

## **Nuclear Cooperation with India – Non-Proliferation Success or Failure?**

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### **1. Introduction**

For some three decades the Nuclear Suppliers Group (NSG) Guidelines excluded supply of nuclear material, items and technology to India because India has not accepted IAEA *comprehensive* safeguards. In fact, the establishment of the NSG was largely prompted by India's nuclear test of 1974, which used plutonium produced through violation of peaceful use assurances on a Canadian-supplied research reactor.

In 2005 the United States decided to strengthen its bilateral relationship with India, and as part of this to normalise India's participation in international nuclear cooperation. As part of the 2005 Joint Statement by President GW Bush and Prime Minister Singh<sup>1</sup>, the US undertook to seek an exemption from the NSG's comprehensive safeguards requirement, so as to allow nuclear supply to India. The *India exemption* was agreed by the NSG in 2008.

Subsequently ten countries have concluded nuclear cooperation agreements with India: Argentina, Canada, France, Kazakhstan, Mongolia, Namibia, Russia, South Korea, the United Kingdom and the United States. Most recently, in September 2014 Australia signed a nuclear cooperation agreement with India. This agreement is now being reviewed by the Australian Parliament's Joint Standing Committee on Treaties (JSCOT).<sup>2</sup>

### **2. Challenges in nuclear cooperation with India**

India's circumstances are very different to those of other countries engaged in international nuclear cooperation:

- India is one of only four countries outside the Nuclear Non-Proliferation Treaty (NPT) (the others are Israel North Korea and Pakistan), and is not bound by any of the commitments in this Treaty;
- India is one of only three countries (the others are North Korea and Pakistan) still producing fissile material for nuclear weapons;
- India is engaged in a nuclear arms buildup, at a time when others are reducing their arsenals and looking for ways of widening arms reduction negotiations;
- India has not fully separated its civilian and military nuclear programs. While it has placed a number of civilian facilities under IAEA safeguards, there are other, dual-purpose, facilities serving both the civilian and military programs;
- India's safeguards agreement with the IAEA, which underpin the various bilateral nuclear cooperation agreements with India, gives India substantial flexibility to move nuclear material between its safeguarded and unsafeguarded programs.

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1. Joint Statement between President George W. Bush and Prime Minister Manmohan Singh, [www.whitehouse.gov/news/releases/2005/07/20050718-6.html](http://www.whitehouse.gov/news/releases/2005/07/20050718-6.html)

2. [http://www.aph.gov.au/Parliamentary\\_Business/Committees/Joint/Treaties/28\\_October\\_2014](http://www.aph.gov.au/Parliamentary_Business/Committees/Joint/Treaties/28_October_2014)

### 3. **Commitments by India**

A key objective for the 2005 US initiative was to encourage India to meet international nuclear norms. In the 2005 Joint Statement, Prime Minister Singh said India ...

would be ready to assume the same responsibilities and practices and acquire the same benefits and advantages as other leading countries with advanced nuclear technology, such as the United States.

If India really did intend to assume the “same responsibilities and practices ... as other leading countries ... such as the United States”, what might it do? As a result of the US initiative, India is now receiving the benefits of NPT membership without being a party to the Treaty. Resentment that India is getting all the benefits of the NPT without accepting any of the obligations has added to the political differences already existing within the NPT membership.

**NPT obligations that could, and arguably should, apply to India** It is reasonable to expect India to accept obligations corresponding to those NPT obligations that are applicable to its circumstances. Of course India cannot accept comprehensive safeguards while it retains nuclear weapons, but there are other NPT obligations that could be accepted by India.<sup>3</sup> These include:

- (a) not to transfer nuclear weapons to other states or assist others to acquire nuclear weapons (NPT Article I);
- (b) to require safeguards on nuclear transfers to non-nuclear-weapon states (NPT Article III.2);
- (c) to pursue negotiations on cessation of the nuclear arms race, nuclear disarmament and general disarmament (NPT Article VI).

