

**AGREEMENT
BETWEEN THE GOVERNMENT OF THE REPUBLIC OF INDIA
AND THE GOVERNMENT OF JAPAN
FOR COOPERATION IN THE PEACEFUL USES OF NUCLEAR ENERGY**

The Government of the Republic of India and the Government of Japan (hereinafter referred to as "the Parties");

Desiring to strengthen the Special Strategic and Global Partnership that exists between the Republic of India and Japan;

Noting that nuclear energy provides a safe, environmentally friendly and sustainable source of energy, which also contributes to energy security;

Recognising that the Republic of India and Japan have advanced capabilities in the peaceful uses of nuclear science and technology which can contribute to the welfare of their respective peoples;

Recognising also that the two States have been cooperating in this area through multilateral fora including the ITER International Fusion Energy Organization;

Considering that Japan is a party to the Treaty on the Non-Proliferation of Nuclear Weapons, done on July 1, 1968;

Recognising that both the Republic of India and Japan are initial members of the International Atomic Energy Agency (hereinafter referred to as "the Agency");

Reaffirming the support of the two States for the objectives of the Agency and its safeguards system as applicable to the Republic of India and Japan respectively and its importance in the international cooperation in the development and uses of nuclear energy for peaceful purposes;

Reaffirming their respective commitments to achieve the highest standards of radiation and nuclear safety based on a scientific approach, operating experience and best practices followed by the nuclear industry, as well as to ensure that the use of radiation and atomic energy in all its applications is safe for the health of radiation workers, members of the public and the environment;

Noting the commitments of the two States to nuclear non-proliferation, nuclear safety and nuclear security in the peaceful uses of nuclear energy, including effective national export controls and adequate physical protection of nuclear material;

Desiring also to develop cooperation between the two States on the basis of respect for sovereignty, equality, mutual benefit and reciprocity; and

Desiring to promote full cooperation between the two States in the development and uses of nuclear energy for peaceful purposes on a stable, reliable and predictable basis;

Have agreed as follows:

ARTICLE 1

For the purposes of this Agreement:

- (a) The term "authorised person" means any individual or entity within the jurisdiction of the State of a Party and authorised by that Party to cooperate under this Agreement, including to supply or receive nuclear material, non-nuclear material, equipment and technology, and to perform or receive services, but does not include the Parties;
- (b) The term "nuclear material" means (i) source material and (ii) special fissionable material:
 - (i) source material means uranium containing the mixture of isotopes occurring in nature; uranium depleted in the isotope 235; thorium; any of the foregoing in the form of metal, alloy, chemical compound or concentrate; any other material containing one or more of the foregoing in such concentration as may be agreed to by the Parties; and such other material as may be agreed to by the Parties; and
 - (ii) special fissionable material means plutonium; uranium-233; uranium enriched in the isotopes 233 or 235; any material containing one or more of the foregoing; and such other fissionable material as may be agreed to by the Parties. Special fissionable material does not include source material;
- (c) The term "non-nuclear material" means material for use in a nuclear reactor which are specified in Part A of Annex A to this Agreement, but does not include nuclear material;
- (d) The term "equipment" means major items of machinery, plant or instrumentation, or major components thereof, which are specially designed or prepared for use in nuclear activities, and which are specified in Part B of Annex A to this Agreement;
- (e) The term "technology" means the specific information necessary for the development, production or use of any

nuclear material, non-nuclear material or equipment with the exception of information publicly available and without restrictions upon its further dissemination. The specific information may take the form of technical data which includes blueprints, plans, diagrams, models, formulae, engineering designs and specifications, manuals and instructions written or recorded on other media or devices such as disk, tape and read-only memories, and it may also take the form of technical assistance which includes instruction, skills, training, working knowledge and consulting services, and is transferred in any form pursuant to this Agreement and is so designated and documented in hard copy or digital form by agreement of the Parties that it shall be subject to this Agreement;

- (f) The term "development" referred to in paragraph (e) of this Article means all phases before production such as design, design research, design analysis, design concepts, assembly and testing of prototypes, pilot production schemes, design data, process of transforming design data into a product, configuration design, integration design and layouts;
- (g) The term "production" referred to in paragraphs (e) and (f) of this Article means all activities for producing nuclear material, non-nuclear material or equipment such as construction, production engineering, manufacture, integration, assembly (mounting), inspection, testing and quality assurance;
- (h) The term "use" referred to in paragraph (e) of this Article means operation, installation including on-site installation, maintenance, checking, repair, overhaul and refurbishing;
- (i) The term "equipment based on technology" means equipment which the Parties agree as produced from the use of technology transferred pursuant to this Agreement; and
- (j) The term "nuclear material recovered or produced as a by-product" means:
 - (i) nuclear material derived from nuclear material transferred pursuant to this Agreement;
 - (ii) nuclear material derived by one or more processes from the use of non-nuclear material or equipment transferred pursuant to this Agreement; and
 - (iii) nuclear material which the Parties agree as derived from the use of technology transferred pursuant to this Agreement.

