

**N**egotiations relating to a fissile material cut-off treaty (FMCT) have begun despite the failure of the Conference on Disarmament (CD) in Geneva to establish a negotiating committee for that purpose. This essay describes the reasons for the failure at the CD, the conduct of related negotiations elsewhere, a new attempt to deal with FMCT technical problems on the fringes of the CD, and the significance of the FMCT to arms control and disarmament after the recent South Asian tests. FMCT negotiations may offer a realistic opportunity for the many countries that participate in the CD to help India and Pakistan pull back a bit from the brink of the crisis created by their respective nuclear tests.

A goal of the Comprehensive Test Ban Treaty (CTBT) is to halt the race for ever more advanced nuclear weapons by stopping testing. Similarly, a goal of the FMCT has long been to halt the race for increasing numbers of nuclear weapons by banning production of plutonium and highly enriched uranium (HEU) for such weapons. Attempts to ban such production for weapons began with the 1946 Acheson-Lillenthal report and the U.S.-sponsored Baruch plan to prohibit the manufacture of nuclear weapons anywhere in the world.<sup>1</sup> Indian Prime Minister Jawaharlal Nehru proposed an FMCT in 1954, President Dwight Eisenhower in 1956, President Lyndon Johnson in 1964, Pierre Trudeau in 1978, General Secretary Mikhail Gorbachev in 1989 and President Bill Clinton in 1993, a year in which the U.N. General Assembly for the first time adopted a resolution by consensus calling for such a treaty. By then, both Russia and the United States had stopped producing plutonium and HEU for nuclear weapons. Negotiation of agreements to reflect this moratorium has begun between the two, but other relevant parties have not yet joined.

Though they have declared no moratorium, the “Five” nuclear weapon states party to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT)—Britain, China, France, Russia, and the United States—are all believed to have stopped producing plutonium and HEU

for nuclear weapons. All Five now support negotiations for an FMCT at the CD—a treaty that would include not just themselves but many non-nuclear weapon state NPT members and, most importantly, the three non-members of the NPT that are *de facto* nuclear weapon states and

participants in the CD: India, Israel, and Pakistan (referred to here as the “Three”). Since the NPT itself prohibits its non-nuclear weapon members from producing plutonium and HEU for weapons, the inclusion of these NPT members in an FMCT seems less important than including the Five and the Three. But many of them want to participate in

FMCT negotiations. They see an FMCT without them as giving special status to the Three, providing the reward of enhanced prestige for violating the NPT norm against more nuclear weapon states, a norm that these NPT non-weapon states have faithfully observed.

#### **THE CONFERENCE ON DISARMAMENT (CD)**

This year, before India’s and Pakistan’s recent weapon tests, the CD failed again to agree on a negotiating committee for FMCT negotiations. The country demanding the highest price for its consent to such negotiations was India. It insisted that no negotiations begin until the Five promised to achieve total nuclear disarmament by a date certain, a condition it could confidently predict would

**VIEWPOINT:**

**MAKING PROGRESS ON A  
FISSILE MATERIAL CUT-  
OFF TREATY AFTER THE  
SOUTH ASIAN TESTS**

by George Bunn

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be rejected by the Five. This condition may be removed as a result of India's nuclear weapon tests in May. Its public statement on the day of the tests said: "We shall...be happy to participate in the negotiations for the conclusion of a fissile material cut-off treaty in the Geneva based Conference on Disarmament."<sup>2</sup> If, as is likely, India's stock of fissile weapons-usable material is both higher than Pakistan's and sufficient for a minimum deterrent against China, India may now perceive participation in FMCT negotiations as in its interest. Joining these talks could help improve its current image as a norm violator for conducting tests that most of the rest of the world has abjured by joining the NPT and signing the CTBT.<sup>3</sup> Its participation in FMCT negotiations might then put the monkey of being the chief opponent of FMCT negotiations onto Pakistan's back.

