

Playing the Nuclear Game: Pakistan and the Fissile Material Cutoff Treaty

Since May 2009, Pakistan, largely alone, has blocked the start of international talks on a fissile material cutoff treaty (FMCT) at the 65-member Conference on Disarmament (CD) in Geneva.¹ The treaty would ban the production of fissile materials for weapons purposes; fissile materials, namely plutonium and highly enriched uranium (HEU), are the key ingredients in nuclear weapons. Pakistan has prevented these negotiations despite having accepted last year a CD program of work that included an FMCT.

Pakistan's ambassador at the CD, Zamir Akram, has indicated that his government may not easily be moved, saying, "We are not in a position to accept the beginning of negotiations on a cut-off treaty in the foreseeable future."²

At the core of the concerns held by Pakistan's national security managers is

a long-running search for strategic parity with India. The most powerful of these managers are from the army, which also runs the nuclear weapons complex. They argue that Pakistan has fallen behind India in producing fissile materials and insist that this fissile material gap be addressed as part of any talks.

Yet, a larger set of issues is at play. These include Pakistan's concerns about the long-term consequences of the U.S.-Indian nuclear deal and the emerging strategic relationship between the two countries; the desire of military planners in Pakistan to move from larger, heavier nuclear weapons based on HEU to lighter, more compact plutonium-based weapons; the interest of nuclear production complex managers in Pakistan in realizing their investment over the past decade in a large expansion of fissile material production facilities and of the nuclear establishment more broadly in expanding its domestic economic and political clout; and, finally, a reluctance in Washington and other key capitals to press Pakistan on an FMCT because of the importance the United States attaches to Pakistan's support for the war against the Taliban and al Qaeda in Afghanistan and Pakistan's Federally Administered Tribal Areas.

The Evolution of Pakistan's Position

Pakistan has historically taken an ambivalent position toward a possible FMCT. It supported the December 1993 UN General Assembly resolution calling for negotiations on a "non-discriminatory multilateral and internationally and effectively verifiable treaty banning the

Zia Mian directs the Project on Peace and Security in South Asia at Princeton University's Program on Science and Global Security (PSGS). He is a member of the core staff of the International Panel on Fissile Materials (IPFM). **A.H. Nayyar** is a visiting researcher with PSGS and a member of the IPFM from Pakistan.

production of fissile material for nuclear weapons or other nuclear explosive devices.”³ Having agreed to talk, Pakistan delayed the start of a negotiating process at the CD by debating the scope of the proposed treaty, insisting that the mandate for negotiating the treaty include constraints on existing stockpiles of fissile materials. The compromise agreed in the March 1995 Shannon mandate for talks at the CD on an FMCT was to finesse the issue by noting that the mandate did not preclude any state from raising the problem of existing stockpiles as part of the negotiations.

Work on an FMCT, however, did not start. In May 1995, the nuclear Nonproliferation Treaty (NPT) was extended indefinitely and without conditions, raising concerns that the nuclear-weapon states might never uphold their obligation to eliminate their nuclear weapons. The following year, the CD pushed through the Comprehensive Test Ban Treaty, despite objections by India, sending the treaty to the General Assembly for approval and opening it for signature. India and Pakistan refused to sign.

In May 1998, India and Pakistan tested nuclear weapons. Within weeks, the UN Security Council responded to the tests by unanimously passing Resolution 1172, which called on India and Pakistan:

immediately to stop their nuclear weapon development programmes, to refrain from weaponization or

from the deployment of nuclear weapons, to cease development of ballistic missiles capable of delivering nuclear weapons and any further production of fissile material for nuclear weapons, to confirm their policies not to export equipment, materials or technology that could contribute to weapons of mass destruction or missiles capable of delivering them and to undertake appropriate commitments in that regard.⁴

India and Pakistan ignored the resolution, but under pressure from the United States, Pakistan acquiesced to the fissile material talks.⁵ Pakistan agreed to negotiate on the basis of the existing Shannon mandate, but made clear that it intended to “raise its concerns about and seek a solution to the problem of unequal stockpiles.”⁶ Munir Akram, Pakistan’s CD ambassador, spelled out his country’s concerns in detail, saying, “We believe that a wide disparity in fissile material stockpiles of India and Pakistan could erode the stability of nuclear deterrence.”⁷ In a later statement, he explained that Pakistan assumed “India will transform its large fissile material stocks into nuclear weapons” and thus Pakistan needed to “take into account both India’s nuclear weapons and fissile material stockpiles.” Pakistan “cannot therefore agree to freeze inequality,” he said.⁸ To make clear its position, Pakistan’s ambassador objected

even to the term FMCT, arguing that “my delegation does not agree to the Treaty being described as a Fissile Material ‘Cut-off’ Treaty, implying only a halt in future production. We cannot endorse the loose abbreviation—FMCT—in any formal description of the Treaty which is to be negotiated by the CD.”⁹ He proposed instead the label “fissile material treaty,” or FMT, and a number of other countries and independent analysts adopted this usage.

