

**Achieving the Vision of a World Free of Nuclear Weapons**  
**International Conference on Nuclear Disarmament, Oslo February 26 – 27 2008**

**Controlling Fissile Materials and Ending Nuclear Testing**

**Robert J. Einhorn**  
**Center for Strategic and International Affairs**

If the world is to move toward zero nuclear weapons, it must first stop moving in the wrong direction. That means, among other things, halting the further production of fissile materials (plutonium and highly enriched uranium) for nuclear weapons and banning nuclear weapons tests. The international community has long sought to achieve those objectives through the negotiation and entry into force of multilateral treaties: the Fissile Material Cutoff Treaty (FMCT) and the Comprehensive Test Ban Treaty (CTBT). But neither of these efforts has been fully realized and both are now at an impasse.

Putting in place legally binding constraints on fissile material production and nuclear weapons testing must remain a high priority. But even as vigorous efforts are made to break the impasse on the two treaties, it is important to strengthen and expand participation in the de facto moratoria that currently exist on both those activities.

**Stalemate on FMCT**

Although the Conference on Disarmament (CD) agreed in 1995 to set up an Ad Hoc Committee to negotiate an FMCT, negotiations have yet to begin. The impediments have been varied. Non-aligned countries have resisted giving FMCT priority in the CD over nuclear disarmament and negative security assurances. Russia and China have linked negotiations on an FMCT to their desire to pursue an agreement on preventing an arms race in outer space. There have been differences on the scope of an FMCT, with some CD members arguing that the Treaty should cover existing fissile material stocks and

others (including most nuclear weapon states) maintaining that it should only address production after entry into force. CD members have also disagreed on verification, with the Bush Administration deciding in 2004 to oppose international verification measures and the vast majority of other countries supporting them.

Even more fundamentally, some states may want to continue fissile material production for their weapons programs (India, Pakistan); others may wish to keep open their options to resume production in an uncertain strategic environment (China); and still others may see the FMCT as a challenge to their overall strategic posture (Israel, Iran).

An FMCT could: (1) head off a fissile material production competition in South Asia (which would be facilitated by making an exception to Nuclear Suppliers Group rules to enable India to purchase uranium on world markets); (2) assist in efforts to secure fissile materials against theft or seizure (by limiting the amount of material worldwide that must be protected); and (3) reinforce the NPT by taking one of the steps assigned high priority in fulfilling Article VI.

### **Key issues in negotiating an FMCT**

The U.S. and other key countries should make a major effort to find a compromise CD work program that would enable FMCT negotiations to get underway. Once negotiations begin, the participants will soon confront a variety of difficult issues. Following are suggested ways of handling a few of them.

*Existing stocks of fissile material.* Pakistan, Egypt, and some other countries believe that, in addition to banning **new** production of fissile material for nuclear weapons, an FMCT should also deal with **pre-existing** fissile material stocks in some manner. However, with all P-5 countries and India strongly opposed, there is little prospect of using the FMCT as a vehicle for controlling existing stocks.

A compromise approach would be to include in the FMCT a general provision obligating parties already possessing fissile materials to pursue **separate** arrangements for

controlling such materials (see section below on a “fissile material control initiative”). Such a legally binding commitment regarding existing stocks – albeit of a non-specific character and designed to be further developed separately – might satisfy the desire to address existing stocks in some fashion while avoiding the gridlock certain to result from trying to negotiate detailed provisions on existing stocks in the Treaty itself.

*Scope of the production ban.* Until now, it has been widely accepted that an FMCT should only prohibit the production of fissile material for use in nuclear weapons, not material for civil or non-explosive military (mostly naval reactors) uses. But in view of growing concerns about terrorists getting their hands on fissile material, a somewhat broader scope should be considered. In particular, with the success of current efforts to eliminate the use of HEU in civil research reactors worldwide – including by converting HEU-fueled research reactors to operate on non-weapons-usable low-enriched fuel – HEU production for civil purposes can be banned. Moreover, with the U.S. and Russia possessing sizeable HEU reserves for their naval propulsion programs and some other countries fueling their naval reactors with low-enriched uranium, it should also be possible to ban production of HEU for non-explosive military purposes. Taken together, this would mean that HEU production would be prohibited for any purpose.

