Fissile Material Cut-Off Treaty: Time for the United States to Act Responsibly

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The Fissile Material Cut-Off Treaty (FMCT) is a cardinal instrument of the non-proliferation regime that provides the next logical step towards any comprehensive nuclear disarmament. Its purpose is to prohibit the production of fissile materials for nuclear weapons or other nuclear explosive devices and any other such materials not subject to the International Atomic Energy Agency's (IAEA) Safeguards Division. It seeks to consolidate safeguards and verification mechanisms to prohibit state parties from assisting other states with plutonium separation or with producing highly enriched uranium for weapons use and effect periodic checks to prevent the pilferage of sensitive nuclear materials and technology.

While recognizing the importance of FMCT at the Nuclear Nonproliferation Treaty (NPT) Review Conference held in 2000, the international community urged the Conference on Disarmament in Geneva to commence immediately negotiations for a non-discriminatory, multilateral, and international treaty banning the production of fissile materials for nuclear weapons and other nuclear explosive devices. The key issues under contention are verification and inclusion of pre-existing stocks. This article seeks to analyse the US contentions surrounding the issue of verification mechanisms within the FMCT. It also suggests measures to overcome the contentions underlying the verification issue.

Following the negotiations in May 2006, the Bush administration announced its position on the FMCT proposal at the disarmament conference which essentially mentioned a no verification regime and defined the scope of the FMCT narrowly.[1] While not officially rebutting the Bush stance, the Obama administration in 2009 provided an alternative draft FMCT and an article-by-article analysis by the International Panel on Fissile Materials (IPFM) to the disarmament conference in May 2009. The IPFM draft prescribed recommendations for verification under the aegis of the IAEA and upheld a complete halt of the production of fissile materials for weapons use. Although the US remains committed to negotiating a verifiable, legally binding treaty prohibiting the production of fissile material for nuclear weapons or other nuclear explosive devices, it is opposed to having the treaty that includes a new verification regime.
In January 2012, Undersecretary of State for Arms Control and International Security Rose Gottemoeller, while reiterating the US support for a legal ban on the production of fissile material for use in nuclear weapons, stated that the US position on "FMCT obligations, including verification obligations, should cover only new production of fissile material." Earlier in March 2007 while addressing the Conference on "Preparing for 2010: Getting the Process Right", in Annecy, France, Dr. Christopher A. Ford, US Special Representative for Nuclear Nonproliferation, stated:

It is the conclusion of the United States that effective verification of an FMCT cannot be achieved. The United States has concluded that there is no achievable combination of verification and monitoring means and measures that would enable the United States and other parties to the agreement to detect noncompliance in time to convince a violator to reverse its actions, or to take such steps as may be needed to reduce the threat presented and deny the violator the benefits of its wrongdoing.

The US argument is that the nature of FMCT verifications and ensuring compliance with IAEA safeguards are conceptually different aspects. The objective of verification measures is to detect whether there is any production of

undeclared fissile material subsequent to the Cut-Off Treaty for nuclear explosive purposes. The compliance mechanism of FMCT predominantly deals with the detection or investigation of any diversion of non-safeguarded material fissile materials for unknown purposes. The detection of such diverted unsafeguarded fissile materials for unknown purposes is analogous to non-compliance with the IAEA safeguards.

The US makes it clear that any effective and adequately reliable verification for an FMCT would have to address six fundamental verification issues:

(1) detection of production of fissile material at clandestine facilities; (2) monitoring declared fissile material production facilities; (3) providing for the exclusion from verification of fissile material produced for non-proscribed but sensitive (e.g. military) uses after the Treaty's production cut-off date;[2] (4) monitoring material declared as having been produced after the cut-off date, to verify that it is not diverted; (5) excluding from verification fissile material produced before the cutoff date; and (6) determination of acceptable end-use of material produced after the cut-off date."[3]

The USA argues that such extensive verification mechanisms and provisions would not only compromise core national security interests but could also involve enormous costs.[4] And even then there is no assurance that such intrusive verification could "achieve adequate confidence in FMCT verification." Given the challenges involved, the USA opines that it is "unrealistic" to effectively implement an international verification regime that successfully addresses these issues. On the contrary, proposed mechanisms and provisions for verification "could provide a false sense of security leading the governments to fail to guard against possible violations." As an alternative method for verifying compliance the US suggests national means and methods of verification irrespective of the existence of an international verification mechanism.

