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U.S.-INDIAN NUCLEAR ENERGY COOPERATION: SECURITY AND NONPROLIFERATION IMPLICATIONS

A COMPILATION OF STATEMENTS BY WITNESSES

BEFORE THE

COMMITTEE ON FOREIGN RELATIONS
UNITED STATES SENATE

Richard G. Lugar, Chairman

NOVEMBER 7, 2005

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LETTER OF TRANSMITTAL

UNITED STATES SENATE,
COMMITTEE ON FOREIGN RELATIONS,
Washington, DC, November 4, 2005.

DEAR COLLEAGUE: On November 2, the Foreign Relations Committee held a hearing titled "U.S.-Indian Nuclear Energy Cooperation: Security and Nonproliferation Implications."

Because of the great importance we attach to the committee's consideration of this matter we wish to make available to you the statements and record inserts from our witnesses.

The witnesses for this hearing were: Under Secretary of State for Political Affairs R. Nicholas Burns; Under Secretary of State for Arms Control and International Security Robert G. Joseph; the Honorable Ronald F. Lehman, II, Director of the Center for Global Security Research at Lawrence Livermore National Laboratory and formerly Director of the U.S. Arms Control and Disarmament Agency; the Honorable Ashton B. Carter, Co-Director of Preventive Defense Project and Professor at Harvard University's Belfer Center for Science and International Security and formerly Assistant Secretary of Defense for International Security Policy; Henry D. Sokolski, Executive Director of the Nonproliferation Policy Education Center; and, Michael Krepon, Co-Founder and President Emeritus of the Henry L. Stimson Center. This document also contains supplementary material from the Honorable Robert J. Einhorn, Senior Adviser, International Security Program, Center for Strategic and International Studies, and formerly Assistant Secretary of State for Nonproliferation. Because the topic of this hearing is at the forefront of public debate, we wanted to make it available to you and your staff.

Please let us know if you have any questions or comments regarding this hearing or the other hearings on this subject.

Sincerely,

RICHARD G. LUGAR,
Chairman.
JOSEPH R. BIDEN, JR.,
Ranking Democratic Member.

OPENING STATEMENT OF

HON. RICHARD G. LUGAR

U.S. SENATOR FROM INDIANA,
CHAIRMAN, SENATE FOREIGN RELATIONS COMMITTEE

NOVEMBER 2, 2005

The Foreign Relations Committee meets today to consider the Joint Statement issued by President Bush and the Prime Minister of India on July 18, 2005. This document stands as a milestone in the U.S.-Indian relationship. It covers the full range of economic, political, and security issues, as well as matters related to nuclear energy cooperation, and has the potential to bring our two countries closer together than ever before.

India is an important emerging power on the world stage. It enjoys a vibrant democracy, a rapidly growing economy, and increasing influence in world affairs. Indians have come to the United States to study in our universities, to work in our industries, and to live here as citizens. It is clearly in the interests of the United States to develop a strong strategic relationship with India.

At this point, let me pause for a moment to express the committee's condolences and sympathy for the people of India, who suffered a terrible terrorist attack over the weekend in New Delhi. We fully support India in its battle against terrorism.

Although the Joint Statement covers many areas of policy, commentary has focused narrowly on the nuclear energy section, which states that India will be treated as "a responsible state with advanced nuclear technology." Critics and advocates acknowledge that this represents a departure from previous U.S. policies and international practices.

India has never signed the Nuclear Non-Proliferation Treaty, the foundation of international efforts to stop the spread of nuclear weapons. India has developed a nuclear weapons arsenal, in conflict with the goals of the treaty. New Delhi in 1974 violated bilateral pledges it made to Washington not to use U.S.-supplied nuclear materials for weapons purposes. More recently, Indian scientists have faced United States sanctions for providing nuclear information to Iran.

India's nuclear record with the international community also has been unsatisfying. It has not acknowledged or placed under effective international safeguards all of its facilities involved in nuclear work, and its nuclear tests in 1998 triggered widespread condemnation and international sanctions.

Prior to the July 18 Joint Statement, India had repeatedly sought, unsuccessfully, to be recognized as an official nuclear weapons state, a status the NPT reserves only for the United States,

China, France, Russia, and the United Kingdom. Opponents argue that granting India such status will undermine the essential bargain that is at the core of the NPT—namely, that only by foregoing nuclear weapons can a country gain civilian nuclear assistance. They observe that permitting India to retain nuclear weapons while it receives the same civilian nuclear benefits as nations that have forsworn weapons programs would set a harmful precedent that would encourage other nations to take India's path. New Delhi has long claimed that the NPT is discriminatory, and that the international community has instituted what it calls a "nuclear apartheid" against it.

Implementation of the July 18 Joint Statement requires congressional consent, as well as modifications to nonproliferation laws and an American commitment to work with allies to adjust international regimes to enable full civil nuclear energy cooperation and trade with India. This committee, and ultimately the entire Congress, must determine what effect the Joint Statement will have on U.S. efforts to halt the proliferation of weapons of mass destruction. To date, no associated legislative proposals have been offered by the administration. Likewise, there does not appear to be a specific Indian timetable to fulfill its obligations under the Joint Statement.

India has agreed, according to the Statement, to "assume the same responsibilities and practices and acquire the same benefits and advantages as other leading countries with advanced nuclear technology." These responsibilities include seven specific action steps:

(1) Identifying and separating civilian and military nuclear facilities and programs in a phased manner and declaring them to the IAEA;

(2) Voluntarily placing its civilian nuclear facilities under IAEA safeguards;

(3) Signing and adhering to an Additional Protocol;

(4) Continuing India's unilateral moratorium on nuclear testing;

(5) Working with the United States to conclude a multilateral Fissile Material Cut-Off Treaty;

(6) Refraining from the transfer of enrichment and reprocessing technologies to states that do not have them and supporting international efforts to limit their spread; and

(7) Complying with the Missile Technology Control Regime (MTCR) and Nuclear Suppliers Group (NSG) guidelines.

There are four key questions that today's hearing seeks to answer. First, how does civil nuclear cooperation strengthen the United States-Indian strategic relationship and why is it so important? Second, how does the Joint Statement address United States concerns about India's nuclear programs and policies? Third, what effects will the Joint Statement have on other proliferation challenges such as Iran and North Korea and the export policies of Russia and China? Fourth, what impact will the Joint Statement have on the efficacy and future of the NPT and the international nonproliferation regime?

Today's hearing will consist of two panels. On the first panel, Under Secretary of State for Political Affairs, Nicholas Burns, and

Under Secretary of State for Arms Control and International Security, Robert Joseph, will lay out the administration's case for the July Joint Statement. They are both friends of this committee, and I want to express my personal appreciation for their efforts to meet with Senators on this and other important issues.

On the second panel, we will hear from several outside experts. Ronald Lehman, formerly Director of the U.S. Arms Control and Disarmament Agency and currently Director of the Center for Global Security Research at Livermore National Laboratory, and Ashton Carter, codirector of the Preventive Defense Project, will present their views to the committee. Dr. Lehman and Dr. Carter are cochairmen of the Non-Proliferation Policy Advisory Group, an informal panel of experts that I have convened to examine nonproliferation issues. They are joined by Mr. Henry Sokolski, Executive Director of the Non-Proliferation Policy Education Center, and Mr. Michael Krepon, cofounder and President Emeritus of the Henry L. Stimson Center.

We appreciate the appearance of all our witnesses and look forward to their testimony.

PREPARED STATEMENT OF

HON. JOSEPH R. BIDEN, JR.

U.S. SENATOR FROM DELAWARE,
MINORITY LEADER, SENATE FOREIGN RELATIONS COMMITTEE

NOVEMBER 2, 2005

Mr. Chairman, as you and I both know, there may be no more urgent issue for our country than nuclear nonproliferation. Today's hearing addresses some of the most difficult aspects of this issue, and I am grateful to you for assembling such excellent witnesses to help us.

I hope that this is only the first of several hearings on nuclear trade between the United States and India. The matter is complex and Congress will be asked to legislate on it, so we need careful consultation with the executive branch. And I am sure you agree that any needed legislation on this matter should go through the Foreign Relations Committee.

The Nuclear Non-Proliferation Treaty includes this basic bargain: Countries that renounce nuclear weapons gain the right to civil nuclear cooperation with the world's nuclear powers. The NPT and this bargain at its core have deterred many countries from pursuing nuclear weapons.

Several countries did not sign the NPT—including India and Pakistan, which openly tested nuclear weapons, and Israel, which is presumed to have them.

Past practice has been to ignore or reject the status of new entrants to the nuclear "club," and to forswear nuclear commerce with them. This has not stopped those countries from developing nuclear weapons, but it may have slowed or limited their progress.

We are left with the problem of how to assure that these countries do not become proliferators themselves or lead other countries to develop nuclear weapons, as well as the concern that a forthright nonproliferation policy might sour our relations with important and otherwise friendly countries.

President Bush and Indian Prime Minister Singh propose to change the rules for India. The United States would seek changes in U.S. law and in NSG Guidelines to permit "full civil nuclear energy cooperation and trade with India."

India, in return, would separate its civil nuclear facilities from its military ones, put its civil facilities under IAEA safeguards, and sign and implement an Additional Protocol with the IAEA. It would work with the United States on a multilateral Fissile Material Cut-Off Treaty, continue its moratorium on nuclear testing, and improve its export control regime.

I strongly support closer relations between the United States and India. India is not only the world's most populous democracy, but also a major power in the region and a long-standing contributor to world progress in technology, philosophy and the arts. India and the United States are natural partners.

At the same time, both countries must ensure that closer relations do not lead to further nuclear proliferation. If we were to undermine nuclear nonproliferation, even by accident, the cost to the world—in an increased risk of nuclear war or terrorism—would be a terrible legacy to leave.

And I wonder how good the July 18 deal really is. Critics have charged that India's promises are unclear (regarding separation of civil from military facilities) or nothing new (on testing, a Fissile Material Cut-Off Treaty, and export controls).

So, it is up to the administration to demonstrate that in dealing with the dilemma of countries that have not signed the NPT, it will strengthen nonproliferation, rather than turning its back on over 50 years of U.S. policy. The July 18 Joint Statement raises several questions that I hope our witnesses will address today, among them:

(1) Will this open the door to nuclear cooperation with Pakistan, even if that is not our intent?

(2) What implications would an India exemption have for potential nuclear weapon states that have abided by the bargain implicit in NPT? What concerns did other countries raise at the recent Nuclear Suppliers Group meeting?

(3) Will an "India exemption" decrease our ability to forge a common front against the nuclear ambitions of Iran and North Korea? Could Russia use the India precedent to justify technology transfers to Tehran? Could China use it to justify sales to Tehran or even Pyongyang?

(4) Will India allow significant international safeguards on its civilian nuclear entities? Will it open as many facilities as possible to international safeguards, as the United States does, or will it take Russia or China as its model? Will it agree to permanent safeguards on the civil nuclear facilities it declares?

(5) How confident are we that India shares our nonproliferation concerns? Why were two of its senior scientists sanctioned a few months ago?

(6) How binding are the commitments that each side made in the July 18 Joint Statement? If India were to conduct a nuclear test or did not put many facilities under safeguards, or if the U.S. Congress or the NSG were to attach conditions to their "India exemptions," would the other country be released from its promises?

(7) How can we assure that what we do regarding India will further nonproliferation? Is there a useful way to address the broader dilemma of nonsigners of the NPT, rather than just India? And,

(8) How can we assure that what we do to preserve nonproliferation equities will not undermine the important United States-India relationship that we all want to improve?

These are tough questions, but that is in the nature of serious hearings. I look forward to the testimony of our witnesses.

PREPARED STATEMENT OF

HON. R. NICHOLAS BURNS

UNDER SECRETARY FOR POLITICAL AFFAIRS, DEPARTMENT OF STATE, WASHINGTON, DC

BEFORE THE

SENATE FOREIGN RELATIONS COMMITTEE

NOVEMBER 2, 2005

Mr. Chairman and members of the committee, thank you for inviting Under Secretary Joseph and me to discuss the current state of our relations with India and, specifically the development of full civil nuclear energy cooperation between India and the United States. The July 18 visit of Indian Prime Minister Manmohan Singh to Washington marked a watershed in our ties with the world's most populous democracy.

President Bush's desire to transform relations with India is based on his conviction that, as he has said, "This century will see democratic India's arrival as a force in the world." We believe it is in our national interest to develop a strong, forward-looking relationship with India as the political and economic focus of the global system shifts toward Asia. We know that many in Congress embrace this view. And the time is right. The cold war, when India was the ultimate nonaligned nation and the United States the ultimate aligned nation, is long past. It is time to shift our United States-India relationship to a new, strategic partnership for the decades ahead.

India is a rising global power with a rapidly growing economy. Within the first quarter of this century, it is likely to be included among the world's five largest economies. It will soon be the world's most populous nation, and it has a demographic distribution that bequeaths it a huge, skilled, and youthful workforce. India's military forces will continue to be large, capable, and increasingly sophisticated. Just like our own, the Indian military remains strongly committed to the principle of civilian control. Above all else, we know what kind of country India will be decades from now. Like the United States, India will thrive as a multiethnic, multireligious and multilingual democracy, characterized by individual freedom, rule of law and a constitutional government that owes its power to free and fair elections.

Under Secretary Joseph and I are here as part of a consultation process with both Houses of Congress to seek eventually the adjustment of United States laws to accommodate civil nuclear trade

with India. We are at the very beginning of that process. We will work closely with Congress to determine the best way ahead.

Since President Bush agreed with Prime Minister Singh on this nuclear initiative on July 18, we have discussed with many of you individually where best to begin the decisionmaking process with Congress. Both of us testified before the House International Relations Committee in September. Secretary Rice has briefed the Senate and House leadership on this initiative. She is eager to engage with you in more detailed discussions in the coming months. We have already had extensive briefings of House and Senate staff, and we even invited House staff to attend with us the meeting of the Nuclear Suppliers Group in Vienna, 2 weeks ago, dealing with the Indian civil nuclear issue. In short, we have shared with the Congress our rationale for the July 18 agreement and have consulted consistently and in detail on our discussions with the Indian Government since that time.

Secretary Rice, Under Secretary Joseph, and I look forward to continuing this dialog. We recognize that the pace and scope of the initiative requires close consultation with Congress and we welcome your suggestions and advice as we move forward.

Indeed, we cannot go forward on this initiative without the express consent of Congress. The advent of full United States civil nuclear cooperation with India requires adjustments in United States law. I had the privilege of negotiating the July 18 agreement for the United States and remain the principal negotiator with the Indian Government. Based on my visit to New Delhi 2 weeks ago, it is clear that it will take some time for the Indian Government to fulfill all of the commitments it made in the July 18 agreement. The actions India committed to undertake are difficult, complex and time consuming. The administration thus believes it is better to wait before we ask Congress to consider any required legislative action until India is further along in taking the necessary steps to fulfill our agreement. I believe that will likely be in early 2006.

Our judgment is that it would not be wise or fair to ask Congress to make such a consequential decision without evidence that the Indian Government was acting on what is arguably the most important of its commitments—the separation of its civilian and military nuclear facilities. I told the Indian leadership in Delhi, 2 weeks ago, that it must craft a credible and transparent plan and have begun to implement it before the administration would request congressional action.

My counterpart, Foreign Secretary Shyam Saran, assured me that the Indian Government will produce such a plan. He stressed last week to a domestic audience at the New Delhi-based Institute of Defense Studies and Analyses, "It makes no sense for India to deliberately keep some of its civilian facilities out of its declaration for safeguards purposes, if it is really interested in obtaining international cooperation on as wide a scale as possible. As India begins to meet its commitments under our agreement, we will propose appropriate language that would be India-specific and would demonstrate our dedication to a robust and permanent partnership."

I have invited Foreign Secretary Saran to Washington in December to continue our talks, and I intend to return to India in Janu-

ary to further our understanding of India's plans to separate its civil and military nuclear facilities. We will, of course, keep the Congress fully apprised of all these discussions. We hope very much that India can make the necessary progress to allow us to refer legislation to Congress by early 2006.

THE CIVIL NUCLEAR COOPERATION INITIATIVE

Mr. Chairman, you requested that we answer three questions in this hearing: First, why is it necessary to draw closer to India; second, how would United States concerns about India's nonproliferation policies be addressed by this agreement; and, third, will our proposed policy change apply to countries other than India? Under Secretary Joseph and I will respond to each of your questions.

When Secretary Rice set out last spring to develop the structure of such a partnership, we knew we would have to deal with the one issue that has bedeviled United States-India relations for the last 30 years—the nuclear issue.

We determined from the start that we could not recognize India as a nuclear weapons state. Such a step would weaken fundamentally the nuclear Nonproliferation Treaty (NPT) and would be logically inconsistent with U.S. policy under the last seven American Presidents. It was equally clear that India would not become a party to the NPT as a nonnuclear weapons state.

We also knew that we would have to confront the more difficult and complex issue of whether to work with India on full civil nuclear cooperation. India had made this the central issue in the new partnership developing between our countries. As you know, past administrations had decided to forgo such civil cooperation with India due to India's nuclear weapons program and its status outside the nonproliferation regime. We had to decide whether this policy remained consistent with U.S. interests in building a strong nonproliferation regime and with our obvious priority of improving relations with the world's largest democracy.

Because India developed nuclear weapons outside the regime, we had no existing cooperation between our civil nuclear energy industries and, as such, no real influence on India's adherence to the critical international nonproliferation standards that are the bedrock of our efforts to limit the spread of nuclear technology. While not formally part of the NPT regime, India has demonstrated a strong commitment to protect fissile materials and nuclear technology. Indeed, as other responsible countries with advanced nuclear technology, India has resisted proposals for nuclear cooperation with nuclear aspirants that could have had adverse implications for international security.

We weighed the pros and cons of whether or not to seek changes to U.S. policy and ask Congress for authorization to begin full civil nuclear energy cooperation.

We decided that it was in the American interest to bring India into compliance with the standards and practices of the international nonproliferation regime. And, we decided that the only way to reach that goal was to end India's isolation and begin to engage it. India will soon have the largest population in the world, and to consign it to a place outside that system did not appear to be strategically wise and has not proven effective.

Without such an agreement, India, with its large and sophisticated nuclear capabilities, would continue to remain outside the international export control regimes governing commerce in sensitive nuclear and nuclear-related technologies. With this agreement, given India's solid record in stemming and preventing the proliferation of its nuclear technology over the past 30 years, the United States and the international community will benefit by asking India to open up its system, to separate its civil and military nuclear facilities, and to submit to international inspections and safeguards on its civil facilities, thus allowing it to bring its civil nuclear program into effective conformity with international standards.

India will assume the same nonproliferation responsibilities as other responsible nations with civil nuclear energy and will protect against diversion of items either to India's weapons program or to other countries. United States-Indian cooperation on nuclear energy will therefore help strengthen the international order in a way that advances widespread international equities in nuclear nonproliferation. It also will allow India to develop much more quickly its own civilian nuclear power industry, thus reducing demands on the world energy market and in a way that provides clean energy for the future.

This was not an easy choice. We do not live in an ideal world. We concluded we had a better chance to have India meet international nonproliferation standards if we engaged rather than isolated it. We believe the resulting agreement advances our strategic partnership and is a net gain for nonproliferation. We do not plan to offer such cooperation to any other country.

In addition to aligning ourselves with a country that shares our democratic values and commitment to a multiethnic, multireligious society, developing civil nuclear cooperation with India will bring concrete benefits to the United States and to the international community more broadly. Under Secretary Joseph will address this initiative in detail, but let me outline here some of the key reasons why we believe this initiative makes excellent sense:

- Security Benefits: All the steps that India pledged on July 18 strengthen the international nonproliferation regime, and all align with our efforts to prevent the spread of weapons of mass destruction. India's September vote in the International Atomic Energy Agency (IAEA) that found Iran in noncompliance with its nuclear obligations reflects India's coming of age as a responsible state in the global nonproliferation mainstream.
- Environmental Benefits: Nuclear energy is one of the few proven sources of energy that does not emit greenhouse gases, and thus can help India modernize in an environmentally friendly manner that does not damage our common atmosphere and contribute to global warming.
- Commercial Benefits: As a result of our involvement in India's civil nuclear industry, United States companies will be able to enter India's lucrative and growing energy market, potentially providing jobs for thousands of Americans.
- Energy Benefits: India's expertise in basic science and applied engineering will add significant resources and substantial talent in the development of fusion as a cheap energy source if

India can participate in the International Thermonuclear Experimental Reactor (ITER) program and help make the next generation of reactors safer, more efficient and more proliferation-resistant as a member of the Generation-IV Forum (GIF).

THE BROADER RELATIONSHIP

Although our civil nuclear initiative has garnered the most attention, it is only part of a much broader and deeper strategic partnership with India, something that has not really been possible until now.

In late June, Defense Minister Pranab Mukherjee and Secretary of Defense Donald Rumsfeld signed a New Defense Framework that will guide our defense relations for the next decade. We're planning to enlarge defense trade, improve cooperation between our Armed Forces, and coproduce military hardware. The brilliant cooperation of our two militaries during the response to the tsunami disaster last December was a remarkable testament to how far we have come, and the great potential we have for the future.

A strong, democratic India is an important partner for the United States. We anticipate that India will play an increasingly important leadership role in 21st century Asia, working with us to promote democracy, respect for human rights, economic growth, stability and peace in that vital region. By cooperating with India now, we accelerate the arrival of the benefits that India's rise brings to the region and the world. By fostering ever-closer bilateral ties, we also eliminate the possibility that our two nations might overlook their natural affinities and enter into another period of unproductive estrangement as was so often the case during the cold war period. By challenging India today, with a full measure of respect for its ancient civilization, traditions, and accomplishments, we can help it realize its full potential as a natural partner in the struggle against the security challenges of the coming generation, and the global threats that are flowing over, under, and through our respective national borders.

