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IPCS DISCUSSION



GLOBAL NUCLEAR MATERIALS SECURITY AN AGENDA FOR INDIA



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The second of a two-part exercise, the IPCS discussion on India and Global Nuclear Materials Security aimed to review and critique India's commitments and responsibilities in the run-up to the 2014 Nuclear Security Summit in the Hague, Netherlands. The following questions guided the discussion:

- How does India see the threat of nuclear terrorism?
- What systems does India have in place to ensure the security of nuclear materials?
- What are the impediments to their successful implementation? What is the level of implementation? How can this be improved?
- What can India contribute to strengthen global efforts to secure nuclear materials worldwide?

Rapporteured and edited by
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“Nuclear terrorism ... is therefore not an exaggerated but a real threat.”

Amb Sheel Kant Sharma

Former Permanent Representative to UN Office in Vienna & IAEA

The Nuclear Security Summits were started by President Obama to rectify mistakes made during the preceding Bush administration. During his time, multilateral forums such as the NPT Review Conference were not given any attention. This earned the US a bad name, coupled with political criticism over Iran and other ‘rogue states’. Domestic advocates of non-proliferation, many of whom had worked with President Clinton, started to restore trust in these forums. At the Seoul Summit and, earlier, during his Prague speech, Obama also tried to correct the past trajectory. Although nuclear terrorism received additional attention with Obama, it was a threat during the Bush years as well – it is therefore not an exaggerated but a real threat.

Obama’s initiatives are not new. This sort of work was being done in the 90s as well; it was undertaken on various tracks but the results were slow because the obligations were diverse. For example, for some states HEU (highly enriched uranium) does not make sense, for others it does. It is



therefore a matrix that has discrete terms applicable to different countries and they have to pick and choose from several declarations, which, incidentally, are not binding.

Advocates of non-proliferation were not impressed with India's entry into the nuclear mainstream during the Bush administration, and they have traditionally been harsher on India than on Pakistan because India has so far led efforts against the 'haves'. This begs the question, how does India see and wish to respond to multilateral processes to ensure global nuclear security? To understand this fully, it must be realized that at the NSS, the Prime Minister necessarily expresses an Indian perspective – his speeches are political. The technical aspects, handled by the IAEA, do not concern the political leadership. The Chairman of the Indian Department of Atomic Energy (DAE) goes to IAEA every year to discuss these technical issues.

There is a lot of talk about commitments not being made at the NSS – it is equally important to place the commitments that have already been made in context and applaud the ones that have been implemented.

There is also an international attempt to bring Pakistan out of the cold – one of the reasons for the focus on nuclear terrorism is because Pakistan is one of the major players concerned. Discussion and movement on nuclear disarmament that are stuck cannot be moved forward by the NSS process, making nuclear terrorism the most important problem. Here, participants make the right noises to meet the host's approval. There is a lot of talk about commitments not being made at the NSS – it is equally important to place the commitments that have already been made in context and applaud the ones that have been implemented. It is laudable that India has offered monetary assistance of USD 1 million to the IAEA. To put it in perspective, China, the second largest economy in the world, has not made a similar commitment. Additionally, some countries have offered their assistance to other organisations of a global nature which others may object to on political grounds. Why should this be held at par with assistance to the IAEA?

The IAEA has a number of peer review services, such as the OSART programme, and India has some association with them. India has undertaken peer reviews of other countries but has not invited others to review its own safety standards – should this be ascribed to dilettantism or ignorance?

In response to charges of following the American lead in nuclear security matters, it stands to reason that they have in fact done commendable work on nuclear security. It therefore makes absolute sense to attempt to achieve even a percentage of what they have already done.

The NSS is a very good process, and the momentum should continue beyond Washington DC 2016. It may be expected to continue in some manner, unless it is hindered by the domestic bipartisan tug-of-war in the US.

"Nuclear terrorism is a 'low probability, high consequence' event..."

