

INDO-US NUCLEAR DEAL A SIMULATION EXERCISE

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Introduction

A simulation game on the nuclear deal between India and the United States was organized on January 12 by the Institute of Peace and Conflict Studies. The purpose of the exercise was to identify important issues related to the deal and potential difficulties in its implementation. There were two main teams, India and the US, and in both these teams the important constituencies, including the main decision-makers, were represented. The teams, their roles and the persons assigned to play them were selected from among leading members of the strategic community in Delhi cutting across institutions. These lists are in Annexure A attached.

The event lasted an entire day, and was organized into multiple sessions as follows:-

- 1.) Discussion of issues in separate teams, held concurrently in different rooms.
- 2.) Combined discussion, in which the teams exchanged notes and clarified points.
- 3.) Further discussion within teams, and formulation of team positions.
- 4.) Final negotiations between the India and US teams.

In the initial briefing, Major General Banerjee described the setting for the

game and identified the general issues that would guide the negotiations. These are given below-

- What are the overall interests of the parties involved? How does the nuclear deal advance these interests?
- How critical is India's need for low enriched uranium for Tarapur? And, natural uranium for its PHWRs, which must also include the military program?
- How far has India proceeded with its three-stage nuclear power program? Could a time-frame be indicated for its fast breeder program to mature?
- What are the specific provisions in the nuclear deal that are in controversy?
- Could the United States similarly accommodate other countries of non-proliferation importance but also of strategic interest as it did India? Can they be identified?
- Can India afford to rescind the deal on the grounds that preconditions are emerging, such as the IAEA vote on Iran, and negotiation of the manner in which separation of its civilian and military facilities would be implemented, that were not discussed when the nuclear deal was signed?
- What are the weaknesses, internal and external, confronting President Bush and Prime Minister Manmohan Singh in proceeding with the nuclear

- deal to its conclusion?
- What are the US and Indian perspectives on placing facilities under safeguards – could these be withdrawn from safeguards by India when it so desires?
 - What are the US and Indian perspectives on the permanence of the moratorium accepted by India on nuclear testing? And on fissile material production for a putative nuclear weapons program? What exactly are the requirements of India's military program? Is its minimum credible nuclear deterrent definable?
 - How does the IAEA perceive its own role on these issues? Executor? Facilitator?

Gen. Banerjee asked the teams to consider in particular three specific questions. What are the needs and assumptions on which the agreement is based? What are the policies that influence its implementation? What needs to change?

I IN-TEAM DISCUSSIONS SESSION I

After the initial briefing, the teams were left to conduct their separate discussions.

Indian Team

The IPCS requested the Indian team to also consider the following questions as part of their deliberations:-

- How does India see its national interests furthered by this deal? Will it still ensure maintenance of a “minimum credible nuclear deterrent”?
- How would the civilian and military

- nuclear facilities be separated? Please provide an outline plan.
- What will be the likely time schedule for ensuring this separation? Any approximate ideas of the consequential costs involved?
- What specific facilities will be placed under the IAEA's Additional Protocol, and when?
- When will India be prepared to conclude a multilateral FMCT? Should there be pressure from the NSG will it unilaterally cease the production of fissile material even prior to a FMCT being negotiated?

At the beginning the team felt that it would be important for India to have alternatives in case the agreement did not work out. Possible obstacles included opposition to the deal in the US Congress or by constituencies within India. In response, the Indian Foreign Secretary stated that India must ensure that the US fulfils its obligations to obtain Congressional and NSG approval. The specific issues discussed during this session were India's need for and availability of uranium for its power program, the requirements of plutonium for nuclear weapons, and the needs of its deterrence policy considering the nuclear capabilities of its neighbours.

According to the BARC Director, since the early days of its nuclear program, the investments required for uranium enrichment technology were not made. India's power reactor program had identified natural uranium and heavy water as its priorities. The AEC Chairman stated that India could fuel 10000 MW in PHWR for their entire lifetime with the known reserves present in the country. Import of low enriched uranium would be required for

the Tarapur reactor. The production capacity in India falls short of its needs. The Kudankulam 1 and 2 reactors being built by Russia in Tamil Nadu would also use low enriched uranium, but the contract provides for lifetime supply of this fuel.