I visited New Delhi, 2 weeks ago, and held an extensive series of discussions with senior Indian officials on the range of our foreign policy interests. While there, I had broad-ranging discussions on many issues, everything from HIV/AIDS to the situation in Nepal to our concerns about Iran. The July 18 Joint Statement calls for government-to-government joint cooperation in many areas, including civil nuclear cooperation; a United States-India Global Democracy Initiative; an expanded United States-India Economic Dialogue focusing on trade, finance, the environment, and commerce; continued cooperation in science and technology; an Energy Dialogue to strengthen energy security and promote stable energy markets, an Agricultural Knowledge Initiative, an Information and Communications Technology Working Group; Space Cooperation; a United States-India Disaster Response Initiative; and the United States-India HIV/AIDS Partnership. Foreign Secretary Saran and I have already begun working on the joint ventures that the President and Prime Minister Singh had asked us to undertake and plan to further our cooperation in the fields of education, in agriculture, in science and technology, and in space. We very much would like to welcome an Indian astronaut to fly on the space shut-

tle. I think it is clear that our interests converge on all these issues. With this ambitious agenda, our two countries are becoming, in effect, global partners.

Cooperation in several of these areas has already begun and is yielding results. Just last month, the United States-India Treaty on Mutual Legal Assistance in Criminal Matters entered into force, providing for enhanced, streamlined and more effective law enforcement cooperation between our two countries. On October 17, Secretary Rice and Indian Science and Technology Minister Sibal signed an umbrella Science and Technology Agreement that will strengthen United States and Indian capabilities and expand relations between the extensive scientific and technological communities of both countries. This agreement includes a substantive Intellectual Property Rights (IPR) provision—another indication of India's increasing recognition of the need to respect intellectual property.

THE CHALLENGES WE FACE

We have accomplished much, but we have just scratched the surface of our partnership with India. Ambassador Mulford and his outstanding team in New Delhi, aided by frequent high-level visitors to the subcontinent over the next several months, will continue to pursue this expanding agenda.

We want the United States and India to work together more effectively than we have in the past to become more effective global partners. Let me provide a few examples. On the political side of the ledger, we will be seeking early tangible progress with India toward:

- Creating a closer United States-India partnership to help build democratic institutions in the region and worldwide. During the Prime Minister's visit to Washington, our two leaders agreed for the first time to work together to promote democracy worldwide. Both countries have contributed to the U.N.'s Democracy Fund. We will seek ways to work together in strengthening democratic institutions and practices in specific countries. India's experiment in democracy has been a success for over half a century, and its 2004 national polls were the largest exercise in electoral democracy the world has ever seen. We share a belief that democracy and development are linked, that effective democratic governance is a precondition to healthy economic development. In this regard, we hope India will share its democratic experience with central Asian nations, which are having a difficult time making the transition from authoritarianism to democracy, and assist them in building institutions necessary to the success of democracy and the advancement of human rights.
- Advancing our shared interest in reform at the United Nations. Members of this committee know well the President's deep desire to promote reform at the United Nations. This is a top priority for this administration, and India as well. We want a far more vigorous Indian engagement with us in the ongoing process of reforming the United Nations into an organization that serves the interests of its members. I think both our countries would agree that this process should neither be

politicized nor subjected to the sort of country bloc calculations that prevailed during the cold war. India has much to offer in moving reform efforts ahead.

- Indian participation in the Proliferation Security Initiative. India boasts one of the world's largest commercial maritime fleets and a navy that demonstrated its rapidly growing expeditionary capacity in responding to the December tsunami. Indian support for the multinational Proliferation Security Initiative (PSI) would be a boon to the participating nations' goal of tracking and interdicting dangerous terrorist and weapons of mass destruction (WMD) cargoes worldwide. We hope India will choose to join PSI.
- United States-India cooperation for regional peace and stability. India is one of the largest international donors to Afghanistan's reconstruction and works closely with us in the areas of road construction, public health, education, telecommunications, and human resource development. India and the United States share the goal of a return to democracy in Nepal and a defeat of the Maoist insurgency. In Sri Lanka, we both support the government's efforts to recover from the tsunami and return to the peace process. We should do more to promote human rights and democracy in autocratic Burma. Our two countries should work more closely to promote peace and stability in Asia.
- Convincing Iran to return to negotiations. India and the United States have found an increasingly positive dialog on Iran. We are both dedicated to the goal of an Iran that lives in harmony in its region, ends support of terrorist groups and does not seek nuclear weapons. We welcomed India's vote with us at the IAEA in September to find Iran in noncompliance with its international obligations. We appreciate India's belief that Iran should not acquire a nuclear weapons capability, and India's continuing cooperation with the United States and Europe is essential to convince Iran to return to negotiations.

We and India also need to focus on a number of important economic challenges, both bilateral and global. Since the early 1990s, India has progressed far in liberalizing its tariff regime and investment environment, and these major changes have fueled the growth and increased prosperity of recent years. Any quick survey of India's economic landscape provides thousands of examples of innovation and excellence. India is increasingly a global competitor in knowledge-based industries such as information and communications technology and biotechnology research and development.

Despite its impressive record of economic growth during the last decade, India still struggles with many of the persistent challenges faced by developing countries: Insufficient and underdeveloped infrastructure, inefficient markets for goods and services, and minimal access of credit and capital among the urban and rural poor. In addition, India also suffers from a shortage of foreign capital and investment, which can bring in key, new technologies, create jobs, and modernize industries.

In this new partnership, the United States and India have a great opportunity to work together to overcome these challenges, toward the continued prosperity of our peoples, and to play a posi-

tive role in shaping the world's economic future. The ongoing negotiations in the World Trade Organization (WTO) in the Doha Development Round offer the perfect opportunity to work on our shared goals of trade, development, and prosperity.

Both India and the United States stand to gain from the increasing liberalization of trade in goods and services, and in convincing our trading partners to do the same. There is no reason why India and the United States should not be partners in this forum, whose success is so crucial to our common future. We plan to work closely with India on proposals that can translate the promise of the WTO's mission—and the new era of United States-India relations—into reality. This effort will take hard work on both sides, and we look forward to this opportunity to engage India seriously, to the economic betterment of both our people.

As we build closer economic relations, we look forward to India's agreement to purchase American civil and military aircraft and to open its doors further to trade with our country.

BUILDING PEOPLE-TO-PEOPLE AND PRIVATE SECTOR COOPERATION BETWEEN INDIA AND THE UNITED STATES

The new United States-India partnership is not and cannot be just between governments. We have seen an equally powerful expansion of our people-to-people ties and business growth. The immense power of the India-United States people-to-people network goes deeper than anyone could have ever imagined. We find thousands of Americans in Delhi, in Mumbai and Bangalore, and even more Indians in New York, Washington, and Los Angeles. Over 85,000 Americans are living in India, lured by its growing economy and the richness of its culture. There are 2 million persons of Indian origin in the United States, citizens and legal permanent residents. They are operating businesses in our country, running for political office, and building bridges back to India. There are more Indian students in the United States today than from any other country in the world—80,000.

We have, in essence, the development of a true, comprehensive, across-the-board engagement between India and the United States, our governments, our societies, and our peoples. This engagement by individuals and businesses will propel and sustain the formal ties between our governments.

CONCLUSION

I am pleased to have had the opportunity to share with you the many elements of this strategic transformation that we are witnessing in the United States-India relationship. Both President Bush and Prime Minister Singh have shown the confidence and vision to pursue a common vision for the world together. We hope the Congress will help us make that vision a reality.

PREPARED STATEMENT OF

HON. ROBERT G. JOSEPH

UNDER SECRETARY FOR ARMS CONTROL AND INTERNATIONAL SECURITY, STATE DEPARTMENT, WASHINGTON, DC

BEFORE THE

SENATE FOREIGN RELATIONS COMMITTEE

NOVEMBER 2, 2005

Chairman Lugar, Senator Biden, distinguished members of the committee, it is an honor to appear before you today to discuss the President's policy toward India with respect to civil nuclear cooperation. I look forward to working with you over the months ahead to bring this important objective to a timely and successful outcome.

TOWARD UNITED STATES-INDIA CIVIL NUCLEAR COOPERATION

We believe it is in our national security interest to establish a broad strategic partnership with India that encourages India's emergence as a positive force on the world scene. Our desire to transform relations with India is founded upon a contemporary and forward-looking strategic vision. India is a rising global power and an important democratic partner for the United States. Today, for the first time, the United States and India are bound together by a strong congruence of interests and values. We seek to work with India to win the global War on Terrorism, to prevent the spread of weapons of mass destruction and the missiles that could deliver them, to enhance peace and stability in Asia, and to advance the spread of democracy. India and the United States are on the same side of these critical strategic objectives. Our challenge is to translate our converging interests into shared goals and compatible strategies designed to achieve these aims.

In the context of this growing partnership, the United States and India reached a landmark agreement in July to work toward full civil nuclear cooperation while at the same time strengthening the nuclear nonproliferation regime. The Joint Statement agreed to by President Bush and Prime Minister Singh is not—as some have argued—a triumph of power politics over nonproliferation principles. This is not a zero-sum trade-off, whereby improvement in our bilateral strategic relationship results in nonproliferation losses. Rather, as the broadly constituted Joint Statement is implemented, it will prove a win for our strategic relations, a win for energy security, and a win for nonproliferation.

India believes, and our administration agrees, that it needs nuclear power to sustain dynamic economic growth and to address its growing energy requirements in an affordable and environmentally responsible manner. Our goal—in the context of the Joint Statement—is to provide India access to the technology it needs to build a safe, modern and efficient infrastructure that will provide clean, peaceful nuclear energy.

At the same time, India has clearly demonstrated over the past several years its desire to work with the United States and the international community to fight the spread of sensitive nuclear technologies. As part of an effort launched with India during the administration's first term—the Next Steps in Strategic Partnership—India took a number of significant steps to strengthen export controls and to ensure that Indian companies would not be a source of future proliferation. Not only did India pledge to bring its export control laws, regulations, and enforcement practices in line with modern export control standards, but also passed an extensive export control law and issued an upgraded national control list that will help it achieve this goal. In addition, India has become a party to the Convention on the Physical Protection of Nuclear Material and has taken significant steps toward meeting its obligations under UNSCR 1540.

The additional nonproliferation commitments India made as part of the Joint Statement go even further and, once implemented, will bring it into closer conformity with international nuclear nonproliferation standards and practices. This is a very important move for India and for the nonproliferation community. While we will continue to work with India and to encourage it to do more over time, India's implementation of its commitments will, on balance, enhance our global nonproliferation efforts. We expect the international nuclear nonproliferation regime will emerge stronger as a result.

As evidence of this expectation, we note with satisfaction India's positive IAEA Board of Governors vote in September on Iranian noncompliance, and look forward to further cooperative action on this critical international security issue.

NONPROLIFERATION GAINS

Through the Joint Statement, India has publicly committed to a number of important nonproliferation steps. It will now:

- Identify and separate civilian and military nuclear facilities and programs and file a declaration with the International Atomic Energy Agency (IAEA) regarding its civilian facilities;
- Place voluntarily its civilian nuclear facilities under IAEA safeguards;
- Sign and adhere to an Additional Protocol with respect to civilian nuclear facilities;
- Continue its unilateral moratorium on nuclear testing;
- Work with the United States for the conclusion of a multilateral Fissile Material Cut-Off Treaty (FMCT) to halt production of fissile material for nuclear weapons;
- Refrain from the transfer of enrichment and reprocessing technologies to states that do not have them and support efforts to limit their spread; and

- Secure nuclear and missile materials and technologies through comprehensive export control legislation and adherence to the Missile Technology Control Regime (MTCR) and Nuclear Suppliers Group (NSG).

India's commitment to separate its civil and military facilities and place its civil facilities and activities under IAEA safeguards demonstrates its willingness to assume full responsibility for preventing proliferation from its civil nuclear program. It will also help protect against diversion of nuclear material and technologies to India's weapons program.

By adopting an Additional Protocol with the IAEA, India will commit to reporting to the IAEA on exports of all NSG Trigger List items. This will help the IAEA track potential proliferation elsewhere, and bolster our efforts to encourage all states to adopt an Additional Protocol as a condition of supply.

By committing to adopt strong and effective export controls, including adherence to NSG and MTCR Guidelines, India will help ensure that its companies do not transfer sensitive weapons of mass destruction and missile-related technologies to countries of concern. In July, India took an important step by harmonizing its national control list with the NSG Guidelines and by adding many items that appear on the MTCR Annex.

India has also committed to work with the United States toward the conclusion of a multilateral FMCT, which, if successfully negotiated and ratified, will ban the production of fissile material for use in nuclear weapons or other nuclear explosive devices.

India's pledge to maintain its nuclear testing moratorium contributes to nonproliferation efforts by making its ending of nuclear explosive tests one of the conditions of full civil nuclear cooperation. Since to date Pakistan has test-exploded nuclear weapons only in response to Indian nuclear tests, this commitment will help diminish the prospects for future nuclear testing in South Asia.

By committing not to export enrichment and reprocessing technology to states that do not already have such fully functioning capabilities, India will help us achieve the goals laid out by President Bush in February 2004, designed to prevent the further spread of such proliferation sensitive equipment and technology. This will help close what is widely recognized as the most significant loophole in the Nuclear Non-Proliferation Treaty regime—a loophole that has clearly been exploited by countries such as North Korea and Iran and could be manipulated by others in the future.

Each of these activities is significant. Together, they constitute a substantial shift in moving India into closer conformity with international nonproliferation standards and practices. Their successful implementation will help to strengthen the global nonproliferation regime.

As befits a major, responsible nation, and in keeping with its commitment to play a leading role in international efforts to prevent WMD proliferation, we hope that India will also take additional nonproliferation-related actions beyond those specifically outlined in the Joint Statement. We view this as a key component of the developing United States-India strategic partnership and look forward to working with the Indian Government, as well as the

international community more broadly, to further strengthen nonproliferation efforts globally.

Through our ongoing bilateral dialog we have already discussed with India such steps as endorsing the Proliferation Security Initiative Statement of Principles, bringing an early end to the production of fissile material for weapons, and harmonizing its control lists with those of the Australia Group and the Wassenaar Arrangement.

U.S. COMMITMENTS UNDER THE JOINT STATEMENT

On a reciprocal basis with India's commitments, the United States has committed to work to achieve full civil nuclear cooperation with India. In this context, President Bush told Prime Minister Singh that he would:

- Seek agreement from Congress to adjust U.S. laws and policies;
- Work with friends and allies to adjust international regimes to enable full civil nuclear energy cooperation and trade with India; and
- Consult with partners on India's participation in the fusion energy International Thermonuclear Experimental Reactor (ITER) consortium and the Generation IV International Forum, the work of which relates to advanced nuclear energy systems.

To implement effectively the steps under the Joint Statement, we will need the active support of Congress and that of our international partners. We expect—and have told the Indian Government—that India's follow-through on its commitments is essential to success. We believe that the Government of India understands this completely and we expect them to begin taking concrete steps in the weeks ahead.

INTERNATIONAL RESPONSES TO DATE

Mr. Chairman, since the July statement, we have actively engaged with our international partners—both bilaterally and in such multilateral fora as the G–8 and the Nuclear Suppliers Group. I have met directly with my counterparts from many different countries. Secretary Rice and other senior U.S. officials discussed the initiative with states at the recent U.N. General Assembly and at IAEA General Conference meetings. Assistant Secretaries Stephen Rademaker and Christina Rocca both traveled to Vienna to make presentations to the NSG Consultative Group. And, of course, many of our Embassies have been actively engaged on this front.

While some countries, such as Sweden, have expressed substantial doubts about the initiative for fear of inadvertent damage to the nuclear nonproliferation regime, others have expressed strong support. For example, the United Kingdom has "warmly welcome(d)" this initiative and indicated that on the basis of the Joint Statement it was "ready to discuss with our international partners the basis for cooperation in civil nuclear matters with India." Similarly, France has underscored the "need for full international civilian nuclear cooperation with India." The Director General of the IAEA has also welcomed India's decision to place its civil nuclear

facilities under safeguards and to sign and implement the Additional Protocol as "concrete and practical steps toward the universal application of IAEA safeguards."

To date, many other countries have adopted a "wait-and-see" approach. Most recognize the need to come to terms with India and not to allow it to remain completely outside the international nonproliferation system. They welcome the nonproliferation steps India has committed to take in the context of the Joint Statement. At the same time, they have made clear that their ultimate support will depend on the scope and pace of India's actions.

Some have understandably questioned how this complex initiative comports with the NPT and our efforts to combat WMD proliferation. Others have asked whether the provision of civil nuclear technology to India would be consistent with their obligations under the NPT not to contribute to India's nuclear weapons program. Still others have asked why a cap on India's production of fissile material for weapons was not part of the deal.

We have sought to clarify that the United States does not, and will not, support India's nuclear weapons program. As it is for other states, this is a "red line" for us. We are obligated under the NPT not to assist India's nuclear weapons program. Our initiative with India does not recognize India as a nuclear weapon state, and we will not seek to renegotiate the NPT, whether to change the treaty definition of a nuclear weapon state or in any other way. We remain cognizant of, and will fully uphold, all of our obligations under the Nuclear Non-Proliferation Treaty, and we remain committed in principle to universal NPT adherence.

But we also recognize that India is in a unique situation and has shown to be responsible in not proliferating its nuclear technologies and materials. With its decision to take the steps announced in the Joint Statement, India will now take on new nonproliferation responsibilities that will strengthen global nonproliferation efforts that serve the fundamental purpose of the NPT.

India has informed us that it has no intention of relinquishing its nuclear weapons or of becoming a party to the NPT as a nonnuclear weapon state, the only way it could adhere under the current terms of the treaty. Despite this, it is important to seize this opportunity to assist India in becoming a more constructive partner in our global nonproliferation efforts. Indian commitments to be undertaken in the context of the Joint Statement will align Delhi more closely with the nuclear nonproliferation regime than at any time previously. India has said it wants to be a partner and is willing to take important steps to this end. We should encourage such steps.

In this context, it is important to note that the NPT does not ban civil nuclear cooperation with safeguarded facilities in India, nor does it require full scope safeguards as a condition of supply. In fact, under the "grandfather" provision of the NSG Guidelines, Russia today is building two nuclear reactors in India.

The NPT does preclude any cooperation that would "in any way assist" India's nuclear weapons program. For that reason, we have made clear that, under our proposal, supplier states will only be able to engage in cooperation with safeguarded facilities. Moreover, the more civil facilities India places under safeguards, the more

confident we can be that any cooperative arrangements will not further any military purposes. We expect—and have indicated to the Government of India—that India's separation of its civil and military nuclear infrastructure must be conducted in a credible and transparent manner, and be defensible from a nonproliferation standpoint. In other words, the separation and the resultant safeguards must contribute to our nonproliferation goals. Many of our international partners have similarly indicated that they view this as a necessary precondition, and will not be able to support civil nuclear cooperation with India otherwise. We believe that the Indian Government understands this.

With respect to the cessation of fissile material production, we continue to encourage India, as well as Pakistan, to move in this direction as part of our strategic dialogs with both governments. But we think it would be unwise to hold up the nonproliferation gains that can be obtained from the civil nuclear cooperation initiative for an Indian fissile material cap. Moreover, in the context of the Joint Statement, we jointly committed to work toward the completion of an effective Fissile Material Cut-Off Treaty. As we have indicated previously, the United States also stands willing to explore other intermediate options that also might serve this objective.

As India completes the significant actions that it has committed to undertake in the Joint Statement, we are convinced that the nonproliferation regime will emerge stronger. Separately, we will continue to encourage additional steps, such as India's acceptance of a fissile material production moratorium or cap, but we will not insist on it for the purposes of the civil nuclear cooperation initiative announced by the President and Prime Minister. Even absent such a cap, the initiative represents a net gain for nonproliferation.

KEY CHALLENGES

Five key challenges face the successful achievement of Joint Statement implementation. These include: Developing a meaningful civil/military separation; negotiating the appropriate safeguards arrangement; building support within the NSG; avoiding the temptation to renegotiate the deal; and securing domestic legal reform.

Developing a meaningful civil/military separation: We have indicated that the separation of civil and military facilities must be both credible and transparent, as well as defensible from a nonproliferation standpoint. We have engaged in initial discussions with the Government of India, and look forward to further discussion of a mutually acceptable approach. While India has not yet presented a formal separation plan, we are encouraged by Foreign Secretary Saran's public acknowledgements both that "it is legitimate for our partners to expect that such cooperation will not provide any advantage to our strategic programme," and that "it makes no sense for India to deliberately keep some of its civilian facilities out of its declaration for safeguards purposes, if it really is interested in obtaining international cooperation on as wide a scale as possible."

In our discussions to date, and in particular during Under Secretary Burns' recent talks in Delhi, we have discussed some straightforward principles. I will not enumerate them fully here

since the negotiations remain ongoing, but would like to underscore just a couple of these. For example, to ensure that the United States and other potential suppliers can confidently supply to India and meet our obligations under the NPT, safeguards must be applied in perpetuity. Further, the separation plan must ensure—and the safeguards must confirm—that cooperation does not "in any way assist" in the development or production of nuclear weapons. In this context, nuclear materials in the civil sector should not be transferred out of the civil sector.

Negotiating the appropriate safeguards arrangement: India's voluntary commitment to allow IAEA safeguards on its civil facilities is both a substantial nonproliferation gain and a key enabler for nuclear energy cooperation. A critical bellwether of Indian intentions will be how it handles the separation and safeguarding of its civil nuclear infrastructure. In our discussions with key international partners, both in the NSG context and otherwise, many have expressed strong views that India's separation plan be transparent and have noted the importance of IAEA safeguards being applied to its civil facilities.

In this context, several countries have argued that it is integral to maintaining the integrity of the global regime that India not be granted de jure or de facto status as a nuclear weapon state under the NPT. For this reason, many have indicated that a "voluntary offer" arrangement of the type in place in the five internationally recognized nuclear weapon states would not be acceptable for India. We indicated at the recent G–8 and NSG meetings that we would not view a voluntary offer arrangement as defensible from a nonproliferation standpoint or consistent with the Joint Statement, and therefore do not believe that it would constitute an acceptable safeguards arrangement. Such a course of action would in all likelihood preclude NSG support. Conversely, should India put forward a credible and defensible plan, we anticipate that many states will become more steadfast in their support.