Pakistan may oppose FMCT negotiations unless they promise to limit India's stocks of fissile material, which are larger than Pakistan's. In the past, Pakistan and many other developing countries at the CD urged that FMCT negotiations be linked to negotiations for reductions in the stocks of nuclear weapons held by nuclear weapon states, a condition that the Five were unwilling to accept. A compromise formula permitting proposals for reductions without deciding whether reductions would eventually be linked to the FMCT was adopted for one year in 1995. But the CD negotiators were then too pre-occupied with completing negotiations for the CTBT to begin formal negotiation of an FMCT. Later, after the CTBT negotiations were completed in a way that prevented the CTBT from going into effect for the Five or any other party without India's joining it—a requirement that was perceived by India as designed to pressure it into joining a treaty it openly opposed—India refused to sign the CTBT. Thereafter, with India giving the most difficulty, the CD was unable to achieve a consensus on starting FMCT negotiations pursuant to the 1995 compromise formula.

### NEGOTIATIONS OUTSIDE THE CD

At NPT conferences where India, not an NPT party, cannot participate, the 1995 CD compromise formula has been supported. The 1995 conference that extended the NPT indefinitely called for negotiation of an FMCT pursuant to this formula as the next priority after finishing negotiation of a comprehensive test ban.<sup>4</sup> At the 1998 NPT Preparatory Committee (PrepCom) meeting in Geneva, developing countries reached agreement in their

Non-Aligned Movement (NAM) caucus on a joint statement calling for cut-off negotiations linked to reductions of stocks. This statement omitted reference to the Indian condition that the linkage be to total nuclear disarmament within a specific time period.<sup>5</sup> Delegates from Egypt, Indonesia, and South Africa, all leaders within the NAM caucus, supported negotiations under the compromise formula. Indeed, informal talks led by the conference chairman produced tentative agreement to repeat the 1995 NPT conference's call for FMCT negotiations pursuant to the compromise formula.<sup>6</sup> However, when the 1998 PrepCom broke up in disagreement on other matters, this agreement fell by the wayside.<sup>7</sup>

At the PrepCom, the United States described for the first time at NPT meetings many details of the U.S.-Russian nuclear negotiations relating to:

- halting their production of plutonium and HEU for nuclear weapons;
- dismantling their nuclear warheads resulting from first, the Intermediate Nuclear Forces (INF) Treaty and the Strategic Arms Reduction Treaty (START) missile reductions and second, the Bush-Gorbachev/Yeltsin reciprocal withdrawals of all non-strategic nuclear weapons from naval vessels and aircraft, from the territory of non-Russian former Soviet republics and from South Korea, and most such weapons from the territory of the European NATO allies of the United States;
- placing plutonium and HEU no longer needed for weapons under the safeguards of the International Atomic Energy Agency (IAEA) to assure that it would not be used again for military purposes;
- providing more information about stocks of plutonium and HEU to serve the goal of transparency; and
- ultimately disposing of the plutonium and HEU from the dismantled weapons in ways that would reduce the likelihood that it will ever be used again for weapons by Russia, the United States, third states, or sub-national groups.<sup>8</sup>

This U.S. description brought home dramatically how much progress had been made toward agreement on a bilateral cut-off and bilateral reductions of stocks of weapons-usable fissile material. Indeed, a 1997 five-year U.S.-Russian agreement bans production of plutonium for weapons and provides for reciprocal inspections to verify the ban.<sup>9</sup> In an informal joint statement, the two countries have added HEU to their bilateral cut-off by promising that "no newly produced fissile material will

be used in nuclear weapons.”<sup>10</sup> In addition, there are U.S.-Russian agreements in various forms relating to the fissile materials from weapons, and an ongoing trilateral negotiation with the IAEA to place fissile material excess to military needs under IAEA safeguards that would prevent it being used again for military purposes.<sup>11</sup> One expert estimate is that the fissile material from the warheads to be dismantled as a result of both the several missile-reduction treaties through START II, and the Bush-Gorbachev/Yeltsin reciprocal nuclear weapon withdrawals, amounts to about 80 percent of the material deployed in weapons at the height of the Cold War.<sup>12</sup>

