession and development of nuclear weapons as an integral part of national security even though it has placed a unilateral voluntary moratorium on nuclear testing. All these issues highlight the need for a serious change in the international approach of promoting piecemeal regional non-proliferation or disarmament into a global disarmament and non-proliferation policy.

Conclusion

The 2005 Joint Statement and subsequent developments have opened up a new chapter in the international non-proliferation regime. Even though there is a general understanding that it creates a deviation from the existing non-proliferation principles, a careful analysis will reveal the importance given to those principles. As far as India is concerned it will lead to the end of nuclear isolation. For NSG participating governments it provides economic opportunities while paving the way for additional safeguards. The governments of France and the UK have already lifted their ban on nuclear-related exports to India following the decision by the NSG to allow the transfer of "trigger list" items to India for peaceful purposes.

The 123 agreement and its implementation also highlights the political commitments made by India and the United States, as India assumes responsibility through the continued unilateral moratorium on nuclear testing and adherence to non-proliferation principles in return for nuclear co-operation and commerce. The separation of the Indian military nuclear programme from IAEA safeguards and the NSG waiver to allow peaceful nuclear co-operation with India is an acknowledgement of India's position with respect to the Non Proliferation Treaty. The difficulty in supporting or rejecting the move by the two countries lies in the fact that on the one hand, the introduction of flexibility into the international regime might serve non-proliferation purposes by attracting states to *de facto* abide by its rules and *de jure* uphold their reservations. On the other hand, it undermines the regime by accepting *de facto* nuclear weapon states without penalties and with full access to nuclear co-operation and supplies by the most advanced and developed countries in the world.

75. This plan is based on the address titled "A World Free of Nuclear Weapons" given by then Indian Prime Minister Rajiv Gandhi at the United Nations General Assembly Special Session on Disarmament, New York on 9 June 1988, available at www.indianembassy.org/policy/Disarmament/disarm15.htm.