Building support within the NSG: At the recent NSG Consultative Group meeting in Vienna, the United States discussed the initiative with regime members. We stressed our desire that the NSG maintain its effectiveness, and emphasized that we do not intend to undercut this important nonproliferation policy tool. For this reason, the U.S. proposal neither seeks to alter the decision-making procedures of the NSG nor amend the current full-scope safeguards requirement in the NSG Guidelines. Rather, the United States proposes that the NSG take a policy decision to treat India as an exceptional case, given its energy needs, its nuclear nonproliferation record, and the nonproliferation commitments it has now undertaken. We do not advocate similar treatment for others outside the NPT regime.

In our view, once India makes demonstrable progress in implementing key Joint Statement commitments—with a credible, transparent, and defensible separation plan foremost on the list—we will be ready to engage with our NSG partners in developing a formal proposal to allow the shipment of Trigger List items and related technology to India. Obviously, the number of facilities and activities that India places under IAEA safeguards, and the method and speed with which it does so, will directly affect the degree to

which we will be able to build support for full civil nuclear cooperation. We look forward to discussing this more fully with NSG members at the Consultative Group meeting in early 2006 and at the plenary session that follows.

Avoiding the temptation to renegotiate the deal: Some observers—both in the United States and abroad—have argued that the United States-India arrangement as negotiated by the President and the Prime Minister does not constitute a net gain for nonproliferation, or at least does not reflect the maximum gain we might in theory have achieved. According to this view, the United States, presumably the United States Congress, should condition United States nuclear cooperation under the Joint Statement on additional Indian steps, such as implementing a moratorium on fissile material production, ratifying the Comprehensive Test Ban Treaty, and/or joining the NPT as a nonnuclear weapon state. Based on our interactions with the Indian Government, we believe that such additional conditions would likely be deal-breakers.

This is a case where the "perfect" is the enemy of the "good," and we must resist the temptation to pile on conditions that will prejudice our ability to realize the important and long-standing nonproliferation objectives embodied in the Joint Statement. We are better off with India undertaking the commitments it has now agreed to rather than allowing the status quo to prevail.

The Joint Statement reached by President Bush and Prime Minister Singh is good both for India and for the United States, and offers a net gain for global nonproliferation efforts. Rather than layer on additional conditions or seek to renegotiate the Joint Statement, it would be better to lock-in this deal and then seek to achieve further results in subsequent nonproliferation discussions. We believe that this is a sound arrangement that should be supported because the commitments India has made will, when implemented, bring it into closer alignment with international nuclear nonproliferation standards and practices and, as such, strengthen the global nonproliferation regime.

Securing domestic legal reform: The President promised in the Joint Statement that the administration would seek agreement from Congress to adjust U.S. laws and policies. We recognize that the pace and scope of civil nuclear cooperation requires close consultations between the executive and legislative branches. In our own ongoing review, we have identified a number of options for modifying and/or waiving provisions of the Atomic Energy Act that currently prohibit the United States from engaging in such cooperation with India.

As Under Secretary Burns noted, we do not intend to ask Congress to take legislative action until the Indian Government takes certain important steps. We welcome your partnership as we embark on this effort, and look forward to working with your committee, together with your House counterparts, as we jointly consider the best way forward in the legislative area.

BOTTOM-LINE: ADVANCING NONPROLIFERATION

We must recognize that there is today no viable cookie-cutter approach to nonproliferation; we need tailored approaches that solve real-world problems. We need to be creative and adjust our ap-

proaches to take into account the conditions that exist, so that we can achieve our nonproliferation objectives. This has been a premise of administration policy since the outset of President Bush's first term, in which he established non- and counterproliferation as top national security priorities. He put in place the first comprehensive strategy at the national level for combating this preeminent threat to our security, and he embarked on changing how we as a nation, and how the international community more broadly, design and expand our collective efforts to defeat this complex and dangerous challenge.

Indeed, recognizing that traditional nonproliferation measures were essential but no longer sufficient, the President has established new concepts and new capabilities for countering WMD proliferation by hostile states and terrorists.

- He sought increased national resources to prevent proliferation through Nunn-Lugar type nonproliferation assistance programs and, through the G–8 Global Partnership, successfully enlarged the contributions from other countries to this essential task.
- He launched the Proliferation Security Initiative to disrupt the trade in proliferation-related materials. This initiative has achieved the support of more than 70 other countries who are working together to share information and develop operational capabilities to interdict shipments at sea, in the air, and on land.
- He initiated the effort resulting in the unanimous adoption of U.N. Security Council Resolution 1540, which requires all states to enact both legislation criminalizing proliferation activities under their jurisdiction and effective export controls to help protect the sensitive materials and technologies on their territories.

These efforts in effective multilateralism, coupled with the strengthening of our own counterproliferation capabilities, have produced concrete successes such as the unraveling of the A.Q. Khan network and the decision by Libya to abandon its nuclear, chemical, and long-range missile programs.

Similarly, we must pursue approaches with respect to India that recognize the reality that it is a growing 21st century power, shares our democratic values, has substantial and growing energy needs, and has long possessed nuclear weapons outside the NPT. Status quo approaches have not acknowledged these pragmatic considerations, nor have they achieved the positive outcome of progressively integrating India into the international nuclear nonproliferation mainstream.

We have begun consultations with our international partners; have conducted a number of introductory discussions with you, your colleagues, and your staff; and look forward to working further with you on the steps necessary to realize the benefits of the July Joint Statement.

Thank you.

PREPARED STATEMENT OF

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BEFORE THE

SENATE FOREIGN RELATIONS COMMITTEE

NOVEMBER 2, 2005

Mr. Chairman, members of the committee, I am pleased to accept your invitation to join with this distinguished committee—and with my good friends on this panel—to discuss the nonproliferation implications of the United States-India civilian nuclear cooperation called for in the July 18, 2005, Joint Statement of President George W. Bush and Prime Minister Manmohan Singh. Over the years, I have appeared before this committee in various capacities, and, Mr. Chairman, I am pleased to cochair with Ash Carter your Policy Advisory Group on the future of the nonproliferation regime. Nevertheless, I would like to make clear that today I am speaking only for myself and the views I express here do not necessarily represent those of any administration, organization, or group with which I am or have been associated.

The committee is well aware of the content of the United States-India Joint Statement: In the context of the broader global partnership on the economy, energy and the environment, democracy and development, and high-technology and space reflected in the Joint Statement, India will receive the benefits of civil nuclear cooperation in exchange for enhanced nonproliferation commitments. More specifically, India has agreed to separate civilian and military nuclear facilities, place those civilian facilities under IAEA safeguards, and implement an IAEA Additional Protocol. India will continue its moratorium on nuclear weapons testing and work toward a multilateral Fissile Material Cutoff Treaty. India will help prevent the spread of enrichment and reprocessing technologies to states that do not have them and adhere to the Nuclear Suppliers Group (NSG) and Missile Technology Control Regime (MTCR) while legislating strong export controls.

For its part, the United States Government will propose that Congress adjust United States law and that relevant international bodies adjust their regimes to permit full civilian nuclear energy cooperation with India. The United States will also consult with its partners on the inclusion of India in certain advanced nuclear energy research associated with both fission and fusion energy.

Before I address the three specific questions the committee has asked about the Joint Statement, let me offer a short net assessment. The Joint Statement is an historic milestone for nonproliferation that creates both great opportunity and great risk. It creates an opportunity to strengthen a nuclear nonproliferation regime that is suffering from its own internal weaknesses such as inadequate enforcement, the threat of breakout once an advanced nuclear capability has been achieved, and an inability to engage effectively the nonparties to the NPT, Because the terms of the Joint Statement, however, also spotlight those weaknesses, mishandling of the implementation of its terms can have adverse consequences even when the best of intentions are involved. The elements of the package are not new, but the suddenness with which the particular mix of elements was put together has caught many key players at home and abroad by surprise. They need to take the time to think through their positions carefully as the governments of India and the United States flesh out their phased approach. The executive branch needs also to consult closely with the Congress, and within the executive branch, regional and functional experts need close, regular, and detailed coordination. All of this will serve to improve our ability to work with India and other governments to enhance our efforts against all weapons of mass destruction.

Whether one could have negotiated a somewhat better deal is moot. The Joint Statement is in play, and we all have an obligation to ensure that our national security is enhanced as a result of the dynamic process now underway, especially our ability to prevent and counter the spread of weapons of mass destruction. If the basic approach contained in the Joint Statement collapses, we will not return to the status quo ante. United States-Indian cooperation will be set back, but also the weaknesses in the existing regime will be exposed to even greater pressure. Bringing India into a more comprehensive regime of nonproliferation and restraint, however, could significantly enhance our ability to reduce the dangers associated with weapons of mass destruction. Congress can help insure that this is a sufficiently ambitious agenda. India could do much to help within its borders, in South Asia, in other troubled regions, and globally.

Yet India remains a symbol of a glaring challenge to the nonproliferation regime; namely reconciling universal principles with very different circumstances. Is the same verification system appropriate for both Sweden and Iran? Is a democratic India outside the NPT really to be considered more of a nuclear pariah than a despotic North Korea inside the treaty? Measures to deal with specific concerns are often inappropriate to apply universally. Yet rules that can be applied universally are often too general to address specific concerns, sometimes creating an inability to enforce compliance or even encourage restraint. In many ways, progress in the NPT centered nonproliferation regime has been measured by the success or failure in tailoring measures to different circumstances. One sees this in the dealings North Korea, Iran, Iraq, Pakistan, Israel, and others over the last decade or more. It will remain true with India.

If the process set in place by the Joint Statement were to continue in a positive direction, it could create a more sound, broad-

based nonproliferation community with the tools necessary to deal with the different circumstances of the real world. It could further integrate our nonproliferation goals into our national strategy and those of others, permitting us to more effectively deal with the increasing availability of destructive technology in the global economy and the persistence of dangerous actors, both state and nonstate.

I would urge the Congress to focus on the dynamics of the process and the goals to be achieved as a result of the United States-India Joint Statement rather than attempting to rearrange the pieces of the initial package. Much that one might have detailed in the original package may be more successfully achieved by driving subsequent interactions in the right direction. This can only be done, I believe, if nonproliferation is a centerpiece of strategic engagement rather than a tradeoff. It is best achieved by retaining a viable Nuclear Non-Proliferation Treaty at the core of a broader nonproliferation regime that uses more targeted, embedded engagement to address the fundamental causes and conditions of proliferation. In short, widely shared goals should guide our actions, but implementation will fail if a "one-size-fits-all" mentality is applied rigidly to different circumstances. Let me clarify what I mean by addressing the three questions you have asked.

(1) If there is need to draw closer to India for strategic reasons, what are those reasons, and why does civil nuclear cooperation weigh so heavily among them?

The NPT was designed to enhance the benefits for membership, but for India, a nonsignatory, restrictions on civilian nuclear cooperation are deeply resented in India because they are seen as punitive, discriminatory, and demeaning. The emotional quotient is high. Yes, India's nuclear power infrastructure has suffered from lack of access to outside technology and uranium shortages could become a major factor in India's nuclear power future, but that future still remains very uncertain. India's nuclear elite is divided on what it wants and why. One can imagine a major scale-up of India's nuclear power, but it is not clear private investment will be there. Even smaller public investment may be unwise if it continues the weaknesses of the current programs. Neuralgia over the nuclear issue is intense primarily because it triggers deeper seated resentments.

Relations between the United States and India have long been far worse than the objective conditions warrant. The reasons are too numerous to list. Again, they are not primarily about nuclear cooperation. South Asia was a backwater of United States diplomacy during the cold war, and cooperation was made difficult by India's socialist orientation, nonaligned tactics that often tilted toward the Soviet Union, and a related testiness toward the West as a result of its colonial experience. In the United States, there were many "Years of India," none of which seemed to last even that long. Indian nonproliferation policy was draped in grandiose disarmament rhetoric that provided moral top cover for the nuclear weapons program that gave its population much satisfaction. Thus, India has often been unwilling to take "Yes" for an answer. Long a leading advocate of a Comprehensive Test Ban, it backed away when rapid negotiations threatened options to demonstrate its nu-

clear prowess. One of the godfathers of the Fissile Material Cut-Off, India has been satisfied to see it buried in a moribund Conference on Disarmament. In short, India has serious security concerns, but its behavior is often driven by concerns about status.

What has changed? Much. The end of the "Permit Raj" and the opening up of the Indian economy has emboldened a huge, highly educated middle class. The new demographics are also compelling. It is not just that India will have the world's largest population in 2030. It will be experiencing the so-called "demographic dividend," as the falling fertility rates and improved health increase the ratio of workers to dependents in ways that have historically driven economic growth. A global, high technology Indian diaspora is now networked and returning skills and investments to India. India is proud of its information technology and seeks to do the same in biotechnology. And if messy domestic politics is a signature of democracy, then India is clearly a democracy. This too can provide a basis for a new relationship with an India that may be more able to look more self-confidently to its real interests and leave the politics of resentment behind.

As an economic, cultural, and strategic partner, India could offer much in the years ahead, especially if adverse geostrategic developments in the Islamic world or Eurasia create economic or security dangers, but a grand strategic partnership is not inevitable. It needs to be groomed. Indian domestic and regional politics are volatile because of economic, class, and ethnic divisions. For all of its tradition of business and trade, South Asia remains a region in which the win-win often seems alien. Spoilers abound domestically and around the region. As Indian power and influence grows, both its ability to help and its ability to do harm will grow. Positive steps will be accompanied by negative steps and vice versa. Most Indians are proud of having tested nuclear weapons, but having made this demonstration, many Indians are now more willing to reach out and to show restraint. We will not always have overlapping interests, but we can achieve a relationship that is at least as good as the common interests we develop, something we have often failed to achieve in the past.

Strong bipartisan support exists for engaging the emerging India, much of it overly optimistic about near-term possibilities and long-term probabilities. Still, I believe it is the right approach, but we should not let our euphoria cause us to undermine our most effective nonproliferation tools. We should not assume that great economic and strategic gains that would not otherwise be possible would result simply from civilian nuclear cooperation. Rather we should fold our flexibility on civil nuclear cooperation into our efforts to work with India to strengthen the overall nonproliferation regime including improvements in strategic relationships and the international security architecture.

(2) The July 18 Joint Statement addresses many long-standing Indian concerns about the NPT, the Nuclear Suppliers Group (NSG) and United States law, but what United States concerns about India's past and current nonproliferation policies and laws are addressed by the Joint Statement? Please enumerate these concerns and indicate specifcally how they are addressed in the Joint Statement.

Many United States and Indian concerns are addressed in the Joint Statement, but it is premature to suggest that they will be addressed successfully. What is underway is a phased process. Neither side will be certain of how much will be achieved for some time. Over the years, various Indian interlocutors have floated the idea of separating civilian from nuclear facilities and applying safeguards to them. We have never known the scale of the separation or the quality of the safeguards. If India is serious about nuclear power, then its infrastructure should be declared predominantly civilian with permanent IAEA safeguards. To clarify the separation may take some time, and full implementation of IAEA safeguards could take years. A major shift to safeguard civilian activity would be a positive step worthy of considerable movement on the part of the United States and the international community. A token step would be counterproductive.

India has long had a formal position in favor of a Fissile Material Cut-Off. The Joint Statement reiterates that support and goes further in trying to align India's responsibilities and benefits with those of other "responsible state[s] with advanced nuclear technology." The definition of responsible states with advanced nuclear technology is not clear, but examples might be those that are associated with the ITER fusion program and the GEN IV advanced nuclear reactor programs, countries such as the United States, United Kingdom, Switzerland, South Korea, South Africa, Japan, France, Canada, Brazil, Argentina, China, and Russia. Nearly all already have de facto or de jure fissile material cutoffs, and the rest are committed to such a cutoff. Because the prospects for a FMCT seem so poor in the Conference on Disarmament, perhaps an interim multilateral approach could be put forth with such states with advanced nuclear technology and other relevant states, in part to enhance nuclear security and in part as a "fly before buy" experiment that might lead ultimately to progress on an FMCT in the CD. If India were to join the rest of the advanced nuclear community in this regard, it would be a major contribution.

Perhaps the greatest contribution that India could make to nonproliferation outside its own borders would be to end its guerrilla war against the NPT and support the international community in its efforts to encourage and, as necessary, enforce compliance with obligations. India's stated long-term goals are compatible with those of the NPT, but India's insistence that the NPT is a discriminatory treaty that singles them out has resulted in a regular campaign to undermine support for the NPT. Certainly, it is not too much to expect of India that, in the context of renewed civil nuclear cooperation, the rhetoric against the treaty could be dispensed with. A polite agreement that we have some disagreements should be sufficient. For its part, the United States need not walk away from its view that ultimately we would like to see universal adherence to the NPT, but we have long ago stopped pressing India to join as if the conditions might be near at hand. Getting India to support adherence to treaties, including treaties they do not belong to, should also not be an issue of membership. The greater problem is that India has strategic and economic objectives in addition to whatever nonproliferation goals they may share with the United States. Whether it is NAM politics or its strategic engagement of

Iran, these can create serious problems. India cannot be expected to alter its most fundamental interests, but in these areas, we may find a measure of New Delhi's actual commitment to nonproliferation and global partnership.

Within its own borders, the growing concern over nonstate and quasi-state actors places a premium on modem physical security, export controls, counterterrorism, implementation of UNSC Resolution 1540, and support for measures such as the Proliferation Security Initiative (PSI). These are areas in which the United States and India can work together and gauge each other's commitment by our synergy. In recent years, official Indian policy has been increasingly positive in these areas, but the longer history has clouds. Confidence in effective implementation would be enhanced by more direct, bilateral engagement.

(3) The policy adopted in the Joint Statement, if fully implemented, will require changes to international nonproliferation rules, rules that apply to nations other than India—in particular it is not clear how those changes would affect United States policy with respect to Iran and North Korea, as well as the nuclear export policies of Russia and China. How can the administration and Congress work to ensure that if rules are changed for India, those changes will not result in other proliferation challenges—and if such consequences are not avoidable, should these rules be changed?

The nonproliferation rules have constantly been changing, becoming both more restrictive and less restrictive based upon changed circumstances. Perhaps I can illustrate this. In January 1992, at an historic summit of the United Nations Security Council, further proliferation was declared to be a threat to international security, strong words implying strong actions. These world leaders were encouraged in their strong statement by many historic developments. The cold war was over and United States-Russian cooperation was accelerating. Longstanding holdouts who had disparaged the NPT, such as France, China, Brazil, Argentina, and others, were now members. Historic arms control agreements were in place. The first gulf war had imposed on Saddam Hussein's regime an unprecedented, tailored UNSCOM inspection regime that ultimately revealed how badly we had underestimated the WMD capability in Iraq, both nuclear and biological. Just in time, we had learned how difficult it is to assess what really goes on in the global world of dual use technology. Enhanced nonproliferation initiatives were being expanded. On the Korean Peninsula, a North-South denuclearization agreement had been completed, and North Korea had finally concluded an IAEA safeguards agreement. The two Koreas were also negotiating a North-South bilateral inspection regime that would create a stronger NPT plus regime in that troubled region. Going beyond the Joint Verification Experiments and the laboratory-to-laboratory exchanges, the Nunn-Lugar programs were expanding the frontiers of engagement and transparency. Both the international norms and the means to engage concretely and in detail on their behalf were being enhanced with more hands-on flexibility.

No sooner had the Security Council Summit spoken, than the remaining challenges became clear. Talks between the two Koreas on bilateral inspections stalled. Then implementation of the North-

South denuclearization agreement under which both Koreas agreed to give up both reprocessing and enrichment finally collapsed when North Korea was revealed to have a covert reprocessing plant. When Pyongyang refused to permit an IAEA special inspection and announced it would withdraw from the NPT, the international community could not agree that this was a matter for the Security Council. Instead, the world turned to the United States to solve the problem, with great pressure applied on the United States to use carrots rather than sticks. However vital, nonproliferation began to loose its urgency. To buy time, an Agreed Framework was negotiated with North Korea under which new nuclear reactors would be provided Pyongyang as part of a process for resolving outstanding issues. Russians complained that the Agreed Framework subsidized a noncompliant North Korea even though the United States had opposed Russian sales of similar reactors when Pyongyang was thought to be compliant. Russia cited the Agreed Framework in rejecting United States opposition to reactor sales to Iran, which was then accepting IAEA inspections. And of course many Indians noted that reactors that were denied India, a democracy that was not party to the NPT, were being supplied to a North Korea in open violation of the NPT and still threatening to complete its withdrawal from the treaty. Whatever the merit of such protestations, they remind us that the difficult cases and changed circumstances have resulted in modifications to our basic approaches in the past, not always with good results. Sometimes, we bowed to the inevitable. We once had very tight limits on computer exports, but long ago we decontrolled far more capable machines because of foreign availability. Sometimes, we have been able to expand restraint. Because of the close association of enrichment and reprocessing with nuclear weapons potential, the United States and others have pressed for a further narrowing of the access of additional states to those technologies. Under the terms of the Joint Statement, India has agreed to join in this selective approach as it undertakes not to transfer enrichment and reprocessing technologies to those who don't have them and to support international efforts to limit their spread.

Once again, we are faced with the challenges of achieving our basic goals under different circumstances. Common rules and criteria can be useful, but they can also be self limiting and counterproductive if they prevent us from developing different rules for different circumstances to promote the same goal. Of course, we need to keep in mind the real measures of merit. Too often we measure nonproliferation only by the number of benign and compliant states that have adhered to the treaty rather than by assessing the real state of proliferation capability and intent in a world in which much more potential is now latent.