Participants at the 1998 NPT PrepCom described other negotiations outside the CD that relate to stocks of weapons-usable material. For example, nine countries that are plutonium users have agreed on “Plutonium Management Guidelines.” The nine are the five NPT nuclear weapon states plus Belgium, Germany, Japan, and Switzerland. Their new guidelines require annual reports of their plutonium stocks to provide greater transparency, strengthened security standards to improve physical protection against theft or sabotage for fissile materials at home as well as those being exported, and placement under IAEA safeguards of plutonium belonging to the Five that is excess to their weapons needs as a result of their weapons reductions.<sup>13</sup>

These disclosures were not criticized by developing countries attending the 1998 NPT PrepCom even though negotiations had been carried out away from the CD. The delegate from Indonesia, the current NAM leader, agreed that the U.S.-Russian negotiations were “steps in the right direction,” though not yet “irreversible nuclear disarmament” because they are being verified only by U.S.-Russian reciprocal inspections, not by outsiders. This would change upon completion of the negotiation of the trilateral agreement with the IAEA for monitoring excess weapons-usable material.<sup>14</sup> Indeed, the disclosures of disarmament negotiations outside the CD—negotiations dealing with reductions of, and safeguards for, fissile material stocks from weapons—probably helped get informal agreement at the 1998 NPT PrepCom to negotiate toward an FMCT under the compromise formula.

That, however, occurred before the Indian and Pakistani nuclear weapon tests. Both India and Pakistan are part of the NAM caucus at the CD though not of course part of the NAM working group at the NPT conference. What will now happen at the CD with respect to starting

the FMCT negotiations is difficult to predict. As of early June 1998, neither India nor Pakistan seemed to be preparing for more nuclear weapon tests.<sup>15</sup> India’s statements seemed less belligerent than before, but joining the CTBT soon also seemed very unlikely.<sup>16</sup> India repeated its call for negotiating a treaty providing for total elimination of nuclear weapons by a certain date, a non-starter for the Five. But it also called again for negotiation of an FMCT at the CD, and it did not repeat its pre-tests condition requiring linkage of FMCT negotiations with elimination of all nuclear weapons by a certain date.<sup>17</sup> Pakistan repeated its insistence that talks with India on the nuclear crisis must tackle first the future of disputed Kashmir region.<sup>18</sup> But Pakistan did not withdraw its delegation from the CD. Perhaps efforts by the CD and the other important groups trying to deal with the crisis will gain Pakistan’s consent to begin negotiations under the compromise formula. The other groups include the U.N. Security Council, the Five and the G-8 (the major northern industrialized countries, including Russia). The compromise formula would permit Pakistan to make proposals designed to reduce the impact of India’s larger stock of weapons-usable material during the FMCT negotiations.

Another effort relating to an FMCT outside the CD (but this time on its fringes) was organized by Japan, also the initiator of the talks that produced the Plutonium Management Guidelines. Japan invited many governmental and a few non-governmental experts to a “technical seminar conference” on FMCT problems in the same Palais des Nations in Geneva that houses the CD. It was held on May 11-12, 1998, just after the 1998 NPT PrepCom and just before the resumption of the CD. Delegates to the CD were invited to attend and participate, and many did. The subjects presented by the experts were the significance of an FMCT, the options for one under the 1995 compromise mandate, how these options could be verified, and how irreversibility of reductions and transparency of remaining weapons-usable stocks could be achieved. There were participants from four of the five NPT weapon states (except China), from eight of the nine Plutonium Management Guidelines countries (again, except China), from two of the three non-NPT *de facto* weapon states (except Pakistan), and from many other states advanced in nuclear technology or with particular interests in the FMCT including: Australia, Canada, Chile, Egypt, the Netherlands, South Africa, and Switzerland.