The National Security Adviser stated that the rate of growth of indigenous power reactors is inadequate, and that India would need more reactors in future to meet its energy needs. On this question, the BARC Director said that the AEC would appreciate reduced opposition in the US and NSG so that India could ask other states to build power reactors in the country.

On the question of adequacy of plutonium reserves, the BARC Director said that plutonium from power reactors is unsuited for nuclear weapons because of their uncertain yield. According to the AEC Chairman, the adequacy of reactor grade plutonium for India's weapons program should be estimated by India's defence forces. India has the Dhruva and CIRUS reactors that can produce weapons-grade plutonium. The defence forces have indicated a preference for weapons-grade plutonium, and the following options exist: to build another production reactor like Dhruva or designate one or more existing power reactors to producing weapons grade plutonium.

In response, the BARC Director said that the present stocks of reactor grade plutonium are sufficient for the weapons program. Given that Dhruva would continue to produce weapons-grade plutonium, there is no need for another research reactor being dedicated for this purpose.

Furthermore, there is a need to understand clearly what credible minimum deterrence represents. On this point, the PMO said that India should maintain a second-strike capability. India would be limiting its options for developing long-range nuclear missiles by relying only on Dhruva, and should establish another reactor like Dhruva. To this, the AEC Chairman added that Pakistan's capacity to produce weapons grade material is more than the combined capability of Dhruva and CIRUS, and it is under no constraints to cap its capability. A debate ensued about India's missile capabilities relative to that of its neighbours, with the BARC Director emphasizing that India had adequate capabilities to cater for any future contingency. According to the AEC Chairman, a minimum of two more power reactors were needed to offset this advantage.

Finally, there was a brief discussion on separation. According to the AEC Chairman, it would be desirable to have all the military programs confined to one location instead of being scattered. It was also necessary to have one or more reprocessing units declared military. The reprocessing plant at Kalpakkam should be declared military, and so should MAPS 1 and 2 situated near it. Since military facilities can be used for civilian purposes, the Kalpakkam facility could be used for civilian purposes if its capacity exceeds its plutonium separation capacity. According to the Congress Party, India should retain about half its unsafeguarded facilities within the military fence so that it could sell the deal to its coalition partners and the opposition.

US Team

The following questions were posed by IPCS to the US team for its consideration:

- How does the US see its national interests furthered by this deal? What are its objectives?
- What hurdles does the Administration foresee in adjusting US laws and policies? How does it propose to overcome them?
- How does the US propose to work with friends and allies to adjust international regimes to enable full civilian nuclear energy cooperation and trade with India? Would US firms go ahead with such cooperation even if the NSG does not fully endorse this?
- How would the US help in providing fuel supplies to the Tarapur reactors?

The White House initiated the discussion by stating that it wanted to cooperate with India because India is a major democracy, its population will soon be the largest in the world, and it is a growing economic power. The joint statement recognizes this. The nuclear issue has taken centre-stage because it remains the main irritant to meaningful Indo-US cooperation, and Congress approval is needed to change this. The Administration does not view this as making an exception for India. Taking a larger view India's non-proliferation policy has been sensible, barring its use of CIRUS for military purposes. Its defence is under civilian control. On anti-terrorism, its position is similar to that of the US. An understanding on high tech cooperation has developed over the years through NSSP. This view was seconded by the US Secretary of State, who said that everything possible

should be done to move the deal forward.

According to the Pentagon, India's navy is growing and the two countries have made good progress in their relationship on all three Service fronts. The interests of the two countries converge, and the Pentagon is in a position to support the deal on condition that safeguards concerns are addressed.

The Chairman of the House International Relations Committee took a different view, asking if the Indians really were with the US, questioning why the President is investing so much of his personal authority in the deal. There were reasons to doubt Indian intentions, like India's position on Iran's nuclear program, and its seeking of cooperation with China. It is likely that its deal with the US is part of a well thought out Indian strategy that may not favour the US. The US nuclear industry might not benefit if the Indians see the deal as a key to opening NSG cooperation and then do business with France and Russia, as it may in the case of fighter aircraft and the F-16s on offer. While there could be no economic benefit, the deal will certainly have an impact on the global non-proliferation architecture. India must reveal its nuclear capabilities, and the separation plan is the best way forward. The Indians must also cooperate on the FMCT. Signing and agreeing to the Additional Protocol is not sufficient.