In addition to these explicit obligations the NPT has implicit principles, for example:

- (d) separation of military and civilian programs. Separation is implicit in the practice of NPT nuclear-weapon states to accept IAEA safeguards on a voluntary basis. Currently the scope of these voluntary offer safeguards agreements ranges from nominated facilities (for example Russia and China) to all civilian facilities (US and UK);
- (e) effective control of sensitive nuclear technology. This is implicit in the obligation not to assist others to acquire nuclear weapons (Article I), which includes acts of omission (inadequate control enabling unauthorized transfer of sensitive technology);
- (f) effective security for nuclear materials.

**Additional to these, actions India could take** to demonstrate it is assuming the same responsibilities as other leading countries include:

- (g) signing the Comprehensive Nuclear-Test-Ban Treaty (CTBT);
- (h) support for a fissile material cut-off treaty (FMCT);
- (i) placing all imported nuclear material under IAEA safeguards.

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3. These issues are discussed in detail in a Policy Brief issued by the Asia-Pacific Leadership Network for Nuclear Non-Proliferation and Disarmament, *Challenges and Opportunities for Extending NPT-Related Commitments to Non-NPT States*, <http://www.a-pln.org/content/policy-brief-no-15-challenges-and-opportunities-extending-npt-related-commitments-non-npt>.

**What commitments has India actually undertaken?** These can be found in the 2005 Joint Statement, the 2007 India-US nuclear cooperation agreement, and the 2009 India-IAEA safeguards agreement.

In the Joint statement India undertook to:

- (a) identify and separate civilian and military nuclear facilities and programs in a phased manner;
- (b) voluntarily place civilian facilities under IAEA safeguards;
- (c) conclude an IAEA safeguards additional protocol with respect to civilian facilities;
- (d) continue the unilateral moratorium then applying on nuclear testing;
- (e) work with the US for the conclusion of a multilateral fissile material cut-off treaty;
- (f) refrain from transfer of enrichment and reprocessing technologies to states that do not have them and to support international efforts to limit their spread; and
- (g) secure nuclear materials and technology through comprehensive export control legislation and through harmonization and adherence to Missile Technology Control Regime (MTCR) and NSG guidelines.

The 2007 India-US agreement reflected points (a) and (b) from the Joint Statement. The agreement also stated that nuclear material and equipment subject to the agreement would be subject to India's additional protocol, when in force (point (c) from the Joint Statement). Contrary to this specific commitment, however, the additional protocol concluded by India in 2014 does not apply to nuclear material, facilities or equipment in India.

The 2009 India-IAEA safeguards agreement is discussed in part 4 below.

Commitments actually given by India fall significantly short of those undertaken by other leading countries with advanced nuclear technology.

**Separation of civilian and military facilities** (point (a) from the Joint Statement) In 2006 India released its separation plan<sup>4</sup> – 14 out of 22 power reactors in operation or under construction have been or will be placed under safeguards, along with nominated upstream and downstream facilities (35 facilities in all). For the future, facilities would be placed under safeguards *if* India determines that they are “civilian”.

However, major parts of India's civilian program remain outside IAEA safeguards. The language used in India's separation plan is revealing:

- India will include in the civilian list “... only those facilities offered for safeguards that, after separation, will no longer be engaged in activities of strategic significance”;
- “The overarching criterion would be a judgement whether subjecting a facility to IAEA safeguards would impact adversely on India's national security”;
- “...a facility will be excluded from the civilian list if it is located in a larger hub of strategic significance, notwithstanding the fact that it may not be normally engaged in activities of strategic significance”;
- “a civilian facility would therefore, be one that India has determined not to be relevant to its strategic programme.”

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4. [www.iaea.org/Publications/Documents/Infcircs/2008/infcirc731.pdf](http://www.iaea.org/Publications/Documents/Infcircs/2008/infcirc731.pdf)

This indicates that close links remain between India's military and civilian programs – while it appears those placed under safeguards are not considered relevant to the *strategic program*, the relationships between *civilian safeguarded* (i.e. those listed in the Annex to the agreement), *civilian unsafeguarded* and military are opaque, especially since *civilian unsafeguarded* facilities can be transferred into safeguards and out again on a temporary or *campaign* basis, safeguarded material can be used in normally unsafeguarded facilities, and unsafeguarded material can be used in safeguarded facilities. The separation between military and civilian programs has a long way to go compared with the separation that exists in nuclear-weapon states.