A CD committee was set up to begin talks on an FMCT in late 1998, but made little progress and could not be re-established in 1999. For the following decade, the CD struggled to agree on a program of work. The United States under the Bush administration shifted priorities to its wars in Afghanistan and Iraq and was ideologically opposed to multilateral arms control. At the CD, it insisted talks be confined to an FMCT, but without verification provisions, and rejected demands for discussions on other long-standing issues, such as nuclear disarmament, measures to prevent an arms race in outer space, and security assurances for non-nuclear-weapon states. Other states, unwilling to concede control of the CD agenda to the United States, tied talks on an FMCT to these other topics.

In the absence of CD negotiations, and taking advantage of the frustration among many non-nuclear-weapon states at Bush administration policies on nuclear weapons and nonproliferation and disarmament, Pakistan laid out an expansive vision for an FMCT. In 2006, Masood Khan, Pakistan’s ambassador to the CD, argued that “[a] cut-off in the manufacturing of fissile material must be accompanied by a mandatory programme for the elimination of asymmetries in the possession of fissile material stockpiles by various states. Such transfer of fissile material to safeguards should be made first by states with huge stockpiles, both in the global and regional context.”¹⁰ He explained what this meant: “A fissile material treaty must provide a schedule for a progressive transfer of existing stockpiles to civilian use and placing these stockpiles under safeguards so that the unsafeguarded stocks are equalized at the lowest level possible.”¹¹

In May 2009, for the first time in 10 years, with Pakistan’s assent the CD adopted a program of work organized around four working groups, one of which



The Conference on Disarmament meets in Geneva May 19, 2009. Pakistan has objected to a work plan that would allow the UN body to proceed with negotiations on a fissile material cutoff treaty.

was tasked with negotiating an FMCT on the basis of the Shannon mandate. The other groups were to manage discussions on nuclear disarmament, preventing an arms race in outer space, and security assurances. In addition, three special coordinators were to be appointed to elicit the views of states on other issues.

Nevertheless, agreement on a program of work was not sufficient to allow FMCT negotiations to begin. Pakistan demanded agreement on procedural issues, including that “[t]he allocation of time for the four Working Groups should be balanced so that the progress on each issue is ensured” and that “[t]he appointment of Chairs of the Working Groups should respect the principle of equal geographical representation.”¹² The ensuing dispute over how any talks would be managed, with China, Egypt, and Iran joining Pakistan in expressing concerns, prevented progress. The CD also failed to agree that the 2009 program of work would carry over into 2010.

Pakistan continued to obstruct the start of work at the CD in early 2010. In February, Zamir Akram explained that his country had agreed to the program of work in 2009 in the hope that some of Pakistan’s concerns would be addressed with the start of the Obama administration. Pakistan now believed that this would not be the case, he said.¹³ Citing a January decision by Pakistan’s National Command Authority (NCA), which is responsible for its nuclear weapons, he said that Pakistan’s position at the CD on an FMCT would be based on “its national security interests and the objectives of strategic stability in South Asia.”¹⁴

Pakistan rejected the CD plan of work proposed in early March. A number of countries associated with the CD Group of 21, including Egypt, Indonesia, Iran, North Korea, Sri Lanka, and Syria, have joined Pakistan in arguing for a more “balanced” program of work, highlighting in particular the need for talks on nuclear disarmament.¹⁵ China also did not endorse the CD plan of work. Some states may simply be remaining silent about their opposition to the treaty and taking advantage of Pakistan’s refusal to permit talks on an FMCT. Israeli Prime Minister Benjamin Netanyahu told President Bill Clinton in 1999, “We will never sign the treaty, and do not delude yourselves—no pressure will help. We will not sign the



Pakistan Atomic Energy Commission

Pakistan Atomic Energy Commission Chairman Munir Ahmad Khan briefs Prime Minister Muhammad Khan Junejo (far left) on the design of the Khushab reactor in the mid-1980s.

treaty because we will not commit suicide.”¹⁶ For its part, Pakistan is playing a waiting game, arguing that the time is not yet “ripe” for an FMCT.¹⁷

The Fissile Material Gap

Pakistan’s position clearly is determined by concern about parity with India. On October 26, 1998, Pakistani Foreign Minister Sartaj Aziz was quoted as saying, “Nuclear scientists have advised the government that there was no harm in signing the CTBT and FMCT at this stage as we had enough enriched nuclear material to maintain the power equilibrium in the region.”¹⁸ This would seem to suggest that a decade ago policymakers in Pakistan believed that its fissile material stockpiles were sufficient to meet perceived needs. Similarly, in 2006, Pakistani Ambassador to the United States Jahangir Karamat, a former army chief, seemed to indicate that Pakistan might consider a bilateral moratorium with

India, suggesting that “if bilaterally, the U.S. can facilitate a moratorium on fissile material production or on testing: we are very happy to be part of that.”¹⁹

It has been estimated that as of 2009, Pakistan had accumulated a stock of about two metric tons of HEU for its nuclear weapons (enough for about 80 weapons, assuming 25 kilograms per warhead).²⁰ Pakistan also has about 100 kilograms of weapons plutonium, enough for about 20 warheads (assuming five kilograms per warhead) from its reactor at Khushab.²¹ Altogether, Pakistan may have fissile material sufficient for perhaps 100 simple weapons. Advanced weapon designs, including those that use both uranium and plutonium in composite warheads, would allow it to produce significantly more weapons from its HEU. Pakistan also has about 1.2 metric tons of reactor-grade plutonium in the spent fuel from its two nuclear power reactors, but this material is under International

Atomic Energy Agency (IAEA) safeguards.