Prof PR Chari

Visiting Professor, IPCS

Nuclear terrorism is a 'low probability, high consequence' event, but the threat seems much exaggerated. It is not easy for terrorists to acquire weapons-grade fissile materials, and even if they do, it is not easy to build a bomb. The technical steps required are non-trivial. Terrorism scenarios involve 'rogue' countries supplying material to terrorists, but this, too, is an exaggerated claim. No country would like to risk the concomitant threat of such an act being discovered, and



being subject to nuclear attack. Non-state actors who are likely to think in terms of nuclear terrorism as well as countries who may supply them are well identified and therefore they are not all that difficult to pinpoint. Additionally, why should terrorists try to find nuclear materials to make nuclear weapons when much simpler terror instruments are available? Here, radiological sources seem to be the more urgent problem.

The policy options available to countries that face the threat of nuclear terrorism can be considered within a matrix of four 'D's':

- Detection: This remains an intelligence function.
- Deterrence: This involves threatening countries that harbor nuclear terrorists with condign punishment. The problem is how to deter international terrorist organisations like al Qaeda, which has its networks and franchisees in many different countries.
- Defense: Tighten global security of global facilities and materials. The chain is only as strong as its weakest link.
- Disaster Management: Comprises a mix of relief, rehabilitation, medical responses and so on to deal with a national calamity like a nuclear attack. Some issues to consider are scenarios that involve first responders getting disabled like doctors/nurses, and the sociological effects of society being destroyed. There is no precedent to guide one's understanding of this situation.

India's strengths in regard to improving global nuclear security are that it has accepted all its international legal obligations, such as joining the Convention of the Physical Security of Nuclear Materials, along with its 2005 Amendment, and the International Convention on Suppression of Acts of Terrorism. Its implementation of UNSC Resolution 1540 has been exemplary. However, in terms of areas that require improvement, India could be a little more forthcoming about its measures for enhancing nuclear security without compromising its national security interests. Some measures that India can take to bolster efforts to improve global nuclear security are:

- Increased transparency, by inviting peer reviews of its nuclear programmes by international experts or the IAEA.

- Strengthening the IAEA: Contribute more funds over the USD 1 million already offered. Also, training of technical personnel could be undertaken, especially at the Centre of Excellence where courses are to be held.
- Fulfill commitments already made at earlier NSS.

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"If a state is not even willing to consider such 'managed transparency', then they have no business paying lip service to global efforts at securing fissile materials."

Prof R Rajaraman

Emeritus Professor of Theoretical Physics, Jawaharlal Nehru University

In the international nuclear security community, some basic 'best practices' for fissile materials security are generally accepted. Suggestions from others are sometimes viewed in India with suspicion as 'them telling us what to do'. Such scepticism, which is sometimes valid, will come in the way of considering those suggestions seriously. It is therefore important to discuss the sources of these best-practice suggestions.

The recommendations listed below are drawn from personal discussions with people in the international arms control community and participants at NGO conferences, both before and during the Nuclear Security Summits. It must be noted that these recommendations may not be completely impartial in that often they may be read as prescriptions by the 'haves' for the 'have nots'. However, if there are suggestions that are good, they should be considered; it should not matter who has made them.

The mildest of these suggestions which should be acceptable to all, is that full records of all aspects of fissile material production should be maintained: on the characteristics of Pu producing reactors, uranium enrichment facilities, the actual technology used, the total mass of HEU produced and at different levels of enrichment and so on. These records do not have to be made public but should be maintained for self-

Steps must be taken to reduce excess stock of fissile materials. Some countries have much more fissile material than they need for weapons, and in that case the excess stock of HEU should be converted to LEU (low enriched uranium) or to oxide which can still be used in reactors but is not weapons-usable (as recommended to Iran).

accounting. In USSR for example massive quantities of HEU were produced at many locations but the accountancy was not thorough and some amount of HEU is still unaccounted for - this can happen anywhere. Records are therefore very important, especially if a day comes when all materials have to be declared. India need not worry on this account; it can be said with some certainty that it keeps careful records of its fissile material production, which are like its crown jewels.

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stock of HEU should be converted to LEU (low enriched uranium) or to oxide which can still be used in reactors but is not weapons-usable (as recommended to Iran). Additionally, there should be an attempt to burn as much HEU and plutonium as possible in civilian reactors.