**Commitment to pursue disarmament negotiations** This is a very significant omission from the Joint Statement. By not being a party to the NPT India has avoided any legal obligation to engage in nuclear disarmament efforts. There is a limit to how far nuclear disarmament can proceed without a country like India, especially as it is actually increasing its nuclear arsenal.

**Signing the CTBT** This would be a major step in support of nuclear disarmament. The CTBT requires ratification by eight specified countries before it can enter into force. These are: China, Egypt, Iran, Israel and the US (which have signed but not yet ratified); and India, North Korea and Pakistan (which have not signed).

US ratification depends on gaining the necessary number of votes in the Senate, which the Obama Administration is pursuing. The general expectation is that when the US is able to ratify, China and the others will quickly follow. However, if India does not ratify China could use this as an excuse not to do so. India's position therefore is critical. India has said it will maintain its unilateral test moratorium – it is not asking too much for it to show good faith by signing the CTBT now.

**Support for an FMCT** (point (e) from the Joint Statement) This is another important area where India could demonstrate its good intentions. As already noted, India is one of only three countries still producing fissile material for nuclear weapons. While FMCT negotiations are being stalled very visibly by Pakistan, India seems prepared to hide behind Pakistan.

Is it asking too much for India to seriously consider ceasing production of fissile material now, as the nuclear-weapon states have done? Serious moves in this direction would have an immediate effect in reducing tensions with Pakistan – India could show leadership on this issue by initiating negotiations with Pakistan on a bilateral fissile cut-off agreement.

**Placing all imported nuclear material under IAEA safeguards** Under its IAEA safeguards agreement, India accepts safeguards on imported nuclear material only when this is required by an arrangement to which it is a party. Today all established uranium suppliers are NPT parties, therefore are obliged to require safeguards on nuclear material supplied to any non-nuclear-weapon state (NPT Article III.2). In the case of non-NPT parties the generally accepted interpretation today is that safeguards must be required on all supplied material. However, it is not known whether all countries supplying uranium to India are doing this; if not, they will be in violation of their NPT obligations. It would be regrettable if India were taking advantage of failures by suppliers to comply with the NPT – it would be an important gesture of good faith for India to undertake to place all imported nuclear material under IAEA safeguards.

This discussion is summarised in the following Table.

**Table – India and nuclear commitments**

<b>Commitments India <i>could</i> make</b>	<b>Commitments India <i>has</i> made</b>
<b>Corresponding to explicit NPT commitments:</b>	
Not to transfer nuclear weapons to other states or assist others to acquire nuclear weapons (NPT Article I)	<u>Partial commitment</u> Commitments to US - Refrain from transfer of enrichment and reprocessing technologies to states that do not have them and to support international efforts to limit their spread; Secure nuclear materials and technology through comprehensive export control legislation and through harmonization and adherence to Missile Technology Control Regime (MTCR) and NSG guidelines.
To require safeguards on nuclear transfers to non-nuclear-weapon states (NPT Article III.2)	<u>Partial commitment</u> IAEA safeguards agreement and AP – Agreement requires reporting transfers of <i>safeguarded</i> nuclear material; AP requires reporting transfers of <i>source material</i> and items in AP Annex. <u>No commitment</u> to require safeguards on transfers of unsafeguarded nuclear material.
To pursue negotiations on cessation of the nuclear arms race, nuclear disarmament and general disarmament (NPT Article VI)	<u>No commitment</u>
<b>Corresponding to implicit NPT commitments:</b>	
Separation of military and civilian programs	<u>Partial commitment</u> Commitment to US - Identify and separate civilian and military nuclear facilities and programs in a phased manner; Voluntarily place civilian facilities under IAEA safeguards. India has placed under safeguards 14 out of 22 reactors, plus related facilities; however major facilities (8 reactors, enrichment, reprocessing, fast breeder reactors) remain outside safeguards, a number described as dual-purpose.
Effective control of sensitive nuclear technology	See first point above on export controls. Domestic measures to control access to sensitive technology not known.
Effective security for nuclear materials	Party to CPPNM and Amendment; commitments also in bilateral agreements.
<b>Further actions India could take:</b>	
Signing CTBT	<u>No commitment</u> Commitment to US only to continue <i>unilateral</i> moratorium on nuclear testing.
Support for FMCT	<u>Commitment uncertain</u> Commitment to US - Work for conclusion of FMCT. India still producing fissile material for nuclear weapons.
Placing <i>all</i> imported nuclear material under IAEA safeguards	<u>Partial commitment</u> IAEA safeguards agreement – Applies only where specific agreement requires safeguards.
	<u>Commitment to US</u> - Conclude an IAEA additional protocol with respect to civilian facilities. AP actually concluded by India does <u>not</u> apply to civilian facilities.