Mr. Chairman. In summary, the Joint Statement creates opportunities to strengthen nonproliferation by engaging India and reducing some of the stresses on the NPT that result from India's pariah status on civilian nuclear cooperation. A failure by India to step up to its side of the bargain fully and to continue to move in the direction of cooperation and restraint, however, could create dangers for an NPT-centric regime that is having difficulty because of noncompliance, weak enforcement, the spread of WMD capability

into troubled regions, and the rise of dangerous nonstate or quasi-state actors. Ultimately, states will remain committed to nonproliferation, and members of the NPT will remain within the regime, only if it serves their interest. Many support the NPT because they get civilian nuclear cooperation, but most support the NPT because it enhances their security. So long as the NPT serves their interests, the emergence of asymmetric arrangements to deal with different circumstances is manageable and necessary. Unfortunately, such arrangements can serve as a pretext for withdrawal or nonsupport when the treaty itself no longer serves the interests of specific parties. To strengthen the NPT, we need to enforce compliance and concentrate on enhancing its value to its members rather than focusing on punishment of those who have not yet adhered, all of which are nations with which we have friendly, if sometimes difficult, relations.

PREPARED STATEMENT OF

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BEFORE THE

SENATE FOREIGN RELATIONS COMMITTEE

NOVEMBER 2, 2005

Mr. Chairman and members of the Committee on Foreign Relations, thank you for inviting me to testify before you about the benefits and costs of the deal between India and the United States reflected in the July 18 Joint Statement between President Bush and Prime Minister Singh, which for brevity I will refer to simply as the India Deal.

Chairman Lugar has charged his Policy Advisory Group (PAG), which I cochair, with assessing the India Deal and advising him on its pros and cons, and with recommending steps the Congress should take to ensure that the final version of the deal best serves U.S. interests. The PAG, like the committee itself, has not yet had the opportunity to hear all sides of the issue and make its recommendations. My statement today therefore reflects my own analysis and does not represent the views of the PAG.

THE NEED TO LOOK AT THE INDIA DEAL THROUGH A WIDE LENS

Much of the discussion—and controversy—around the India Deal focuses on its nuclear aspects. Since preventing nuclear war and nuclear terrorism is the single highest priority for American national security—now and as far into the future as I can see—I have some sympathy with this emphasis. But I believe the deal cannot be assessed within this narrow frame. In fact, when viewed as a nuclear-only deal, it is a bad deal for the United States. Washington recognized Delhi's nuclear status in return for little in the way of additional restraints on India's nuclear arsenal or help with combating nuclear proliferation and terrorism (that India was not already inclined or committed to give), and at appreciable likely cost to its nuclear nonproliferation objectives in other critical regions.

But it seems clear that President Bush did not view the India Deal through a nuclear-only lens, and neither should we. The United States, in this view, gave the Indians what they have craved for 30 years—nuclear recognition—in return for a "strategic partnership" between Washington and Delhi. Washington gave on the nuclear front to get something on the nonnuclear front. I agree

strongly with the administration that a strategic partnership with India is in the deep and long-term United States security interest. A nuclear-recognition quid for a strategic-partnership quo is therefore a reasonable framework for an India Deal.

However, as a diplomatic transaction the India Deal is quite uneven. First of all, a United States-Indian strategic partnership would seem to be in India's interest as well as ours. So why give them something for it? Second, the deal is uneven in its specifics—what the United States gives is spelled out quite clearly, but what India gives in return is vaguer. Third, the deal is uneven in timing—we gave something big up front, but what we stand to get lies further out in the future.

Should Congress reject the India Deal as too uneven? I would recommend instead trying to improve the diplomacy to rebalance the deal. There are two ways this can be done: The United States can give less, or it can expect more. My statement takes the second approach—aiming to define a set of expectations for specific benefits to the United States from a "strategic partnership" with India.

My statement is divided into three parts: First, I describe what India got. Second, I describe what the United States should aim to get. Third, I assess the chances that U.S. expectations will actually be met.

It is premature to judge whether the expectations of this partnership as apparently foreseen on the United States side are shared by India and will, in fact, materialize. The deal itself was premature. The problem with a poorly prepared diplomatic initiative is that disenchantment will set in on both sides. But with the deal now an accomplished fact, we and the Indians must do our best to build upon it.

WHAT DELHI GOT

India obtained de-facto recognition of its nuclear weapons status: The United States will behave, and urge others to behave, as if India were a nuclear weapons state under the NPT. We will not deny it most civil nuclear technology or commerce. We will not require it to put all of its nuclear facilities under IAEA safeguards—only those it declares to be civil. It is worth noting that even if the administration wished to make India a formal Nuclear Weapons State under the NPT (which it in fact refused to do), it probably could not persuade all the other signatories of the NPT to agree to the formal change.

Beyond these technicalities, nuclear recognition confers an enormous political benefit on India. In effect, it allows India to transcend the nuclear box that has for so long defined its place in the international order, jettison at last its outdated Non-Aligned Movement stances and rhetoric, and occupy a more normal and modern place in the diplomatic world. Proponents and critics of the deal alike agree that this is huge.

The deal has accordingly been popular in India. Criticism from the Bharatiya Janata Party (BJP) has been narrow and technical and probably reflects regrets that a Prime Minister from the Congress Party and not the BJP secured the deal. The other source of criticism has been leftists in the Congress Party. They are wedded to the old politics of the Non-Aligned Movement which was over-

taken by the end of the cold war, but they are unlikely to be able to block the deal.

The Joint Statement contains a list of other items—civilian space cooperation, agricultural exchanges, HIV/AIDS cooperation, "promot[ing] modernization of India's infrastructure," and so on—that comprise Delhi's long-standing list of desires. There is little in here for the United States.

Other supposed benefits of the deal do not survive close scrutiny. Energy security, for example, is terribly important to both India and the United States. We want India's huge population to satisfy its energy needs without contributing further to the problems of dependence on Middle East oil, pollution, and global warming. But the arithmetic does not support the case that nuclear power will spell the difference for India, though it can and should play a role. For the foreseeable future, electricity generation in India will be dominated by coal burning. Burning coal more cheaply and more cleanly will do more than any conceivable expansion of nuclear power to aid India's economy and the environment. And nuclear power does nothing to address the principal Indian oil consuming sector—cars and trucks—since these don't run off the electrical grid and won't for a long time. Moreover, the type of nuclear assistance the United States is best positioned to provide (light water reactors operating on low-enriched uranium fuel) is at odds with India's vision of a civil nuclear power program built primarily around breeder reactors.

It is also said that the deal will require India to improve its laws and procedures for controlling exports or diversions of sensitive nuclear technology—preventing an Indian A.Q. Khan. But to my knowledge India has a good record of controlling nuclear exports (though not always ballistic missile exports). India is already bound by the U.S.-sponsored U.N. Security Council Resolution 1540 which requires such good conduct, so on paper at least Dehli has sold the same horse a second time in the deal. In any event, the United States intends to justify the deal's nuclear recognition to other nations around the world on the grounds that India's nuclear proliferation behavior is already exemplary. It will be difficult to argue this point both ways at the same time.

Missile defense cooperation is also cited in the Joint Statement. The United States has had the world's largest and most technically proficient missile defense R&D program for many years; it is doubtful the United States can learn much from India in this field of military science, though India will benefit from United States knowledge. Basing United States missile defense radars or interceptors on Indian soil would not be of much benefit to the United States (in the way that such facilities in Japan, Great Britain, or Poland are useful), since with a few exotic exceptions the trajectories of ballistic missiles heading to targets of United States interest do not pass close to Indian airspace. Finally, it is possible that the administration expects India to purchase United States missile defense systems like THAAD to protect India from Pakistani and Chinese missile attack. Buying such defense systems would benefit United States industry and, through economies of scale, subsidize DOD's own purchases of missile defenses . . . but it is unlikely

that India will make purchases of integrated BMD systems on that scale.

WHAT WASHINGTON SHOULD GET

What is it then that the United States might expect from the "strategic partnership" in return for nuclear recognition and other items of interest to Delhi in the Joint Statement?

I would suggest that over the long run the United States would be expecting the following strategic benefits from the India Deal:

Immediate diplomatic support to curb Iran's nuclear program. India will need to abandon its long-standing policy of rhetorical support for the spread of nuclear fuel-cycle activities and compromise, to some extent, its friendly relations with Iran. India's September 24 vote with the United States and its European partners in the IAEA Board of Governors, finding Iran in noncompliance with its NPT obligations (and containing an implicit threat to refer the matter to the United National Security Council) was a welcome suggestion that India's support in the international struggle to curb Iran's nuclear ambitions will be firm. But India's continued firmness in this and other urgent counterproliferation efforts will be an early test of the value of strategic partnership and its new status.

Potential counterweight to China. Though no one wants to see China and the United States fall into strategic competition, neither can anyone rule this out. The evolution of United States-China relations will depend on the attitudes of China's younger generation and new leaders, on Chinese and United States policies, and on unpredictable events like a crisis over Taiwan. It is reasonable for the United States to hedge against a downturn in relations with China by improving its relations with India, and for India to do the same. But for now India is intent on improving its relations and trade with China, not antagonizing China. Neither government will wish to talk publicly, let alone take actions now, pursuant to this shared—but hypothetical and future—common interest.

Assistance in a Pakistan contingency. Avoiding and responding to dangers from Pakistan is another common interest that is awkward for either India or the United States to acknowledge. Pakistan, alongside Russia, belongs at the center of our urgent concern about nuclear terrorism—a concern Chairman Lugar has done so much to address. Terrorists cannot make nuclear bombs unless they obtain enriched uranium or plutonium from governments who have made these materials. The exposure of the A.Q. Khan network in Pakistan makes clear that Pakistan has to be regarded as a potential source of vital materials for nuclear terrorists—whether by theft, sale, diversion by internal radical elements with access to bombs or materials, change of government from Musharraf to a radical regime, or some sort of internal chaos. Which version of the A.Q. Khan story is more alarming—that the government and military of Pakistan was unaware of what he was doing, or that they were aware and permitted it? Either way it illustrates a serious danger. Were there to be a threat or incident of nuclear terrorism originating in Pakistan, the United States would want to act in concert with as many regional players as possible, including India.

The Pakistan contingency is even more difficult for the newly minted "strategic partners" to acknowledge publicly, let alone to act upon. India seems intent on improving its relations with Pakistan—despite the recent bombings in Delhi and their impact on public opinion—and a rapprochement between these long-time antagonists is in the U.S. interest. The United States, for its part, has important interests at stake with the Musharraf government—among them supporting the search for Osama bin Laden and other terrorists on Pakistani territory, arresting the growth of radicalism in Pakistan's population, and stabilizing Afghanistan—and can ill afford the perception of a "tilt toward India." For now, therefore, the Pakistan contingency, like the China counterweight, remains a hypothetical and future benefit of the India Deal.

Joint action with the U.S. military in operations outside of a U.N. context. India has historically refused to join the U.S. military in operations outside of the context of a U.N. mandate and command. In the future, when the United States needs partners in disaster relief, humanitarian intervention, peacekeeping missions, or stability operations, the United States can reasonably expect India to cooperate. Judging from the evolution of United States security partnerships in Asia and Europe (especially NATO's Partnership for Peace), anticipation of joint action can lead first to joint military planning, then progressively to joint exercises, intelligence sharing and forging of a common threat assessment, and finally to joint capabilities. This is the path foreseen for a deepening United States-India strategic partnership in the defense field.

Military access and basing. There could be occasions when access for and, if needed, basing of United States military forces on Indian territory would be desirable. At first this might be limited to port access for United States naval vessels transiting the Indian Ocean and overflight rights for United States military aircraft, but in time it could lead to such steps as use of Indian training facilities for United States forces deploying to locations with similar climate (the way German training areas were used for forces deploying to the Balkans).

Preferential treatment for United States industry in India's civil nuclear expansion. The authors of the India Deal might have anticipated preferential treatment for United States industry in construction of Indian nuclear reactors and other civil power infrastructure made possible by the deal. But there are two barriers to realization of this U.S. benefit. First, the United States must secure preferential access for its nuclear industry at the expense of Russian and European suppliers who are also seeking access to the Indian market. Second, the United States will also need to persuade India to focus its nuclear power expansion on light water reactors, not the exotic and uneconomical technologies (e.g., fast breeders), that the Indian nuclear scientific community favors. This benefit should therefore not be exaggerated.

Preferential access for United States defense industry to the Indian market. India is expected to increase the scale and sophistication of its military, in part by purchasing weapons systems abroad. In view of its concessions in the India Deal, the United States can reasonably expect preferential treatment for United States vendors relative to Russian or European vendors. Early discussions have in-

cluded the F–16 and F–18 tactical aircraft and the P–3C Orion maritime surveillance aircraft.

Additional contributions to nuclear nonproliferation from India's nuclear program. Finally, many commentators and nonproliferation experts have recommended that Congress urge the administration to pursue Indian agreement to certain additional steps, not spelled out in the Bush-Singh Joint Statement, to "even up" the nuclear portion of the deal. These proposed additional steps by India include: Agreeing to cease production of new fissile material for weapons (as the Nuclear Weapons States have done); agreeing to forego indigenous enrichment and reprocessing for its civil nuclear power program in favor of the international fuel cycle initiative proposed by President Bush in February 2004; separating its civil and military nuclear facilities permanently and in such a manner that all reactors producing electricity are declared "civil," and so forth.

WILL THE UNITED STATES GET THE BENEFITS OF THE INDIA DEAL?

The list above is a very substantial—even breathtaking—set of potential benefits to the United States of a strategic partnership with India. How realistic is it?

Some of the items on this list reflect joint, common interests of India as well as the United States. The United States might therefore have had many of these benefits without having to pay the nonproliferation costs associated with nuclear recognition for India.

Most of the items on the list are also hypothetical and lie in a future that neither side can predict—this is certainly the case with regard to the China counterweight and Pakistan contingency items. Other items on the list, like Iran's nuclear program, will unfold sooner. The United States can certainly hope that India will behave as a true "strategic partner" in the future across all the items on this list. But I believe we may also find, when we ask India to do something they are reluctant to do, that we come to regret having played our big diplomatic card—nuclear recognition—so early in the process.

India, as befits a great nation on its way to global leadership, will have its own opinions about this list. Some American proponents of the India Deal have compared it to Nixon's opening to China—a bold move based on a firm foundation of mutual interest, but more a leap of trust than a shrewd bargain. Mao and Nixon, however, had a clear and present common enemy—the Soviet Union—not a hypothetical set of possible future opponents. But the real difference between the Nixon/Kissinger deal and the India Deal is that India, unlike Mao's China, is a democracy. No government in Delhi can turn decades of Indian policy on a dime or commit it to a broad set of actions in support of United States interests—only a profound and probably slow change in the views of India's elites can do this. India's bureaucracies and diplomats are fabled for their stubborn adherence to independent positions regarding the world order, economic development, and nuclear security. Proponents of the India Deal suggest that these positions will yield to the grand gesture of nuclear recognition by the United States. I believe this expectation is naive. Americans view the change of long-standing and principled nonproliferation policy to accommo-

date India as a concession. India views it as acknowledgement of something to which they have long been entitled. This is not a durable basis for a diplomatic transaction.

Mr. Chairman and members of the committee, it is therefore premature to tell whether the United States will achieve security benefits from the India Deal that outweigh the costs. That means the deal itself was premature. At this point, the United States, including the Congress, can only do its best to ensure that its benefits are fully realized—by both parties.

PREPARED STATEMENT OF

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NOVEMBER 2, 2005

Mr. Chairman, members of the committee, I want to thank you for asking me to testify on the nonproliferation impact of the U.S.-India nuclear and space cooperation deals announced July 18, 2005. Unlike the many other mutually favorable deals announced July 18, 2005, these two, if not properly clarified by Congress, are fraught with danger. Improperly implementing them in their current form could not only encourage India to make intercontinental-range ballistic missiles and more nuclear weapons, it could devastate any firm reading of the current nuclear rules, whether they be the Nuclear Nonproliferation Treaty (NPT), the Nuclear Suppliers Group (NSG) or America's own Proliferation Security Initiative (PSI).

My general recommendation to you today is that Congress should authorize implementing these agreements only after India commits to the limits other responsible, advanced nuclear states have. This should be done in a country-neutral fashion by amending the Atomic Energy Act of 1954 to allow U.S. nuclear cooperation with advanced, responsible nuclear states that are not members of the Nuclear Nonproliferation Treaty (NPT) if, and only if, they meet five minimal conditions.

First, they must forswear producing fissile materials for military purposes and, if they have a nuclear arsenal, forswear increasing the net number of nuclear weapons in their arsenal. Such states would also have to pledge eventually to dismantle their nuclear arsenals as have all other NPT weapons states.

Second, they must identify all reactors supplying electricity, all research reactors claimed to be for peaceful purposes, all spent fuel these reactors have produced, and all fuel making plants supplying these reactors as being civilian and, therefore, subject to routine, compulsory international inspections.

Third, they must uphold all previous bilateral nuclear nonproliferation obligations they might have had with the United States and other countries.

Fourth, they must publicly adopt the principles of the Proliferation Security Initiative.

Fifth, they must be free of any U.S. nuclear or nuclear-capable missile sanctions for at least 2 years and have cleared up any outstanding sanctionable actions before U.S. cooperation is formalized.

To be sure, insisting on these requirements will displease those in a hurry to seal the nuclear and space deals with India. Yet, insisting on such conditions in no way moves the goal posts or raises the bar on the U.S.-India Joint Statement announced July 18, 2005. At the time, both the United States insisted that it does not regard India as a nuclear weapons state under the NPT. As such, it should have been understood that IAEA inspections of India's civilian nuclear facilities might well be tighter than the unique, voluntary spot inspections, that NPT weapons states' facilities are given.

Also, at the time, both United States and Indian officials agreed that India would assume all those restraints that "advanced, responsible nuclear states" had assumed. Among the most important of these is forswearing the expansion of one's nuclear arsenal by renouncing the further production of fissile material for military purposes and capping the net number of nuclear weapons one has. Under these conditions, one could possess nuclear weapons, modernize them, or (as the United States, Russia, United Kingdom, and France, have done) dismantle them, but that would be it.

It should be noted that demanding that these conditions is more than merely desirable. They must be met if, as the deal's backers have claimed repeatedly, the nuclear and space deals are to enhance the cause of global nonproliferation and U.S. security. Certainly, the credibility and success of United States and allied efforts to curb proliferation in Iraq, Iran, and North Korea has depended heavily on a firm reading of the nuclear rules. The NPT bargain of giving up nuclear weapons to secure international civilian nuclear cooperation also was critical to securing Libya's agreement to give up its nuclear activities, and to South Africa's and the Ukraine's surrender of their nuclear arms. Finally, the United States has an interest in making India behave as the United Kingdom and Japan do, not merely as China or Iran. Indeed, only by insisting on better behavior here will the United States, India, and other responsible nuclear nations have the moral authority required to pressure Iran to limit its unnecessary and dangerous nuclear fuel making and China to stop its expansion of its nuclear weapons arsenal.

Unfortunately, India has yet to express interest in meeting these conditions. Nor has the Bush administration pushed very hard to secure them. This all might be acceptable to Congress. If so, Congress need only endorse the loose nuclear inspections arrangements India and the executive branch are currently negotiating and approve legislation to relax U.S. Atomic Energy Act and missile technology controls in the sole case of India. But Congress should understand that if it does this, it will put the United States in the dubious position of:

1. Helping India expand its nuclear weapons arsenal by freeing up a nuclear fuel making capacity that otherwise would be needed to supply civilian reactors, such as those at Tarapur, with lightly enriched uranium (see viewgraph 1).

2. Lending technical support to India's intercontinental ballistic missile (ICBM) project, the Surya, an incredibly massive, inherently vulnerable, first-strike missile derived directly from its civilian satellite launch system (the Polar Space Launch Vehicle). India already has a medium-range missile, the Agni, which it is upgrading to reach all of China and can be made road and rail-mobile. Indian officials, meanwhile, claim India's ICBM is intended to deter Europe and the United States (see attached viewgraphs 2 and 3 and NPEC's newly released study, "India's ICBM: On a Glide Path to Trouble?" by Dr. Richard Speier).

3. Undermining United States and international efforts to restrict nuclear and missile technology exports to states such as North Korea and Iran by giving such help to a state that has not yet signed the NPT, capped its nuclear weapons program, rectified proliferation transactions that are sanctionable under United States law, endorsed the Proliferation Security Initiative's principles, or placed all of its nuclear activities under compulsory IAEA nuclear inspections as all responsible, advanced nuclear states have.

For most people, avoiding these pitfalls would be worth considerable effort. Yet, more than a few of the deals' backers cynically believe that encouraging these developments is necessary to enhance United States security against a hostile China or Iran. This, however, reflects an unwarranted, defeatism that is unworthy of the United States. More important, it is strategically misguided on at least three critical counts:

1. India's Foreign Secretary and Prime Ministers insist India's July 18 understandings with the United States are not "directed against any third country." In fact, India struck a strategic agreement with Iran in January 2003 known as the New Delhi Declaration, not only to help develop Iranian oil and gas fields, but to assure continued cooperation with Iran against the Taliban in Afghanistan, many of whom threaten the peace in Kashmir. Indian officials also are insistent that India's vote on Iranian IAEA noncompliance was cast primarily to help prevent referral to the United Nations and did not mean that India thought Iran was actually in noncompliance. As for China, the current Indian Government sees economic cooperation with Beijing as a key to India's future development.

2. The last thing in anyone's security interest is to help India compete against China with nuclear arms. China has 5 to 10 times the number of deployed nuclear weapons as India and hundreds more advanced long-range ballistic missiles. Although it no longer makes fissile materials for weapons, it has stockpiled thousands of additional weapons' worth of highly enriched uranium and separated plutonium. It has shied from converting all of this material into bombs for fear of sparking an arms rivalry with Japan, who could go nuclear by bolting the NPT and militarizing its own massive, growing stockpile of separated civilian plutonium. To be sure, the current Indian Government is not interested in dramatically ramping up Indian nuclear weapons production. Its main opponents, the BJP, however, clearly are. If they were to return to power and no cap had been placed on India's nuclear weapons efforts, more Indian weapons would likely be built, which, in turn,

could provoke China—prompting a nuclear arms rivalry, not only between it and India (and, consequently, revving up even more nuclear competition between India and Pakistan), but with Japan and the United States.