Pakistan is expanding its fissile material production capacity and increasing its reliance on plutonium weapons. Two additional production reactors are under construction at Khushab.²² Each of these new reactors could produce about 10 kilograms of plutonium a year, if they are the same size as the existing reactor at the site. Satellite imagery from late 2006 shows that Pakistan has also been working on one new reprocessing plant at its New Labs site near Islamabad and another at Chashma, presumably to reprocess the spent fuel from the new production reactors.²³ Pakistan is expanding its uranium processing operations to fuel these reactors.²⁴ It is estimated that, by 2020, Pakistan could have accumulated approximately 450 kilograms of plutonium from the Khushab reactors, enough for 90 weapons, and more than 2,500 kilograms of HEU, sufficient for perhaps 100 simple fission weapons.²⁵

India is producing plutonium for weapons in two dedicated production

reactors. It is estimated that India may have accumulated about 700 kilograms of plutonium by 2009, sufficient for about 140 weapons, and is producing more at the rate of about 30 kilograms per year.²⁶ India produces HEU, but this material is believed to be for its nuclear-powered submarine fleet and not for weapons. This would suggest that India and Pakistan today have roughly similar holdings of weapons material.

A large disparity in stocks of the kind emphasized by Pakistan emerges if India's unsafeguarded power-reactor plutonium is included in the accounting. India may have separated almost seven metric tons of power-reactor plutonium by 2009.²⁷ Assuming that perhaps 10 kilograms of such reactor-grade plutonium may be sufficient for a weapon, this would amount to perhaps 700 weapons. There are reports that at least one Indian nuclear weapon test in 1998 used plutonium that was less than weapons grade.²⁸

India claims its stockpile of reactor-grade plutonium is intended for fueling

fast breeder reactors, the first of which (the 500-megawatt Prototype Fast Breeder Reactor) is expected to be completed in 2011.²⁹ This fast breeder reactor will consume reactor-grade plutonium as fuel, but will produce weapons-grade plutonium in the blankets that surround the reactor core. If it operates with a reasonable capacity factor, the reactor would be able to produce 90-140 kilograms of weapons-grade plutonium per year, sufficient for almost 20-30 weapons per year.³⁰ It is estimated that India may have 1,000-1,500 kilograms of weapons plutonium by 2020.³¹ India would not be the first country to use a breeder reactor for military purposes; France used its Phénix breeder reactor to produce plutonium for weapons.³² The experience of many other breeder reactors around the world, however, suggests that operating a breeder reactor at such efficiency may not be easy because breeder reactors have proven susceptible to frequent breakdowns and need long repair times.³³

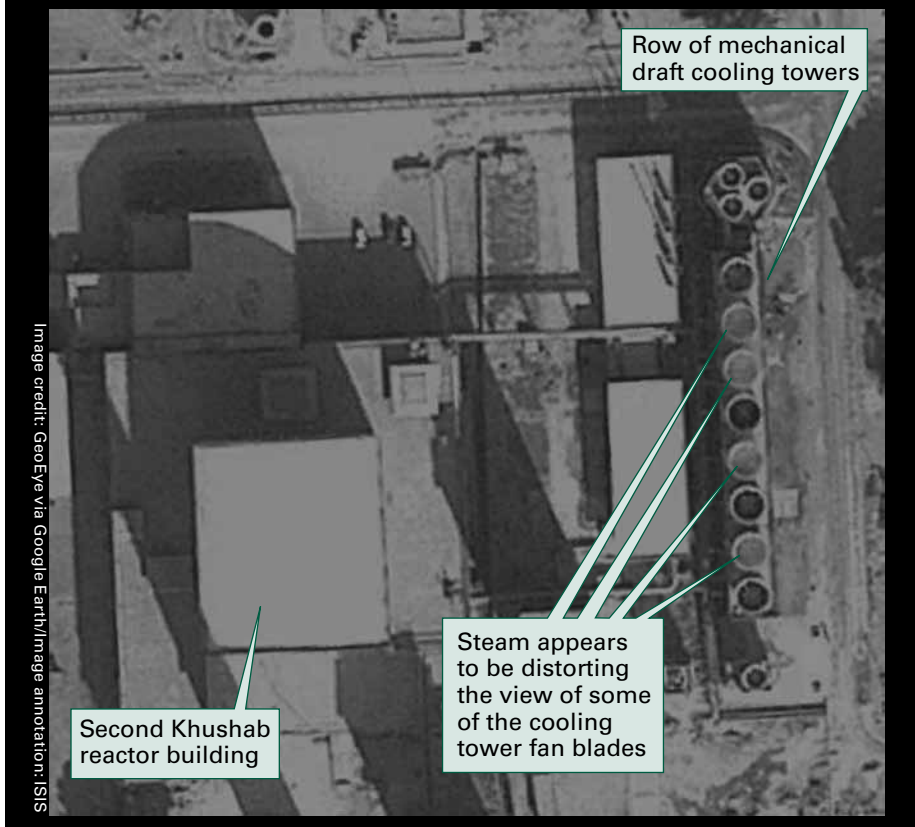
Pakistan has explicitly raised the issue of reactor-grade plutonium stocks, with its CD ambassador in February 2010 expressing a concern that an FMCT might not "include other bomb making materials such as reactor grade Plutonium, U233, Neptunium or Americium."³⁴

