

Entry	List of Items to be declared		To be declared	
			Yes	No
1.	Government nuclear fuel cycle-related research and development activities (If Yes, please complete the form (a))			
	a.	Conversion of nuclear material		
	b.	Enrichment of nuclear material		
	c.	Nuclear fuel fabrication		
	d.	Reactors		
	e.	Critical facilities		
	f.	Reprocessing of nuclear fuel		
	g.	Processing of intermediate or high-level waste containing plutonium, high enriched uranium or uranium-233		
2.	Buildings on Nuclear Sites (If Yes, please complete the form (b))			
3.	Activities specified in Annex I to Additional Protocol (If Yes, please complete the form (c))			
	i.	The manufacture of centrifuge rotor tubes or the assembly of gas centrifuges		
	ii.	The manufacture of diffusion barriers		
	iii.	The manufacture or assembly of laser-based systems		
	iv	The manufacture or assembly of electromagnetic isotope separators		
	v	The manufacture or assembly of columns or extraction		

		equipment		
	vi	The manufacture of aerodynamic separation nozzles or vortex tubes		
	vii	The manufacture or assembly of Uranium plasma generation systems		
	viii	The manufacture of Zirconium tubes		
	ix	The manufacture or upgrading of heavy water or deuterium		
	x	The manufacture of nuclear grade graphite		
	xi	The manufacture of Flasks for irradiated fuel		
	xii	The manufacture of reactor control rods		
	xiii	The manufacture of criticality safe tanks and vessels		
	xiv	The manufacture of irradiated fuel element chopping machines		
	xv	The manufacture of hot cells		
4.		The location, operational status and the estimated annual production capacity of uranium mines and concentration plants and thorium concentration plants  (If Yes, please complete the form (d))		
5.		Information regarding the holdings of and import and export of source material, which are natural uranium, depleted uranium and thorium  (If Yes, please complete the form (e))		
6.		Nuclear material exempted from safeguards  (If Yes, please complete the form (f))		

7.	<p>Information regarding the location or processing of intermediate or high-level waste containing plutonium, high enriched uranium or uranium-233</p> <p>(If Yes, please complete the form (g))</p>		
8.	<p>Specified equipment and non-nuclear material listed in Annex II to Additional Protocol</p> <p>(The text of the Annex II is described in Appendix I )</p> <p>(If Yes, please complete the form (h))</p>		
<input type="checkbox"/> <input type="checkbox"/>	<p>General plan for the succeeding ten-year period relevant to the development of the nuclear fuel cycle (including planned nuclear fuel cycle-related research and development activities) when approved by the nuclear regulatory authorities</p> <p>(If Yes, please complete the form (i))</p>		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p>Private Nuclear fuel cycle-related research and development activates</p> <p>(If Yes, please complete the form (j))</p>		

## **Appendix I**

### **Specified Equipment and Non-nuclear Material listed in Annex II to Additional Protocol**

1. Reactors and equipment therefor
  - 1.1 Complete nuclear reactors
  - 1.2 Reactor pressure vessels
  - 1.3 Reactor fuel charging and discharging machines
  - 1.4 Reactor control rods
  - 1.5 Reactor pressure tubes
  - 1.6 Zirconium tubes
  - 1.7 Primary coolant pumps
2. Non-nuclear materials for reactors
  - 2.1 Deuterium and heavy water
  - 2.2 Nuclear grade graphite
3. Plants for the reprocessing of irradiated fuel elements, and equipment especially designed or prepared therefor
  - 3.1 Irradiated fuel element chopping machines
  - 3.2 Dissolvers
  - 3.3 Solvent extractors and solvent extraction equipment
  - 3.4 Chemical holding or storage vessels
  - 3.5 Plutonium nitrate to oxide conversion system
  - 3.6 Plutonium oxide to metal production system
4. Plants for the fabrication of fuel elements
5. Plants for the separation of isotopes of uranium and equipment, other than analytical instruments, especially designed or prepared therefor
  - 5.1 Gas centrifuges and assemblies and components especially designed or prepared for use in gas centrifuges
    - 5.1.1. Rotating components
      - 5.1.1.a Complete rotor assemblies