*Verification provisions.* The Bush Administration has opposed international verification measures for an FMCT on the grounds that they would not provide adequate confidence in compliance. However, although some monitoring tasks are difficult (e.g., detecting covert centrifuge enrichment plants), they are no more difficult than monitoring compliance with the NPT, and the IAEA has the experience and tools (e.g., Additional Protocol, “managed access,” environmental sampling and wide-area monitoring) to do the job effectively. Reversal of the U.S. decision to oppose international monitoring would remove one of the current impediments to a widely supported FMCT.

### **Interim steps**

With India and Pakistan apparently intent on producing more fissile material for nuclear weapons and China reluctant to foreclose strategic options – and given the long time it

would take to negotiate verification and other detailed provisions even if all key states were ready now to stop such production – the entry into force of an FMCT is several years away at a minimum. Consideration should therefore be given to steps that could be taken now to achieve early restraint and perhaps also help accelerate movement toward completion of a Treaty.

Fortunately, a de facto moratorium on fissile material production for nuclear weapons is already in effect for several key countries. France, Russia, the U.K., and the U.S. have declared that, as a matter of policy, they have stopped such production and have no plans to resume. China is believed not to be producing fissile material for nuclear weapons at present but has been reluctant to join a declared moratorium, apparently wishing to keep open its option to resume production if warranted by future strategic circumstances (e.g., a perceived need to expand China's nuclear capabilities to penetrate U.S. missile defenses).

The P-5 countries should jointly declare that, pending the entry into force of a multilateral FMCT, they will not produce fissile material for nuclear weapons. China will be the hardest to persuade. Credible assurances by the U.S. that its missile defenses are not intended to undercut China's deterrent could help get Beijing on board. Before declaring a moratorium, the P-5 should privately urge India, Pakistan, and Israel to join. But if the others balk, the five should proceed without them, as befitting their responsibility to exercise leadership as the only NPT nuclear weapon states.

### **Fissile Material Control Initiative**

An FMCT that prohibited new production of plutonium for nuclear weapons and new production of HEU for any purpose (i.e., the scope recommended above) would not cover several significant categories of fissile material – including material in weapons programs considered to be in excess of current weapons requirements, existing HEU and plutonium in civil nuclear programs, existing HEU in naval reactor programs, and civil plutonium produced after entry into force.

In some of these categories, stocks will grow substantially in coming years. As Russia and the U.S. dismantle nuclear weapons, fissile material in excess of weapons needs will increase dramatically. And with plutonium extracted from spent civil reactor fuel far exceeding the amount of plutonium recycled as reactor fuel, stocks of civil plutonium will soon exceed global stocks of plutonium produced for nuclear weapons.

There are several reasons why fissile material not covered by an FMCT should not be ignored, including the risk of terrorist access to bomb-making materials, the possibility that existing non-weapons stocks could be diverted to weapons uses in circumvention of an FMCT, and the need to begin laying the foundation for going to very low levels of nuclear forces.

To address these and other concerns about large and growing fissile material stocks worldwide, the international community should pursue what might be called a “Fissile Material Control Initiative” (FMCI). FMCI would be a voluntary, multilateral arrangement open to any country that possessed fissile material (whether safeguarded or not) and was willing to sign onto a set of agreed principles. The overall goals of FMCI would be to increase security, transparency, and control over fissile material stocks worldwide; to prevent their theft or diversion to non-state actors or additional states; and to move fissile materials verifiably and irreversibly out of nuclear weapons and into forms unusable for nuclear weapons.

FMCI would establish an agreed set of guidelines that partners, as appropriate to their particular fissile material holdings, would be encouraged to follow. The guidelines would call on the partners:

- to make regular declarations regarding their fissile material stocks by category;
- to apply the highest standards of physical protection and accountancy to those stocks;
- to declare regularly amounts of material they regard as excess to their weapons needs;
- to place such excess material under IAEA safeguards as soon as practicable; and

- to convert excess material as soon as possible to forms that cannot be used for nuclear weapons (e.g., by blending down HEU to low-enriched reactor fuel).