3. Every rupee India invests in developing nuclear weapons, ICBMs, and missile defense is one less that will otherwise be available to enhance security cooperation with the United States in the imperative areas of antiterrorism, intelligence sharing, and maritime cooperation in and near the Indian Ocean. India's entire annual military budget of about $20 billion (which supports a military of over 1.3 million active duty soldiers) is roughly what the United States spends on its nuclear arsenal and missile defenses alone. Encouraging India to spend in these areas could easily hollow out its conventional military and undermine the very areas most promising for United States-Indian cooperation.

This then brings us to the weakest and least credible arguments for pushing nuclear and space cooperation on an urgent basis; that is that India must have substantial United States cooperation in these fields immediately to sustain its economic growth. In fact, for the near term just the reverse is the case: Investing in the expansion of nuclear power in India for the next decade is the very least leveraged way to address India's growing need for more and cleaner energy. Instead, one should focus first on increasing efficiencies in India's consumption, distribution, and generation of energy (including but not limited to its electrical sector). This would entail transitioning to cleaner uses of coal and restructuring India's coal industry to meet demand; introducing market mechanisms and curbing massive energy theft and subsidies; and expanding the use of renewable energy, e.g., biomass, small hydro, wind, etc. (both connected and unconnected to the grid). So long as the Indian nuclear sector continues to be preoccupied with extremely complicated thorium-fuel cycle systems and breeder reactors and relies on dysfunctional state secrecy and monopoly-style management, investing in this energy sector will be self-defeating. Instead, the United States and others should encourage India's nuclear sector to acquire a more reasonable set of goals and open itself up to foreign ownership and management. This will take time (for more details, see attached viewgraphs, 4 through 7).

As for space cooperation in the space launch area, by far the safest, most cost-effective form of cooperation would be to make affordable United States launch capabilities more accessible to India. Certainly, the recent announcement that the United States intends to include Indian astronauts in upcoming United States space shuttle missions is the proper path to take. Transferring satellite integration and space launch technology to India, on the other hand, is a sure-fire way to repeat the frightening development that Loral and Hughes produced in the 1990s with China when their satellite launch integration assistance literally boosted China's ICBM modernization efforts.

For this and all the other reasons noted above, Congress should exercise due diligence in sorting out the specifics of United States-Indian nuclear and space cooperation. Your committee is to be commended for taking the initiative in requesting that any enabling legislation to implement United States-India space and nuclear co-

operation be referred to the appropriate committees rather than on any legislative spending vehicle. Congress and the appropriate committees also should make their own views known on what legislative conditions they believe the proper implementation of nuclear and space cooperation with India and similar non-NPT states require. Under no circumstances, should Congress allow itself to be rushed.

[Viewgraphs and other material submitted by Mr. Sokolski follow:]

Viewgraph 1

Light Water Reactor Fuel Sales to India: Potential to Free Up New Delhi's Capacity to Make Bombs

- India has 3 enrichment plants, primarily dedicated to naval fuel/bomb production
- India says it can fuel Tarapur 1 and 2 but prefers not to
- US sales of "safeguarded" fuel for these reactors would free up either
  - ~24,000 swu of Indian enrichment/year, i.e., enough to make 12 HEU bombs annually, OR
  - ~75 crude bombs worth of plutonium that otherwise would be needed to fuel these reactors with Indian MOX

Viewgraph 2

US Satellite Launch Assistance: Help for India's ICBM Program?

India's PSLV (Polar Space Launch Vehicle, pictured, to the left), will serve as the basis for India's ICBM, the Surya.

	PSLV	Surya (India's ICBM)
Stages	2 solid, 1 liquid stage	identical
Weight	290 tons	275 tons (nearly 3 times the size of America's largest ICBM)
Payload	multiple satellites	multiple warheads

Viewgraph 3

Why Does India's Need an ICBM: What's the Target?

- India already has the Agni II medium range road-mobile missile (picture above) with a 2,000 km range (mapped above) that can reach most of China, all of Pakistan, and is now being upgraded to cover all of China.

- The Surya, India's ICBM, in contrast, is a fixed launch, first-strike missile that is only useful, if, as Indian officials have claimed, India wants to hit the US or Europe.

Viewgraph 4

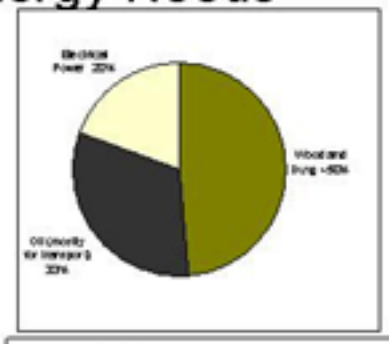
Nuclear Power: Least Leveraged to Address India's Immediate Energy Needs

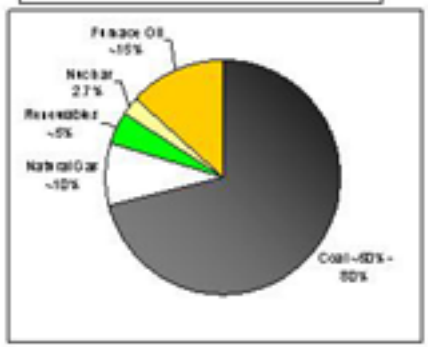
Roughly ½ of India's energy consumption comes from burning cow dung and wood, 1/3rd from oil burning (mostly for transport), and 1/5th from electricity (see opposite top graph)

Of India's currently installed electrical capacity, only 2.7 percent is nuclear, i.e., which produces roughly as much electricity as do renewables -- e.g., wind power, biomass, small hydro, etc. (see opposite bottom graph)

The rest of India's electricity is produced by burning coal (60-80%), natural gas (~10%) and furnace oil (~15%)

India has the world's 3rd largest coal reserves but this sector is dominated by state ownership and management that is having difficulty mining and transporting quickly enough to meet demand





Viewgraph 5

Most Immediate, Cost-effective Ways to Meet India's Energy Needs Are Nonnuclear

- In the electrical sector increase
  - efficiencies in generation (e.g., use of alternative systems, e.g., gas fired generators, to meet peak load demand) and in distribution
  - Curb widespread theft from the grid
  - End state offers of free/subsidized power to large farms and businesses
  - Restructure the state-run Indian coal industry to meet demand
- Indian energy experts project that over the next decade, modest energy efficiency measures alone could afford **over 10 times** more electricity than nuclear power currently does (**i.e., 30,000 MWe**)
- Develop new private sources of natural gas

Viewgraph 6

Easiest, Most Leveraged Ways to Clean Up India's Increasing Energy Use Also Are Nonnuclear

- To reduce pollutants and greenhouse gases generally
  - clean up dung-polluted lakes (pictured opposite) by substituting for dung and wood burning with decentralized, non-grid-delivered micro renewable power sources
  - establish efficiency standards
  - encourage increased energy efficiencies
- In the electrical sector
  - Increase supply and use of private sector natural gas
  - implement Indian plans for renewables (12,000 MWe or four times current installed nuclear capacity) over the next decade
  - introduce clean coal technologies

Viewgraph 7

Nuclear Power: Last Stop for Freeing Up India's Energy Sector

- Over the next decade, Indian planners anticipate adding 83 Gwe at a cost of $143 billion that will require dramatic increases in foreign direct investment in, privatization of, and market discipline of India's energy sector. That said:
  - All sectors of India's energy industry are open to direct foreign investment **except** nuclear
  - All sectors of India's energy industry are open to local or private ownership **except** nuclear
  - Private investment has begun to be made in all sectors of India's energy industry **except** nuclear

INDIA'S ICBM—ON A "GLIDE PATH" TO TROUBLE?

(A Policy Research Paper by Dr. Richard Speier, October 26, 2005)

INTRODUCTION

A glide path is the gentle course that an airplane follows as it descends to a safe landing. If the plane encounters an unexpected development, it can divert, regain altitude, and change its course.

Because India has been developing nuclear weapons and missiles to deliver them, United States-Indian technology relations have for many years remained up in the air, not heading for a safe landing. After 4 years of Bush administration negotiations the United States now describes its technology relations with India as being on a "glide path."

This paper addresses the question whether, in view of India's abundantly reported intercontinental ballistic missile (ICBM) development, we should divert from our present "glide path" approach to space cooperation.

On October 3, 2003, the Washington Post questioned Secretary of State Powell about the latest diplomatic developments with India.

> QUESTION: . . . last week, President Bush presented [Prime Minister Atal Bihari] Vajpayee with what was called, like, a "glide path" toward better relations. . . .
>
> SECRETARY POWELL: . . . there was a basket of issues that they were always asking us about called, well, we called it—we nicknamed it, "The Trinity." How could you help us? How can we expand our trade in high tech areas, in areas having to do with space launch activities, and with our nuclear industry? . . . we also have to protect certain red lines that we have with respect to proliferation, because it's sometimes hard to separate within *space launch activities* and industries and nuclear programs, that which could go to weapons, and that which could be solely for peaceful purposes. . . . And the "glide path" was a way of bringing closure to this debate.[1]

Nearly 2 years later, President Bush and the Indian Prime Minister confirmed this cooperation in a joint statement.

> . . . the two leaders resolve . . . Build closer ties in space exploration, satellite navigation *and launch,* and in the commercial space arena. . . .[2]

As this cooperation was being negotiated and agreed, reports persisted that India was preparing to produce an ICBM. These reports had been accumulating for over two decades.[3] The latest public report appeared less than 6 weeks after the Presidents' joint statement.[4]

Over the last decade the reports have been consistent in avering that the ICBM will be called "Surya" and that hardware and technology for the ICBM will come from India's gigantic Polar Space Launch Vehicle (PSLV).

What are the capabilities of the ICBM, and why does India want it? How did India acquire the space launch vehicle technology for the weapon? And how did the United States come to ride a "glide path" to space launch cooperation with India? These topics will be covered in turn.

India's ICBM—what and why

In 1980s India adapted a space launch vehicle, the SLV–3, to become the Agni medium-range ballistic missile. In keeping with India's practice of describing nuclear and missile programs as civilian until their military character could not be denied, India originally claimed that the Agni was a "technology demonstrator." The Agni program now consists of three missiles with ranges, respectively, of upwards of 700, 2,000, and 3,000 kilometers.

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[1] http://www.washingtonpost.com/wp-dyn/articles/A41977-2003Oct3.html. Italics added for emphasis.

[2] The White House, Office of the Press Secretary, July 18, 2005, "Joint Statement Between President George W. Bush and Prime Minister Manmohan Singh," available at http://usinfo.state.gov. Italics added for emphasis.

[3] For early reports see Islamic Defence Review Vol. 6/No. 4, 1981; Maurice Eisenstein, "Third World Missiles and Nuclear Proliferation," The Washington Quarterly, Summer 1982; "Liquid Fuel Engine Tested for PSLV," Hindustan Times, New Delhi, December 13, 1985, p.1; "Growing Local Opposition to India's Proposed National Test Range at Baliapal, Orissa," English Language Press, October 1986; and "India Faces Rising Pressure for Arms Race With Pakistan," Christian Science Monitor, March 9, 1987, p.1.

[4] Madhuprasad, "Boost to Indian Armed Forces' Deterrence Arsenal; India to Develop Intercontinental Ballistic Missile," Bangalore Deccan Herald in English, August 25, 2005.

India may have officially begun the Surya project (also sometimes known as Agni IV) in 1994.[5] Reports cite various dates perhaps because the project has several decision points. Reports generally agree that the Surya program, like the Agni program, will result in missiles with various ranges.

- Surya-1 will have a range of about 5,000 kilometers.[6]
- Surya-2 from 8,000 to 12,000 kilometers.
- Surya-3 up to 20,000 kilometers.

Table 1 compares the Agni and Surya families of missiles.

TABLE 1.—THE AGNI AND SURYA MISSILE FAMILIES[7]

Missile	Size	Range	Mobile?	Probable Target
lxd	(km) (m)			
Agni-1	15xl	700-1000+	yes	Pakistan
Agni-2	20xl	2000-3000+	yes	China
Agni-3	20x1 or 13x1.8	3000-5000+	yes	China
Surya-1	~35x2.8	~5000	no	China
Surya-2	~40x2.8	8000-12000	no	United States
Surya-3	40+x2.8	20000	no	Global

Reports agree that the Surya will have the option of a nuclear payload—and sometimes the claim is made that the payload will consist of multiple nuclear warheads.

Reports generally agree that the Surya will be a three-stage missile with the first two Surya stages derived from PSLV's solid-fuel rockets. India obtained the solid-fuel technology for the SLV–3 and the PSLV from the United States in the 1960s.[8] The third Surya stage is to use liquid fuel and will be derived either from the Viking rocket technology supplied by France in the 1980s (called Vikas when India manufactured PSLV stages with the technology) or from a more powerful Russian-supplied cryogenic upper stage for the Geosynchronous Space Launch Vehicle (GSLV), which is an adaptation of the PSLV.

If—as reported—the Surya uses PSLV rocket motors, it will be an enormous rocket with solid-fuel stages 2.8 meters (about 9 feet) in diameter and a total weight of up to 275 metric tons. This will make it by far the largest ICBM in the world—with a launch weight about three times that of the largest U.S. or Russian ICBMs.

There appears to be no literature on Indian plans to harden or conceal the Surya launch site or to make the missile mobile, any of which would be difficult to do because of the missile's size and weight. If a cryogenic third stage is used, the launch process will be lengthy. This means that the Surya is likely to be vulnerable to attack before launch, making it a "first-strike" weapon that could not survive in a conflict. Indeed, the Surya's threatening nature and its prelaunch vulnerability would make it a classic candidate for preemptive attack in a crisis. In strategic theory this leads to "crisis instability," the increased incentive for a crisis to lead to strategic attacks because of each side's premium on striking first.

Why would India want such a weapon? The reported ranges of the Surya variants suggest the answer.

- 5,000-kilometer Surya-1 might overlap the range of a reported 5,000-kilometer upgrade of the Agni missile.[9] Surya-1 would have only one advantage over such an upgraded Agni. That advantage would be a far larger payload—to carry a

[5] Vivek Raghuvanshi, "Indian Scientists Poised To Test-Launch Country's First ICBM," Defense News, April 30, 2001, p. 26.

[6] International missile nomenclature defines an ICBM as a ballistic missile with a range of 5,500 or greater. However, Indian commentators have tended to exaggerate their missiles' capabilities by bumping missiles into the next higher range classes.

[7] The low-end figures for the Agni family are commonly reported. The high-end figures are more uncertain. In the case of Agni-3, the high-end figures may relate to later Agni models or even to the Surya. Surya lengths are approximations based on the lengths of the PSLV and GSLV missile stages.

[8] Gary Milhollin, "India's Missiles—With a Little Help from Our Friends," Bulletin of the Atomic Scientists, November 1989, available at http://www.wisconsinproject.org/countries/india/misshelp.html and Sundara Vadlamudi, "Indo-U.S. Space Cooperation: Poised for Take-Off?", The Nonproliferation Review, Vol. 12, No. 1, March 2005, p. 203.

[9] Moscow Agentstvo Voyennykh Novostey internet news service in English, 1252 GMT November 1, 2004; and a publication of more uncertain quality, Arun Vishwakarma, "Agni—Strategic Ballistic Missile," April 15, 2005, available at http://www.bharat-rakshak.com/MISSILES/Agni.html. It is possible that either or both of these references have conflated the Surya-1 the Agri program.

large (perhaps thermonuclear) warhead or multiple nuclear warheads. India has no reason to need a missile of "ICBM" range for use against Pakistan. 5,000 kilometers is arguably an appropriate missile range for military operations against distant targets in China. As illustrations of the relevant distances, the range from New Delhi to Beijing is 3,900 kilometers, from New Delhi to Shanghai 4,400 kilometers, and from Mumbai to Shanghai 5,100 kilometers.

- An 8,000-to-12,000-kilometer Surya-2 would be excessive for use against China. However, the distance from New Delhi to London is 6,800 kilometers, to Madrid 7,400 kilometers, to Seattle 11,500 kilometers, and to Washington, D.C., 12,000 kilometers. An Indian Defence Research and Development Organisation (DRDO) official wrote in 1997, "Surya's targets will be Europe and the United States."[10]
- A 20,000-kilometer range Surya-3 could strike any point on the surface of the Earth.

Indian commentators generally site two reasons for acquiring an ICBM: To establish India as a global power and to enable India to deal with "high-tech aggression" of the type demonstrated in the wars with Iraq.[11] Because there is no obvious reason for India to want a military capability against Europe, there is only one target that stands out as the bulls-eye for an Indian ICBM—the United States.

How India got here

The established path to a space launch capability for the United States, the Soviet Union, the United Kingdom, France, and China was to adapt a ballistic missile as a space launch vehicle. India turned the process around, adapting a space launch vehicle as a ballistic missile. If Brazil, Japan, or South Korea were to develop long-range ballistic missiles, they would probably follow India's example.

President Kennedy was once asked the difference between the Atlas space launch vehicle that put John Glenn into orbit and an Atlas missile aimed at the Soviet Union. He answered with a one-word pun, "Attitude." Paul Wolfowitz is said to have compared space launch vehicles to "peaceful nuclear explosives" (PNEs); both have civilian uses but embody hardware and technology that are interchangeable with military applications. India has demonstrated this interchangeability with both space launch vehicles and PNEs.

The path to India's ICBM capability took more than four decades.

- Early 1960s: NASA trains Indian scientists at Wallops Island, Virginia, in sounding rockets and provided Nike-Apache sounding rockets to India.[12] France, the UK, and the Soviet Union also supply sounding rockets.[13]
- 1963–64: A.P.J. Abdul Kalam, an Indian engineer, works at Wallops Island where the Scout space launch vehicle (an adaptation of Minuteman ICBM solid-fuel rocket technology) is flown.[14]
- 1965: Upon Kalam's return to India the Indian Atomic Energy Commission requests U.S. assistance with the Scout, and NASA provides unclassified reports.[15]
- 1969–70: U.S. firms supply equipment for the Solid Propellant Space Booster Plant at Sriharokota.[16]
- 1973: India tests a "peaceful nuclear explosion."
- 1970s: A.P.J. Abdul Kalam becomes head of the Indian Space Research Organisation (ISRO), in charge of developing space launch vehicles.
- 1980: India launches its first satellite with the SLV–3 rocket, a close copy of the NASA scout.[17]
- February 1982: Kalam becomes head of DRDO, in charge of adapting space launch vehicle technology to ballistic missiles.
- 1989: India launches its first Agni "technology demonstrator" surface-to-surface missile. The Agni's first stage is essentially the first stage of the SLV–3. Later,

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[10] Wilson John, "India's Missile Might," The Pioneer in English, New Delhi, July 13, 1997, p. l, available as FBIS–TAC–97–195 BK1407155097, July 14, 1997

[11] For example, Brahma Chellaney, "Value of Power," The Hindustan Times in English, May 19, 1999.

[12] Vadlamudi, op cit.

[13] Milhollin, op cit.

[14] Ibid.

[15] Ibid.

[16] Vadlamudi, op cit.

[17] Alexander Pikayev, Leonard Spector, et al., Russia, the U.S. and the Missile Technology Control Regime, Adelphi Paper 317, International Institute for Strategic Studies, March 1998.

the Agni becomes a family of three short-to-intermediate-range ballistic missiles.[18]

- 1990: Russia agrees to supply India with cryogenic upper stage rockets and technology. The United States imposes sanctions on Russia until, in 1993, Russia agrees to limit the transfer to hardware and not technology. However, India claims it has acquired the technology to produce the rockets on its own.
- 1994: India launches the PSLV. Stages 1 and 3 are 2.8 meter-diameter solid-fuel rockets. Stages 2 and 4 are liquid-fuel Vikas engines derived from French technology transfers in the 1980s.
- 1994: This is the earliest date for which the Surya ICBM program, using PSLV technology, is reported to have been officially authorized. However, India's space and missile engineers—if not the "official" Indian Government—had opened the option much earlier.
- 1998: India tests nuclear weapons after decades of protesting that its nuclear program was exclusively peaceful.
- 1999: India flies the Agni II, an extended range missile that tests reentry vehicle "technology [that] can be integrated with the PSLV programme to creat an ICBM" according to a defence ministry official.[19]
- 1999: Defense News cites Indian Defence Research and Development Organisation (DRDO) officials as stating that the Surya is under development.[20]
- November 6, 1999: India's Minister of State for Defence (and former head of DRDO) Bachi Singh Rawat says India is developing an ICBM known as Surya that would "have a range of up to 5,000 km."[21]
- November 23, 1999: Rawat is reported to have been stripped of his portfolio after his ICBM disclosure.[22]
- 2001: Khrunichev State Space Science and Production Center announces that it will supply five more cryogenic upper stages to India within the next 3 years.[23]
- 2001: The cryogenic engine is reported to be "the Surya's test-bed."[24]
- 2001: A U.S. National Intelligence Estimate states, "India could convert its polar space launch vehicle into an ICBM within a year or two of a decision to do so."[25]
- 2004: A Russian Academy of Sciences Deputy Director states that India is planning to increase the range of the Agni missile to 5,000 kilometers and to design the Surya ICBM with a range of 8,000 to 12,000 kilometers.[26]
- 2005: According to Indian Ministry of Defence sources, there are plans to use the non-cryogenic Vikas stage for the Surya and to have the missile deliver a 2½ to 3½ metric ton payload with two or three warheads with explosive yields of 15 to 20 kilotons.[27]

The common threads in all these reports are that space launch vehicle technology is the basis for the Indian ICBM, and that India obtained the technology with foreign help.