ARTICLE 2

1. Cooperation between the Parties in the use of nuclear energy for peaceful and non-explosive purposes shall be subject to the provisions of this Agreement. Each Party shall implement this Agreement in accordance with the applicable treaties as well as national laws and regulations in force in the respective States including licence requirements concerning the use of nuclear energy for peaceful purposes. This Agreement shall be implemented in good faith and in accordance with the principles of international law.

2. Cooperation under this Agreement in the two States may be undertaken in the following ways and other ways as may be agreed by the Parties:

- (a) exchange of scientific, technical and other experts including their participation in the activities referred to in this Article;
- (b) exchange of information other than that placed under classification for national security reasons by either of the Parties, on such terms as may be agreed between the Parties, between authorised persons of the Parties, or between either Party and authorised persons of the other Party;
- (c) supply from a Party or its authorised persons to the other Party or its authorised persons of nuclear material, non-nuclear material, equipment and technology, including those intended for use in third States, on such terms, consistent with this Agreement, as may be agreed between the supplier and the recipient; and
- (d) provision of services by a Party or its authorised persons and receipt of services by the other Party or its authorised persons on matters within the scope of this Agreement on such terms, consistent with this Agreement, as may be agreed between the supplier and the recipient.

3. Cooperation as specified in paragraph 2 of this Article may be undertaken in the following areas and other areas as may be agreed by the Parties:

- (a) design, construction, support services for operation and maintenance activities as well as decommissioning of reactors in conformity with the appropriate regulatory requirements;
- (b) all aspects of the nuclear fuel cycle associated with activities referred to in sub-paragraph (a) of this paragraph, including nuclear fuel fabrication and radioactive waste processing and management;

- (c) nuclear safety matters of mutual interest, including radiation and environmental protection, and prevention of and response to nuclear accident and radiation emergency;
- (d) scientific and technical cooperation in the field of peaceful uses of nuclear energy including joint research and development on areas agreed by the Parties;
- (e) study on and application of radio-isotopes and radiation in such fields as agriculture, medicine, industry and environment; and
- (f) exchange of experiences in nuclear security matters of mutual interest.

4. Notwithstanding the provisions of paragraphs 2 and 3 of this Article, technology for and equipment for uranium enrichment, spent nuclear fuel reprocessing, conversion of plutonium and production of non-nuclear material and plutonium may be transferred under this Agreement only when this Agreement is amended for that purpose.

5. When cooperation pursuant to this Agreement requires exchanges of experts referred to in sub-paragraph (a) of paragraph 2 of this Article, the Parties may facilitate the entry of the experts to their territories and their stay therein in accordance with the laws and regulations in force in their respective States.

ARTICLE 3

1. Cooperation under this Agreement shall be carried out only for peaceful and non-explosive purposes.

2. Nuclear material, non-nuclear material, equipment and technology transferred pursuant to this Agreement, equipment based on technology and nuclear material recovered or produced 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 device.

ARTICLE 4

1. Cooperation under this Agreement shall require the application of safeguards by the Agency as applicable to the Republic of India and Japan in accordance with their respective relevant agreements with the Agency.

2. Nuclear material, non-nuclear material and equipment transferred pursuant to this Agreement, equipment based on technology and nuclear material recovered or produced as a by-product shall remain subject to safeguards by the Agency as applicable:

- (a) within Japan, in accordance with the Agreement between the Government of Japan and the International Atomic Energy Agency in Implementation of Article III.1 and 4 of the Treaty on the Non-Proliferation of Nuclear Weapons, done on March 4, 1977 as supplemented by the Protocol Additional to the said Agreement, done on December 4, 1998; and
- (b) within the Republic of India, in accordance with the Agreement between the Government of India and the International Atomic Energy Agency for the Application of Safeguards to Civilian Nuclear Facilities, done on February 2, 2009 as supplemented by the Protocol Additional to the said Agreement, done on May 15, 2009.