#### 4. **Issues with the India-IAEA safeguards agreement**

In 2009 India concluded a new safeguards agreement with the IAEA.<sup>5</sup> Previously India had an *item-specific* safeguards agreement, based on a pre-NPT model<sup>6</sup>, covering imported facilities and materials, where safeguards were required by the suppliers. The 2009 agreement expands on the previous item-specific agreement, adding an Annex listing facilities which India places under safeguards in perpetuity. In addition to imported facilities, these include indigenous facilities that India chooses to nominate for permanent safeguards.

The 2009 agreement suffers from being a modification of an old safeguards model, pre-dating the modern IAEA safeguards system. Compared with the NPT-type safeguards agreements applying to the NPT nuclear-weapon states<sup>7</sup>, India's agreement contains a number of unique provisions, giving India considerable flexibility to move safeguarded material in and out of the unsafeguarded nuclear program. Similar provisions are not available to the nuclear-weapon states under their safeguards agreements with the IAEA – if a facility is eligible for IAEA safeguards (i.e. included in the *eligible facility list* under the agreement concerned), all nuclear material in the facility is subject to safeguards. Safeguarded material cannot be used outside eligible facilities.

The major problem areas in the India-IAEA agreement are outlined as follows:

**Substitution** Article 30(d) allows India to substitute unsafeguarded nuclear material for safeguarded material. The agreement allows substitution based simply on element mass (weight), without taking account of isotopic composition. Safeguards are terminated on the formerly safeguarded material.

Substitution under Article 30(d) requires the IAEA's agreement, but is not clear on what basis the IAEA could or would decline a request. In the case of enriched uranium, the IAEA has a policy requiring isotopic equivalence. Considering the explicit language of Article 30(d) for substitution on the basis of mass, however, it is not clear whether the IAEA's policy would withstand challenge.

In the case of plutonium, as far as the author can ascertain the IAEA has no such policy. It appears that if India produces under safeguards plutonium that has an isotopic quality at or close to weapon-grade, India could remove this material from safeguards and replace it with the same quantity of reactor-grade plutonium from unsafeguarded stocks (India has large unsafeguarded stocks of this material).

Plutonium removed from safeguards through substitution would be available for unsafeguarded purposes – while this material cannot be blatantly used for nuclear weapons, once the material has left safeguards there is no way of knowing. Clearly this situation should be unacceptable – plutonium substitution should be allowed only between batches of similar isotopic quality.

**Use of safeguarded nuclear material in unsafeguarded facilities** The agreement allows India to use safeguarded material in normally unsafeguarded facilities (i.e. facilities not listed in the Annex to the agreement) – see e.g. Articles 11(f), 14(b), 69 to 78, 84 and 94. Articles 11(f) and

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5. [www.iaea.org/Publications/Documents/Infcircs/2009/infcirc754.pdf](http://www.iaea.org/Publications/Documents/Infcircs/2009/infcirc754.pdf)

6. IAEA document INFCIRC/66.

7. Based on IAEA model INFCIRC/153.

14(b) provide that where India uses safeguarded material in an unsafeguarded facility, safeguards will apply to the facility while the safeguarded material is present (i.e. in effect safeguards apply *temporarily*). This may *seem* satisfactory, but when combined with the exemption provisions (see below) it provides the opportunity for safeguarded material to contribute to the unsafeguarded program.