- 5.1.1.b Rotor tubes
  - 5.1.1.c Rings or Bellows
  - 5.1.1.d Baffles
  - 5.1.1.e Top caps/Bottom caps
- 5.1.2. Static components
  - 5.1.2.a Magnetic suspension bearings
  - 5.1.2.b Bearings/Dampers
  - 5.1.2.c Molecular pumps
  - 5.1.2.d Motor stators
  - 5.1.2.e Centrifuge housing/recipients
  - 5.1.2.f Scoops
- 5.2 Especially designed or prepared auxiliary systems, equipment and components for gas centrifuge enrichment plants
  - 5.2.1. Feed systems/product and tails withdrawal systems
  - 5.2.2. Machine header piping systems
  - 5.2.3. UF<sub>6</sub> mass spectrometers/ion sources
  - 5.2.4. Frequency changers
- 5.3 Especially designed or prepared assemblies and components for use in gaseous diffusion enrichment
  - 5.3.1. Gaseous diffusion barriers
  - 5.3.2. Diffuser housings
  - 5.3.3. Compressors and gas blowers
  - 5.3.4. Rotary shaft seals
  - 5.3.5. Heat exchangers for cooling UF<sub>6</sub>
- 5.4 Especially designed or prepared auxiliary systems, equipment and components for use in gaseous diffusion enrichment
  - 5.4.1. Feed systems/product and tails withdrawal systems
  - 5.4.2. Header piping systems
  - 5.4.3. Vacuum systems
  - 5.4.4. Special shut-off and control valves
  - 5.4.5. UF<sub>6</sub> mass spectrometers/ion sources
- 5.5. Especially designed or prepared systems, equipment and components for use in aerodynamic enrichment plants
  - 5.5.1. Separation nozzles
  - 5.5.2. Vortex tubes

- 5.5.3. Compressors and gas blowers
- 5.5.4. Rotary shaft seals
- 5.5.5. Heat exchangers for gas cooling
- 5.5.6. Separation element housings
- 5.5.7. Feed systems/product and tails withdrawal systems
- 5.5.8. Header piping systems
- 5.5.9. Vacuum systems and pumps
- 5.5.10. Special shut-off and control valves
- 5.5.11. UF<sub>6</sub> mass spectrometers/ion sources
- 5.5.12. UF<sub>6</sub>/carrier gas separation systems
- 5.6. Especially designed or prepared systems, equipment and components for use in chemical exchange or ion exchange enrichment plants
  - 5.6.1. Liquid-liquid exchange columns (Chemical exchange)
  - 5.6.2. Liquid-liquid centrifugal contactors (Chemical exchange)
  - 5.6.3. Uranium reduction systems and equipment (Chemical exchange)
  - 5.6.4. Feed preparation systems (Chemical exchange)
  - 5.6.5. Uranium oxidation systems (Chemical exchange)
  - 5.6.6. Fast-reacting ion exchange resins/adsorbents (ion exchange)
  - 5.6.7. Ion exchange columns (Ion exchange)
  - 5.6.8. Ion exchange reflux systems (Ion exchange)
- 5.7. Especially designed or prepared systems, equipment and components for use in laser-based enrichment plants
  - 5.7.1. Uranium vaporization systems (AVLIS)
  - 5.7.2. Liquid uranium metal handling systems (AVLIS)
  - 5.7.3. Uranium metal 'product' and 'tails' collector assemblies (AVLIS)
  - 5.7.4. Separator module housings (AVLIS)
  - 5.7.5. Supersonic expansion nozzles (MLIS)
  - 5.7.6. Uranium pentafluoride product collectors (MLIS)
  - 5.7.7. UF<sub>6</sub>/carrier gas compressors (MLIS)
  - 5.7.8. Rotary shaft seals (MLIS)
  - 5.7.9. Fluorination systems (MLIS)
  - 5.7.10. UF<sub>6</sub> mass spectrometers/ion sources (MLIS)
  - 5.7.11. Feed systems/product and tails withdrawal systems (MLIS)
  - 5.7.12. UF<sub>6</sub>/carrier gas separation systems (MLIS)
  - 5.7.13. Laser systems (AVLIS, MLIS and CRISLA)