Washington's lack of confidence in the verification measures is unacceptable for several reasons. The complexities involved ranges from financial investments to foolproof inspections and the risk of national security interests getting compromised. Despite the technical difficulties involved, the problem of verification mechanisms cannot be replaced with the solution of national means and methods of verification as suggested by the USA. It cannot be denied that the production of fissile material and their accountancy is not simply a matter of national affairs of nations. Every state possessing nuclear materials has international obligations to ensure that their respective sensitive fissile material is not vulnerable to being commanded for illicit purposes. This is the only way that can ensure adequate material accountancy, control and transparency. The American unwillingness on FMCT verification is not unacceptable but also discriminatory. The non-nuclear weapon states are obliged to meet the international norms of material accountancy and control and their civilian nuclear sector are subject to international inspections to mitigate proliferation risks. It would be unfair that nuclear weapons states possessing relatively huge inventories are excused on grounds that their nuclear facilities are exclusively a national affair. This prejudice has led to a discriminatory nuclear security culture that has rocked the edifice of the non-proliferation regime.

The US reluctance to the FMCT verification provisions has meant a severe blow to the treaty negotiations. The US position on the verification issue is not only at odds with many of its allies including the United Kingdom and France, but also terminates the Shanon mandate[5] that stands for a "verifiable treaty." In addition, China and the non-aligned nations headed by Egypt believe that verification procedures are technically feasible. Consequently, the FMCT negotiations have remained deadlocked at the consensus-based disarmament conference for years now. There are significant politically driven agendas that have made the realization of an effective, verifiable implementation of the FMCT a complex affair. Its linkage with other security issues like the weaponisation of space, US National Missile Defence and regional security considerations have raised questions on whether the FMCT negotiations would be further delayed, if not abandoned.

Verification is a complicated technical matter. Despite the complexities involved, the FMCT issue is sensitive primarily because of two historic developments. First, the disintegration of the Soviet Union in the 1990s and the ensuing financial crunch that gave rise to concerns of unsafe nuclear weapons and materials dispersed all over the Soviet Union. The financial crisis in Russia in 1998 made it difficult for the Russians to undertake any audit of fissile materials. Though much of the fissile material and nuclear weapons have been successfully put under safeguards,

worries remain about whether some fissile material has been left behind and whether disgruntled nuclear scientists or engineers can be employed to produce an inventory of nuclear weapons. These concerns reinforced the urgency to initiate effective steps to achieve fissile material control. Second, the 9/11 catastrophic destruction of the Twin Towers in New York heightened the fear of nuclear terrorism, which has augmented the necessity of protecting fissile material reserves. The dangers of a nuclear-armed world and its consequent threats of nuclear proliferation exacerbate the fears of unsafeguarded fissile materials falling into the hands of terrorists. After all 'there are strong reasons to believe that future nuclear-armed states will lack the positive mechanisms of civilian control'.[6] Such possibilities can leave weapons-grade fissile materials vulnerable to misappropriation by terror groups seeking to unleash catastrophic terror through lethal means. The probability of terrorists using dangerous fissile materials for their malicious purposes cannot be ignored. These two developments mean that compliance with the FMCT has become a matter of worldwide concern.

In this context, it is important to analyze whether monitoring compliance to the FMCT is possible. Scientists working on the verification impasse are of the view that verification procedures are technically possible. There exist appropriate technical solutions that are capable of providing adequate level of confidence in the verification procedures without compromising on sensitive information regarding weapons design or technology. Though there are debates on the level of intrusiveness of verification methods yet they can be similar to NPT nuclear safeguards and can include declarations on status and design information, material accountancy, containment and surveillance techniques, inspections and detection of undeclared activities. Environmental sampling provides another way of ensuring highly effective method for ensuring compliance to the FMCT. Further the application of commercial observation satellites of high resolution may be used as part of a verification system. This can help in identifying sites housing undeclared fissile materials. The whole process can contribute significantly to the verification of the FMCT. The IAEA did an exemplary task in conducting investigations and unraveling the AQ Khan[7] nuclear black-market network. The techniques applied by IAEA can provide significant lessons in further improving the capabilities for detection of undeclared fissile materials. There are challenges involved in the inspections of closed nuclear facilities and weapons and components being transported from dismantlement facilities. But it is recommendable and probably possible to verify to a certain extent the dismantlement of warheads. Environmental monitoring of effluents can be employed to detect the absence of illicit enrichment or reprocessing from outside. Mothballed lessons can be also taken from Cooperative Threat Reduction (CTR) programmes to implement technical and bureaucratic procedures for nuclear material production, material control, and accountancy as measures for resuming FMCT negotiations. Verifying a moratorium on highly enriched uranium production could be accomplished by validating that the upper stages of the gaseous diffusion plants were mothballed.

Verification mechanisms can be effective with the FMCT parties declaring all relevant enrichment or reprocessing facilities producing fissile material to the authorities. These facilities can be subject to periodic monitoring and surveillance through inspections and containment to ensure that there is no undeclared fissile material produced or diverted for illicit purposes. In the enrichment plants, all facilities would be under verification including the ones producing low enriched uranium so as to verify that there is no undeclared production of highly enriched uranium. To ensure that the use of plutonium conforms to treaty commitments, verification would be applied to separated plutonium product leaving a reprocessing plant, as well as to any facilities in which plutonium separated after the treaty enters into force is present.