How the United States got here

The United States has a policy against missile proliferation, but the policy has not been in place as long as the Indian missile program. Nor has the policy been consistently applied. Some markers:

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[18] Robert Norris and Hans Kristensen, "India's Nuclear Forces, 2005," Bulletin of the Atomic Scientists, Vol. 61, No. 05, September/October 2005, available at http://www.thebulletin.org/article_nn.php?art_ofn=so05norris.

[19] V.G. Jaideep, "India Building ICBM with 8,000-Plus Km Range," The Asian Age in English, February 8, 1999, pp. 1–2 and Barbara Opall-Rome, "Agni Test Undercuts U.S., Angers China," Defense News, April 26, 1999, p. 17.

[20] Vivek Raghuvanshi, "India To Develop Extensive Nuclear Missile Arsenal," Defense News, May 24, 1999, p. 14.

[21] Canadian Security Intelligence Service, "Ballistic Missile Proliferation," Report # 2000/09, March 23, 2001, available at http://www.cisiscrs.gc.ca/eng/misdocs/200009_e.html.

[22] Iftikhar Gilani, "Premature Disclosure of ICBM Project, Rawat Stripped of Defence Portfolio," New Delhi, November 23, 1999.

[23] Moscow (Interfax), "Khrunichev Space Center To Supply Rocket Boosters To India," April 16, 2001, available at http:/spacer.com/news/india-01d.html.

[24] Cf. footnote 6.

[25] National Intelligence Estimate, "Foreign Missile Developments and the Ballistic Missile Threat Through 2015," December 2001, available at http://www.cia.gov/nic/special_missilethreat2001.html.

[26] Cf. footnote 9.

[27] Madhuprasad, op cit.

- 1970s: The United States begins to consider a broad policy against missile proliferation.[28]
- 1980s: The United States and its six economic summit partners secretly negotiate the Missile Technology Control Regime (MTCR). After 1½ years of difficult negotiations on the question of space launch vehicles, all partners agree that they must be treated as restrictively as ballistic missiles because their hardware, technology, and production facilities are interchangeable. The MTCR is informally implemented in 1985 and is publicly announced in 1987.[29]
- 1990: Two weeks after the United States enacts a sanctions law against missile proliferation, the Soviet Union announces its cryogenic rocket deal with India. The two parties are the first to have sanctions imposed on them under the new law.[30]
- 1993: The United States and Russia agree that Russia may transfer a limited number of cryogenic rocket engines to India, but not their production technology.[31]
- 1998: India tests nuclear weapons. United States imposes broad sanctions on nuclear and missile/space-related transfers.
- 1999: Kalam says he wants to "neutralise" the "stranglehold" some nations had over the MTCR that had tried, but failed, to "throttle" India's missile program. "I would like to devalue missiles by selling the technology to many nations and break their stranglehold."[32]
- September 22, 2001: United States lifts many of the technology sanctions imposed in 1998. Subsequently, India's Prime Minister visits the United States amid agreement to broaden the technology dialogue.[33]
- 2002: Kalam becomes President of India.
- 2002: The United States tells India it will not object to India launching foreign satellites, as long as they do not contain U.S.-origin components.[34]
- April 2003: The last mention of India is made in the Director of Central Intelligence's unclassified semi-annual report to Congress on the acquisition weapons of mass destruction. Future reports deletes descriptions of India's activities.[35]
- October 2003: Secretary of State Powell speaks to the Washington Post about the "Trinity" and the "glide path."[36]
- January 2004: President Bush agrees to expand cooperation with India in "civilian space programs" but not explicitly to cooperate with space launches. This measure is part of a bilateral initiative dubbed "Next Steps in Strategic Partnership."[37]
- July 2005: President Bush agrees to cooperate with India on "satellite navigation and launch." The Prime Minister of India agrees to "adherence to Missile Technology Control Regime . . . guidelines."[38]

The common thread in these developments is that the U.S. clarity about the relationship between space launch vehicles and missile proliferation appears close to being obscured in the case of India. India's agreement to adhere to the MTCR's export control guidelines is a welcome development but does not entitle India to missile (or space launch vehicle) technology. Without India's adherence, if India were to export missile technology restricted by the MTCR, it would be a candidate for the imposition of sanctions under U.S. law.

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[28] Richard Speier, "The Missile Technology Control Regime: Case Study of a Multilateral Negotiation," manuscript funded by the United States Institute of Peace, Washington, D.C., November 1995.

[29] Speier, ibid.

[30] Pikayev, et al, op cit.

[31] Ibid.

[32] "Agni IRBM Built to Carry Nuclear Warhead," Jane's Defence Weekly, April 28, 1999.

[33] Vadlamudi, op cit., is an excellent source for recent developments in the U.S.-Indian space dialogue.

[34] C. Raja Mohan, "U.S. Gives Space to ISRO," The Hindu in English, September 30, 2002, p. 11.

[35] Director of Central Intelligence, "Unclassified Report to Congress on the Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions, 1 January Through 30 June 2002," posted April 2003, available at http://www.cia.gov.

[36] Cf. footnote 2.

[37] The White House, Office of the Press Secretary, Statement by the President on India, "Next Steps in Strategic Partnership with India," January 12, 2004, available at http://www.whitehouse.gov/news/releases/2004/01/20040112-1.html.

[38] Cf. footnote 3.

Analysis

The story of India's ICBM illustrates short-sightedness on the parts of both India and the United States. If India completes the development of an ICBM, the following consequences can be expected:

- An incentive to preempt against India in times of crisis,
- A diversion of India's military funds away from applications that would more readily complement "strategic partnership" with the United States,
- Increased tensions and dangers with China,
- Confusion and anger on the part of India's friends in Europe and the United States,
- A backlash against India that will hinder further cooperation in a number of areas, and
- A goad to other potential missile proliferators and their potential suppliers to becoming more unrestrained.

The governments of India and the United States have nothing to be proud of in this business. In seeking to become a global power by acquiring a first-strike weapon of mass destruction the Indian Government is succumbing to its most immature and irresponsible instincts. The U.S. Government, by offering India the "Trinity" of cooperation, is flirting with counterproductive activities that could lead to more proliferation.

There are, of course, arguments in favor of such cooperation:

- Strategic cooperation with India is of greater value than theological concerns about proliferation.
- India has already developed nuclear weapons and long-range missiles, so resistance to such proliferation is futile.
- And India is our friend, so we need not worry about its strategic programs.

It is true that there is considerable value to strategic cooperation with India. But nuclear and space launch cooperation are not the only kinds of assistance that India can use. It has a greater use for conventional military assistance, development aid, and access to economic markets. Moreover, nonproliferation has a strategic value at least as great as that of an Indian partnership. A little proliferation goes a long way. It encourages other nations (such as Pakistan, Brazil, Japan, South Korea, and Taiwan) to consider similar programs. And the example of U.S. cooperation encourages other suppliers to relax their restraint.

It is true that India has already developed nuclear weapons and long-range missiles. But India has a long way to go to improve their performance, and it has a history of using nuclear and space launch assistance to do just that. Some areas in which India can still improve its missiles are:

- Accuracy. For a ballistic missile, accuracy deteriorates with range. India's ICBM could make use of better guidance technology, and it might obtain such technology with "high-tech" cooperation with the United States.
- Weight. Unnecessary weight in a missile reduces payload and range. Or it forces the development of gigantic missiles such as India's PSLV-derived ICBM. India is striving to obtain better materials and master their use to reduce unnecessary missile weight.[39]
- Reliability. India's space launch vehicles and medium range missiles have suffered their share of flight failures. Engineering assistance in space launches could improve India's missile reliability—as was demonstrated with unapproved technology transfers incident to launches of U.S. satellites by China.[40]
- Multiple warheads. India's reported interest in missile payloads with multiple nuclear warheads means that certain elements of satellite technology may get diverted to military use. Deliberate or inadvertent transfers of technology associated with dispensing and orienting satellites could, as in the Chinese case, make it easier to develop multiple re-entry vehicles.
- Countermeasures against missile defenses. Assistance to India in certain types of satellite technology, such as the automated deployment of structures in space, could aid the development of penetration aids for India's long-range missiles. Given that the United States is the obvious target for an Indian ICBM, such countermeasures could stress U.S. missile defenses.

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[39] Mir Ayoob Ali Khan, "Agni–Ill to get light motor for bigger bombs," The Asian Age in English, New Delhi, October 14, 2005.

[40] The "Cox Commission" Report, House of Representatives Report 105–851, "Report of the Select Committee on US National Security and Military/Commercial Concerns with the People's Republic of China," June 14, 1999, available at http://www.access.gpo.gov/congress/house/hr105851/.

Supplier restraint can slow down India's missile progress and make such missiles more expensive and unreliable—perhaps delaying programs until a new regime takes a fresh look at them and considers deemphasizing them. Apart from the technical assistance that the United States is considering supplying, the relaxation of U.S. objections to foreign use of India launch services will augment the ISRO budget for rocket development. Even if India were not materially aided by U.S. space launch cooperation, the example is certain to kindle hopes in such nations as Brazil that they can get away with the same tactics. And France and Russia, India's traditional and less-restrained rocket technology suppliers, are certain to want a piece of the action.

It is true that India is our friend and "strategic partner," at least at the present time. History raises questions whether such friendship would continue through a conflict with Pakistan. And India's interest in an ICBM, which only makes sense as a weapon against the United States, raises questions whether the friendship is mutual. Moreover, nonproliferation policy is often directed against programs in friendly nations. Argentina, Brazil, Israel, Pakistan, South Africa, South Korea, Taiwan, and Ukraine are all friendly nations for which the United States has attempted to hinder WMD and missile programs without undermining broader relations. An exception for India is certain to be followed by more strident demands for exceptions elsewhere. Is the space-launch component of "friendship" worth a world filled with nations with nuclear-armed missiles?

India's missile program has evolved over more than four decades. The history of proliferation demonstrates the difficulty of holding to a strong nonproliferation policy over years, let alone decades.[41] There will always be temptations to trade nonproliferation for some bilateral or strategic advantage of the moment. In the current situation, India may have out-negotiated the United States. After India's 1998 nuclear weapon tests, the United States imposed sanctions and then gradually lifted them. In nuclear and rocket matters, this was not enough for India. And once the United States began easing up on India, the United States kept easing up.

The United States professes to be holding to its "red lines"—in Secretary of State Powell's words—in whatever kind of cooperation it is considering. But the world needs to know where these lines are when it comes to "space launch" cooperation. It is one thing for the United States to provide launch services for Indian satellites. It is another thing for the United States to use or help improve India's ICBM-capable rockets. Are the "red lines" firm or flexible? Is the "glide path" a slippery slope? This brings us to this paper's recommendations.

Recommendations

Under the July 18, 2005, Joint Statement, the United States and India committed themselves to "build closer ties in space exploration, satellite navigation and launch, and in the commercial space arena." This does not require nor should it encourage U.S. cooperation on India's ICBM program directly or indirectly. In fact, the United States has already taken a step in the right direction by offering to launch Indian astronauts in upcoming space shuttle missions and to involve them to the fullest extent in the International Space Station

The United States should do more to encourage India to launch its satellites and science packages on U.S. and foreign launchers by making these launches more affordable. The United States also should be forthcoming in offering India access, as appropriate, to the benefits of U.S. satellite programs—including communications, earth resource observation, and exploration of the cosmos. India, in fact, has some of the world's best astrophysicists and cosmologists. It is in our interest, as well as the world's, that we make all of the data from our space observation programs involving the Hubble telescope and similar systems available to Indian scientists to analyze.

(1) Do not be naive about the nature of India's program

After more than two decades of reports about India's interest in an ICBM—including reports from Russia, statements on India's ICBM capability by the U.S. intelligence community, and the firing of an Indian official after he publicly described the Surya program—there should be no illusions. All of the reports state that India's ICBM will be derived from its space launch vehicle. The United States should not believe that it is possible to separate India's "civilian" space launch program—the incubator of its long-range missiles—from India's military program. There should be no illusions about the target of the ICBM. It is the United States—to protect India from the theoretical possibility of "high-tech aggression." The U.S. intelligence com-

[41] Richard Speier, "United States Strategies Against the Proliferation of Mass Destruction Weapons," doctoral dissertation, Massachusetts Institute of Technology, 1968.

munity's semi-annual unclassified reporting to Congress on India's nuclear and missile programs was discontinued after April 2003. This reporting should be resumed.

(2) Do not assist India's space launch programs

The United States should not cooperate either with India's space launches or with satellites that India will launch. India hopes that satellite launches will earn revenues that will accelerate its space program—including rocket development. U.S. payloads for Indian launches—such as the envisioned cooperative lunar project—risk technology transfer (see recommendation No. 3) and invite other nations to be less restrained in their use of Indian launches. Because there is no meaningful distinction between India's civilian and military rocket programs, the United States should explicitly or de facto place ISRO back on the "entities" list of destinations that require export licenses.[42] Certainly, Congress should insist that the United States explain it's "red lines" regarding space cooperation with India. If these lines are not drawn tightly enough, Congress should intervene.

(3) Review carefully any cooperation with India's satellite programs

India is reportedly developing multiple nuclear warheads for its long-range missiles. If India develops an ICBM, the next step will be to develop countermeasures to penetrate U.S. missile defenses. Certain satellite technologies can help India with both of these developments. The United States should review its satellite cooperation to ensure that it does not aid India inappropriately in the technologies of dispensing or orienting spacecraft, of automated deployment of structures in space, or of other operations that would materially contribute to multiple warheads or countermeasures against missile defenses.

CONCLUSION

The target of an Indian ICBM would be the United States. The technology of an Indian ICBM would be that of a space launch vehicle. The United States should not facilitate the acquisition or improvement of that technology directly or indirectly In this matter, U.S. clarity and restraint are what the world—and India—need.

FEEDING THE NUCLEAR FIRE

(By Zia Mian and M.V. Ramona, September 20, 2005)

The July 18 Joint Statement by U.S. President George Bush and Prime Minister Manmohan Singh has attracted a great deal of comment. The focus has been on the possible consequences of United States promises to support India's nuclear energy program in exchange for India clearly separating its military and civilian nuclear facilities and programs and opening the latter to international inspection.

Much of the debate on the deal has arisen between what can be broadly called nuclear hawks and nuclear nationalists. The hawks believe that New Delhi's nuclear program is a great success and that India is more than able to take care of itself. They see the deal as imposing unnecessary constraints on India's nuclear program and impeding the creation of a large nuclear arsenal—including thermonuclear weapons (hydrogen bombs)—which they believe to be essential for India to achieve "great power" status.

The clearest expression of this perspective comes from former Prime Minister Atal Behari Vajpayee and the Bharatiya Janata Party (BJP), who seek the largest possible nuclear weapons capability. Vajpayee argues that: "Separating the civilian from the military would be very difficult, if not impossible . . . It will also deny us any flexibility in determining the size of our nuclear deterrent." When he refers to "flexibility" in determining the size of the Indian nuclear arsenal, he does not include reducing or eliminating it. Rather, his term expresses the fear that separating civil and military facilities may curb the arsenal's size.

Nuclear nationalists have a less ambitious, more traditional perspective that considers Indias nuclear program a great national technological achievement and necessary for India's economic and social development. They see the deal as offering a way to sustain and expand the nuclear energy program without unduly restricting a "minimum" nuclear weapons arsenal.

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[42] U.S. Department of Commerce, "Control Policy: End-User and End-Use Based," Export Administration Regulations, Part 744, available at http://www.access.gpo.gov/bis/ear/pdf/744.pdf. ISRO was removed from the "entities" list under a U.S-Indian agreement signed on September 17, 2004. See Vadlamudi, op cit.

The current government has embraced this nationalist view, as have many defenders of the deal. The Prime Minister laid it out most clearly to Parliament on July 29, saying: "Our nuclear program . . . is unique. It encompasses the complete range of activities that characterize an advanced nuclear power . . . our scientists have done excellent work, and we are progressing well on this program as per the original vision outlined by Pandit Jawaharlal Nehru and Dr. Homi Bhabha." Singh went on to argue that "nuclear power has to play an increasing role in our electricity generation plans," and he noted that the deal is flexible because "our indigenous nuclear power program based on domestic resources and national technological capabilities would continue to grow." The expected international support, both in nuclear fuel and nuclear reactors, will help "enhance nuclear power production rapidly," he added. At the same time, he made it clear that "there is nothing in the Joint Statement that amounts to limiting or inhibiting our strategic nuclear weapons program."

These two positions have by and large dominated the debate so far. There are many problems with both views. The first is their shared belief in the success of India's nuclear energy program and the need to continue with and expand this effort. They fail to recognize that the deal is actually a testament to the long-standing, expensive, and large-scale failure of the Department of Atomic Energy (DAE) to safeguard health, safety, the environment, and local democracy.

Both camps also contend that nuclear weapons are a source of security, though this conviction has been extensively debunked. Those who persist in this belief also ignore the essential moral, legal, and criminal questions of what it means to have—and be prepared to use—nuclear weapons. The only differences between the two camps are in the character and size of the genocidal weapons they desire and in the number of people they are prepared to threaten to kill.

A HISTORY OF FAILURE

The establishment of the Atomic Energy Commission (AEC) in 1948 was framed by the rhetoric of indigenous national development. Led by Homi Bhabha, the AEC portrayed India as forging its own path in the new nuclear age. That was not to be. There was no progress until the United Kingdom offered the design details and enriched uranium fuel for the first Indian nuclear reactor, Apsara. In what was to become a pattern, the official announcement when the Apsara reactor went critical declared the landmark a "purely indigenous affair."

Similarly, the CIRUS reactor, which provided the plutonium used in the 1974 nuclear test (and quite likely some used in the 1998 tests as well), was supplied by Canada, and the heavy water used in it came from the United States. An American firm, Vitro International, was awarded the contract to prepare blueprints for the first reprocessing plant at Trombay. The first power reactors at Tarapur and Rawatbhata were supplied by the United States and Canada respectively. And foreign collaboration did not just extend to reactors. Many of India's nuclear scientists were schooled in America and elsewhere. Between 1955 and 1974, over 1,100 Indian scientists were sent to train at various United States facilities.

Extensive foreign support of the nuclear program ended only after the 1974 nuclear test. The international community led by Canada and the United States—both of whom were incensed by India's use of plutonium from the CIRUS reactor, which had been given purely for peaceful purposes—cut off most material transfers relating to New Delhi's nuclear program. However, India's nuclear facilities surreptitiously procured components from abroad, and foreign consultants continued to be hired for projects. Moreover, DAE personnel still had access to nuclear literature and participated in international conferences where technical details were freely discussed.

Even with all this help, DAE's failures were many and stark. In 1962, Homi Bhabha predicted that by 1987 nuclear energy would constitute 20,000 to 25,000 megawatts (MW) of installed electricity generation capacity. His successor as head of the DAE, Vikram Sarabhai, predicted that by 2000 there would be 43,500 MW of nuclear power. In 1984, the "Nuclear Power Profile" drawn up by the DAE suggested the more modest goal of 10,000 MW by 2000, India never came close to meeting any of these goals.

After over 50 years of generous government funding, nuclear power amounts to only 3,400 MW, barely 3 percent of India's installed electricity capacity. This capacity is expected to rise by nearly 50 percent over the next few years but not because of the DAE. The largest component of the expansion will be two 1,000 MW reactors purchased from and being built by Russia.

This history of failure explains the escalating demands from the DAE and other nuclear advocates to gain access to international nuclear markets. Only with inter-

national help can the DAE ever hope to achieve its latest promised goal of 20,000 MW by the year 2020.

Another pressure driving the deal with Washington has been the DAE's failure to manage its existing nuclear program. In its determination to build more and more reactors—something to show for all the money that it gets—the DAE has failed to provide reactor fuel. Soon after the United States-India deal was announced, this oversight became apparent in a statement from an unnamed official to the British Broadcasting Corporation who admitted: "The truth is we were desperate. We have nuclear fuel to last only till [sic] the end of 2006. If this agreement had not come through we might have as well closed down our nuclear reactors and by extension our nuclear program." The former head of the atomic energy regulatory board has reported that this is not a new problem, he notes that "uranium shortage" has been "a major problem for the officials of NPCIL and the Nuclear Fuel Complex (NFC) for some time."

The issue is simple. Apart from Tarapur I and II, all DAE reactors are fueled using uranium from the Jaduguda region of Jharkand. The total electric capacity of the heavy water-based power reactors is 2,450 MW. At 75 percent operating capacity, they require nearly 330 tons of uranium every year. The reactors that are supposedly dedicated to making plutonium for nuclear weapons, CIRUS and Dhruva, consume perhaps another 30–35 tons. When mining started in Jaduguda, the average ore grade was about 0.O67 percent. Now it is reportedly less than half that. The current mining capacity is around 2,800 tons of uranium ore per day. This means the DAE may only be producing about 300 tons of uranium a year, which falls well short of the fueling requirements. The DAE has been able to continue to operate its reactors only by using stockpiled uranium from earlier days when nuclear capacity was much smaller. This stockpile should be exhausted by 2007.

The DAE has been desperately trying to open new uranium mines in India, but it has been met with stiff public resistance everywhere. This local resistance stems from the widely documented negative impacts of uranium mining and milling on public and occupational health.

The limits on domestic uranium reserves have been known since the nuclear program was started. This concern was the justification for the three-phase nuclear power program that Bhabha originally proposed and that continues to be pursued. This program involves separating plutonium from the spent fuel produced in natural uranium reactors and setting up breeder reactors, which in turn could theoretically be used to utilize India's thorium resources for energy production. But the three phases are far from being realized. The DAE has failed to build and sustain enough natural uranium-fueled reactors for the first phase. The second phase is still experimental, and the first plutonium-fueled power reactor has yet to be completed. Even if it becomes fully functional, breeder reactors are unlikely to be a significant source of electricity for several decades. The thorium fuel cycle, the third phase, is still far in the future.