- 5.8. Especially designed or prepared systems, equipment and components for use in plasma separation enrichment plants
  - 5.8.1. Microwave power sources and antennae
  - 5.8.2. Ion excitation coils
  - 5.8.3. Uranium plasma generation systems
  - 5.8.4. Liquid uranium metal handling systems
  - 5.8.5. Uranium metal 'product' and 'tails' collector assemblies
  - 5.8.6. Separator module housings
- 5.9. Especially designed or prepared systems, equipment and components for use in electromagnetic enrichment plants
  - 5.9.1. Electromagnetic isotope separators
    - 5.9.1.a Ion sources
    - 5.9.1.b Ion collectors
    - 5.9.1.c Vacuum housings
    - 5.9.1.d Magnet pole pieces
  - 5.9.2. High voltage power supplies
  - 5.9.3. Magnet power supplies
- 6. Plants for the production of heavy water, deuterium and deuterium compounds and equipment especially designed or prepared therefor
  - 6.1. Water - Hydrogen Sulphide Exchange Towers
  - 6.2. Blowers and Compressors
  - 6.3. Ammonia-Hydrogen Exchange Towers
  - 6.4. Tower Internals and Stage Pumps
  - 6.5. Ammonia Crackers
  - 6.6. Infrared Absorption Analyzers
  - 6.7. Catalytic Burners
- 7. Plants for the conversion of uranium and equipment especially designed or prepared therefor
  - 7.1. Especially designed or prepared systems for the conversion of uranium ore concentrates to  $\text{UO}_3$
  - 7.2. Especially designed or prepared systems for the conversion of  $\text{UO}_3$  to  $\text{UF}_6$
  - 7.3. Especially designed or prepared systems for the conversion of  $\text{UO}_3$  to  $\text{UO}_2$
  - 7.4. Especially designed or prepared systems for the conversion of  $\text{UO}_2$  to  $\text{UF}_4$
  - 7.5. Especially designed or prepared systems for the conversion of  $\text{UF}_4$  to  $\text{UF}_6$
  - 7.6. Especially designed or prepared systems for the conversion of  $\text{UF}_4$  to U Metal
  - 7.7. Especially designed or prepared systems for the conversion of  $\text{UF}_6$  to  $\text{UO}_2$

7.8. Especially designed or prepared systems for the conversion of UF<sub>6</sub> to UF<sub>4</sub>

**Form (a) Government nuclear fuel cycle-related research and development activities**

<b>Entry</b>	<b>Fuel Cycle Stage</b>	<b>Location</b>	<b>General Description</b>	<b>Comments</b>

The 'Fuel Cycle Stage' column should include:

- Conversion of nuclear material
- Enrichment of nuclear material
- Nuclear fuel fabrication
- Reactors
- Critical facilities
- Reprocessing of nuclear fuel
- Processing of intermediate or high-level waste containing plutonium, high enriched uranium or uranium-233

The 'Location' column should include:

- Name of the organization
- Address where the R & D is being carried out. The address must be detailed.
- If the activity is located at a nuclear facility or location outside facilities (LOF), the facility or LOF code (optionally also the site name or code

The 'General Description' column should include:

- The title of the R&D activity;
- The activity's project number or other unique designation to avoid any ambiguities in future references to the activity;
- The relationship or connection of the State to the R&D activity;
- A brief description of the work being performed (where the work is distributed over several organizations, the description of the work should identify who is doing what);
- The objectives of the specific R&D activity and the degree to which those objectives have been met at the time of the declaration
- The intended application of the R&D results
- Identification, if applicable, of the organization and location within another State with which there is collaboration on the R&D activity.