Pakistan is also concerned about the implications of the U.S.-Indian nuclear deal. Signed into law by President George W. Bush in October 2008, it lifts 30-year-old restrictions on the sale of nuclear material, equipment, and technology to India. The United States and India convinced the Nuclear Suppliers Group (NSG), which has more than 40 members, to exempt India from similar international controls. Responding to the U.S.-Indian deal, Pakistan's NCA declared in August 2007 that the agreement "would have implications on strategic stability as it would enable India to produce significant quantities of fissile material and nuclear weapons from unsafeguarded nuclear reactors."³⁵

As part of the deal, India is now free to import uranium for its civil program, easing constraints on uranium availability and enabling India to use more of its domestic uranium for its nuclear weapons program. It is estimated that this would enable India to produce up to 200 kilograms a year of weapons-grade plutonium in its unsafeguarded heavy-water

Figure 1: Pakistan's Khushab Nuclear Site

The newly completed second plutonium production reactor at Khushab appears to have started operating, with steam coming from several cooling towers in this December 2009 satellite image. The first Khushab reactor has been running since the late 1990s. A third reactor is under construction at the site.



power reactors, enough for 40 weapons per year, provided that it can overcome the associated practical problems of increased rates of spent fuel reprocessing and faster refueling.³⁶

India has committed that it will declare eight of its indigenously built power reactors as civilian and open them for IAEA safeguarding by 2014 in a phased manner. It is estimated that these eight reactors could produce four metric tons

on a triad of platforms, the third leg of which is coming into view. In 2009, India launched its first nuclear-powered submarine.³⁹ It plans a fleet of three to five, each armed with 12 ballistic missiles.⁴⁰ There have been suggestions by former Pakistani officials that the country develop its own nuclear submarine and, in the meantime, lease a nuclear submarine from a friendly power, i.e., China; deploy nuclear-armed cruise

abad's support for the U.S. war against al Qaeda and the Taliban, but President Barack Obama has announced that he intends to begin withdrawing U.S. troops from Afghanistan in 2011. U.S. military aid to Pakistan will not continue at current levels indefinitely, and aid likely will be increasingly for civilian purposes and more carefully audited. Even if China steps up its assistance, Pakistan's generals believe they cannot

Pakistan's generals believe they cannot keep up with India in a conventional arms race. They may want more nuclear weapons as a counter, while insisting on conventional weapons controls as a condition for progress on an FMCT.

of unsafeguarded plutonium by then.³⁷ India will keep eight power reactors outside safeguards, which together could produce about 1,250 kilograms of plutonium per year, not all of which India can currently separate.³⁸ All this plutonium is presumably intended for fueling breeder reactors, but could produce a large number of simple nuclear weapons. The deal allows India to continue to keep outside safeguards its stockpiles of accumulated power reactor spent fuel and separated power reactor plutonium. Furthermore, India can choose whether any future reactors it builds will be declared as military or civilian.

The Big Picture

The generals who command Pakistan's army, dominate national security, and control nuclear policy and the nuclear weapon complex through the Strategic Plans Division, even when there is an elected civilian government, see a troubling future. Their military mind-sets, vested interests, and old habits lead them to find many reasons to continue to seek strategic parity with India and to produce more fissile material to support a larger nuclear arsenal.

One argument Pakistan has raised for building up fissile material stocks is the prospect of a large Indian arsenal. Zamir Akram claimed in February 2010 that India was aiming for an arsenal of 400 weapons. This arsenal would rely

missiles on its diesel submarines; and continue fissile material production for the "foreseeable future."⁴¹

Another justification being offered for a larger fissile material stockpile is India's pursuit of ballistic missile defenses. (China has raised the same point with regard to U.S. strategic missile defenses.) In 2004 the military officer who serves as director of arms control and disarmament affairs at the Strategic Plans Division argued that India's missile defense program is likely to "trigger an arms race" and that Pakistan could build more missiles and more warheads, requiring more fissile material; develop decoys and multiple warhead missiles; and move to an alert deployment posture.⁴² In 2009, India carried out its third test of a missile interceptor.⁴³

More broadly, India's economy and military spending are now so large and growing so rapidly that Pakistan cannot expect to keep up. In January, India's Defense Ministry announced plans to spend more than \$10 billion this coming year on acquiring new weapons.⁴⁴ This was made possible by a 34 percent increase in India's military budget for 2009-2010, to more than \$35 billion; in Pakistan, it went up 15 percent, to just more than \$4 billion. Pakistan has been able to buy major new weapons systems because of the large amounts of U.S. military and economic aid that have flowed since the September 11 attacks in return for Islam-

keep up with India in a conventional arms race. They may want more nuclear weapons as a counter, while insisting on conventional weapons controls as a condition for progress on an FMCT.