An FMCI focused mainly on existing stocks of fissile material and an FMCT banning new production of fissile material would complement each other well and could be pursued concurrently. However, if FMCT remains deadlocked, FMCI could be launched independently and could even help pave the way for an FMCT. For example, by dealing with existing stocks (albeit with guidelines at least initially of a voluntary character), FMCI could help address the concerns of countries reluctant to support an FMCT that did not cover existing stocks. And transparency measures in FMCI could help make countries more comfortable with FMCT verification provisions. Moreover, pending entry into force of an FMCT, non-binding steps like a moratorium on production of fissile materials for nuclear weapons could be pursued under the banner of FMCI.

### **Overcoming the Impasse on Entry into Force of the CTBT**

Unlike an FMCT, a CTBT has already been negotiated, but a dozen years after negotiations were concluded, it has still not entered into force. Under CTBT Article XIV, all 44 “annex 2 countries” must ratify before the Treaty can take legal effect. Although 178 countries have signed and 144 have ratified, there are still nine annex 2 countries that have not ratified – six of which have signed but not ratified (China, Egypt, Indonesia, Iran, Israel, United States) and three of which have neither signed nor ratified (India, North Korea, Pakistan).

*U.S. ratification.* Although the U.S. is only one of nine, its ratification is widely seen as the key to breaking the entry-into-force logjam. The Clinton Administration sought ratification in October 1999, but the Senate rejected the CTBT by a vote of 48 to 51 – not even a simple majority and far short of the two-thirds needed. While continuing the 16-year U.S. moratorium on nuclear testing, the Bush Administration has opposed ratification of the Treaty, arguing that “it would be imprudent to tie the hands of a future

administration that may have to conduct a test of an element of an aging, unmodernized stockpile in order to assure the reliability of the nuclear deterrent force.”<sup>1</sup>

With no prospect of the Bush Administration seeking ratification in its final year, the matter will be left to the next American president. Both Senators Clinton and Obama have expressed strong support for a CTBT. Senator McCain voted against the Treaty in 1999 but, in a statement issued before the vote, left the door open for the future: “I hope the time does arrive when a comprehensive ban on nuclear testing will be consistent with our national security requirements. We are simply not yet there. I will consider supporting a treaty when alternative means of ensuring safety and reliability are proven, and when a credible verification regime is proposed.”<sup>2</sup>

Prospects for ratification may be given a boost by Henry A. Kissinger, Sam Nunn, William J. Perry, and George P. Shultz, who support the “vision” of a world free of nuclear weapons and regard the CTBT as an important step toward that vision. They called on the U.S. to:

“adopt a process for bringing the Comprehensive Test Ban Treaty (CTBT) into effect, which would strengthen the NPT and aid international monitoring of nuclear activities. This calls for a bipartisan review; first, to examine improvements over the past decade of the international monitoring system to identify and locate explosive underground nuclear tests in violation of the CTBT; and second, to assess the technical progress made over the past decade in maintaining high confidence in the reliability, safety and effectiveness of the nation’s nuclear arsenal under a test ban.”<sup>3</sup>

The recommendation of the four former senior officials should be heeded. If the next U.S. president is inclined to pursue ratification, he or she should take the time needed to

---

<sup>1</sup> Statement of Administration Policy on S. 1547, FY2008 National Defense Authorization Act.

<sup>2</sup> *Congressional Record*, 106<sup>th</sup> Congress, pages 12398-99, October 12, 1999.

<sup>3</sup> George P. Shultz, William J. Perry, Henry A. Kissinger, Sam Nunn, “Toward a Nuclear-Free World,” *Wall Street Journal*, January 15, 2008.

build wide support in the Senate and American public. A bipartisan commission should be created to provide an independent, objective source of expertise and advice to the Senate on such controversial issues as verification and stockpile reliability. A key issue will be how best to ensure long-term confidence in the reliability of the U.S. nuclear deterrent without nuclear explosive testing – by depending on current stockpile stewardship programs to preserve confidence in existing U.S. nuclear weapons or by developing and introducing into the stockpile “reliable replacement warheads” designed to be safer, more secure, and easier to maintain without taking on new military missions.