### **Form (b) Buildings on Nuclear Sites**

<b>Entry</b>	<b>Facility/LOF Code</b>	<b>Building</b>	<b>General Description, Including Use and Contents</b>	<b>Comments</b>

The "Facility/LOF code" column should contain the facility code for any building on the site that is part of a facility (or LOF).

The "Building" column should include a building number or other designation that provides an unambiguous identification of the building on the site map.

The "General Description" for each building should include:

- The size of the building (the number of floors and the approximate total square meters of floor area or the dimensions of the building);
- The use of the building and, where not apparent from the stated use, the main contents of the building

Note: A current diagram or map of the site showing the exact boundary of the site, the location of all buildings and other structures, railways, roads, rivers, etc., is to be attached to the Article 2.a.(iii) declaration for each site. The scale and geographical orientation to the North of the map or diagram should be indicated.

**Form (c) Activities specified in Annex I to Additional Protocol**

<b>Entry</b>	<b>Annex I Item</b>	<b>Location</b>	<b>Description of the scale of operations</b>	<b>Comments</b>

The “Annex I Item” column should refer to the relevant activity listed in Annex I to the Protocol (e.g., (iii) or (xv)).

The “Location” column should include the name of the organization and the address where the activity is being carried out. The address must be detailed.

The “Description of the Scale of Operations” column for each location should include:

- A brief description of the activity and its products

- An indication of the scale of operation of each manufacturing activity listed in Annex I

**Form (d) The location, operational status and the estimated annual production capacity of uranium mines and concentration plants and thorium concentration plants**

<b>Entry</b>	<b>Operation</b>	<b>Status</b>	<b>Location</b>	<b>Estimated Annual Production Capacity (tones of element: U or Th)</b>	<b>Comments</b>

The “Operation” column should specify

- U mine or U concentration or U mine and milling (concentration) or Th mine or Th concentration plant etc.

The “status” column should include

- Operating
- Temporarily closed-down or
- Permanently closed-down

The “Location” column should include

- Name of the organization
- Address where the mine or plant is located. The address must be detailed.

The “Estimated Annual Production Capacity (tonnes of element: U or Th)” column should include:

- For an individual mine and concentration plant (normally, U ore concentration plants are co-located with the mine; if not, the U ore concentration plant(s) should be described in a separate entry(ies)), the estimated annual production capacity stated in tonnes of element, uranium (U) or thorium (Th), as appropriate

**Form (e) Information regarding the holdings of and import and export of source material (natural uranium, depleted uranium and thorium)**

**(i) Holdings of Source Materials**

<b>Entry</b>	<b>Location</b>	<b>Chemical Composition</b>	<b>Quantity (tones of element U or Th)</b>	<b>Intended Use Code</b>	<b>Intended Use</b>	<b>Comments</b>


**(ii) Exports of Source Materials**

<b>Entry</b>	<b>Destination</b>	<b>Interim destination</b>	<b>Chemical Composition</b>	<b>Quantity (tones of element U or Th)</b>	<b>Export Date</b>	<b>Comments</b>

**(iii) Imports of Source Materials**

<b>Entry</b>	<b>Location</b>	<b>Chemical Composition</b>	<b>Quantity (tones of element U or Th)</b>	<b>Use (Intended)</b>	<b>Exporting State</b>	<b>Import Date</b>	<b>Comments</b>

The "Location" column should include:

- Name of the organization
- Address where the source material is located. The address must be detailed.

The "Chemical Composition" column should include the chemical composition of the source material, e.g, U<sub>3</sub>O<sub>8</sub> or ThO<sub>2</sub>.

The "Quantity" column should include the element weight in tones.

The "Intended Use Code" should include:

- Code N for nuclear
- Code NN for non-nuclear

-  
The “Intended Use” column should include the particular use (intended), e.g., conversion for enrichment or ceramics.

Note: An inventory of source material for which no use has yet been identified should be declared with the code ND for not designated (intended use is not yet defined)

The “Destination” column should include the name of the State to which the export was made.

Any interim destination State(s) should be entered in the “Interim Destination” column.

The date the export took place should be entered in the “Export Date” column.