To compound these concerns, Pakistan's generals see an emerging U.S.-Indian strategic relationship. The U.S.-Indian nuclear deal forms part of a broader January 2004 agreement between the United States and India on "Next Steps in Strategic Partnership," through which the United States committed to help India with its civilian space program, high-technology trade, missile defense, and civilian nuclear activities. The Obama administration seems as committed as its predecessor to pursuing this relationship with a view to maintaining U.S. primacy and containing China.

A High Price

Former senior officials in Pakistan have argued that, in exchange for talks on an FMCT, Pakistan should receive a nuclear deal like the one given to India, with a lifting of international restrictions by the NSG.⁴⁵ Pakistani Ambassador to the United States Husain Haqqani claimed in February that "[t]alks between Pakistan and the US for cooperation on atomic programmes are under way and we want the US to have an agreement with us like the one it had with India on civil nuclear technology."⁴⁶ After the U.S.-Indian deal was announced in 2005, U.S. officials



Department of Defense

Adm. Michael Mullen, chairman of the U.S. Joint Chiefs of Staff, addresses students at the Pakistani National Defense University in Islamabad December 15, 2009.

repeatedly said the Indian situation was unique and the United States would not extend the same terms to Israel or Pakistan, the other NPT holdouts.⁴⁷ However, some U.S. analysts have been urging such a nuclear deal as a way to buy greater cooperation from Pakistan in the war against the Taliban and as a way to assure Pakistan of an enduring U.S. commitment.⁴⁸ For their part, U.S. Department of State officials have been cautious in answering questions about the possibility of a nuclear deal with Pakistan. Asked directly in February 2010 if the Obama administration was considering a nuclear deal with Pakistan, State Department spokesman Philip Crowley replied “I’m – I don’t know.”⁴⁹ At a March 24 press conference with Pakistani Foreign Minister Shah Mehmood Qureshi after what was dubbed a U.S.-Pakistan Strategic Dialogue, Secretary of State Hillary Clinton was asked if the United States would discuss a nuclear deal with Pakistan. She indicated that the U.S. might consider it eventually, arguing “We have a broad agenda with many complicated issues like the one you referred to... this dialogue that we’re engaged in is helping us build the kind of partnership that can make progress over time on the most complicated of issues.”⁵⁰

A lifting of the current international restrictions on the sale of nuclear reactors and fuel to Pakistan would further strain the nonproliferation regime, already

seriously weakened by the U.S.-Indian nuclear deal. With Israel having sought a lifting of NSG restrictions to allow it to import nuclear reactors and fuel, there is a serious danger that the NPT will be rendered largely pointless. Pardoning all three states that chose to remain outside the NPT and develop nuclear weapons would make a mockery of the idea that the treaty offers a platform for moving to nuclear disarmament. Furthermore, by ending the distinction between NPT parties and nonparties with regard to their access to international nuclear trade and technology assistance, it could make countries question the value of being a party to the treaty.

A nuclear deal for Pakistan would carry other costs. It would allow the Pakistan Atomic Energy Commission (PAEC) to become a much more powerful economic, political, and technological force in Pakistan. PAEC today is responsible for everything from uranium mining to building and operating plutonium-production reactors and reprocessing plants for the nuclear weapons program. It also operates two small power reactors: a 125-megawatt plant bought from Canada in the 1960s and a 300-megawatt plant purchased from China in the 1990s. A second 300-megawatt Chinese reactor is under construction. Pakistan’s plans call for a very large increase in nuclear power capacity, to 2,800 megawatts, by 2020, reaching 8,800 megawatts by 2030.⁵¹ PAEC would

become a key gatekeeper for managing the import and operation of the many large and very costly power reactors required to meet these energy targets. A large nuclear energy sector would offer Pakistan a means to mobilize and direct additional financial resources, technologies, material, and manpower to the weapons program. Moreover, Pakistan’s current electricity shortage could be addressed much more quickly and more economically by adding natural gas-fueled power plants, which take much less time to construct and require much less capital than comparable nuclear power plants.

The managers of Pakistan’s nuclear weapons production complex, the military’s Strategic Plans Division, have little incentive to begin talks on an FMCT and even less interest in reaching early agreement or acceding to an eventual treaty. As noted earlier, the complex is in the midst of a very large expansion. In May 2009, *The Washington Post* reported that the first of the two new production reactors under construction at Khushab may be ready to come online in 2010.⁵² An official visit to the Khushab site by Prime Minister Yusuf Raza Gilani and senior military and nuclear weapons officials in late February may have marked the completion of work on the reactor.⁵³ The prime minister congratulated Khushab engineers for completing important projects and announced one month’s bonus pay. Work on the third Khushab reactor seems to have started in 2005-2006 and may be completed in a few years. If FMCT talks begin and seem to go well, there may be international pressure for a production moratorium, which would involve suspending production at existing sites and halting work on new facilities. The large investment made in the new reactors and reprocessing plants would be seen to have been wasted. The Khushab reactors, which do not produce electricity, and the associated reprocessing plants would have little if any value for Pakistan’s civilian nuclear energy program.