Non-weapons technology could also be modified to use LEU instead of HEU. Already, several countries have converted HEU-based research reactors to use LEU; others have simply closed them down. 62 reactors around the world have been converted from HEU use to LEU, but about 120 HEU-fuelled reactors remain.

All nuclear submarines in the world run on HEU – some of the bomb-making grade (US and Russia use 90 per cent enriched uranium) and others a little below (India uses 30-40 per cent enriched uranium). Interestingly, as things stand, the amount of fissile materials kept aside for nuclear submarines is more than the amount used for weaponisation. The change from HEU to LEU for submarine reactors however involves a change in technology, which costs money, in addition to security concerns. Countries may simply find it too cumbersome and expensive to undertake such an exercise. It must be mentioned however that to its credit, the French nuclear submarine fleet was initially powered by HEU but this has now been replaced by LEU (5 per cent enrichment).

Another area for development is nuclear forensics, which is a way of determining what the source of a given piece of fissile material is.

Eventually, some day, if the global disarmament process continues, countries will have to make declarations of quantities and details of fissile material stock, in stages. The US has already voluntarily made full declarations; they see no loss in doing this because they have enough weapons already and this is widely known. Others like India feel they are not yet in a position to do the same right now. But they must prepare themselves for it internally. If a state is not even willing to consider such ‘managed transparency’, then they have no business paying lip service to global efforts at securing fissile materials.

Another area for development is nuclear forensics, which is a way of determining what the source of a given piece of fissile material is.

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Amb Arundhati Ghose

Former Permanent Representative of India to the Conference on Disarmament

The Nuclear Security Summits were initiated because the FMCT (Fissile Material Cut-Off Treaty) was refusing to start. There has been some discussion at the NGO level about offering a nuclear deal (like the Indo-US Nuclear Deal) to Pakistan but no major country is willing to consider this except China. There is therefore an effort by advocates of non-proliferation to try different ways to replace the failure of the FMCT.

Whatever the impression of NGO activity, it cannot be denied that they are important opinion-makers amongst the more powerful countries. It is therefore in the national interest to engage with them and foolish to ignore the political power attached to these voices. Not all of them have an NPT agenda.



The Indian government, that has thus far been enthusiastic about the summit process, is at the stage of drawing up its national paper for NSS 2014. The MEA in consultation with DAE is responsible for its contents. Since India participated in and supported the Seoul NSS, it would make sense to assume that the points set out in the Seoul Communiqué were not objected to by India. However, while the impression is that India accepted the commitments and responsibilities set out in the document, it continues to be defensive about its actions, as demonstrated by the circumlocutory language employed in the national paper.

A closer look at the Seoul Communiqué reveals a number of things. In the Seoul document, countries are encouraged to minimize the use of HEU - India's use of HEU is very limited owing to a closed fuel cycle. This could be very easily explained by the Indian delegate at the NSS but unfortunately there is no attempt to do so.

In the section on 'Transportation Security', the Seoul Communiqué encourages "the establishment of effective national nuclear material inventory management and domestic tracking mechanisms, where required, that enable States to take appropriate measures to recover lost and stolen materials." If India has a tracking mechanism, why can this not be referred to in the national paper? A statement about its existence that does not refer to its exact shape and structure will establish the seriousness of India's global and domestic commitments without compromising its security.

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In 'Combating Illicit Trafficking', the Communiqué talks about enhancing 'technical capabilities'. The national paper should say that India is increasing outreach to Customs and DGFT (Directorate General of Foreign Trade), has instituted training programs and so on. However, no cognizance of this is taken in the national paper.

With regard to a national security culture, government authorities have stated that India is actively seeking to develop this through technological designs on the basis of

threat assessments of specific plants, training of CISF (Central Industrial Security Force) personnel in nuclear security under a senior IPS (Indian Police Officer) etc.

India's participation must be more proactive than reactive. It could draw up a questionnaire on the basis of the summit declaration to determine individual commitment and request governments to answer. These are after all commitments made at an international summit and therefore also a political exercise.