The options presented to the conference by one non-governmental expert included: 1) the basic FMCT, which would simply ban future production of plutonium and HEU for weapons; 2) the basic FMCT plus added requirements that any fissile materials declared excess to military needs be placed under irreversible IAEA safeguards, and 3) the FMCT plus option 2 with an added provision that *all* fissile material from warheads removed from deployment by the several missile-reduction treaties, the Bush-Gorbachev/Yeltsin reciprocal cuts, and any future agreements be placed under IAEA safeguards.<sup>19</sup> The technical requirements for verification would obviously vary depending on the scope of the prohibition.

Most of the technical discussion focused on the basic FMCT ban. Even for that basic ban, there were important technical problems meriting discussion. These included how to safeguard HEU fuel for propulsion of naval vessels and how to safeguard old separation or enrichment plants not designed to be safeguarded.<sup>20</sup>

While no consensus was sought at this technical conference, there seemed to be general agreement that an FMCT would probably start with the basic ban.<sup>21</sup> That is as far as the Five were willing to go at the CD—even though they had gone farther than that in bilateral, trilateral, and nine-party negotiations elsewhere, as already described. Verification of the basic ban would probably include IAEA safeguards on enrichment and separation plants, with the IAEA inspectors following newly separated plutonium or HEU after it left the plant to see that it was not used to make weapons. That could result in IAEA safeguards on some reactors and other weapon state nuclear facilities that are not now under safeguards—as well as on the basic plutonium separation and uranium enrichment plants.<sup>22</sup>

There were ideas for steps to accompany the basic ban in order to go at least part way toward the demands of developing countries for FMCT linkage to reductions in stocks of weapons. First, Russia and the United States could report to the other countries at the CD on their warhead reduction, dismantlement, and fissile material disposition from the missile-reduction treaties and the Bush-Gorbachev/Yeltsin reciprocal nuclear weapon withdrawals. To enhance transparency, such reports might provide quantitative information on stocks reduced and stocks remaining. Secondly, Russia and the United States could report progress on their trilateral negotiations with the IAEA to place weapons-usable fissile material under IAEA safeguards so that it would be irreversibly

dedicated to peaceful uses. Again, they could report, as the United States has begun to do, on the quantities of stocks placed under IAEA safeguards. This would provide information to developing countries demanding weapon stock reductions on what was actually happening without giving them the power to veto the reductions, a power they might have if such negotiations were conducted at the CD.

At the Japanese-sponsored technical conference, there was interest in an Australian proposal for a “phased approach” with a “framework agreement” stating broad goals, but not legal obligations, for both the basic FMCT and for reductions in stocks.<sup>23</sup> The FMCT, a legally binding treaty, could then be negotiated separately from the agreements on reductions in stocks, that is, from the weapon reduction, dismantlement, and disposition agreements, many of which are already being negotiated in bilateral form between Russia and the United States. It seems prudent that the negotiation of these agreements should continue as they are for the time being and expand beyond bilateral (or trilateral) to Five-party or larger talks as more necessary parties participate. Thus the linkage between the FMCT and weapon reductions sought by the developing countries at the CD could be provided in the first instance by reports on progress in such negotiations by the NPT weapon states and by some kind of “framework agreement” as suggested by the Australians. Since Russia and the United States each have more than 15 times as much weapons-usable fissile material as any of the three other NPT nuclear weapon states or the three non-NPT *de facto* nuclear weapon states, it makes sense for them to go first and to conduct their bilateral negotiations away from the CD—at least until their stocks get down closer to the size of the others.<sup>24</sup> But there is no reason a basic FMCT, open to all states to join, cannot be negotiated now—if such negotiations at the CD are not vetoed by India, Israel, or Pakistan.

Of these three, Pakistan seems most likely to stand in the way unless some method can be found to deal with India’s larger weapons-usable fissile stockpile. This could be a difficult—but not insoluble—problem, as the next section of this essay suggests. It ought not prevent negotiations from beginning if the G-8, the Five, and the major NAM countries (other than Pakistan) want them to begin. All of these countries are represented at the CD.