3. If the Agency decides that the application of safeguards by the Agency as required by paragraph 2 of this Article is not possible, the Parties shall consult and agree on appropriate verification measures.

ARTICLE 5

1. Each Party shall maintain a system of accounting for and control of all nuclear material transferred pursuant to this Agreement and nuclear material recovered or produced as a by-product.
2. The Parties shall exchange information on nuclear material and non-nuclear material under safeguards by the Agency as applicable, equipment and technology subject to this Agreement, as well as any other related information, as mutually agreed, through appropriate authorities to implement and administer the provisions of this Agreement.

ARTICLE 6

The Parties reaffirm their obligations under international conventions relating to nuclear safety to which both the Republic of India and Japan are parties.

ARTICLE 7

1. Each Party shall make sure that, whether during use, storage or transportation within the jurisdiction of its State or during international transport, adequate measures to ensure the physical protection of nuclear material and equipment transferred pursuant to this Agreement and nuclear material recovered or produced as a by-product are adopted, in accordance with the laws and regulations in force in its State and relevant international conventions to which it is a party, in particular the Convention on the Physical Protection of Nuclear Material and Nuclear Facilities adopted on October 26, 1979 and amended on July 8, 2005.
2. Each Party shall be responsible for implementing measures of physical protection within the jurisdiction of its State. In implementing

measures of physical protection, each Party shall be guided by recommendations contained in the document published by the Agency as INFCIRC/225/Rev.4. Any revision to those recommendations shall only be effective for a Party after that Party has given written notice to the other Party of its decision to be guided by such revision.

3. The Parties shall exchange annually a list of facilities in which plutonium and uranium-233 (except as either may be contained in irradiated fuel elements), and high enriched uranium subject to this Agreement is stored. Either Party may make changes to its list by notifying the other Party in writing and receiving a written acknowledgement.

ARTICLE 8

1. The Parties shall ensure the adequate and effective protection of information and technology obtained pursuant to the cooperation under this Agreement against unauthorised use or disclosure in accordance with the relevant laws and regulations in force in their respective States.

2. The Parties shall ensure the adequate and effective protection of intellectual property created and technology transferred pursuant to the cooperation under this Agreement in accordance with applicable international agreements relating to intellectual property to which both the Republic of India and Japan are parties as well as the relevant laws and regulations in force in their respective States.

ARTICLE 9

1. The Parties shall implement this Agreement in such a manner as to facilitate nuclear trade between the Parties or their authorised persons, and where appropriate, nuclear trade between a Party or its authorised persons and third parties, of items subject to this Agreement for which the other Party or its authorised person is the intended end user.

2. A Party shall not use the provisions of this Agreement for the purpose of securing commercial advantage or for the purpose of interfering with the commercial relations of the other Party.

ARTICLE 10

Nuclear material, non-nuclear material, equipment and technology transferred pursuant to this Agreement, equipment based on technology and nuclear material recovered or produced as a by-product shall not be transferred or retransferred beyond the jurisdiction of the State of the receiving Party, except into the jurisdiction of the State of the supplying Party, unless the prior written consent of the supplying Party is obtained.

ARTICLE 11

1. Enrichment may be carried out up to less than twenty percent in the isotope 235 of uranium transferred pursuant to this Agreement, as well

as uranium used in or produced through the use of equipment transferred pursuant to this Agreement. Enrichment of twenty percent and above in the isotope 235 of uranium transferred pursuant to this Agreement, as well as uranium used in or produced through the use of equipment transferred pursuant to this Agreement may be carried out only when the written consent of the supplying Party has been obtained.

2. Nuclear material transferred pursuant to this Agreement and nuclear material recovered or produced as a by-product may be reprocessed within the jurisdiction of the Republic of India in accordance with the provisions of Annex B to this Agreement.

3. The provisions of paragraph 2 of this Article shall only apply:

- (a) as long as the Agreement between the Government of India and the International Atomic Energy Agency for the Application of Safeguards to Civilian Nuclear Facilities, done on February 2, 2009 as supplemented by the Protocol Additional to the said Agreement, done on May 15, 2009, where applicable, is in force for the Republic of India;
- (b) where any special fissionable material that may be separated thereby is stored or used only for the purpose of producing nuclear fuel for facilities in the Republic of India under safeguards by the Agency to implement the Republic of India's planned nuclear energy programme for peaceful purposes; and
- (c) as long as the modalities described in Annex B to this Agreement continue to apply.