**Use of safeguarded material with unsafeguarded material** The agreement allows India to use safeguarded and unsafeguarded materials together – see e.g. Articles 25, 95 and 96. This provides the opportunity for safeguarded material to contribute to the unsafeguarded program.

**Exemption from safeguards** Article 25 allows special fissionable material (e.g. plutonium) produced through the use of safeguarded material to be exempted from safeguards provided:

- it is subject to safeguards only because it has been produced in or by the use of safeguarded nuclear material; and
- it is produced in a reactor in which the proportion of safeguarded material is less than 30% of total material.

The proportion of produced material corresponding to the proportion of safeguarded material will be subject to safeguards (and vice versa).

What this could mean in practice can be illustrated by the following example:

- a. India loads an unsafeguarded fast breeder reactor with MOX (mixed oxides of plutonium and uranium) comprising safeguarded plutonium and unsafeguarded uranium<sup>8</sup>;
- b. India uses unsafeguarded uranium for the reactor's radial and axial *blankets*, in which plutonium is produced;
- c. doing the calculations for India's Prototype Fast Breeder Reactor, in this example, when the reactor is loaded the proportion of safeguarded material (plutonium) to total material (plutonium and uranium) will be around 11% (i.e. well within the 30% threshold)<sup>9</sup>;
- d. when the reactor is unloaded at the end of its operating cycle, 11% of the plutonium produced in the blankets (corresponding to the initial proportion of safeguardable material) will be subject to safeguards;
- e. India can claim exemption from safeguards for the other 89% of the plutonium produced;
- f. India could remove the remaining 11% from safeguards through the substitution provisions, replacing it with plutonium of lower isotopic quality.

The Prototype Fast Breeder Reactor can produce around 140 kg of weapon-grade plutonium a year. As this example shows, all of this plutonium could become available for India's unsafeguarded program. There would be no information on how India uses this plutonium once it leaves safeguards, it must be assumed it could end up in nuclear weapons.

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8. Article 96(c) allows for safeguarded and unsafeguarded materials to be blended.

9. Calculations based on information in Glaser and Ramana, *Weapon-grade plutonium potential in the Indian prototype fast breeder reactor*, [www.scienceandglobalsecurity.org/archive/2007/10/weapon-grade\\_plutonium\\_product.html](http://www.scienceandglobalsecurity.org/archive/2007/10/weapon-grade_plutonium_product.html).

The outcome outlined here cannot be considered acceptable. Use of *proportionality* rules should be based on *fissile* rather than fissionable composition (i.e. plutonium-239 and plutonium-241 content rather than all plutonium and uranium). But the real problem is the ability to use safeguarded and unsafeguarded material together. Nuclear suppliers should look to include provisions in bilateral agreements to block this loophole in the IAEA agreement.

### 5. Issues with bilateral agreements

Australia, Canada, the EU and the US apply very similar safeguards conditions for the supply of nuclear material and items. Broadly speaking, they require the recipient country to enter into a bilateral agreement, with principal provisions along these lines:

- transferred nuclear material and items, and nuclear materials produced using these, may be used only for peaceful non-explosive purposes;
- these materials and items must be subject to IAEA safeguards;
- arrangements are required for identifying, accounting and tracking materials subject to the agreement. The details of these arrangements are usually set out in a working level *administrative arrangement* concluded between implementing agencies;
- the supplier's prior consent is required for reprocessing, high enrichment (20% or more in the isotope uranium-235) or retransfers to third countries;
- fallback safeguards in case IAEA safeguards no longer apply for any reason;
- dispute settlement provisions.

The US concluded a nuclear cooperation agreement with India in 2007, and Canada did so in 2010. Both countries experienced major difficulties in negotiating these agreements and in bringing them into operation – in fact the 2007 US-India agreement has still not entered into effect because the administrative arrangements have not been concluded. In both cases a major sticking point was accounting and tracking – the requirement to identify and report on materials subject to the agreement. Indian officials maintained that IAEA safeguards were sufficient and any additional requirement was expensive, complicated and unnecessary.