Finally, Pakistan sees itself able to block progress on an FMCT at the CD because it has seen little sign that the United States or other states care about an FMCT or even about nuclear weapons in South Asia beyond wanting to be reassured about the security of Pakistan’s weapons. Ambassadors at the CD urge Pakistan to allow talks to start, and foreign ministries may send *démarches* to Islamabad, but Pakistan sees

this as diplomacy as usual and not indicative of an international priority requiring Pakistan to undertake a serious policy review or adjust its position.

The view from Islamabad is that the stream of high-level officials arriving there comes to talk about the Taliban and al Qaeda, Afghanistan, and the tribal areas. The key U.S. interlocutors have been Adm. Michael Mullen, chairman of the Joint Chiefs of Staff, who has made 14 visits to Pakistan; Gen. David Petraeus, head of Central Command; and Richard Holbrooke, U.S. special representative for Afghanistan and Pakistan. It is notable that even during Clinton's recent visit to Pakistan, nuclear weapons issues did not feature on the public agenda except for the security of Pakistan's nuclear weapons and materials. Even Abdul Qadeer Khan seems to have been forgotten. For now, the United States sees the war against the Taliban as more important than the nuclear arms race in South Asia, just as the fight against the Soviets in Afghanistan was more important in the 1980s than stopping Pakistan's nuclear weapons program.

Conclusion

When it comes to an FMCT, Pakistan's security managers, predominantly the army, have been pursuing business as usual, which for the past five decades has meant trying to maintain strategic parity with India. Blocking talks on an FMCT enables them to continue to build up their fissile material stockpile and to highlight to the international community their concerns about a fissile material gap with India and the consequences of India's current military buildup, especially India's search for missile defenses, and the consequences of the U.S.-Indian nuclear deal. Holding up an FMCT also allows Pakistan's nuclear establishment to keep open the prospect of a nuclear deal of its own, which, if granted, would give it dramatically greater power and influence in the energy sector and civilian economy and the means to channel additional resources to the weapons program.

At the CD, Zamir Akram has claimed Pakistan has adopted a principled position on an FMCT based on vital national interests and declared that "we are ready to stand in splendid isolation if we have to."⁵⁴ So far, this has been possible because it has carried little consequence. The international community, led by

the United States, has chosen to focus its relationship with Pakistan on fighting the Taliban and al Qaeda. To get started on an FMCT, the United States and other major states, including non-nuclear-weapon states, will need to put it much higher on the agenda. A useful first step might be for Obama and leaders from other countries that want to see an FMCT to put in a call to Islamabad.

Although Pakistan is the most insistent in wanting stocks to be addressed in an FMCT, it is not alone. Along with the Group of 21, countries such as Brazil, Japan, and New Zealand have raised this issue so that an FMCT can serve both nonproliferation and disarmament. These states and others wishing to begin work on an FMCT should assure Pakistan that they will work together with Islamabad in insisting that the treaty cover fissile material stockpiles in an effective way. This assurance could be strengthened at the forthcoming 2010 NPT Review Conference by states deciding to reaffirm the commitment made at the 2000 NPT Review Conference to the need for "[a]rrangements by all nuclear-weapon States to place, as soon as practicable, fissile material designated by each of them as no longer required for military purposes under IAEA or other relevant international verification and arrangements for the disposition of such material for peaceful purposes, to ensure that such material remains permanently outside of military programmes."⁵⁵ One possible way for dealing with such stocks is offered by the draft FMCT developed by the International Panel on Fissile Materials.⁵⁶

It is important for talks on an FMCT to start soon and not be dragged out indefinitely. Among the states still producing fissile material for weapons, Pakistan in particular may seek to delay agreement as a way to add to its fissile material stockpiles. States interested in achieving an FMCT should commit at the CD and as part of the 2010 NPT Review Conference to implement the 2000 review conference decision to begin talks on an FMCT and complete them within five years. To create and sustain real momentum for such negotiations and reach quickly a treaty that Pakistan and other potential holdout states will join, however, the nuclear-weapon states will need to put nuclear disarmament on the agenda. The NPT review conference offers an opportunity to do this. **ACT**

ENDNOTES

This article is based on a chapter on Pakistan in *Banning the Production of Fissile Materials for Nuclear Weapons: Country Perspectives on the Challenges to a Fissile Material (Cutoff) Treaty*, published in October 2008 and available at www.fissilematerials.org/ipfm/site_down/gfmr08cv.pdf.