ARTICLE 12

1. Cooperation with regard to transfer of nuclear material, non-nuclear material, equipment and technology between the Parties or their authorised persons referred to in Article 2 of this Agreement shall be implemented in accordance with the provisions of this Agreement and may be implemented through specific written arrangements, in any form, between the Parties or their authorised persons. These written arrangements may take the form of scientific and technical exchanges, memoranda or contracts signed by the authorised persons of the Parties.

2. Transfer of nuclear material, non-nuclear material, equipment, and technology pursuant to this Agreement may be undertaken directly between the Parties or through their authorised persons. Nuclear material, non-nuclear material, equipment and technology so transferred, whether directly or through a third State, shall become subject to this Agreement upon their entry into the jurisdiction of the State of the receiving Party, only if the supplying Party has notified the receiving Party in writing and in advance of the intended transfer. Prior to the notified transfer of such nuclear material, non-nuclear material, equipment or technology, the supplying Party shall obtain from

the receiving Party a written confirmation that the transferred nuclear material, non-nuclear material, equipment or technology will be held subject to this Agreement and that the proposed recipient, if other than the receiving Party, will be an authorised person of the receiving Party.

3. Nuclear material, non-nuclear material, equipment and technology transferred pursuant to this Agreement, equipment based on technology and nuclear material recovered or produced as a by-product shall no longer be subject to this Agreement if:

- (a) in the case of nuclear material, it has been determined by the Agency, in accordance with the provisions for the termination of safeguards in the relevant agreement referred to in paragraph 1 of Article 4 of this Agreement, that the nuclear material has been consumed or diluted in such a way that it is no longer usable for any nuclear activity relevant from the point of view of Agency safeguards, or has become practicably irrecoverable;
- (b) such nuclear material, non-nuclear material or equipment has been transferred beyond the jurisdiction of the State of the receiving Party in accordance with Article 10 of this Agreement; or
- (c) the Parties otherwise mutually determine in writing through the diplomatic channel that it should no longer be subject to this Agreement.

4. The principles of fungibility, proportionality and equivalence may be applied in handling nuclear material and non-nuclear material transferred pursuant to this Agreement and nuclear material recovered or produced as a by-product consistent with each Party's safeguards agreement with the Agency.

ARTICLE 13

1. With a view to promoting cooperation under this Agreement, the Parties may, at the request of either of them, consult with each other through the diplomatic channel or other consultative fora on matters such as the implementation of this Agreement, including any technical issues, and the development of cooperation in the field of peaceful uses of nuclear energy on a stable, reliable and predictable basis.

2. Representatives of the Parties shall meet at the request of either Party with a view to consulting on matters arising from the application of this Agreement. Accordingly, the Parties shall establish a Joint Committee to serve as the appropriate forum for such consultations. The Joint Committee shall be composed of representatives designated by the Parties, and may meet on mutually convenient dates. A Joint Technical Working Group may be established under the Joint Committee to consult on any technical issues referred to in paragraph 1 of this Article.

3. Each Party shall endeavour to avoid any action that affects cooperation specified under Article 2 of this Agreement.

4. If any dispute arises between the Parties with regard to the interpretation or application of this Agreement, the Parties shall endeavour to settle the dispute by negotiation or other means agreed to by the Parties.

5. Disputes regarding the interpretation, implementation or performance of subsequent commercial contracts shall be dealt with in accordance with the provisions found in the contracts.

ARTICLE 14

1. Either Party shall have the right to terminate this Agreement prior to its expiration by giving one year's written notice to the other Party. A Party giving notice of termination shall provide the reasons for seeking such termination. This Agreement shall terminate one year from the date of the written notice, unless the notice has been withdrawn in writing by the Party giving such notice prior to the date of termination or the Parties otherwise agree.

2. Before this Agreement is terminated pursuant to paragraph 1 of this Article, the Parties shall consider the relevant circumstances and promptly hold consultations to address the reasons cited by the Party seeking termination. The Party seeking termination of this Agreement has the right to cease further cooperation under this Agreement in whole or in part, if it determines that a mutually acceptable resolution of outstanding issues has not been possible or cannot be achieved through consultations. The Parties shall consider carefully the circumstances that may lead to termination of this Agreement or cessation of cooperation under this Agreement. They further agree to take into account whether the circumstances that may lead to termination of this Agreement or cessation of cooperation under this Agreement 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.