The entry in the “Use (Intended)” column should include only the particular use, without the NN code, since only imports for non-nuclear use are to be reported under the Additional Protocol.

The State which exported the material should be entered in the “Exporting State” column.

The date the material arrived in the State should be entered in the “Import Date” column.

**Form (f) Nuclear material exempted from safeguards**

<b>Ent</b>	<b>Locatio</b>	<b>Exempti</b>	<b>Materi</b>	<b>Quantity</b>	<b>Intended</b>	<b>Intende</b>	<b>Commen</b>
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ry	n	on	al	of Element	Use Code	d Use	ts

The “Location” column should include

- Name of the organization
- Address where the exempted material is located. The address must be detailed.

The “Exemption” column should include the corresponding article number from the relevant safeguards agreement under which the exemption was made, e.g., 36(b) or 37.

The entry in the “Material” column should identify the element and, for uranium, the percentage of U-233 or U-235, as appropriate, for other than natural uranium.

The entry in the “Quantity of Element” column should be the element weight in kilograms for natural and depleted uranium and thorium and in grams for plutonium, uranium-233 and enriched uranium. A separate entry should be made for each material type.

The entry in the “Intended Use Code” should include the code NN (for non-nuclear) or N (for nuclear).

The entry in the “Intended Use” column should be the particular use or intended use, e.g., gamma shielding or post irradiation examination.

Note : Nuclear material exempted from safeguards pursuant to paragraph 36 (b) and paragraph (37) of INFCRIC/153 are as follows:

**Paragraph 36 (b) of INFCRIC/153**

The Agreement should provide that the Agency shall, at the request of the State, exempt nuclear material from safeguards, as follows:

(b) Nuclear material, when it is used in non-nuclear activities in accordance with paragraph 13 above, if such nuclear material is recoverable

### **Paragraph 37 of INFCRIC/153**

The Agreement should provide that nuclear material that would otherwise be subject to safeguards shall be exempted from safeguards at the request of the State, provided that nuclear material so exempted in the State may not at any time exceed:

- (a) One kilogram in total of special fissionable material, which may consist of one or more of the following:
    - (i) Plutonium;
    - (ii) Uranium with an enrichment of 0.2 (20%) and above, taken account of by multiplying its weight by its enrichment; and
    - (iii) Uranium with an enrichment below 0.2 (20%) and above that of natural uranium, taken account of by multiplying its weight by five times the square of its enrichment;
  - (b) Ten metric tons in total of natural uranium and depleted uranium with an enrichment above 0.005 (0.5%);
  - (c) Twenty metric tons of depleted uranium with an enrichment of 0.005 (0.5%) or below; and
  - (d) Twenty metric tons of thorium;
- or such greater amounts as may be specified by the Board of Governors for uniform application.



**Form (g) Information regarding the location or processing of intermediate or high-level waste containing plutonium, high enriched uranium or uranium-233**

Entry	Waste Type	Conditioned Form (Optional)	Number of items (optional)	Quantity Pu (Optional)	Quantity HEU (Optional)	Quantity U 233 (Optional)	Quantity Np/Am (Optional)	Previous Location	New Location	Processing Location	Processing Date	Processing Purpose

The “Waste Type ” is a column that should state the type of waste before any conditioning took place, e.g., hulls, feed clarification sludge, high-activity liquid, or intermediate-activity liquid.

The “Conditioned Form” is an optional column that could be used to show the current conditioned form of the waste, e.g., glass, ceramic, cement or bitumen.

The “Number of Items” is an optional column that could be used to show the number of items, e.g., glass canisters or cement blocks.

The “Quantity” are optional columns that could be used to include the total number of grams of plutonium, high enriched uranium or uranium-233 (or neptunium and americium) contained collectively in items in the “Number of Items” entry.

The “Previous Location” column should indicate the location of the waste before the change in location and the “New Location” column should indicate the location after the change.

The “Processing Location” should show the location where the planned processing is to take place.

The location columns should include the name of the organization and the address where the waste is located. The address must be detailed.

