

**Early Entry into Force of CTBT for Future NPT Regime:  
Challenge for Renovation of Verification in the Post DPRK Nuclear Test 2006**

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**Introduction**

In 2006, international community celebrated 10th birthday of the Comprehensive Nuclear Test-Ban Treaty (CTBT). It was a decade of enormous investment for state signatories to build up treaty-mandated Multilateral Technical Means (MTM) for verification, by which information concerning suspected treaty violation is shared among these states, bringing already some positive results. In that sense, the CTBT has continued to play a significant role for maintaining and reinforcing the Nuclear Nonproliferation Treaty (NPT) regime up to these days. However, judging from the problems that the CTBT Organization (CTBTO) Prepcom currently faces, it is not fair at all to neglect a gloomy prospect for the treaty and its verification regime. The international community thus stands at a critical crossroad for survival of the CTBT.

This article argues the distinct value of pursuing early entry into force of the CTBT for the NPT regime. It first describes the current problems and future prospects of the CTBTO Prepcom and its verification regime. Then it deals with lessons learned from the DPRK's nuclear test of October 2006 especially focusing on objective assessment of National Technical Measures (NTM). The view and analysis expressed in this article are author's personal remarks and do not represent those of CPDNP-JIIA.

**1. Current status of the CTBT**

Since the treaty has been opened for signature, the CTBT has enjoyed the support of the international community as is seen in number of signatory nations. Through the decade, the most attentions have been paid to its verification capability and endorsement of 44 Annex 2 states. Concerning the former point, the CTBT and its executive organ, namely the Provisional Technical Secretariat (PTS) have been proven their capability from time to time. On the occasion of India and Pakistan's nuclear tests in 1998, and more recently the DPRK's pronouncement on nuclear test explosion in 2006, the PTS has proved its capacity of IMS to integrate facts and realities of the incidents under provisional status

so called “provisional operation”. However, the past example of provisional operation only worked with limited effects. The reason is that, during the provisional phase, any states could not request On-Site Inspection (OSI) when suspicious event has detected by the International Monitoring System (IMS) network. At the same time, some countries are often reluctant to allow practicing OSI because of its contradictable nature against national sovereignty.

The CTBT verification regime consists of 4 functions as for MTM; IMS, OSI, Consultation and Clarification (C&C) and Confidence Building Measures (CBM). These 4 functions are subsidiary to each other because the deliverables of verification activities will be shared among the state signatories no matter what function has brought it. Using different technique also helps verifying compliance of the state signatories by offering the most knowledge available for their decision-making.

However, it should be stressed that OSI is among the most essential functioning to be applied as a practical measure to prove whether a state has violated the treaty or if the right of requesting OSI has been abused. This is the first and foremost reason why early entry into force of the treaty is strongly desired by most state signatories in spite of its verification regime allowing highly intrusive activities. Due to unexpected delay of entry into force of the treaty, the PTS is in crisis and facing the problems as follows.

### **(1) Budget shortfall and suspended voting rights of states signatories**

On 12 December 2007, the CTBTO Prepcom has published information chart about states signatories’ assessed payments<sup>1</sup>. According to the chart, more than 60 states signatories have their voting right suspended at the Prepcom because their obligatory payments are in arrears. In fact, collection rates for 2007 assessed contributions remained at 74% level. For instance, since 2005, U.S. arrears cause serious financial problem to the CTBTO Prepcom<sup>2</sup> and its voting right was suspended twice indeed.

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<sup>1</sup> CTBTO Prepcom, “Information about States Signatories’ assessed payments to the CTBTO Preparatory Commission as of 12 December 2007,” Official Website of the CTBTO Prepcom. [http://www.ctbto.org/prepcom/0507\\_collections.pdf](http://www.ctbto.org/prepcom/0507_collections.pdf) (accessed 28 December 2007)

<sup>2</sup> CTBTO Prepcom Press release (PI/2007/04), “CTBTO faces budgetary challenges,” Official Website of the CTBTO Prepcom. [http://www.ctbto.org/press\\_centre/featured\\_articles/2007/2007\\_2206\\_budgetarychallenges.htm?item](http://www.ctbto.org/press_centre/featured_articles/2007/2007_2206_budgetarychallenges.htm?item)

Consequently, the PTS lapsed into unprecedented budget shortfall and its verification related programme has faced an inequitable need to restructure in the order of ascending other priorities.

What matters is that other state signatories paying accessed rates will be discouraged as the number of “free riders” increases. It is because provisional operation allows any signatory to access the International Data Center (IDC) products 24 hours a day, everyday, without any condition. All this verification capabilities may sluggish with budget shortfall. Also, with persisting provisional operation, international community will eventually lose its momentum for pursuing early entry into force of the treaty and maintaining verification regime under construction sooner or later. Thus, chronic budget shortfall under current situation means that the CTBTO Prepcom and its verification infrastructures have difficulty surviving.