*Ratification by other annex 2 countries.* With U.S. ratification, it should not be too difficult to get China and Indonesia on board. North Korean ratification will depend on progress toward denuclearization in the context of the Six Party Talks. Egypt will have to be persuaded to ratify if Israel does and not condition its CTBT ratification on Israel joining the NPT. With Egypt and Israel ratifying, Iran would likely fall in line, given its position that it is not interested in nuclear weapons. Pakistan would ratify if India does, but India may turn out to be the hardest case. Indian nuclear scientists, believing that India’s 1998 test series was not fully successful, have long wanted to carry out more tests. And in negotiations with the U.S. on the bilateral civil nuclear deal, India has sought to preserve its freedom of action by trying to ensure that an Indian test would not jeopardize continued nuclear cooperation with the U.S. or other countries. Still, it has taken the position that India “will not stand in the way of entry into force of the Treaty,” and India would find itself under great pressure to ratify if it became the final holdout.

### **Interim steps toward a CTBT**

Even under the most favorable assumptions about securing ratification by the nine remaining annex 2 countries, CTBT entry into force is still years away. The current de facto moratorium on nuclear tests should therefore be maintained and even strengthened.<sup>4</sup> Continuing to urge states with nuclear weapons to reaffirm their current voluntary moratoria on nuclear testing will be important. But in addition to that, the P-5 countries

---

<sup>4</sup> The last nuclear tests were carried out by the USSR in 1990, the U.K. in 1991, the U.S. in 1992, France and China in 1996, India and Pakistan in 1998, and North Korea in 2006.

plus India and Pakistan should all be encouraged to adopt a joint political commitment that they will not be the first country to resume nuclear testing. (All seven of those countries have conducted nuclear tests and declared themselves to be nuclear weapon states. North Korea has also carried out a test, but preventing further DPRK tests should be handled in the Six Party Talks. With respect to Israel, there is no proof that it has ever carried out a test and, in any event, its policy of ambiguity would seem to preclude a pledge not to resume testing.)

In addition to pursuing a “no first test” agreement, it will also be important, pending entry into force of the CTBT, to continue building up the Treaty’s International Monitoring System (IMS) which, when completed, will consist of 321 stations in 90 countries. According to the Preparatory Commission of the Comprehensive Nuclear Test Ban Treaty Organization (CTBTO), 90% of the IMS network should be installed by the end of 2008.

That will require all CTBT signatories to meet their financial responsibilities. While the Bush Administration has not wished to fund preparations for CTBT entry into force, it has supported development of the IMS, which it believes adds significantly to America’s own monitoring capabilities. Its policy has therefore been to fund the major portion of the U.S. annual assessed contribution to the Preparatory Commission’s budget that directly supports the IMS. While actual U.S. funding levels have been uneven, the \$24 million provided in the Omnibus Appropriations Bill for FY2008 was an important step forward, and hopefully will serve to encourage other countries that have fallen behind in their payments to meet their own commitments.

## **Conclusions**

For decades, a CTBT and FMCT have been at the top of the multilateral arms control and disarmament agenda as measures that could qualitatively and quantitatively impede nuclear weapons programs, reinforce the NPT, curb nuclear proliferation, and help pave the way for further reductions of existing nuclear weapons capabilities. They have also

been a source of great frustration, with decades-long stalemates in bringing the CTBT into force and getting FMCT negotiations underway.

With the nonproliferation regime in danger of unraveling and concerns about nuclear terrorism growing, it is essential now to intensify international efforts to make the two treaties a reality. But even under the best of circumstances, that will take time, perhaps several years. So to achieve restraint in the short term, the international community should pursue less formal, interim measures. Pending entry into force of the CTBT, the countries that have previously tested nuclear weapons should reach a “no first test” agreement and CTBT signatories should support the CTBTO in completing the International Monitoring System. In the area of fissile materials, a moratorium on further production of fissile materials for nuclear weapons should be put in place (by the P-5 or preferably all nuclear powers), and concurrently (or independently if a moratorium cannot be agreed) countries possessing fissile materials should pursue a voluntary FMCI.

Taken together, such steps would achieve many of the benefits of the formal treaties while also helping accelerate movement toward full realization of the treaties, which would make the restraints practiced on an interim basis much more durable and verifiable.