According to the non-proliferation expert, the main problems with the deal are that there has been no prior consultation within the US, and the deal undermines the NPT and US capacity to handle similar situations in Iran and

North Korea. India must satisfy the following conditions: forswear fissile material production for military purposes, place limits on its arsenal, agree to meet the same obligations as the non nuclear NPT states. The deal does not require this, which is one of its problems. India should also cooperate on PSI. It should be held responsible for its past proliferation acts like using CIRUS for military purposes. More basic questions must be asked: isn't it better to focus on efficiencies in energy production and consumption? On the issue of proliferation, the emphasis should be on universal adherence, not on making exceptions for anybody.

The India Caucus praised India's record on non-proliferation. It is the most stable and democratic country in the region and has all the attributes that the US has been championing. In addition, it is well-disposed toward the US. The Business community suggested that there should be an understanding as part of the deal that India will deal with the US, and not with France and Russia, for its nuclear energy requirements.

In response to these proliferation concerns, the White House stated that additional Indian facilities coming under inspections as part of the deal cannot but help the cause of proliferation. The deal does not make an exception of India or set any example, because it is not proper to compare India with Iran. India would continue to have an independent foreign policy, but it did support the US on Iran after much deliberation. The US believes in a free market, and with the increase in Indian nuclear equipment needs there will be many opportunities for the US to compete with other countries.

On nuclear testing, the White House said that India has declared a moratorium though it has not signed the CTBT. It might be possible to push for more concrete commitments not to undertake a test. Furthermore, the purpose of the agreement is not to cap India's nuclear arsenal and India can continue to produce fissile material within its declared nuclear sector. On balance, the only issue of concern is non-proliferation, and here it is better for the US that India is inside the tent than outside it.

The Chairman of the US House International Relations Committee mentioned that while there is no strong opposition to the deal in the US House of Representatives, several difficult questions remain. First, why are good and bad actors defined in terms of democracy and proliferation record? Instead, should the focus not be on US national interests and whether the country in question is on the US side? There is no evidence that Indian foreign policy is evolving in a pro-US direction. Second, there is no significant Indian "give" on the deal. The House will need to be satisfied with the two lists, which must demonstrate a credible separation plan because the Indian nuclear establishment is so opaque and interconnected that it seems impossible to separate its facilities. In response to a question from the Secretary of State whether the Congress would pass legislation first and work out the details later, Chairman of the Congressional Committee said that this is possible if there is an understanding on the two lists.

In terms of "gives" from the Indian side, the issue was raised of a possible Indian fissile material stoppage. This

was considered desirable, but the challenge was verification. According to the Secretary of State, if presidential certification of India's fissile material was all that was required, this was not insurmountable. The Indians could keep the US informally informed about their fissile material production activities.

On the question of timing, the White House said that while actual separation will take a few years, the Congress should take the Indian blueprint for separation in good faith and act upon it, so that sanctions can be lifted. To this, Chairman of the Congressional Committee responded that India should begin separating personnel, but there is no sign of any progress on its separation plans.

The Secretary of State mentioned that even the US has people moving between the civilian and weapons programs. There could be similar reactors in both programs, and such movements are usually necessitated by safety concerns. Chairman of the Congressional Committee stated that separation, including personnel, was a core aspect of the agreement and India should corporative its civilian program and ensure that it has separate bureaucracies.

In response to the non-proliferation expert's concerns that India has not defined what it means by minimum credible deterrent and that its weapons program will never be capped, the White House emphasized that the US concerns was mainly with prevention of proliferation to other actors, and not control of the Indian strategic program. Unless the scope of this agreement was limited it would not take off. If the deal

did not go through relations between the two countries would take a step backwards. According to the Secretary of State, the US needs friends like India, Japan and Vietnam in the event of a hostile China emerging. India's dealings with China are not of any concern in themselves, but the US would like India to share its larger perspectives. To this, the non-proliferation expert replied that India is at best a thorny ally. The US cannot selectively deal with India without dealing with Israel and Pakistan. The US must calculate how this will affect regional security and the global non-proliferation regime.