## THE SIGNIFICANCE OF AN FMCT

In addition to the opportunity to engage India, Pakistan, and Israel (as well as the Five) in negotiations to limit the weapons-usable fissile material held by each, FMCT negotiations would have other major impacts. First, they could expand to the Five and the Three the international norm established by the NPT for non-nuclear weapon states against production of fissile material for nuclear weapons. The basic FMCT would only ban making weapons from newly produced plutonium or HEU, not from older stocks in reserve or from newly dismantled weapons. But as more nuclear weapons were dismantled pursuant to START and successor treaties, more fissile material from weapons would be placed irreversibly under IAEA safeguards, thus reducing the stocks available for weapons.

Second, of great interest to the non-nuclear weapon states, an FMCT would reduce the discrimination in the application of IAEA safeguards between nuclear weapon and non-nuclear weapon states. The NPT permits the Five to be free of safeguards but requires them of all other parties. While each of the Five has accepted some safeguards to help reduce that discrimination, each of their agreements so far is a “voluntary offer” that can be withdrawn at will. The FMCT would impose mandatory safeguards on plants for separating plutonium and enriching uranium, and on other nuclear facilities using newly produced plutonium or HEU. The purpose, of course, would be to verify the FMCT ban on producing more fissile material for weapons.

Third, an FMCT would continue the movement toward transparency and safeguards for all stocks of plutonium and HEU, as well as further reducing discrimination in the application of safeguards. Russia and the United States have already begun negotiating bilateral measures of transparency for their fissile material. The nine Plutonium Management Guidelines states have agreed to provide annual public reports of their civil plutonium. Under the Guidelines, the Five must add to these reports whatever weapons plutonium they declare excess to weapons use.

As we have seen, Russia and the United States are engaged in trilateral discussions with the IAEA over the nature of safeguards on their weapons-usable material stocks that are excess. A purpose of these safeguards is to make the dedication of excess stocks to peaceful purposes irreversible. In the Plutonium Management Guidelines, the Five have all agreed to IAEA safeguards for

their “voluntary-offer” plutonium, but it would not be irreversibly dedicated by the Guidelines to peaceful purposes. All of the Five have a long way to go before they will be subjected to mandatory IAEA safeguards on all their nuclear materials as the non-weapon states are. India, Israel, and Pakistan also have a long way to go. If nuclear disarmament is to be achieved, the Five and the Three will have to provide an accounting for all their nuclear material just as the non-weapon states do. For Russia and the United States, at least, a complete accounting is a difficult problem because of loose accounting procedures and “material unaccounted for,” particularly from the early years of their programs. By beginning mandatory safeguards and encouraging transparency, the FMCT will provide further incentives to deal with these problems.

Fourth, an FMCT should encourage higher standards for the physical protection of fissile material from theft or sabotage, just as the Plutonium Management Guidelines have done. Requiring international accountability and IAEA safeguards should encourage better security practices, which Russia, the United States, and the nine Plutonium Management Guidelines countries have agreed to pursue. The FMCT would provide the same incentives for India, Israel, and Pakistan, as well as non-nuclear weapon states with civil plutonium and HEU to protect.

Fifth, an FMCT will satisfy the 1995 promise by the Five to negotiate such a treaty in return for the agreement of the non-weapon NPT states to extend the NPT indefinitely.<sup>25</sup> The FMCT promise was listed just after that for a CTBT, and was probably perceived as second in importance only to the CTBT.

Sixth, an FMCT would lay the foundation for further steps toward nuclear disarmament. Total nuclear disarmament is clearly impractical until nuclear weapons and weapon-usable materials can all be accounted for, protected from theft or sabotage, verified by an international organization and guaranteed against reversibility to weapons manufacture. To make nuclear disarmament feasible, such verification and irreversibility must somehow be made effective. FMCT negotiations offer a realistic opportunity to learn how.