**Accounting and tracking** These procedures are of fundamental importance both to the bilateral agreements and also to the IAEA agreement. In its IAEA agreement India accepts IAEA safeguards on nuclear materials that are supplied subject to safeguards. While the IAEA does not differentiate between nuclear materials of different “obligations”, e.g. differentiating Canadian uranium from Kazakh uranium, it must have a way of distinguishing materials that are required to be safeguarded from materials that are free of such requirement. Therefore India must have an accounting system that meets the IAEA's requirements. The IAEA is working with Indian officials to establish a modern nuclear accounting system.<sup>10</sup>

For suppliers, a properly working IAEA accounting system is an essential starting point, but IAEA accounting is not sufficient in itself. Suppliers need an accounting system that identifies materials of different bilateral “obligations”. Apart from policy and legal requirements for this, without such a system there is the risk of the same material being passed off as Canadian, Kazakh, Namibian, Australian, and so on (an accounting *pea and thimble trick*) – effectively

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10. I.e. an accounting system meeting the standards of IAEA *Code 10*.

disconnecting individual batches of material from any particular bilateral agreement, making it impossible to tell if bilateral conditions are being met.

It is hard to understand why Indian officials have been so difficult on this issue. Once they are able to operate the modern IAEA accounting system properly, it is very easy to add additional information on bilateral obligations for each batch of material. Part of the negative attitude of Indian officials appears to be a misunderstanding that tracking obligated material will involve inspections by the supplier country. This is certainly not the case.

As noted, India and the US have yet to conclude their administrative arrangement. In their Joint Statement of 25 January 2015 President Obama and Prime Minister Modi “welcomed the understandings reached on the issues of civil nuclear liability and administrative arrangements for civil nuclear cooperation”.<sup>11</sup> It is understood the specifics of these understandings are still under discussion, and it may be some time before the details are available. However, it appears the arrangements will involve the US providing nuclear material in the form of fuel assemblies for US-supplied reactors – the material would stay in a self-contained US fuel cycle within the overall Indian fuel cycle. India would provide detailed operational information on the reactors to enable calculation of plutonium production.

This overall approach – supplying fuel assemblies for specific reactors – is broadly similar to the Russian approach – although the original arrangements between Russian and India, under which Russia would take back spent fuel, were much more robust. Subsequently Russia agreed to Indian reprocessing, which raises the issue of how to account for and track separated plutonium. This will also be an issue for the US in the future (the US has agreed detailed arrangements with India for construction of one or two reprocessing plants dedicated to safeguards material).

For the time being at least the understanding apparently reached between the US and India on tracking of fuel assemblies appears a pragmatic solution to the tracking issue, though this pragmatic approach ceases to apply once fuel assemblies lose their identity through reprocessing. However, it would probably be much easier for Indian officials to use the IAEA accounting system to generate bilateral information, as does every other country in the world with a nuclear program.

It seems the Canadian Government has not been as persevering as the US. It is reported that Canada has given in to India on tracking – an outcome described as the *meltdown of Canadian non-proliferation policy*.<sup>12</sup> The Canadian government refuses to reveal details.

**Australia’s agreement with India** Australia signed a nuclear cooperation agreement with India in September 2014.<sup>13</sup> The agreement is now undergoing review by Parliament’s Joint Standing Committee on Treaties, prior to ratification. Expert witnesses, including the author, have submitted to JSCOT that this treaty does not meet Australia’s long-established safeguards policy and practice in several major respects.<sup>14</sup>

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11. [www.whitehouse.gov/the-press-office/2015/01/25/us-india-joint-statement-shared-effort-progress-all](http://www.whitehouse.gov/the-press-office/2015/01/25/us-india-joint-statement-shared-effort-progress-all).