NSG

These additional questions were raised for the NSG team's consideration:

- What are the views of China, Russia, France and other NSG members on the deal? Will they accept India's membership of the NSG and waive all nuclear sanctions against India?
- Would these countries sell nuclear plants and technology and allow uranium imports by India?

Since 1992, all nuclear technology transfers need NSG consensus and full-scope safeguards on the recipient country. The deal may be difficult to implement if China conditions its approval on its ability to provide reactors to Pakistan. The Western group led by the US is likely to favour fuel supplies to India. On the other hand, the opponents of the deal might view it, not as an arrangement for securing energy, but as a strategic venture. It is possible that the NSG members will look to the US Congress for their verdict on the deal. Opposition from countries like Norway and Sweden is likely taking a strong stand on normative non-

proliferation considerations, from China on grounds of its strategic considerations, and from states that have given up their nuclear program. It was suggested that China's willingness to enter into similar arrangements with Pakistan might be discouraged in return for gaining access to Australian uranium mines. This move, however, might elicit objection from other nations.

The possible outcomes being reached at the NSG are: first, a consensus in favour of the deal; second, no consensus due to opposition from some countries; and finally, no consensus, but the situation being deferred.

IAEA

The IAEA team's position was that it would act primarily as an implementer of the conditions placed on India. It would be expected to submit a list of facilities that are to be subject to inspections and safeguards.

II COMBINED DISCUSSION ON EXCHANGE OF VIEWS

When asked by the Indians what the US expected from the separation plan, the White House stated that all grid reactors and the fast breeder reactors should be placed under safeguards. The Indian position was that India should have the freedom to decide on its own separation plan in terms of the July 18 agreement. According to the US, their principle was that all facilities not meant for military purposes must be declared as civil. To this, the Indian AEC Chairman replied that India would use the same principles that the US had used in the past in opening up facilities for voluntary safeguards: facilities engaged

in activities of direct national security relevance or located in areas of national security significance will be excluded.

Another Indian concern was the US position on the pursuit principle to impose constraints on the use of isotopes produced in reactors meant for military purposes. The Indian position on the FMCT and Additional Protocol were also stated: a fissile material cut off was a multilateral issue, while the Additional Protocol was a matter between India and the IAEA. The Indians wished to know the US position on matters not listed in the joint statement, and asked about US plans to implement its part of the agreement. In response to the queries from the Indian side, the US National Security Advisor stated that the Administration would sell the deal to Congress before approaching the NSG. The NSG could be expected to be more critical than the US non-proliferation community. While the FMCT and nuclear testing are not formally part of the immediate concerns, India would be expected to work on these issues in good faith.

The US non-proliferation expert suggested that Congress might be requested to wait for a few years before implementing their side of the agreement, and during this time India should be required to place a cap on its military fissile material production and identify all power reactors and research reactors being used for peaceful purposes. Congress must also decide in the meantime on how it would react to scenarios such as India's resumption of testing or stockpiling of additional weapons. To this, the Indians replied that these conditions were not there in the July 18 agreement.

The Chairman of the Congressional committee suggested that this was a deal in which the US is giving more than it is getting, and emphasized the importance of assurances to US constituencies of the economic benefits to them from the deal. On many strategic issues like the Iran pipeline it was not clear if the Indians were on the US side. Additionally, it would help if Congress had two lists as part of the separation plan, one for civilian and the other for military. To this, the Indians replied that it should be understood by both the US administration and by Congress that this was a mutually beneficial strategic partnership; hence India must retain its autonomy of action on such issues. If the US raised Iran, India would raise Pakistan with the US. The matter in hand is narrow, and issues that are not in the agreement should not be introduced into the negotiations. In response, the US Administration stated that they will not expect to get more than what is reasonable, but the Indians should understand that the agreement will only move forward if India is able to provide a reasonable separation plan. Congress is a major-player, and it would be involved in working out the parameters of what is acceptable. The US does not intend to limit India's nuclear program, but there has to be some reasonable circumscribing of it for the deal to move forward in Congress.