An FMCT is thus an important step toward nuclear disarmament for more reasons than that it would limit the quantity of weapons-usable material available for nuclear weapons. Moreover, after the weapon tests in South Asia, FMCT negotiations may be seen as a useful

way to engage India and Pakistan in talks that would limit the stocks of the Three as well as the Five, a negotiation that the Five all support and that India says it will be “happy to participate in.”<sup>26</sup> While Indian signature to the CTBT might seem more to the point after its tests (and Pakistan would then probably sign too), an Indian signature is not likely to happen soon without major and unlikely change in the Indian position.

To make participation in an FMCT practical for Pakistan, India may have to begin limiting its weapons-usable stocks before Pakistan does. A method like that appears to be working for Britain, China, and France in their relationships to Russia and the United States. The latter two have much larger stocks of weapons-usable material than Britain, China, or France, each of which has said it will wait to reduce its stocks until these two get down to its level. But each of them has also expressed willingness to participate in FMCT negotiations despite the difference in levels of weapon stocks. Perhaps Pakistan could be persuaded to follow a similar path at the CD in relation to India—with some assurances of support from the Five acting jointly or through the U.N. Security Council, and from leading NAM states. In any event, a new opportunity may have opened for the CD to prove its value.

<sup>1</sup> For a brief history of the Acheson-Lilienthal report and the Baruch plan, see George Bunn, *Arms Control by Committee: Managing Negotiations with the Russians* (Stanford, CA: Stanford University Press, 1992), pp. 59-61. For an excellent account of the origins and recent history of the FMCT proposal, see Annette Schaper, *A Treaty on the Cutoff of Fissile Material for Nuclear Weapons—What to Cover? How to Verify?* (Frankfurt, Germany: Peace Research Institute Frankfurt Report 48, 1997), pp. 5-18.

<sup>2</sup> Permanent Mission of India to International Organizations in Geneva, Press Statement, dated “New Delhi, 11 May, 1998.” A similar statement was made the same day by India’s Prime Minister in letters to some heads of state. See “India’s Letter to Clinton on Nuclear Testing,” *The New York Times* (National edition), May 13, 1998, p. A-12.

<sup>3</sup> Unofficial estimates say that India has produced plutonium for weapons while Pakistan has produced highly enriched uranium. Two to three times as much highly enriched uranium as plutonium is needed for a weapon. Before their tests, India had some 330 kilograms of weapons-grade plutonium to Pakistan’s 210 kilograms of weapons-grade uranium. So India is ahead. David Albright, Frans Berkhout, and William Walker, *Plutonium and Highly Enriched Uranium 1996: World Inventories, Capabilities and Policies* (Oxford: SIPRI and Oxford University Press, 1997), p. 402.

<sup>4</sup> NPT/CONF.1995/32/Decision 2, “Principles and Objectives for Nuclear Non-Proliferation and Disarmament,” par. 4(b).

<sup>5</sup> NPT/CONF.2000/PC.II/5 transmitting “Working Paper by the Members of the Movement of Non-Aligned Countries Parties to the Treaty.”

<sup>6</sup> “Chairman’s Non-Paper” of May 6, 1998, par. 8, an informal paper, not an

official conference document.

<sup>7</sup> See Rebecca Johnson, “The 1998 PrepCom: Summary and Snapshots,” *Disarmament Diplomacy*, No. 25 (April 1998), p. 15.

<sup>8</sup> Statements by Norman A. Wulf, head of U.S. delegation, on April 27, 1998, pp. 8-10; and April 30, 1998, pp. 7-14.

<sup>9</sup> Statement by Wulf on April 30, 1998, p. 8.

<sup>10</sup> *Ibid.*

<sup>11</sup> *Ibid.*, pp. 9-10.

<sup>12</sup> Albright, Berkhout, and Walker, *Plutonium and Highly Enriched Uranium 1996*, at p. 455.