3. If a Party seeking termination cites a violation of this Agreement as the reason for notice for seeking termination, the Parties shall consider whether the action was caused inadvertently or otherwise and whether the violation could be considered as material. No violation may be considered as being material unless corresponding to the definition of material violation or breach in the Vienna Convention on the Law of Treaties. If a Party seeking termination cites a violation of a safeguards agreement with the Agency as the reason for notice for seeking termination, a crucial factor will be whether the Board of Governors of the Agency has made a finding of non-compliance.

4. Following the cessation of cooperation under this Agreement, either Party shall have the right to require the return by the other Party of any

nuclear material, non-nuclear material or equipment transferred pursuant to this Agreement and any special fissionable material recovered or produced as a by-product. A written notice by a Party that is invoking the right to require the return shall be delivered to the other Party on or before the date of termination of this Agreement. The notice shall contain a statement of the items of which the Party is requiring the return. Except as provided in provisions of paragraph 3 of Article 17 of this Agreement, all other legal obligations pertaining to this Agreement shall cease to apply with respect to the nuclear material, non-nuclear material, equipment and technology subject to this Agreement remaining on the territory of either Party upon termination of this Agreement.

5. The two Parties recognise that exercising the right to require the return pursuant to paragraph 4 of this Article would have profound implications for the relationship between the Parties. If either Party seeks to exercise such right, it shall, prior to the removal from the territory or from the control of the other Party of any nuclear material, non-nuclear material or equipment transferred pursuant to this Agreement and any special fissionable material recovered or produced as a by-product specified in paragraph 4 of this Article, undertake consultations with the other Party. Such consultations shall give special consideration to the importance of uninterrupted operation of nuclear reactors of the Party concerned with respect to the availability of nuclear energy for peaceful purposes as a means of achieving energy security. Both Parties shall take into account the potential negative consequences of termination of this Agreement on the on-going contracts and projects initiated under this Agreement of significance for the respective nuclear programmes of either Party.

6. If either Party exercises its right to require the return pursuant to paragraph 4 of this Article, it shall, prior to the removal of the items to be returned from the territory or from the control of the other Party, compensate promptly that Party for the fair market value thereof and for the costs incurred because of such removal. The Parties shall agree on methods and arrangements for such return, the relevant quantity of the items to be so returned, and the amount of compensation that would have to be paid by the Party exercising the right to require the return.

7. Prior to the return of nuclear material, non-nuclear material or equipment transferred pursuant to this Agreement or any special fissionable material recovered or produced as by-product, the Parties shall satisfy themselves that full safety, radiological and physical protection measures have been ensured in accordance with the laws and regulations in force in their respective States and that the transfers pose no unreasonable risk to either Party, countries through which the items to be returned may transit and to the global environment and are in accordance with existing international regulations.

8. The Party exercising the right to require the return pursuant to paragraph 4 of this Article shall ensure that the timing, methods and arrangements for the return are in accordance with paragraphs 5, 6 and

7 of this Article. In this regard, the consultations between the Parties shall take into account the commitments and understandings that the Republic of India has with other civil nuclear cooperation partners with regard to reliable supply of fuel to the Republic of India.

9. The reprocessing pursuant to Article 11 of this Agreement shall be subject to suspension by either Party in exceptional circumstances limited to either Party's determination that continuance of reprocessing of nuclear material subject to this Agreement at a facility referred to in Annex B to this Agreement would result in a serious threat to that Party's national security or in case there is a serious threat to the physical protection at the facility. Any decision to seek suspension following consultations between the Parties aimed at reaching mutually acceptable resolution of outstanding issues shall be applied to the relevant reprocessing facility related to the exceptional circumstances and will be to the minimum extent and for the minimum period necessary to deal with the exceptional circumstances, and for not longer than three months unless extended by the Party seeking suspension for specific reasons conveyed in writing to the other Party. Such a decision shall take into account the effects of such suspension on uninterrupted operation of nuclear reactors that provide nuclear energy for peaceful purposes, potential loss to Indian economy and impact on energy security caused by the suspension. In case the suspension extends beyond a period of six months, both Parties shall enter into consultations on compensation for the adverse impact on the Indian economy due to disruption in electricity generation and loss on account of disruption of contractual obligations.