IMPLICATIONS OF THE AGREEMENT FOR NUCLEAR ENERGY IN INDIA

If the deal with Washington goes through, the DAE will be free to purchase uranium from the international market for its safeguarded reactors. This has some important consequences. For starters, it will reduce pressure on domestic uranium reserves. Since imported uranium will be much cheaper than Indian uranium, it may also marginally reduce the operating costs of Indian nuclear plants. Although the DAE hides its actual costs, there is little doubt that nuclear electricity is more expensive than other major sources of power in India.

At the same time, access to cheap, imported uranium will remove what has been the DAE's primary justification for much of its long-term nuclear plan. For decades, the DAE has cited a shortage of domestic uranium as justification for India's breeder program, even though poor economics and countless engineering problems have effectively killed similar breeder reactor programs in the United States, France, and Germany. The high cost of breeder reactors stems from their need for plutonium fuel produced at reprocessing plants by chemically treating spent (i.e., used) nuclear fuel from ordinary reactors. The separated plutonium is then fashioned into breeder fuel at special and costly fabrication plants. There are enormous economic costs, environmental repercussions, and public health risks associated with this whole scheme.

If cheap uranium becomes available to India, there will be no need for any of this. Even so, the DAE may balk at giving up its breeder reactor program. It may instead choose to emulate Japan, which imports uranium to power its nuclear reactors and, ignoring the costs and risks, continues to pursue its breeder reactor program. If so,

the DAE's institutional interests will have once again triumphed over economic good sense and concerns about health and the environment.

India's existing nuclear capacity—and any increases in it, domestic or foreign, that the United States deal facilitates—should not to be considered a benefit. Nuclear electricity is expensive, and it would be far better to invest in other, cheaper sources of power as well as energy conservation measures. There are also important safety concerns associated with nuclear power. At least one of the DAE's nuclear reactors has come close to a major accident. One can barely imagine the consequences of a Chernobyl-like meltdown involving the release of large quantities of radioactive materials at a reactor in a densely populated country like India. Other facilities associated with the nuclear fuel cycle have also experienced accidents, though these have primarily affected workers within the plant.

Apart from extreme accidents, there are many environmental and public health consequences associated with the many facilities that make up India's nuclear complex. A scientific study of the health consequences on the local population around the Rajasthan Atomic Power Station (RAPS) located at Rawatbhata near Kota observed statistically significant increases in the rates of congenital deformities, spontaneous abortions, stillbirths and 1-day deaths of newborn babies, and solid tumors.

And, to cap it all, there is the unsolved problem of managing large amounts of radioactive waste for many tens of thousands of years. The question that really needs to be discussed (but has hardly figured in the debate) is whether India needs any nuclear power plants at all. There are many who believe India would be better off giving up this costly and dangerous technology and finding ways to meet the needs of its people without threatening their future or their environment.

HOW MANY BOMBS ARE ENOUGH?

Nuclear energy and nuclear weapons have been linked from the beginning, and this will continue under the deal with Washington. Access to the international uranium market for fueling reactors will free up domestic uranium for India's weapons program and will likely boost New Delhi's nuclear clout.

There are several ways in which India could use its freed-up domestic uranium. It could choose to build a third reactor dedicated to making plutonium for nuclear weapons. There have been proposals for a larger reactor to add to CIRUS and Dhruva at the Bhabha Atomic Research center in Mumbai. India could also start to make highly enriched uranium for nuclear weapons. Pakistan has used such highly enriched uranium, produced at Kahuta, for its weapons. Both paths, which need not be exclusive, would allow India to increase its fissile materials stockpile at a much faster rate. A third use for domestic uranium would be in supplying the fuel for a nuclear submarine that has been under development since the 1970s. Modest uranium availability and the more-pressing need to keep the power reactors running have restricted all such plans in the past.

If the proposed agreement is solidified, India could use both its current stockpile of weapons-grade plutonium and all future production to make nuclear weapons. The current stockpile is estimated to be perhaps 400–500 kg, sufficient for about 100 simple fission weapons. (It is usually assumed that 5 kg is needed for a simple weapon. More sophisticated designs typically require less plutonium.) CIRUS and Dhruva produce about 25–35 kg of plutonium a year. This means that by 2010 India's potential arsenal size could be about 130 warheads using only existing facilities.

But there are other sources of weapons-grade fissile material. Power reactors can be used to make weapons-grade plutonium by limiting the time the fuel is irradiated. Run this way, a typical 220 MW power reactor could produce between 150–200 kg/year of weapons-grade plutonium when operated at 60–80 percent capacity.

Another source of fissile material is the stockpile of plutonium in the spent fuel of power reactors. Though it has a slightly different mix of isotopes from weapons-grade plutonium, it can be used to make a nuclear explosive. The United States conducted a nuclear test in 1962 using plutonium that was not weapons-grade. One of India's May 1998 nuclear tests is also reported to have involved such material.

Over the years, some 8,000 kg of reactor-grade plutonium may have been produced in the power reactors not under safeguards. Only about 8 kg of such plutonium are needed to make a simple nuclear weapon. Unless this spent fuel is not put under safeguards–i.e., declared to be off-limits for military purposes, as part of the deal—India would have enough plutonium from this source alone for an arsenal of about 1,000 weapons, larger than that of all the nuclear weapons states except the United States and Russia.

Lastly, there is the plutonium produced in Kalpakkam in India's small, fast-breeder test reactor (FBTR). Even more plutonium will be produced by the 500 MW

prototype FBTR now under construction. It is curious that ever since the 1960s, the DAE has resisted placing India's breeder program under international safeguards, even though both Germany and Japan, neither of them nuclear weapon states, subjected their breeder reactor programs to such safeguards. In theory, international scrutiny prevents plutonium or uranium from civil nuclear facilities from being used to make nuclear weapons. The DAE's resistance to safeguards begs the question as to whether the breeder program is, or ever was, only for civilian purposes.

A.N. Prasad, former director of the Bhabha Atomic Research Centre (BARC), has argued that these large stocks of weapons-usable material are beside the point. Prasad asserts that the deal with Washington should be rejected because "our military activities are not aimed at stockpiling nuclear weapons," since the weapons become old, their materials degrade, [and] they have to be dismantled and replaced.

But Prasad is disingenuous. It is estimated that the plutonium used in U.S. nuclear weapons may not need to be replaced for 45–60 years. The material can then be recycled into new nuclear weapons. Moreover, many of the aging effects that plutonium experiences can be avoided with proper storage, allowing existing stocks of plutonium to last indefinitely. All other nuclear weapons states have stopped producing new material for their nuclear weapons programs-only India, Pakistan, and Israel appear to be producing new weapons ingredients.

Another nuclear weapons resource is tritium, a gas used to boost the yield of fission weapons. The DAE claims to have tested a tritium-boosted weapon in 1998. However, tritium decays relatively quickly (its half-life is just over 12 years). Thus, to maintain a stockpile of tritium for a long time requires either a very large initial amount or production at a rate that balances decay. Tritium is a byproduct in nuclear reactors dedicated to producing plutonium for weapons. These reactors can also be used specifically to generate more tritium.

In short, the deal with Washington promises not only to leave New Delhi's weapons capability intact but to allow for a rapid and large expansion of India's nuclear arsenal. And both parties to the pact accept this as a good thing.

The effects of the use of both the smaller yield fission weapons and the more destructive thermonuclear weapons in India's arsenal are well-known. Put simply, the smaller weapons will kill almost everyone within 1.5 km of the explosion, and the larger weapons will kill most people out to distances of 3.5 km. The effects of radioactive fallout would spread tens of kilometers further. Either kind of bomb would be enough to destroy a modern city. The question that needs to be asked is, "How many cities do India's leaders wish to be able to destroy?"

There are many who believe that no country should have nuclear weapons, since such weapons engender fear through the threat of genocide. In the 60 years since Hiroshima, we all should have learned that there is no security to be found in the threat to kill millions.

CONCLUSION

The nuclear agreement between the United States and India has many problems and raises two fundamental questions. The first is whether India needs nuclear energy for its development and the well-being of its people. A good case can be made that it does not.

The second question is whether India needs nuclear weapons if it truly wants to live in peace with its neighbors and with the world. Many believe, with good reason, that it does not.

The outcome of the proposed nuclear agreement, therefore, is a future in which a nuclear-powered and nuclear-armed India swaggers along in Washington's shadow. Such a choice could not be more stark.

PREPARED STATEMENT OF

MICHAEL KREPON

COFOUNDER AND PRESIDENT EMERITUS, HENRY L. STIMSON CENTER, WASHINGTON, DC

BEFORE THE

SENATE FOREIGN RELATIONS COMMITTEE

NOVEMBER 2, 2005

The debate now unfolding on the Bush administration's nuclear cooperation initiative is not about isolating and penalizing India. India is already the beneficiary of significant changes in U.S. Government policy. The real issue at hand is how to greatly improve bilateral ties without greatly weakening rules against proliferation.

Many ardent admirers of India and staunch defenders of the Non-Proliferation Treaty are conscientiously struggling with this dilemma. The NPT faces a number of problems more severe than India's nuclear program. But these problems can be compounded by how we handle India. The rules we change on India's behalf can also weaken the rules we want other nations to abide by.

We can't sidestep this dilemma by distinguishing, as advocates within the administration do, between friendly states and problem states. Such distinctions are rarely permanent or clear cut. We all know that friendly states can also be problem states, that yesterday's friend can become tomorrow's adversary, and vice versa.

Another significant problem with making U.S. nonproliferation policy dependent on country-specific distinctions between good and bad states is that this approach will seriously damage domestic laws and international treaties that set norms against proliferation. Domestic traffic laws don't allow some people to speed, but not others. Nor do international treaties distinguish between friends and foes, since one nation's friend can be another's foe. Instead, the rule of law applies to all. It allows us to distinguish between those who abide by the law and those who break it. Laws still get broken, but that doesn't diminish the importance of rules. Having rules, laws, and international norms provides the basis for prosecution, coalition building, and enforcement.

I will describe below four fundamental principles that I hope will serve as guideposts for your deliberations:

- Strengthen nonproliferation norms more than you widen loopholes. Country-specific exemptions are bad for norms;
- The net effect of any changes in public law should make proliferation harder, not easier;

- Follow the guideline of proportionally: Link conditions to changes in public law. The greater the exemption sought, the greater the need for compensatory steps against proliferation; and
- No exemption should assist the recipient to enhance or enlarge its nuclear arsenal.

My first principle is that country-specific exemptions are corrosive to nonproliferation norms. If the United States were to champion a country-specific exemption, there is a strong likelihood that other nuclear suppliers would seek other exemptions, and that the United States would lose leverage to prevent such transactions.

Thus, if after thoughtful deliberation, you conclude that some relaxation of our laws is advisable, I strongly urge you not to do this on a country-specific basis. Instead, I urge you to establish conditions under which the relaxation of public law would apply to any state seeking an exemption that meets congressional conditions. In this way, exemptions would be granted on the basis of performance, not on the basis of a particular country.

A second general principle that I would propose for your consideration is that the net effect of changing public law should be to make proliferation harder, not easier. Put another way, the strengthening effects of the conditions established by the Congress should outweigh the weakening effects of the exemptions granted.

Not all proposed relaxations of public law are equal. Since some kinds of U.S. nuclear assistance would have minimal negative impact on global nonproliferation norms, the conditions set by the Congress to allow for such transactions might also be modest. Conversely, other types of U.S. nuclear assistance could potentially have larger adverse impacts on nonproliferation norms and treaties. In such instances, the Congress might set very stringent conditions—or prohibit such transactions altogether.

To address the fact that there are widely disparate gradations of nuclear commerce, I would propose that the Congress consider a third principle when considering changes to public law—the principle of proportionality. If the Congress deems it advisable to establish conditions associated with U.S. nuclear assistance, different types of assistance might be conditioned on different strengthening measures against proliferation. Minor adjustments in existing law would therefore be possible when modest conditions are met; major adjustments would be possible when significant conditions are met.

The first two principles would mesh with the third: When applying the principle of proportionality, a relaxation of public law should be accompanied by conditions that, in all cases, result in a net strengthening of the global norm of nonproliferation. Moreover, these conditions should not be country specific. Instead, these considerations should apply to every applicant meeting congressional standards.

The fourth fundamental principle that I would urge for your consideration is that the relaxation of U.S. nuclear assistance must not assist the recipient to enhance or enlarge its arsenal of nuclear weapons. If U.S. nuclear commerce were to result in more and more capable nuclear weapons on the part of any recipient, global nonproliferation norms would be dealt a severe blow. The reassertion by Congress of this fundamental objective and purpose of pub-

lic law is essential because the July 18 Joint Statement by President Bush and Prime Minister Manmohan Singh could lead to this negative result, depending on how it is implemented.

How might these four general principles be applied in the proposed U.S.-India agreement? Let's take a look at both ends of the spectrum reflected in this initiative, and at two cases in between.

The most troubling kinds of nuclear commerce—aside from the outright sale of bombmaking material and bombs—have to do with enrichment and reprocessing. This kind of nuclear commerce offers nations very costly ways to produce electricity, but essential means to produce nuclear weapons, regardless of cost. Given the negative proliferation consequences of commercial trafficking in enrichment and reprocessing technologies, President Bush spelled out his administration's opposition to this practice in a speech delivered at the National Defense University on February 11, 2004:

> The world must create a safe, orderly system to field civilian nuclear plants without adding to the danger of weapons proliferation. The world's leading nuclear exporters should ensure that states have reliable access at reasonable cost to fuel for civilian reactors, so long as those states renounce enrichment and reprocessing. Enrichment and reprocessing are not necessary for nations seeking to harness nuclear energy for peaceful purposes.

In the July 18, 2005, Joint Statement, President Bush endorsed a very different formulation. He promised to "work to achieve full civil nuclear energy cooperation with India" and to "seek agreement from Congress [and to] work with friends and allies to adjust international regimes to enable full civil nuclear energy cooperation and trade with India."

President Bush's February 2004 statement is consistent with a principled position to strengthen nonproliferation norms, much like the one I am asking you to consider. His July 2005 promise appears to carve out an exception to this principled position. A rules- and norms-based system would seek to set the highest barriers against transfers that could do the most proliferation damage—without exception.

On the other end of the spectrum, the July 18 Joint Statement discusses bringing India into international research efforts related to advanced development concepts for civil nuclear power generation. While the particulars of such engagement matter—since some research and development initiatives could have more utility for nuclear weapon programs than others—in general this type of engagement would be consistent with the general principles advocated here.

Two cases in between these poles are not so easy. One is providing fuel for safeguarded facilities at Tarapur. The other is selling new nuclear power plants to India. Providing commercial assistance to Tarapur, which the Government of India seeks in the near term, would be of far narrower scope than signing contracts for new nuclear power plants, but both steps would be contrary to the "full-scope safeguards" standard that the United States has long insisted that other nuclear suppliers live up to.

In these intermediate cases, the fundamental principles enumerated above ought to apply: Norms should be strengthened, rather than exceptions; the net effect of any changes in public law linked to conditions should strengthen, not weaken, these norms; the principle of proportionality should apply; and no assistance should be given with respect to the military nuclear capabilities of the recipient state. The last of these fundamental principles would mandate that any relaxation of nuclear commerce for particular facilities be linked to the requirement that such facilities be safeguarded in perpetuity. But this still begs the question of what to do about the full scope safeguards requirement that U.S. administrations have finally succeeded in establishing as an international norm.

A key formulation embedded in the July 2004 Joint Statement suggests one way to proceed. Prime Minister Manmohan Singh has stated that his government is "ready to assume the same responsibilities and practices and acquire the same benefits and advantages as other leading countries with advanced nuclear technologies." This passage suggests that India would be treated in the same way—and would behave in the same way—as the nuclear weapon states recognized under the Non-Proliferation Treaty.

The "equal benefits for equal responsibilities" formulation has some merit. But what would it mean in actual practice? In actual practice, the five nuclear weapon states recognized under the NPT have stopped producing fissile material for nuclear weapons. India has not. In actual practice, the five nuclear weapon states recognized under the NPT have signed the Comprehensive Test Ban Treaty. Three of the five have ratified the treaty. The Senate of the United States has not consented to ratification. But under international law, all five are equally obligated not to undermine the objectives and purposes of this treaty, pending its entry into force. India has not signed the CTBT. Government officials have affirmed, using the present tense, the absence of current plans to test. These statements do not carry equal weight, nor do they impose equal responsibility, to the obligations accepted by the 176 states that have signed the CTBT.

If India were serious about the "equal benefits for equal responsibilities" formulation, then New Delhi would be well advised to favorably consider a moratorium on the production of fissile material for nuclear weapons, and to sign the CTBT. Such steps would clarify that India seeks commercial nuclear transfers to fuel its economic growth and not to increase or enhance its nuclear arsenal. These steps would also clarify that the net effect of the changes Congress is being asked to consider would strengthen, not weaken, global nonproliferation norms. Under the principle of proportionality proposed above, such steps by the Government of India would open up a much wider range of cooperative nuclear endeavors.

While I endorse this structure for handling the dilemmas posed by the Bush administration's nuclear cooperation initiative with India, I most emphatically do not recommend that the Congress direct the Government of India to take such steps. Any such directive would be counterproductive and deeply offensive to most Indian citizens. India is a proud, sovereign state facing vexing security problems. It will not take dictation from a nation with many thou-

sands of nuclear weapons and large stocks of fissile material that has tested nuclear weapons over 1,000 times.

Decisions regarding a moratorium on fissile material production and nuclear testing are India's to make. India will make these decisions in light of its perceived security requirements, and not as a result of foreign pressure. We must respect New Delhi's decisions, which could facilitate or impede nuclear cooperation. Either way, these are New Delhi's decisions to make. My preferred approach respects New Delhi's powers of decision, while reinforcing a principled stance by the United States against proliferation.

By laying out a set of fundamental principles associated with changes in public law, and by establishing conditions for different levels of relaxation, the Congress could provide consistency and clarity that are lacking in the July 2005 Joint Statement, while strengthening global norms against proliferation. Improved bilateral ties with India will continue to proceed on many fronts, including trade, investment, non-nuclear energy, agriculture, defense cooperation, and public health issues. There is no compelling reason why improved relations should come at a great cost to the nonproliferation norms that have buttressed national and international security. Working out the particulars associated with a statement of principles and conditions will not be easy. But, in my judgment, this approach could substantially strengthen bilateral relations and nonproliferation norms, rather than pitting one against the other.

ADDITIONAL PREPARED STATEMENT AND MATERIAL SUBMITTED FOR THE RECORD

OCTOBER 28, 2005.

Hon. RICHARD G. LUGAR,
Chairman, Senate Foreign Relations Committee,
Washington, DC.

DEAR SENATOR LUGAR: I'm sorry that, because of a long-standing commitment to be in Moscow next week, I will not be able to attend the Nonproliferation PAG meeting or appear as a witness at the SFRC's hearing. I would nonetheless like to convey to you and members of the PAG my thoughts on the issues you will be discussing.

Please find below answers to the questions posed to us by Tom Moore. I am also attaching a one-page summary of my recommendations for modifying U.S. law and the Nuclear Suppliers Group guidelines as well as my prepared statement for a hearing held by the House International Relations Committee this past Wednesday, October 26. I would appreciate it if these papers could be circulated to PAG members.

1. Why does civil nuclear cooperation weigh so heavily in U.S.-Indian relations?

A key reason is the huge expansion of Indian energy needs in coming decades. Although the role that nuclear power can realistically play in meeting those needs is exaggerated by India's influential nuclear lobby, it is clear that nuclear will be an increasing share of India's future energy mix. Moreover, given India's limited domestic supplies of natural uranium, its ability to import yellowcake—which it cannot do under current Nuclear Suppliers Group restrictions—has become a critical requirement if India's nuclear energy program is to expand.

But there is also a political reason why the nuclear issue weighs so heavily. Civilian nuclear cooperation with the United States and other NSG members has been the forbidden fruit that Indian political elites crave. More than anything else, U.S. willingness to set aside NPT-related rules to engage in nuclear cooperation with India has been sought by Indians as both a validation of their status as a nuclear weapon state and as a litmus test of the U.S. desire to transform the bilateral relationship.

2. How does the Joint Statement address U.S. nonproliferation concerns?

The United States has long urged India to align its policies and practices more closely with the international nonproliferation regime and, in general, to make its own contribution toward

strengthening that regime. The Joint Statement brings India a few steps closer to the nonproliferation mainstream, but the benefits are limited.

Most of India's pledges in the Joint Statement are either reaffirmations of existing positions (to continue its unilateral moratorium on nuclear testing, strengthen its export control system, and work toward a fissile material cutoff treaty), codifications of current Indian practices (no transfers of enrichment or reprocessing technology to states without fuel-cycle facilities), or announcements of steps India had already agreed to take in the context of an earlier bilateral dialog on technology transfer and export control (adherence to the NSG and MTCR guidelines).

The genuinely new Indian commitment is the pledge to separate civilian and military nuclear facilities and to place civilian facilities under IAEA safeguards and the Additional Protocol. This has the symbolic value of helping reduce the perceived discrimination between countries that are obliged to accept safeguards on all their facilities and those that are not. But at this stage we don't know how complete will be the list of facilities India designates as civilian. And regardless of how inclusive or selective the list turns out to be, the pledge will not affect India's ability to continue producing fissile material for nuclear weapons at facilities not designated as eligible for safeguards. Without a halt to such production, the U.S.-India deal could facilitate an increase in India's stock of bomb-usable nuclear material (see my HIRC testimony).

In a serious omission, the July 18 agreement doesn't call on India to play a more active role in helping address today's most acute proliferation challenges, especially Iran. India's "yes" vote on the recent IAEA Board resolution that found Iran in noncompliance with its nonproliferation obligations was a welcome step. But since then, the Indians have tried to mollify the Iranians, saying that they actually oppose the finding of noncompliance and that they had voted for the resolution only because that was necessary to get the Europeans to back down from pursuing referral to the U.N. Security Council. The key test will be whether India makes a sustained and determined effort in the months ahead to persuade Iran to forgo its own enrichment capability and whether, if it becomes necessary, India votes yes to refer the question to the Security Council.