The "Processing Dates" column should indicate the dates the further processing campaign is expected to begin and to end.

The "Processing Purpose" column should indicate the intended result of the processing, e.g., recovery of plutonium or separation of specified fission or activation products.

**Form (h) Specified equipment and non-nuclear material listed in Annex II to  
Additional Protocol**

**(i) Information regarding with Exports**

<b>Entry</b>	<b>Annex II Paragraph</b>	<b>Identity of Specific Items</b>	<b>Quantity (no. or wt.)</b>	<b>Location of Intended Use</b>	<b>Export Date</b>	<b>Comments</b>

**(ii) Information regarding with Imports**

<b>Entry</b>	<b>Annex II Paragraph</b>	<b>Identity of Specific Items</b>	<b>Quantity (no. or wt.)</b>	<b>Location of Intended Use</b>	<b>Import Date</b>	<b>Comments</b>

The “Annex II Paragraph Number” column should indicate the full paragraph number in Annex II, e.g., 5.1.1.(b) for centrifuge rotor tubes.

The “Identity of Specific Item(s)” column should include, as appropriate, item dimensions, capacity (volume), throughput, material of construction, identification or serial numbers, key specifications of non-nuclear material, name and address of the manufacturer, and any other information that will help identify the item(s).

The “Quantity” column, in the case of equipment, should indicate the number of the items in the shipment. In the case of exports of non-nuclear material, the entry should be the weight of the material in kilograms or tonnes, as appropriate.

The “Location of Intended Use” column should indicate the name and address of the company or organization in the receiving State where the item(s) will be used.

For exports, the “Export Date” should indicate the date on which the export actually occurred or the date when the export is believed to have been made.

The entry in the “Import Date” column should indicate the date the item(s) was received.

**Form (i) General plan for the succeeding ten-year period relevant to the development of the nuclear fuel cycle (including planned nuclear fuel cycle-related research and development activities) when approved by the nuclear regulatory authorities**

<b>Entry</b>	<b>Fuel Cycle Stage</b>	<b>General Plan for Development of the Nuclear Fuel Cycle</b>	<b>General Plans for Nuclear Fuel Cycle-Related Research and Development Activities</b>	<b>Comments</b>

The ‘Fuel Cycle Stage’ column should include:

- Conversion of nuclear material
- Enrichment of nuclear material
- Nuclear fuel fabrication
- Reactors
- Critical facilities
- Reprocessing of nuclear fuel
- Processing of intermediate or high-level waste containing plutonium, high enriched uranium or uranium-233

The “General Plans for Development of the Nuclear Fuel Cycle” column should include a brief statement of the development plans, including the intended results, any target completion dates or overall schedule for the development and the locations involved.

The “General Plans for Nuclear Fuel Cycle-Related Research and Development Activities” column should include a general description of each R&D plan, its

overall objectives, any target date or overall schedule for the R&D and the locations involved.

The declaration should include all developments and activities for the succeeding ten-year period that have been approved by the appropriate authorities.

**Form (j) Private Nuclear fuel cycle-related research and development  
activities**

<b>Entry</b>	<b>Fuel Cycle Stage</b>	<b>Location</b>	<b>General Description</b>	<b>Comments</b>

The “Fuel Cycle Stage” column should indicate one of the three relevant areas of R&D (i.e., enrichment, reprocessing, or processing of waste, as appropriate). When single R&D projects involve activities at more than one location, the activity at each location should be reflected in a separate entry.

The “Location” column should include the name of the organization and the address where the R&D is being carried out. The address must be detailed.

The “General Description” of each R&D activity should include:

- The title of the R&D activity;
- The activity's project number or other unique designation to avoid any ambiguities in future references to the activity and the name and address of the private organization sponsoring the work if it is different from the organization performing the R&D;
- A brief description of the work being performed;
- The objectives of the specific R&D activity and the degree to which those objectives have been met at the time of the declaration
- The intended application of the R&D results if this is not apparent from the objectives; and

- Identification, if applicable, of the organization and location within another State with which there is collaboration on the R&D activity.