ARTICLE 15

Nothing in this Agreement shall be interpreted as affecting the applicable rights and obligations of the Parties with regard to nuclear material, non-nuclear material, equipment and technology produced, acquired or developed by them, which are not within the scope of the cooperation under this Agreement.

ARTICLE 16

1. This Agreement may be amended at any time with a written agreement of the Parties. Amendment to this Agreement shall be approved by each Party in accordance with its internal procedures. Each Party shall notify the other of the completion of these procedures. Amendments shall enter into force on the date the later of these notifications is received.

2. The Annexes to this Agreement shall form an integral part of this Agreement. The Annexes may be modified by a written agreement of the Parties through an exchange of diplomatic notes.

ARTICLE 17

1. This Agreement shall enter into force on the date on which the Parties exchange diplomatic notes informing each other that their respective internal procedures necessary for entry into force of this Agreement have been completed.

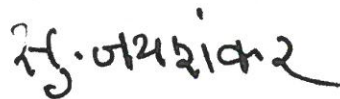
2. This Agreement shall remain in force for a period of forty years and shall be automatically extended for ten-year periods thereafter unless either Party notifies the other Party in writing through diplomatic channel of its intention to terminate this Agreement not later than six months prior to the expiry date.

3. Notwithstanding the cessation of cooperation under this Agreement or termination of this Agreement, Articles 1, 3 and 4, paragraph 1 of Article 5, Articles 6, 7, 10 and 11, paragraph 3 of Article 12 and Articles 13 and 14 of this Agreement shall continue in effect.

IN WITNESS WHEREOF the undersigned, being duly authorised by their respective Governments, have signed this Agreement.

Done at TOKYO on the 11th day of November, 2016, in duplicate.

**FOR THE GOVERNMENT OF
THE REPUBLIC OF INDIA**



(S. JAISHANKAR)

Foreign Secretary of India

**FOR THE GOVERNMENT OF
JAPAN**



(KENJI HIRAMATSU)

Ambassador of Japan to India

Annex A

Part A

1. Deuterium and heavy water:

Deuterium, heavy water (deuterium oxide) and any other deuterium compound in which the ratio of deuterium to hydrogen atoms exceeds 1:5000 for use in a nuclear reactor as defined in paragraph 1 of Part B below, in quantities exceeding 200 kg of deuterium atoms within a period of one calendar year (from 1 January to 31 December).

2. Nuclear grade graphite:

Graphite having a purity level better than 5 parts per million boron equivalent and with a density greater than 1.50g/cm³ for use in a nuclear reactor as defined in paragraph 1 of Part B below, in quantities exceeding 1 kg.

Part B

1. Complete nuclear reactors:

Nuclear reactors capable of operation so as to maintain a controlled self-sustaining fission chain reaction.

2. Nuclear reactor vessels:

Metal vessels, or major shop-fabricated parts therefor, especially designed or prepared to contain the core of a nuclear reactor as defined in paragraph 1 above, as well as relevant nuclear reactor internals as defined in paragraph 8 below.

3. Nuclear reactor fuel charging and discharging machines:

Manipulative equipment especially designed or prepared for inserting or removing fuel in a nuclear reactor as defined in paragraph 1 above.

4. Nuclear reactor control rods and equipment:

Especially designed or prepared rods, support or suspension structures therefor, rod drive mechanisms or rod guide tubes to control the fission process in a nuclear reactor as defined in paragraph 1 above.

5. Nuclear reactor pressure tubes:

Tubes which are especially designed or prepared to contain both fuel elements and the primary coolant in a nuclear reactor as defined in paragraph 1 above.

6. Nuclear fuel cladding:

Zirconium metal tubes or zirconium alloy of tubes (or assemblies of tubes), especially designed or prepared for use as fuel cladding in a nuclear reactor as defined in paragraph 1 above, and in quantities exceeding 10 kg.

7. Primary coolant pumps or circulators:

Pumps or circulators especially designed or prepared for circulating the primary coolant for a nuclear reactor as defined in paragraph 1 above.

8. Nuclear reactor internals:

Nuclear reactor internals especially designed or prepared for use in a nuclear reactor as defined in paragraph 1 above. This includes, for example, support columns for the core, fuel channels, calandria tubes, thermal shields, baffles, core grid plates and diffuser plates.