<sup>13</sup> International Atomic Energy Agency Information Circular INFCIRC/549 (1998) contains the texts of the Guidelines for each of the nine countries as well as recent reports on their plutonium stocks.

<sup>14</sup> Statement of Makarim Wibisono, head of Indonesian delegation, April 30, 1998, pp. 1-4.

<sup>15</sup> John F. Burns, “Leaders in India and Pakistan Tone Down Crisis,” *The New York Times* (National edition), May 30, 1998, p. 1; John Kifner, “Pakistan Sets Off Atom Blast Again, but Urges ‘Peace,’” *The New York Times* (National edition), May 31, 1998, p. 1.

<sup>16</sup> John F. Burns, “India Calls for Talks on a Treaty to Limit All Atomic Arsenals,” *The New York Times* (National edition), June 1, 1998, p. 1; John F. Burns, “Military Budget in India is Increased by 14 Percent,” *The New York Times* (National edition), June 2, 1998, p. A-8. In its press statement in Geneva on May 11, 1998, the day of its tests, India said: “India would be prepared to consider being an adherent to some of the undertakings in the Comprehensive Test Ban Treaty. But this cannot obviously be done in a vacuum. It would necessarily be an evolutionary process from concept to commitment and would depend on a number of reciprocal activities.” Among the reciprocal activities mentioned by an Indian nuclear scientist at the Japanese-sponsored FMCT conference were the U.S. ending its sub-critical nuclear tests and refraining from simulating nuclear explosions on its computers at the Livermore and Los Alamos National Laboratories. India advanced no such qualifications to its participation in FMCT negotiations. And the Indian prime minister’s letter of May 11, 1998 offering to join FMCT negotiations did not even mention the Comprehensive Test Ban Treaty. See “India’s Letter to Clinton on the Nuclear Testing,” *The New York Times* (National edition), May 13, 1998, p. A-12. It seems clear that India is not prepared to join the CTBT soon.

<sup>17</sup> Burns, “India Calls for Talks on a Treaty to Limit all Atomic Arsenals.”

<sup>18</sup> *Ibid.*

<sup>19</sup> The expert on options for the scope of the FMCT was Annette Schaper. See her paper for the conference entitled “Fissile Materials for Nuclear Weapons and Other Nuclear Explosive Devices.” This was based on A. Schaper, “A Treaty on the Cutoff of Fissile Material for Nuclear Weapons—What to Cover? How to Verify?” (Frankfurt, Germany: Peace Research Institute Frankfurt Report 48, 1997). See also Schaper, “The Case for Universal Full-Scope Safeguards on Nuclear Material,” *The Nonproliferation Review* 5 (Winter 1998), p. 91.

<sup>20</sup> See Hiroyoshi Kurihara, “Chairman’s Summary, Seminar Conference on Technical Issues for a FMCT” Geneva, May 11-12, pp. 3-4.

<sup>21</sup> The report of the conference chairman stated that most participants “were of the opinion” that an FMCT should have that scope. Kurihara, “Chairman’s Summary,” at p. 2.

<sup>22</sup> The Chairman’s report considered both IAEA safeguards and possible challenge inspections. Kurihara, “Chairman’s Summary,” pp. 3-4.

<sup>23</sup> See Kurihara, “Chairman’s Summary,” p. 5; Statement of John B. Campbell, Head of Australian Delegation, April 30, 1998, to the 1998 NPT Preparatory Committee meeting, p. 3.

<sup>24</sup> The estimate of fissile material quantities held by the various states comes from Albright, Berkhout and Walker, *Plutonium and Highly Enriched Uranium 1996*, pp. 399-402.

<sup>25</sup> NPT/CONF.1995/32/Decision 2, “Principles and Objectives for Nuclear Non-Proliferation and Disarmament,” par. 4(b).

<sup>26</sup> Permanent Mission of India to International Organizations in Geneva, Press Statement, dated “New Delhi, 11 May, 1998.”