To conclude the session, Mr. P R Chari asked the US team to consider the effects of the agreement's falling through on US interests and the international non-proliferation regime, and therefore what it would be willing to give up to implement the deal. The Indian team should consider the importance and feasibility of nuclear

energy in the country's overall energy mix. As for the IAEA and NSG, would they wait for a plan to emerge or do they have any suggestions to offer?

III IN-TEAM DISCUSSIONS SESSION II

After lunch, the teams met again behind closed doors to formulate their positions.

India

In the beginning of the discussion, the separation criteria that the AEC Chairman had described in the joint discussion with the US delegation were reiterated: facilities with direct military significance or situated in areas of national security significance must not be subject to safeguards. The latter consideration was important according to some experts because islanding is difficult, particularly when the agreement calls for separation of personnel, apart from facilities.

According to the BARC director, MAPS 1 and 2 could be put under safeguards because the plutonium they produce would not be weapons grade. It was then pointed out that the existing power reactors could be used to produce weapons grade plutonium if they were operated at low burnups, and if this is done another Dhruva-type reactor would not be required for India's strategic program. The Prime Minister's Office stated that Indian political consensus favours keeping maximum reactors out of safeguards.

It was then decided that power reactors close to reprocessing plants should not be placed under safeguards. This would leave MAPS 1 and 2 and Kaiga 1 and 2

for strategic purposes. In addition to the 4 power reactors already under safeguards, Narora 1 and 2, Kakrapar 1 and 2, and RAPP-3 would be placed under safeguards. Research reactors and facilities that are part of the fast breeder program will not be included in the civilian list. This separation program would take 3 years.

United States

During the previous session, an Indian representative had asked if the US Administration would be willing to use the Administrative Exception Notification process in favour of India. It was discussed by the US team that this could be used for administrative exceptions like inability to pass the budget. It is unlikely to be used for foreign relations or national security issues. Presently, the Administration has a majority in Congress. This makes it unlikely that they would press for such an exception.

While many questions from members of the US delegation remained, it was agreed that the following points would be raised with the Indians.

- India should offer an assurance on a Fissile Material Cut-off.
- On foreign policy matters, the US would not expect India to toe its line.
- All reactors not producing weapons grade material should be placed in the civilian list. This includes the Kalpakkam facilities and the FBR; placing them on the civilian list will not cap India's strategic program. It should be possible for India to negotiate safeguards with the IAEA that would assuage any proprietary concerns about the FBR and similar research programs.
- The enrichment plant that produces

uranium for India's nuclear submarine program is of proliferation concern. It should be open to safeguards, and there should be technical limits on the enrichment fraction.

- While US business will have to take their chances, it is necessary to provide some assurances to members of the US Congress that they can take back to their constituencies. There could be an agreement with India that it would buy a negotiated number of reactors in the next 10-15 years. There can also be an agreement on military sales. The US understands that India is concerned about continuity of supplies more than price, and these concerns must be addressed. Finally, a build-operate-transfer model in energy production could be considered
- India could be asked for its support on referral of Iran to the UN Security Council.

IV FINAL NEGOTIATIONS

The US delegation, led by the National Security Advisor and the Secretary of State, initiated the discussion by making a request for the list of facilities that the Indians would open to safeguarding. In response, the Indian National Security Advisor provided the list – 5 additional power reactors would be opened to safeguards. The 4 remaining unsafeguarded power reactors would be run at low-burnups to produce weapons grade plutonium. Prior to the conclusion of a multilateral FMCT, India would not cease production of fissile material production.

INDO-US NUCLEAR DEAL
A SIMULATION EXERCISE

The US National Security Advisor raised the possibility of an understanding between the two countries that India would purchase reactors in return for guaranteed fuel supplies to Tarapur. This was challenged by the Indian delegation, on the grounds of reliability of fuel supplies as well as the questionable technical competitiveness of the US nuclear industry. The US negotiators offered that US manufacturers would speed up design completion and certification to satisfy the Indians that price and technical specifications meet their needs. The importance of an Indian offer in return for fuel supplies, especially considering that it would take the Indians 3 years for separation, was important to the US. Indian offers could include military hardware purchases. This is not part of the agreement, and is not strictly necessary for Congressional approval, but would be in lieu of fuel supplies, which is not an essential part of the agreement either.