1. Jonathan Lynn, "Pakistan Blocks Agenda at U.N. Disarmament Conference," Reuters, January 19, 2010, www.reuters.com/article/idUSTRE60I26U20100119.
2. Stephanie Nebehay, "Pakistan Rules Out Fissile Talks for Now—Diplomats," Reuters, January 22, 2010, www.alertnet.org/thenews/newsdesk/LDE60K2D9.htm.
3. UN General Assembly, Resolution 48/75L, December 16, 1993, www.un.org/documents/resga.htm.
4. UN Security Council, Resolution 1172, June 6, 1998, www.un.org/Docs/sc/unscl_resolutions.html.
5. "Ambassador Munir Akram's Statement in the Conference on Disarmament on CTBT, FMCT Issues," July 30, 1998, www.fas.org/nuke/control/fmct/docs/980730-cd-pak.htm.
6. Ibid.
7. Ibid.
8. "'Fissile Material Treaty,' Statement From Munir Akram, Ambassador of Pakistan," August 11, 1998, www.acronym.org.uk/fissban/pak.htm.
9. Ibid.
10. Pakistan Permanent Mission to the United Nations, "Statement by Ambassador Masood Khan, Pakistan's Permanent Representative at the Conference on Disarmament: General Debate: 'Fissile Material Treaty,'" Geneva, May 16, 2006, www.reachingcriticalwill.org/political/cd/speeches06/statements%2016%20may/16MayPakistan.pdf.
11. Ibid.
12. "Statement by Ambassador Zamir Akram, Pakistan's Permanent Representative to the UN: Adoption of CD's Programme of Work," May 29, 2009, www.reachingcriticalwill.org/political/cd/speeches09/2session/29may_pakistan.html.
13. Pakistan Permanent Mission to the United Nations, "Statement by Ambassador Zamir Akram, Permanent Representative of Pakistan at the Conference on Disarmament (CD)," Geneva, February 18, 2010, www.reachingcriticalwill.org/political/cd/2010/statements/part1/18Feb_Pakistan.pdf (hereinafter Akram February 2010 statement).
14. Ibid.
15. Beatrice Fihn and Ray Acheson, "The CD Debates the Draft Programme of Work," March 22, 2010, www.reachingcriticalwill.org/political/cd/2010/reports.html. The Group of 21 at the CD includes Algeria, Bangladesh, Brazil, Cameroon, Chile, Colombia, Cuba, Democratic Republic of

Congo, Ecuador, Egypt, Ethiopia, India, Indonesia, Iran, Iraq, Kenya, Malaysia, Mexico, Mongolia, Morocco, Myanmar, Nigeria, North Korea, Pakistan, Peru, Senegal, South Africa, Sri Lanka, Syria, Tunisia, Venezuela, Vietnam, and Zimbabwe.

16. Avner Cohen and Marvin Miller, "Israel," in *Banning the Production of Fissile Materials for Nuclear Weapons: Country Perspectives on the Challenges to a Fissile Material (Cutoff) Treaty*, International Panel on Fissile Materials, September 2008, www.fissilematerials.org/ipfm/site_down/gfmr08cv.pdf.

17. Reaching Critical Will, "Conference on Disarmament: Unofficial Transcript," Geneva, March 11, 2010, www.reachingcriticalwill.org/political/cd/2010/statements/part1/11March_Pakistan.html (statement by Zamir Akram to the Conference on Disarmament).

18. "Pakistan Moves Closer to Sign Nuclear Treaty," *The Nation*, October 26, 1998.

19. "Pakistan Totally Committed to Non-proliferation, Restraint Regime," Associated Press of Pakistan, April 9, 2006.

20. International Panel on Fissile Materials (IPFM), "Global Fissile Material Report 2009: A Path to Nuclear Disarmament," October 2009, p.21, www.fissilematerials.org/ipfm/site_down/gfmr09.pdf.

21. IPFM, "Global Fissile Material Report 2009," p. 16.

22. Joby Warrick, "Pakistan Expanding Nuclear Program," *The Washington Post*, July 24, 2006; "U.S. Disputes Report on New Pakistan Reactor," *The New York Times*, August 3, 2006. Pictures of the third reactor were released in June 2007. David Albright and Paul Brannan, "Pakistan Appears to be Building a Third Plutonium Production Reactor at Khushab Nuclear Site," Institute for Science and International Security (ISIS), June 21, 2007.

23. David Albright and Paul Brannan, "Chashma Nuclear Site in Pakistan With Possible Reprocessing Plant," ISIS, January 18, 2007; David Albright and Paul Brannan, "Pakistan Expanding Plutonium Separation Facility Near Rawalpindi," ISIS, May 19, 2009.

24. David Albright, Paul Brannan, and Robert Kelley, "Pakistan Expanding Dera Ghazi Khan Nuclear Site: Time for U.S. to Call for Limits," ISIS, May 19, 2009.

25. Pakistan could potentially accumulate 2,500-6,000 kilograms of HEU by 2020. This range reflects the considerable uncertainty about the evolution of the number and separative work capacity of Pakistan's centrifuges, as well as the limits on Pakistan's supply of domestic uranium to feed its enrichment plants and reactors. See Zia Mian, A.H. Nayyar, and R. Rajaraman, "Exploring Uranium Resource Constraints on Fissile Material Production in Pakistan," *Science and Global Security*, Vol. 17, No. 2 (2009), pp. 77-108.

26. IPFM, "Global Fissile Material Report 2009," p. 16.

27. This assumes the power reactor spent fuel has

had time to cool for three years and that India's reprocessing plants operate with a capacity factor of 50 percent.

28. George Perkovich claims "knowledgeable Indian sources confirmed" use of non-weapons-grade plutonium in one of the 1998 nuclear tests. George Perkovich, *India's Nuclear Bomb: The Impact on Global Proliferation* (Berkeley: University of California Press, 1999), pp. 428-430. Similarly, Raj Chengappa claims "one of the devices...used reactor grade or dirty plutonium." Raj Chengappa, *Weapons of Peace: The Secret Story of India's Quest to Be a Nuclear Power* (New Delhi: Harper Collins, 2000), pp. 414-418.