Verification of undeclared facilities remains a major challenge under the IAEA safeguards. This can be overcome by "more effective information collection and analysis; satellite imagery; and, through the Additional Protocol, wide-ranging complementary access to apply verification measures such as environmental sampling and environmental monitoring." There also exists the challenge inspection mechanism as evident in the Chemical Weapons Convention whereby the FMCT parties can request for an inspection of any suspect facility producing highly enriched uranium for undeclared purposes.[8] Besides confidence building measures between nation states like India and Pakistan can significantly contribute towards international methods of compliance. Possessing reliable information on each other's stocks will provide less incentive to cheat on each other.

Washington's lack of confidence in the verification capability is more political than technical in nature. Washington is unwilling to undertake intrusive inspections imposed by the international community on its own activities, which are

sensitive in nature. The same line of argument was evident in July 2001 when Washington dismissed the Biological Weapons Convention (BWC) verification protocol stating reasons of rigid verification demands that do not ensure effective reliability. The United States debated whether the draft protocol had no mechanisms for exchanging critical and useful information among states within the international community. It also was devoid of any provisions for deterring rogue states to conduct illicit activities. The US further contended that regular on-site inspections puts declared innocent facilities under suspicion, and argued that far from curbing proliferation the BWC draft protocol hindered national security and commercial propriety information.

The US position reflected that "the current approach to a Protocol [was not] capable of strengthening confidence in compliance with the convention; it would not improve the ability to verify compliance [and would] do little to deter countries seeking biological weapons."[9] However, with the danger of nuclear terrorism becoming more realistic, Washington must realize that an effectively verifiable FMCT is the best mechanism to ensure "international nuclear housekeeping" on all states possessing nuclear weapons and materials. Undeniably, there are technical, financial and political challenges ahead of an effectively verifiable FMCT. However, the technical challenges can be circumvented and that can eventually dissolve the political and financial challenges as well. A non-verified FMCT will render it as an ineffective arms control treaty that cannot ensure a safe and secured non-proliferation regime. With the next Nuclear Security Summit underway in 2016, the US must recognize that a verifiable FMCT will usher in an effective security culture that will strengthen the nuclear non-proliferation regime.

Notes

[1] Stephen G Rademaker, "Rising to the Challenge of Effective Multilateralism," U.S. Statement at the CD – Proposal for Negotiations on an FMCT, May 18, 2006 at fissilematerials.org/library/rad06.pdf, pp. 4-5.

[2] The US primarily contends that FMCT would not include in its purview verification of any fissile material meant for civil purposes and for non-explosive military purposes such as naval propulsion. Of course, this has to be in compliance with the fact that the fissile material is not diverted for weapons building.

[3] This refers to the challenge of verifying that the declared quantity of fissile material produced after adherence to the FMCT is actually used for known purposes and not diverted for non-peaceful purposes

[4] Please see Annette Schaper, "Principles of the verification for a future Fissile Material Cutoff Treaty (FMCT)," *Peace Research Institute Frankfurt*, p. 3, available at http://www.hsfk.de/downloads/prif58.pdf (Accessed May 25, 2015).

[5] On 25 January 1994, Ambassador Gerald Shannon of Canada was appointed by the Conference on Disarmament to seek the views of all Member States on the most appropriate arrangement to negotiate an FMCT. In March 1995, the "Shannon Mandate" (CD/1299) established an Ad Hoc Committee on a "ban on the production of fissile material for nuclear weapons or other nuclear explosive devices." Though the Committee was never functional, the Shannon Mandate has since been used as a basis for negotiations. The Mandate addresses the discord regarding whether the scope of the FMCT should encompass only future production, or the past production of fissile materials stockpiles as well. See "Report Of Ambassador Gerald E Shannon of Canada on Consultations on the Most Appropriate Arrangement to Negotiate a Treaty Banning the Production of Fissile Material for Nuclear Weapons or other Nuclear Explosive Devices," *Conference of Disarmament*, CD/1299, March 24, 1995 at http://cns.miis.edu/inventory/pdfs/cd1299.pdf.

[6] Scott D. Sagan and Kenneth N. Waltz, *The Spread of Nuclear Weapons: An Enduring Debate* (New York: W.W. Norton 2012), p. 43.

[7] A.Q. Khan, the father of Pakistan's nuclear weapons program was also involved over two decades in a black market of nuclear technology and know-how whereby uranium-enrichment centrifuges, nuclear warhead designs,

missiles, and expertise were illicitly traded to Iran, North Korea, and Libya.

[8] John Carlson, “Can a Fissile Material Cutoff Treaty Be Effectively Verified?” *Arms Control Today*, January 1, 2005 at http://www.armscontrol.org/act/2005_01-02/Carlson.

[9] “Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons (BTWC),” *Nuclear Threat Initiative*, at http://www.nti.org/treaties-and-regimes/convention-prohibition-development-production-and-stockpiling-bacteriological-biological-and-toxin-weapons-btwc/.

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