The question of US reliability was discussed at some length. Indian concerns included the possibility of US Congress intervention to prevent technology transfer, as happened in the case of the light combat aircraft. In much of Indian military hardware, US parts were not being used because of supply unreliability. It was suggested that the US should consider the type of relationship that operates between the US and NATO that provides a few year advance notice to seek alternative sources of supply. The US team replied that this model would be helpful to study. An intervention was made by Ms. Joan Rohlfing that the fuel market is international; therefore if NSG restrictions are lifted the issue of US supply assurances is not important.

According to the US delegation, the reasons for previous US sanctions are not important – as its main concerns now were terrorism and non-proliferation. More generally, there has been a change in the Indo-US relationship. There has been significant collaboration between the two nations, including joint research on many fronts. The US has become dependent on India in many ways, and it is no longer a one-sided relationship. Difficult issues are coming to the table and the favourable atmospherics should be maintained. Details will have to be worked out, but the agreement itself is not in question. But there is a potential credibility problem on both sides, and India too has to explain its past sanctionable actions such as its questionable use of CIRUS.

The US team asked the Indians why they had left the 4 power reactors and the fast breeder reactor out of safeguards; surely a wall could be built to separate them from other facilities located nearby? When the Indian delegation asserted that these were required for India's military program, the US asked how many weapons the Indians had in mind. According to Chairman of the Congressional Committee, there had to be reasonableness about the limits of India's nuclear deterrent. Otherwise, one could expect US non-proliferation experts to move from normative arguments to national security arguments in speaking to the US Congress. There are many in the US who would construe India as a possible security threat to the US, and it was important for the Administration to be able to provide assurances. This came as a surprise to the Indian delegation, which reiterated the nature of the

strategic partnership between the two countries. Construing India as a threat would be a reversal of the process that the two countries had embarked upon. The US has to accept India's strategic program, and not question it.

The US delegation emphasized that the enrichment plant near Mysore was especially problematic, because uranium bombs can be more easily made by terrorists. The argument that applies to reactors did not apply here as India did not plan to use the enrichment plant for making nuclear weapons. The US would like to see it placed under safeguards with a limit on the enrichment ratio. An Indian delegate responded by saying that putting a facility under safeguards does not make it proliferation-resistant; moreover the agreement does not prescribe which facilities must be open to safeguards.

The US response was that while India would be legally correct in stating that the number of facilities it would place under safeguards was its prerogative, the US has the right to worry about unsafeguarded facilities for two reasons: first, the plutonium in the unsafeguarded spent fuel poses a proliferation risk, and second, Indian concessions should reciprocate the US lifting of sanctions domestically and through the NSG. The Indian position was that the agreement was about nuclear energy, and the US should not focus on capping India's weapons capability.

These discussions could have continued if it were not for limitations on time.

V

BRIEF SUMMING UP

Mr. P R Chari summed up his reactions to the day's discussions. This was a unique event in that an ongoing negotiation is being simulated, involving two countries that are seeking agreement for developing their strategic partnership. There were divergent opinions, and if and how these would be reconciled in the actual negotiations remains to be seen. By way of critique, he felt that the US side did not identify clearly what its stakes were in the agreement and what it would be willing to give up to see that it moves forward. On the Indian side, the role of nuclear energy in the overall energy mix was not articulated, and the emphasis on strategic requirements in their discussions was excessive. On balance, the exercise raised many important issues that require further consideration in a possible future simulation exercise.

Annexure A

LIST OF APPOINTMENTS

India

National Security Adviser (NSA)
Prime Minister's Office (PMO)
Foreign Secretary
Chairman, Joint Chiefs of Staff
Chairman, Atomic Energy Commission
(AEC)
Director, Bhabha Atomic Research
Centre (BARC)
Congress
Bharatiya Janata Party (BJP)
Secretary General, Confederation of
Indian Industry (CII)
Chief, Army Staff
Chief, Navy Staff
Chief, Air Staff

US

Secretary of State, US State Department
White House
National Security Advisor
Pentagon
Chairman, House International
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**International Atomic Energy Agency
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Ambassador Lalit Mansingh
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