9. Heat exchangers:

- (a) Steam generators especially designed or prepared for the primary, or intermediate, coolant circuit of a nuclear reactor as defined in paragraph 1 above.
- (b) Other heat exchangers especially designed or prepared for use in the primary coolant circuit of a nuclear reactor as defined in paragraph 1 above.

10. Neutron detectors:

Especially designed or prepared neutron detectors for determining neutron flux levels within the core of a nuclear reactor as defined in paragraph 1 above.

11. External thermal shields:

External thermal shields especially designed or prepared for use in a nuclear reactor as defined in paragraph 1 above for reduction of heat loss and also for containment vessel protection.

12. Plants for the fabrication of nuclear reactor fuel elements, and equipment especially designed or prepared therefor.

13. Plants for the conversion of uranium for use in the fabrication of fuel elements and the separation of uranium isotopes, and equipment especially designed or prepared therefor.

Annex B

Reprocessing of Nuclear Material Transferred Pursuant to this Agreement and Nuclear Material Recovered or Produced as a By-product within the Jurisdiction of the Republic of India

1. The Government of the Republic of India shall notify the Government of Japan in writing that it has established a facility (hereinafter referred to as "the Facility"). The notification shall contain:

- (a) the name of the owner or operator of the Facility;
- (b) the name, type and location of the Facility and its planned capacity, as well as the type of nuclear material involved, the approximate date of introduction of such nuclear material into the Facility and the type of activity;
- (c) confirmation that in accordance with paragraph 14 (a) of the Agreement between the Government of India and the International Atomic Energy Agency for the Application of Safeguards to Civilian Nuclear Facilities, done on February 2, 2009 the Government of the Republic of India has notified the Facility to the Agency for the application of safeguards by the Agency and that relevant safeguards arrangements have been agreed in accordance with the said Agreement, as supplemented by and as applicable the Protocol Additional to the said Agreement, done on May 15, 2009; and
- (d) a statement affirming that the safeguards arrangements are in accordance with paragraph 6 below, and such information as is available to the Government of the Republic of India on the safeguards approach of the Agency that is not classified as "Safeguards Confidential."

2. The Government of Japan shall provide a written acknowledgement to the Government of the Republic of India no later than thirty days after receipt of the notification referred to in paragraph 1 above. This acknowledgement shall be limited to a statement that the notification has been received.

3. For the purposes of this Annex, the term "the Facility" means two new national reprocessing facilities, as well as any additional new national reprocessing facilities that the Government of the Republic of India will establish to reprocess nuclear material subject to this Agreement and any other safeguarded nuclear material and are dedicated to the reprocessing and, as required, other alteration in form or content of safeguarded nuclear material under safeguards by the Agency.

4. At the request of the Government of the Republic of India, the Parties shall consult with each other to achieve mutual satisfaction with respect to the addition of new reprocessing facilities referred to in paragraph 3 above. Following such consultations, the Parties will pursue the steps necessary consistent with the laws and regulations in force in their respective States to permit such a request.

5. Consistent with the provisions of this Agreement, the Government of the Republic of India shall offer the Facility for the application of safeguards by the Agency in accordance with the provisions of the Agreement between the Government of India and the International Atomic Energy Agency for the Application of Safeguards to Civilian Nuclear Facilities, done on February 2, 2009 as supplemented by and as applicable the Protocol Additional to the said Agreement, done on May 15, 2009. For the timely detection of withdrawal of safeguarded nuclear material from civilian use, safeguards measures shall include, as specified in the Agreement between the Government of India and the International Atomic Energy Agency for the Application of Safeguards to Civilian Nuclear Facilities, done on February 2, 2009 as supplemented by and as applicable the Protocol Additional to the said Agreement, done on May 15, 2009, nuclear material accountancy, design review and verification of the Facility, report on progress in construction of the Facility, appropriate containment and surveillance systems, process monitoring and other measures as may be agreed with the Agency.

6. The Government of the Republic of India shall ensure that the following minimum requirements for the implementation of safeguards by the Agency at the Facility are fulfilled:

(a) Facility Design

(i) Early Provision of Design Information

The Government of the Republic of India shall co-operate with the Agency by providing design information of the Facility at the earliest possible time as provided in paragraph 40 of the Agreement between the Government of India and the International Atomic Energy Agency for the Application of Safeguards to Civilian Nuclear Facilities, done on February 2, 2009.