3. What are the risks of the deal and how can they be minimized?

Following are among the risks if the deal goes forward as it currently stands:

- By seeking an exception to the rules for India, the deal will make others less inhibited about engaging in risky nuclear cooperation with friends of their own—Iran in the case of Russia, Pakistan in the case of China.
- Bush administration initiatives in the NSG to tighten export controls will be harder to achieve if at the same time we're asking the Group to relax the rules for India.
- By sending the signal that the United States will eventually accommodate a decision to acquire nuclear weapons, the deal will reduce the perceived costs to states that might in the future consider going nuclear.

- It will make it more difficult to address proliferation challenges such as Iran. The Iranians have won some support internationally by asking publicly why they, as an NPT party, should give up their right to an enrichment capability while India, which rejected the NPT and acquired nuclear weapons, is being offered nuclear cooperation.
- In general, the deal conveys the message that the United States now gives nonproliferation a back seat to other foreign policy goals—which will give others a green light to assign a higher priority to commercial and political interests relative to nonproliferation.

Among the ways of minimizing these risks are the following recommendations:

- Require that India stop producing fissile materials for nuclear weapons, perhaps as part of a multilateral moratorium. This would bring India in line with the practices of the five original nuclear powers, all of whom have already stopped. A multilateral moratorium would help fight nuclear terrorism by capping stocks of bomb-grade material worldwide and thereby making those stocks easier to secure.
- Urge India to use its standing with Iran and the NAM to press Iran to give up its enrichment and other fuel-cycle capabilities.
- Preserve a semblance of the long-standing "NPT preference policy" by maintaining a distinction between India and NPT parties in terms of the nuclear exports they would be eligible to receive. Accordingly, U.S. law and NSG guidelines should be modified to permit nuclear exports to India *except* equipment, materials, or technology related to enrichment, reprocessing, and heavy water production. This would permit India to acquire uranium, enriched fuel, and nuclear reactors, but not items most closely related to a nuclear weapons program. Moreover, in keeping with U.S. NPT obligations and existing U.S. law, we should allow nuclear exports to India only to facilities that are under IAEA safeguards *in perpetuity*—not to facilities under voluntary safeguards arrangements that allow countries to withdraw materials or facilities from safeguards for national security reasons.
- Pursue changes to U.S. law and NSG guidelines in a *country-neutral* manner—not as a special exception to the rules for India alone. An India-specific approach heightens concerns that the United States is acting selectively and self-servingly on the basis of its own foreign policy interests rather than on the basis of nonproliferation performance. Modified U.S. law and NSG guidelines should therefore permit nuclear cooperation with *any* state not party to the NPT that meets certain criteria of responsible nuclear behavior. Such criteria can avoid the pitfalls of making a country-specific exception without opening the door to nuclear cooperation in cases where it is clearly not yet merited. (Suggested criteria are contained in the attached one-page paper.)

I hope these responses to Tom Moore's questions and the attached papers can be of some assistance to you next week in your meetings on the U.S.-India nuclear deal.

Yours truly,

ROBERT EINHORN.

RECOMMENDED MODIFICATIONS OF U.S. LAW AND NSG GUIDELINES

Nuclear cooperation—except in the areas of enrichment, reprocessing, or heavy water production or with facilities not under IAEA safeguards in perpetuity—would be permitted with any state not party to the NPT as of January 2002* that has demonstrated a strong commitment to nuclear nonproliferation and has a sustained, consistent record as a responsible nuclear power. Such a state will be considered a responsible nuclear power if it:

- Has provided public assurances that it will not test nuclear weapons;
- Is not producing fissile materials for nuclear weapons;
- Has placed under IAEA safeguards its civil nuclear facilities, including all nuclear power reactors and R&D facilities related to electricity generation;
- Is playing an active and constructive role in helping address acute nuclear proliferation challenges posed by states of proliferation concern;
- Has established, and is rigorously implementing, a national export control system that meets the highest international standards, including stringent rules and procedures banning unauthorized contacts and cooperation by personnel with nuclear expertise;
- Has provided public assurances that it will not export enrichment or reprocessing equipment or technologies;
- Is working actively on its own and in cooperation with other countries in stopping illicit nuclear transactions and eliminating illicit nuclear commercial networks, including by fully sharing the results of any investigations of illicit nuclear activities; and
- Is applying physical protection, control, and accountancy measures meeting the highest international standards to any nuclear weapons and to all sensitive nuclear materials and installations, both military and civilian, on its territory.

Under modified U.S. law, in order to make a nonparty to the NPT eligible to receive U.S. nuclear exports, the President would be required to certify that the prospective recipient had met these criteria. The criteria could also be adopted by the NSG as criteria for deciding, by consensus, whether a particular nonparty to the NPT should be eligible for nuclear transfers from NSG member states.

*To avoid creating an incentive for countries to withdraw from the NPT, the modified rules should apply only to countries that were outside the NPT as of a specified date, which would be chosen to exclude North Korea and include only India, Pakistan, and Israel.

PREPARED STATEMENT OF

HON. ROBERT J. EINHORN

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BEFORE THE

HOUSE INTERNATIONAL RELATIONS COMMITTEE

OCTOBER 26, 2005

Mr. Chairman, thank you for the opportunity to testify before the committee on the nonproliferation implications of the recent agreement between the United States and India on civil nuclear cooperation.

The United States has an important national interest in strengthening relations with India and making it a strategic partner in the 21st century. But efforts to strengthen the United States-Indian relationship should not be pursued in a way that undermines a United States national interest of equal and arguably greater importance—preventing the proliferation of nuclear weapons. That is precisely what the Bush administration has done in the nuclear deal reached this past summer during Prime Minister Manmohan Singh's visit to Washington.

In the Joint Statement released on July 18, India agreed to take several steps to demonstrate its commitment to being a responsible nuclear power and a supporter of nonproliferation goals. In exchange, the United States administration agreed to seek changes in United States law and multilateral commitments to permit exports of nuclear equipment and technology to India—a radical departure from longstanding legal obligations and policies that precluded nuclear cooperation with states not party to the Nonproliferation Treaty (NPT).

Administration officials have claimed that the deal, by aligning India more closely with the policies and practices of the international nonproliferation regime, is a net gain for nonproliferation. In his testimony before this committee on September 8, Under Secretary of State Robert Joseph maintained that "India's implementation of its agreed commitments will, on balance, enhance our global nonproliferation efforts, and we believe the international nuclear nonproliferation regime will emerge stronger as a result." Upon close scrutiny, however, it appears that the nonproliferation benefits of the July 18 Joint Statement are rather limited.

NONPROLIFERATION GAINS ARE MODEST

Several of the steps pledged by India are simply reaffirmations of existing positions, including India's commitments to continue its unilateral moratorium on nuclear weapons testing, strengthen its national system of export controls, and work toward the conclusion of a multilateral fissile material cutoff treaty. In view of unsuccessful efforts for over a decade to get negotiations underway on a fissile material cut-off treaty and no near-term prospect of removing obstacles to beginning negotiations, this last pledge is unlikely in the foreseeable future to have any effect on India's ongoing program to produce more fissile materials for nuclear weapons.

Other Indian commitments in the Joint Statement break new ground, but their actual nonproliferation gain is modest. For example, the pledge to refrain from transferring enrichment and reprocessing technologies to countries that do not already possess them is welcome. But since India—to its credit—has never transferred those technologies and has no plans to do so, it will have little practical consequence. Moreover, adherence to the guidelines of the Missile Technical Control Regime and the Nuclear Suppliers Group (NSG) is also positive; but it is a step New Delhi was already planning to take before the July 18 Joint Statement as part of a United States-Indian dialog on technology transfer and export control called "Next Steps in the Strategic Partnership."

The commitment that has drawn the most criticism within India is the pledge to separate civilian and military nuclear facilities and place civilian facilities voluntarily under IAEA safeguards and the Additional Protocol. Indian critics claim that, because of the colocation of civilian and military activities at a number of Indian nuclear facilities, implementation of the commitment could be expensive and time consuming and could impose unwarranted constraints on military programs. In response to these concerns, Indian officials have stressed that India alone will decide which facilities are subject to safeguards and have suggested that only a relatively small number will be put on the civilian list. While recognizing that the designation of civilian facilities (i.e., those eligible for safeguards) is an Indian prerogative, United States officials have made clear that, to be credible, any list should be complete.

However, regardless of how inclusive or selective the list turns out to be, the nonproliferation value of India's commitment to place certain nuclear facilities under IAEA safeguards will be rather limited. The purpose of IAEA safeguards for non-nuclear weapon states party to the NPT is to verify that no nuclear materials are diverted to a nuclear weapons progam. But as long as India continues to produce fissile materials for nuclear weapons (at facilities not included on the safeguards list), its willingness to apply safeguards to facilities designated as civilian serves primarily a symbolic function—to reduce the perceived discrimination between countries that are obliged to accept safeguards on all their facilities and those that are not.

Beyond this symbolic value, willingness to put civilian facilities under safeguards also serves a more practical function. If members of the Nuclear Suppliers Group change their rules and permit nuclear cooperation with India, they will presumably confine such co-

operation to safeguarded facilities in India. (NPT Article III(2) obliges them to engage in nuclear cooperation only with safeguarded facilities in nonweapon states. Since the Bush administration is not seeking to give India nuclear weapon state status under the NPT, III(2) will continue to apply to India.) The list of safeguarded Indian facilities will therefore serve to define the scope of permissible nuclear cooperation. For India, the trade-off will be between broadening the list (to expand opportunities for cooperation) and narrowing the list (to shield facilities from international scrutiny). However it chooses, the fundamental shortcoming of India's July 18 safeguards commitment remains—it has no effect on India's ability to continue producing fissile material for nuclear weapons at facilities not designated as eligible for safeguards.

DOWNSIDES OF THE DEAL

Administration officials are right that the various pledges contained in the Joint Statement move India closer, both in rhetorical and practical terms, to the international nonproliferation mainstream it has shunned for over 30 years. Still, the nonproliferation gains of the United States-India nuclear deal are meager compared to the major damage to nonproliferation goals that would result if the deal goes forward as it currently stands.

The United States-India deal would make it harder to achieve key Bush administration nonproliferation initiatives. The United States is now asking the 45-nation Nuclear Suppliers Group to permit nuclear cooperation only with countries that adhere to the IAEA's Additional Protocol and to ban transfers of enrichment and reprocessing technologies to states that do not already possess fuel-cycle facilities. But getting NSG partners to tighten the rules in ways favored by the United States will be an uphill battle if they are also being asked to bend one of their cardinal rules (i.e., no nuclear trade with nonparties to the NPT) because it no longer suits the United States.

By seeking an exception to the rules to accommodate America's new special friendship with India, the deal would reinforce the impression internationally that the U.S. approach to nonproliferation has become selective and self serving, not consistent and principled. Rules the United States initiated and championed would be perceived as less binding, more optional. Russia and China would feel less inhibited about engaging in nuclear cooperation that the United States might find risky and objectionable with special friends of their own—Iran and Pakistan, respectively.

The nuclear deal in its present form has produced resentment on the part of close United States friends like Japan, Germany, and Brazil who were forced to choose between nuclear weapons and civil nuclear cooperation. They chose the latter, giving up the weapons option and joining the NPT to realize the benefits of nuclear cooperation. Now that India has been offered the opportunity to have its cake and eat it too, many non-nuclear NPT parties feel let down. Not wishing to harm relations with either India or the United States, they are unlikely to make a public fuss over the sudden reversal of U.S. policy (on which they were not consulted). But they will be less inclined in the future to make additional sacrifices in the name of nonproliferation.

The United States-India deal could also reduce the perceived costs to states that might consider "going nuclear" in the future. In calculating whether to pursue nuclear weapons, a major factor for most countries will be how the United States is likely to react. Implementation of the deal would inevitably send the signal, especially to countries with good relations with Washington, that the United States will tolerate and eventually accommodate to a decision to acquire nuclear weapons.

In the near term, United States plans to engage in nuclear cooperation with India will make it more difficult to address proliferation challenges such as Iran. Of course, Iran's interest in nuclear weapons long predated the India deal. But the deal has strengthened the case Iran can make—and is already making—internationally. Why, Iranian officials ask publicly, should Iran give up its right as an NPT party to an enrichment capability when India, a nonparty to the NPT, can keep even its nuclear weapons and still benefit from nuclear cooperation? It is an argument that resonates well with many countries and weakens the pressures that can be brought to bear on Tehran.

In general, the Bush administration's policy shift conveys the message that the United States—the country the world has always looked to as the leader in the global fight against proliferation—is now de-emphasizing nonproliferation and giving it a back seat to other foreign policy goals. Other countries can be expected to follow suit in assigning nonproliferation a lower priority relative to political and commercial considerations in their international dealings, and this would have negative, long-term consequences for the global nonproliferation regime.

MAKING THE DEAL A NONPROLIFERATION GAIN

The damage can be minimized—and the deal transformed from a net nonproliferation loss to a net nonproliferation gain—if several improvements are made in the course of implementing the July 18 Joint Statement, either by the Governments of India and the United States themselves, by the U.S. Congress in adopting new legislation, by the Nuclear Suppliers Group in modifying its guidelines, or by a combination of these.

The most important improvement would be an Indian decision to stop producing fissile materials for nuclear weapons. India need not stop such production unilaterally, but as part of a multilateral moratorium pending completion of an international fissile material cutoff treaty. A multilateral production halt would make a major contribution to fighting nuclear proliferation and nuclear terrorism by capping stocks of bomb-making materials worldwide and thereby making those stocks easier to secure against theft or seizure—in India, Pakistan, or elsewhere.

Without a moratorium on fissile material production, the United States-India deal could actually facilitate the growth of India's nuclear weapons capability. India's indigenous uranium supplies are quite limited. Under current nonproliferation rules—with India unable to buy natural uranium on the world market—India must use those limited supplies for both civil power generation and nuclear weapons, and the trade-off will become increasingly painful. Under new rules, India could satisfy the needs of the civil program

through imports, freeing up domestic uranium supplies for the weapons program and permitting, if the Indian Government so decided, a continuing and even major increase in bomb-making material. A production moratorium would preclude such an increase.

Indian Foreign Secretary Shyam Saran said in July that India "is willing to assume the same responsibilities and practices—no more and no less—as other nuclear states." It so happens that the five original nuclear weapon states (United States, Russia, France, United Kingdom, China) have all stopped producing fissile materials for nuclear weapons. Applying the "no more, no less" standard, it would be reasonable to ask India to join the others. India claims that it does not have a strategic requirement for parity with the other nuclear powers (including China) and that it seeks only a "credible minimum deterrent capability." If that is the case, then perhaps it can soon decide that it has sufficient plutonium for its deterrence needs and can afford to forgo further production.

Another way to strengthen the July 18 agreement would be for India to assume a more active and constructive role in helping the United States address today's most acute proliferation challenges, especially the challenge posed by Iran. Given its desire to make Iran a long-term source of energy supplies, India has been reluctant to press Iran on its nuclear program. During a September visit to Tehran, Indian Foreign Minister Natwar Singh made public remarks supportive of Iran's position on the nuclear issue and critical of the approach taken by the United States. The remarks produced a sharp backlash by Members of Congress across the political spectrum, including several strong supporters of India, who made clear that India's failure to side with the United States on the Iran nuclear issue would jeopardize congressional support for the legislative changes needed to implement the United States-India nuclear deal.

In response to these congressional warnings and tough messages conveyed in person by President Bush and Secretary Rice to their Indian counterparts, the Indians on September 24 joined the United States and Europeans in voting "yes" on an International Atomic Energy Agency Board resolution finding Iran in noncompliance with its nonproliferation obligations but deferring the matter of when and how the Iran question would be referred to the United Nations Security Council. This was a positive step but not yet an indication that India is prepared to use its influence in a sustained and determined way to get Iran to abandon its plans for an enrichment facility capable of producing both fuel for civil nuclear reactors and fissile material for nuclear bombs. Indeed, since the IAEA vote, the Indians have sought to mollify the Iranians, stating that they had acted in Iran's interest by persuading the Europeans to back down from seeking an immediate referral to the UNSC. The key test in the months ahead will be whether India makes a real effort to persuade Iran to forgo an enrichment capability and whether it eventually supports referral to the Council, which is required by the IAEA Statute after a Board finding of noncompliance.

The risks of the nuclear deal could also be reduced by preserving some distinction between NPT parties and nonparties in terms of the nuclear exports they would be permitted to receive. A longstanding element of the nonproliferation regime has been the "NPT

preference policy"—giving NPT parties benefits in the civil nuclear energy area not available to those outside the NPT. The Joint Statement undermines that policy by calling for "full" nuclear cooperation with India. A way of maintaining some preferential treatment for NPT parties would be to modify U.S. law and the NSG guidelines to permit nuclear-related exports to nonparties except equipment, materials, or technologies related to sensitive fuel-cycle facilities, including enrichment, reprocessing, and heavy water production. Such a distinction would permit India to acquire natural uranium, enriched fuel, nuclear reactors, and a wide range of other nuclear items, but would retain the ban on transfers of those items that are most closely related to a nuclear weapons program.

In addition to precluding any cooperation with India in the area of sensitive fuel-cycle capabilities (even under IAEA safeguards), the United States should permit cooperation in less sensitive nuclear areas only under safeguards. As noted earlier, India will remain a non-nuclear weapons state (NNWS) as defined by the NPT, and Article III(2) allows nuclear exports to NNWSs only under IAEA safeguards. Moreover, consistent with existing U.S. law, such exports should only be permitted to facilities that are under safeguards in perpetuity (under facility-specific, or INFCIRC/Rev.2, safeguards agreements with the IAEA)—not to facilities under voluntary safeguards arrangements that allow countries to withdraw materials or facilities from safeguards for national security reasons. The choice would be up to India. If it wished to benefit from nuclear cooperation at a particular facility, it would have to put in place a facility specific safeguards agreement at that facility.

Nonproliferation risks could also be reduced by implementing the nuclear deal in a country-neutral manner—not as a special exception to the rules for India alone. Although the administration has been slow to indicate how specifically it would seek to adjust United States law and NSG guidelines, it has suggested that one option would be to leave the general rules in place but waive their application in the special case of India because of its qualifications as "a responsible state with advanced nuclear technology." A problem with that option is that it would accentuate concerns that the United States is acting selectively on the basis of foreign policy considerations rather than on the basis of objective factors related to nonproliferation performance. Moreover, in the Nuclear Suppliers Group, where changing the guidelines requires a consensus, some countries—notably China—might well resist a country-specific approach and press for permitting nuclear cooperation with other nonparties to the NPT with whom they are friendly (e.g., Pakistan).

To avoid the pitfalls of making a country-specific exception without opening the door to nuclear cooperation in cases where it is clearly not yet merited, the administration should propose modifications of U.S. law and the NSG guidelines that would permit nuclear cooperation (except in sensitive parts of the fuel cycle or in unsafeguarded facilities) with any state not party to the NPT that meets certain criteria of responsible nuclear behavior. To avoid creating an incentive for countries to withdraw from the NPT, the modified rules should apply only to countries that were outside the NPT as of a specified date, which should be chosen to exclude

North Korea and include only India, Pakistan, and Israel. For such non-NPT states to be eligible to receive U.S. nuclear exports under a revised U.S. law, the President should be required to certify that the state:

- Has provided public assurances that it will not test nuclear weapons;
- Has provided public assurances that it will not produce fissile materials for nuclear weapons and is fulfilling that assurance;
- Has placed under IAEA safeguards its civil nuclear facilities, including all nuclear power reactors and R&D facilities related to electricity generation;
- Is playing an active and constructive role in helping address acute nuclear proliferation challenges posed by states of proliferation concern;
- Has established, and is rigorously implementing, a national export control system that meets the highest international standards, including stringent rules and procedures banning unauthorized contacts and cooperation by personnel with nuclear expertise;
- Has provided public assurances that it will not export enrichment or reprocessing equipment or technologies and is fulfilling that assurance;
- Is working actively on its own and in cooperation with other countries in stopping illicit nuclear transactions and eliminating illicit nuclear commercial networks, including by fully sharing the results of any investigations of illicit nuclear activities; and
- Is applying physical protection, control, and accountancy measures meeting the highest international standards to any nuclear weapons and to all sensitive nuclear materials and installations, both military and civilian, on its territory.

These criteria could be written into U.S. law. They could also be adopted by the NSG as criteria for deciding, by consensus, whether a particular nonparty to the NPT should be eligible for nuclear transfers from NSG member states. While such an approach would be country-neutral, it would enable both the U.S. Government and NSG members to distinguish among the nonparties to the NPT in terms of whether—and how soon—they would be eligible for nuclear cooperation.

Staunch supporters of the NPT can be expected to argue that these criteria do not go far enough—and that only NPT adherence should make a country eligible for nuclear cooperation. But it is unrealistic to expect India or the other nonparties ever to join the NPT, and continuing to insist on adherence as a condition for nuclear cooperation could forfeit the contribution to nonproliferation that steps short of NPT adherence could make.

Those who strongly favor the July 18 Joint Statement can be expected to argue that the criteria are too demanding and could result in India's walking away from the nuclear deal. But even the most demanding criterion—ending fissile material production—is a step India, in principle, supports and says it is willing to take when its minimum deterrence needs are satisfied. If India is prepared now to stop production, it could readily meet the remaining cri-

teria. If not, the door would be open for India to walk through at a time of its own choosing.

The approach suggested here would clearly be less attractive to the Indians than the less demanding one that Bush administration was prepared to settle for on July 18. But it would be a major change from the status quo that has prevailed for decades, in which the door to nuclear cooperation for India and the other nonparties has been locked as a matter of law and policy.

In its ardent desire to transform United States-Indian relations, the Bush administration has given too little weight to the damaging implications of its actions for the nonproliferation regime. The remedy should not be to reject the deal struck in July but to require that it be pursued in a way that enables the United States to advance its strategic goals with India as well as its nonproliferation interests—not serve one at the expense of the other.

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