12. [http://www.thestar.com/opinion/editorialopinion/2012/11/15/india\\_and\\_the\\_meltdown\\_of\\_canadas\\_nuclear\\_nonproliferation\\_policy.html](http://www.thestar.com/opinion/editorialopinion/2012/11/15/india_and_the_meltdown_of_canadas_nuclear_nonproliferation_policy.html)

13. For the agreement text see <http://www5.austlii.edu.au/au/other/dfat/treaties/ATNIF/2014/26.html>.

14. For information on the JSCOT review, including submissions made to JSCOT and transcripts of hearings, see [http://www.aph.gov.au/Parliamentary\\_Business/Committees/Joint/Treaties/28\\_October\\_2014](http://www.aph.gov.au/Parliamentary_Business/Committees/Joint/Treaties/28_October_2014)

First, there is the accounting and tracking issue just discussed, where Australia has run into the same problems as the US and Canada. The agreement expressly requires each party to maintain an accounting system for materials subject to the agreement.<sup>15</sup> Contrary to this specific provision, however, Indian officials say they will not account for Australian material. This is a legal issue for Australia – accounting and tracking are required not only to meet the terms of the agreement, but also the terms of Australian legislation, which requires annual reporting on the quantities of Australian nuclear material at the different stages of the fuel cycle under each agreement.

The administrative arrangement (AA) dealing with this issue remains under negotiation.<sup>16</sup> Media reports suggest that the Government is pressing to finalise the AA quickly, regardless of the tracking issue.<sup>17</sup> A major problem for JSCOT and the public is secrecy – it seems the text of the AA will not be made public, so it might never be known if Australia gives in to India on this issue, though JSCOT can ask to review the AA *in camera*. The new US-India approach *might* meet Australian requirements, but only if Australian uranium was enriched and fabricated in the US before transfer to India – it would thereby become *dual-flagged*, being both Australian-obligated and US-obligated. Maybe a similar approach would be possible for enrichment and fabrication of Australian uranium in Russia. Certainly, without a different attitude by Indian officials on accounting and tracking, it should be considered out of the question for Australian uranium to be transferred directly from Australia to India.

Other major issues with this agreement include:

**Consent rights for reprocessing and high enrichment** Reprocessing and enrichment can be used to produce material for nuclear weapons, hence consent rights over these processes are of fundamental importance to Australian safeguards policy. All of Australia's other bilateral agreements provide that Australian-obligated nuclear material cannot be reprocessed or highly enriched without Australia's prior written consent.

The agreement with India however does not clearly state that these activities cannot be undertaken without Australia's prior consent.<sup>18</sup> The consent provision gives India prior consent for reprocessing Australian material under the India-US reprocessing arrangements. If these arrangements don't apply, India is to consult Australia, but it is not at all clear whether India would require Australia's consent to reprocess outside the India-US arrangements. At best the text is highly ambiguous, it is not clear whether this is intentional or just poor drafting, but if the agreement proceeds in its present form there must be a risk of dispute over its interpretation in the future.

Another aspect of Australian policy on reprocessing is that consent is given only on a programmatic basis. This means that reprocessing and use of plutonium can take place only under a fuel cycle program agreed by both sides – Australian approval is required for the specific facilities using, handling or storing plutonium, and the purposes involved. To date Australia's consent to reprocess has been given only to Japan and the European Union (the latter covering reprocessing facilities in UK and France), under mutually agreed programs.

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15. Article III.5.

16. Article III.4.

17. <http://www.abc.net.au/news/2013-11-19/australia27s-nuclear-deal-with-india/5101030>

18. Article VI.

The agreement with India however gives reprocessing consent without Australia having any say about facilities and uses of plutonium. Effectively the agreement outsources Australia's consent to the US – India can reprocess Australian material and use the recovered plutonium provided this is in accordance with the India-US reprocessing arrangements. The US does not have an equivalent to programmatic consent – so in this agreement Australia relinquishes any say in how plutonium is used (only that it is under IAEA safeguards).

**Limiting Australian material to safeguarded facilities** All Australia's agreements with nuclear-weapon states limit use of Australian material to facilities that are included in the state's *eligible facility list* for IAEA safeguards. Australia's agreements with China and Russia go further – Australian material is limited to facilities in a mutually determined fuel cycle program. However the agreement with India has no such limitation – it requires only that Australian material be subject to the India-IAEA agreement.<sup>19</sup> The latter agreement allows safeguarded material to be used in facilities that are not usually safeguarded (i.e. facilities not listed in the Annex to the agreement).