29. "Main Vessel of PFBR Installed, Reactor to Go Live in Sept 2011," *Times of India*, December 7, 2009.

30. Alexander Glaser and M.V. Ramana, "Weapon-Grade Plutonium Production Potential in the Indian Prototype Fast Breeder Reactor," *Science & Global Security*, Vol. 15, No.2, (2007), pp. 85-106. The amount of plutonium produced will depend on whether both the radial and axial blanket of the reactor, which contain weapon plutonium, will be reprocessed separately from the spent fuel in the reactor core.

31. R. Rajaraman, "Estimates of India's Fissile Material Stocks," *Science and Global Security*, Vol. 16, No. 3 (2008), pp. 74-87.

32. Mycle Schneider, "Fast Breeder Reactors in France," in *Fast Breeder Reactor Programs: History and Status*, February 2010, www.fissilematerials.org/blog/rr08.pdf.

33. Thomas B. Cochran et al., *Fast Breeder Reactor Programs: History and Status*, February 2010, www.fissilematerials.org/blog/rr08.pdf.

34. Akram February 2010 statement.

35. "Press Release by Inter-Services Public Relations, No. 318/2007," August 1, 2007.

36. Zia Mian et al., "Fissile Materials in South Asia: The Implications of the US-India Nuclear Deal," September 2006, www.fissilematerials.org/ipfm/site_down/rr01.pdf.

37. Ibid.

38. Ibid.

39. "India Launches Nuclear Submarine," BBC, July 26, 2009.

40. Sandeep Unnithan, "The Secret Undersea Weapon," *India Today*, January 28, 2008.

41. Tariq Osman Hyder, "Strategic Stability in South Asia," *The News*, August 1, 2009.

42. Khalid Banuri, "Missile Defences in South Asia: The Next Challenge," *South Asian Survey*, Vol. 11, No. 2 (2004), pp. 193-203.

43. "India Tests Interceptor Missile," Agence France-Presse, March 6, 2009.

44. "Armed Forces Modernization on Track: Defense Ministry," *The Hindu*, January 1, 2010. www.hindu.com/2010/01/01/sto-

[ries/2010010153331800.htm](http://www.hindu.com/2010/01/01/stories/2010010153331800.htm).

45. Asif Ezdi, "US Nuclear Duplicity," *The News*, January 25, 2010, <http://thenews.jang.com.pk/print1.asp?id=220571>.

46. Zulqernain Tahir, "Talks Under Way for N-deal With US: Haqqani," *Dawn*, February 15, 2010, www.dawn.com/wps/wcm/connect/dawn-content-library/dawn/the-newspaper/national/12-talks-under-way-for-ndea-with-us-haqqani-520-bi-01.

47. See, for example, R. Nicholas Burns and Robert G. Joseph, "The U.S. and India: An Emerging Entente," Remarks as Prepared for the House International Relations Committee, September 8, 2005, www.nti.org/e_research/official_docs/dos/dos090805.pdf.

48. Stephen P. Cohen, "Addressing the U.S.-Pakistan Strategic Relationship," June 12, 2008 (testimony before the Senate Committee on Homeland Security and Governmental Affairs federal financial management subcommittee); C. Christine Fair, "Pakistan Needs Its Own Nuclear Deal," *Wall Street Journal*, February 10, 2010.

49. Bureau of Public Affairs, U.S. Department of State, "Daily Press Briefing," Washington, D.C., February 18, 2010, www.state.gov/r/pa/prs/dpb/2010/02/136915.htm.

50. Hillary Rodham Clinton, "Remarks With Pakistani Foreign Minister Makhdoom Shah Mehmood Qureshi After Their Meeting," Washington, March 24, 2010, www.state.gov/secretary/rm/2010/03/138996.htm.

51. Zia Mian and A.H. Nayyar, "Pakistan and the Energy Challenge," in *International Perspectives on Energy Policy and the Role of Nuclear Power*, ed. Lutz Mez, Mycle Schneider, and Steve Thomas (Brentwood, UK: Multi-Science Publishing, 2009), pp. 515-531.

52. R. Jeffrey Smith and Joby Warrick, "Nuclear Aims by Pakistan, India Prompt U.S. Concern," *The Washington Post*, May 28, 2009.

53. Zia Mian, "Pakistan May Have Completed New Plutonium Production Reactor, Khushab-II," IPFM Web log, February 28, 2010, www.fissilematerials.org/blog/2010/02/pakistan_may_have_complet.html. Satellite imagery from December 2009 has shown steam from the cooling towers at Khushab-2. Paul Brannan, "Steam Emitted From Second Khushab Reactor Cooling Towers; Pakistan May Be Operating Second Reactor," ISIS, March 24, 2010.

54. Akram February 2010 statement.

55. "2000 NPT Review Conference Final Document," www.armscontrol.org/act/2000_06/doc-jun.asp.

56. IPFM, "A Fissile Material (Cut-Off) Treaty: A Treaty Banning the Production of Fissile Materials for Nuclear Weapons or Other Nuclear Explosive Devices," September 2, 2009, www.fissilematerials.org/ipfm/site_down/fmct-ipfm-sep2009.pdf.