(ii) Effective Design Review and Verification

The Government of the Republic of India and the operator of the Facility, as appropriate, shall cooperate with the Agency in allowing activities for design review and verification of the Facility.

(iii) Incorporation of Design Features that Facilitate Safeguards

As may be required by the Agency, design and operational characteristics of the Facility shall enable effective and efficient implementation of safeguards while precluding design features that would prevent the effective application of safeguards. Examples include, but are not limited to: installation of vessel calibration systems; effective methods of solution mixing and sampling; and installation of independent instruments as may be necessitated by authentication concerns.

(b) Safeguards System Design and Installation

(i) Cooperation with the Agency

The Government of the Republic of India and the operator of the Facility shall accommodate the installation and operation of instrumentation of the Agency in the Facility, including data collection systems, authentication systems and tamper-indicating devices.

(ii) System of Accounting and Control Capable of Providing Accurate and Timely Data

The Government of the Republic of India and the operator of the Facility shall maintain at the Facility, a comprehensive and accurate nuclear material accountancy and control system that conforms to standards of the Agency in accordance with the provisions of the Agreement between the Government of India and the International Atomic Energy Agency for the Application of Safeguards to Civilian Nuclear Facilities, done on February 2, 2009 as supplemented by and as applicable the Protocol Additional to the said Agreement, done on May 15, 2009, so that accurate and timely declarations can be made to the Agency. A system of inventory records and reports shall be maintained for each material balance area. An effective system for measurement control shall be utilised.

(iii) In-Process Material Measurement

The Government of the Republic of India and the operator of the Facility shall cooperate with the Agency to enable the Agency to provide at the Facility measurement capabilities that the Agency considers as necessary to cover all major in-process nuclear material inventories during operation of the Facility.

(iv) Process Monitoring Data

If desired by the Agency, the Government of the Republic of India and the operator of the Facility shall provide to the Agency access to safeguards relevant operator data, such as authenticated process control data in accordance with the provisions of the Agreement between the Government of India and the International Atomic Energy Agency for the Application of Safeguards to Civilian Nuclear Facilities, done on February 2, 2009 as supplemented by and as applicable the Protocol Additional to the said Agreement, done on May 15, 2009.

(v) On-site Laboratory

The Facility design shall incorporate an on-site laboratory, if the Agency so requests, to perform analysis of process samples including destructive analysis required by the safeguards approach of the Agency at the Facility. The Agency shall be permitted to set up and operate that laboratory.

(vi) Containment and Surveillance Systems

The Facility design shall take into account the use of containment and surveillance systems in accordance with the practices and procedures of the Agency, as required for the effective implementation of safeguards, and the Agency shall be permitted to maintain such systems at the Facility.

(c) Safeguards Implementation

(i) Verification of Accountancy Records

The Agency shall be permitted to carry out regular verification of nuclear material accountancy records and reports.

(ii) Remote Data Transmissions

The Agency, if it considers it efficient for the purpose of safeguards implementation, may use remote transmission, in accordance with the provisions of the Protocol Additional to the Agreement between the Government of India and the International Atomic Energy Agency for the Application of Safeguards to Civilian Nuclear Facilities, done on May 15, 2009 of authenticated data to enable more frequent data analysis.

(iii) Data Authentication

The Parties recognise the importance of reliable instrumentation for the purpose of timely and accurate safeguards related data, and of data authentication for safeguards implementation. The Government of the Republic of India and the operator of the Facility shall cooperate with the Agency to apply adequate authentication methods to data and samples collected for safeguards purposes.

(iv) Access and Transparency

The Government of the Republic of India and the operator of the Facility shall provide sufficient access to the Agency to install and maintain safeguards equipment, and to inspect the complete process activity of the operator, including sample-taking, to the extent required for safeguards implementation and maintain a complete understanding of the Facility.

(v) Annual Cleanout Inventory

Nuclear material shall be removed from process lines annually in order to make it available, to the extent practicable, for accurate physical inventory verification by the Agency.

(vi) Anomaly Resolution

The Government of the Republic of India and the operator of the Facility shall cooperate with the Agency to resolve anomalies, if any, including material accounting anomalies, in a timely fashion.

7. Any special fissionable material that may be separated by reprocessing subject to the conditions as specified in this Annex shall be stored and utilised in national facilities in the Republic of India under the safeguards by the Agency.