**The additional protocol should apply** Australian policy requires bilateral partners to have an additional protocol with the IAEA. In the 2005 Joint Statement, repeated in the 2007 agreement with the US, India undertook to conclude an additional protocol “with respect to civilian nuclear facilities.” However, India has not met this commitment – India's additional protocol is limited to certain nuclear exports, and has no application to any nuclear material or facilities in India. India has an AP in name, but clearly it does not meet the intent of Australia's policy, which is to see strengthened IAEA safeguards in the country concerned.

**Right to IAEA safeguards reports** This is a standard provision in all of Australia's other bilateral agreements. The agreement with India has no such provision. In the absence of such a provision, IAEA reports are confidential to India.<sup>20</sup> Australia has no right to IAEA reports relating to Australian material in India, nor even whether India is meeting IAEA accounting requirements.

**Fallback safeguards** Australia's standard condition is that, if for any reason IAEA safeguards cease to apply, the parties are to establish safeguards arrangements that conform with IAEA safeguards principles and procedures and provide equivalent assurance. The India agreement<sup>21</sup> requires only that the parties consult and agree on “appropriate verification measures”, a vague term open to differing interpretations.

**Right of return** Australia's standard condition is for the right to return of supplied material and items in the event of a breach. The India agreement has no such provision.

**Dispute settlement** Australia's standard condition is for disputes to be settled by negotiation, with an arbitration process in case negotiations fail. The India agreement provides only for negotiation.<sup>22</sup> This leaves Australia in a weak position, especially as the shortcomings in the agreement, together with the problem areas in the India-IAEA agreement, create ample possibilities for dispute.

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19. Article VII.4.

20. India-IAEA agreement, Article 8.

21. Article VII.5.

22. Article XII.

At this stage it's not known when JSCOT will finish its review. JSCOT's report will be public. The Government is not bound by JSCOT recommendations and can proceed to ratify the agreement without the need for any Parliamentary approval.

## **6. Conclusions**

In the terms set by the 2005 Joint Statement – that India is ready to assume the same responsibilities and practices as other leading countries such as the US – lifting the barriers to nuclear cooperation with India cannot be seen as a success. India has gained the benefits of NPT membership without accepting any of the obligations, and India has not accepted other important responsibilities, such as signing the CTBT.

The application of IAEA safeguards in India has been extended, but major facilities – currently eight power reactors, as well as enrichment and reprocessing facilities and fast breeder reactors – remain outside safeguards, and the language of the separation plan makes it clear that unsafeguarded facilities are “engaged in activities of strategic significance.” India will place imported reactors under safeguards, but it is bound to do this anyway at the supplier's behest. India gives no commitment about placing any further indigenous facilities under safeguards in the future, other than a vague reference to include those facilities India deems “civilian.”

The continued operation of dual-purpose facilities is strategically provocative – Pakistan for instance views the fast breeder reactors as a military program that poses a strategic threat. Far from assuming the same responsibilities as others, India is operating a fuel cycle model – civilian and military programs closely linked – that was abandoned by the nuclear-weapon states decades ago.

At a time when Russia and the US have made very substantial cuts to nuclear arsenals, and the international community is calling for the other nuclear-armed countries to join in arms reductions and advance the cause of nuclear disarmament, India is clearly intent on building up its arsenal and is expanding fissile material production for this purpose. India sees its principal adversary as being, not Pakistan, with which it has broad nuclear parity, but China. This suggests India could be considering a two- or three-fold increase in its nuclear arsenal. And India has ambitious plans for nuclear-armed submarines.

Against this background, India's unwillingness to accept the standard bilateral safeguards conditions accepted by all other countries engaged in international nuclear cooperation, together with the flexibility built into its IAEA safeguards agreement – not to mention its renegeing on commitments to apply the additional protocol domestically – show the need for caution with nuclear supply to India.

To date Indian officials have shown little interest in meeting international nuclear norms. Instead, they have sought to impose their ways on the international community. Unfortunately a number of governments, driven by broader bilateral interests and no doubt the hope of commercial benefits, have been prepared to relax the usual standards. Far from assisting India's integration into the global nuclear community, compromises will make integration take longer and be more fraught. We can hope that in future years India's role in international nuclear affairs will be more positive, but this will require major changes in Indian attitudes.