**(2) Multilateral verification regime in a fog; mutually complementary nature of the CTBT verification measures and the uniqueness of OSI**

A decade ago, it was expected that CTBT will enter into force in the next several years and the CTBTO Prepcom has argued numerous plans to develop its verification capability as was requested in the treaty. At present, IMS has completed more than 70 percent of its monitoring station installation all over the world. After the station installation process will be finished, the PTS will move into the operation and maintenance process. When the DPRK claimed nuclear test on 9 October 2006, the IMS network that operated at 60 percent of capacity detected a suspicious man-made seismic waveform at many seismic monitoring stations, and several days after the event, Xe-133 (noble gas that may prove the nuclear test) was observed at the radionuclide monitoring station (Yellowknife, Canada) at levels significantly above the ordinary background. In spite of the past actual performance, in recent years budget shortfall necessitates a change in the plan to construct the IMS network and the pace of placing and certifying the IMS stations is slowing steadily.

On the other hand, OSI is a contrast to the situation of IMS. As is seen in history of

nuclear test ban negotiations since 1950's, OSI was often regarded as the "last-resort" and its intrusiveness will serve an important role, not only for the verification of the compliance but also for the deterrence against the potential violators. However, due to the U.S. delegations' withdrawal from that elaboration process of OSI operational manual, the development of OSI major elements including operational manual, inspector training, development and procurement of inspection equipment and inspection methodology development has been slowed down. Currently the deliberation of OSI operational manual is finishing the second round process, and third round is expected to start from early 2009. Also the first large scale field trial is scheduled at mid 2008 and the PTS starts preparing next 4 years cycle of large scale OSI field exercises. Here the other problem is that the 4 years cycle has been criticized by number of state signatories, because it is unrealistic to financing an uncertain future of this treaty. All this still-pending situation of the CTBT causes many problems to construct the treaty mandated verification regime<sup>3</sup>.

## **2. Lessons learned from the DPRK's nuclear test**

On 9 October 2006, the CTBTO Prepcom moved squarely into the international spotlight again. Suspicious anomaly originated in the Korean Peninsula was observed by both seismic and radionuclide monitoring stations of the IMS<sup>4</sup>. Those results of MTM of verification were shared between state signatories of the CTBT and signatories' National Data Centre (NDC) to get chances to study their own analytical result of the event. It could be assumed that this is the merit of the CTBT in which each state signatory can request all the available information concerning the observed anomalies and thus each state signatory can make the impartial judgment by themselves<sup>5</sup> whether the event observed was a nuclear test. This section argues about

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<sup>3</sup> In accordance with Article IV paragraph 1, verification regime will be capable of meeting the verification requirements at entry into force of the treaty. Current situation of the CTBTO Prepcom poses a dilemma with this regard.

<sup>4</sup> Dong-Myung Kim, "North Korea's Nuclear Issues and the Implications for the Nuclear Non-Proliferation Regime," (Article presented at the 57th Pugwash Annual Conference, Bari, Italy, 21-26 October 2007.) [http://www.kmaaa.or.kr/board\\_03/view.asp?bnum=2210&page=6](http://www.kmaaa.or.kr/board_03/view.asp?bnum=2210&page=6) (accessed 1 January 2008)

<sup>5</sup> For instance, up to the present, Japan has not made its own judgment that the DPRK conducted

the result of the DPRK's nuclear test and examines the value placed on the CTBT, especially on the pros and cons of dependence of states' NTM.

### **(1) Potential Pitfall**

On the occasion of the DPRK's nuclear test, the effort done by the U.S. and the ROK demonstrated the usefulness of their NTM of verification especially for the noble gas monitoring. For instance, WC-135 "Constant Phoenix" of U.S. Air Force flew the Japan Sea to conduct air-sampling operations. Then on 16 October 2006, U.S. Office of Director of National Intelligence (ODNI) has officially proclaimed that the analytical result of those air samples detects the radioactive debris, which is derived from the DPRK's underground nuclear explosion<sup>6</sup>. In the mean time, immediately after the claim by the DPRK on 3 October 2006, the ROK contracted with Swedish FOI<sup>7</sup> to lend their noble gas mobile collection system and to dispatch engineers to operate that system within its territory. In accordance with the Japanese news source<sup>8</sup> on 25 October 2006, the ROK Ministry of Science and Technology have publicly announced its conviction of the DPRK's nuclear test with collected xenon gas samples as hard evidence. However, detailed information related to those evidences remains unpublicized from the both sides.

As just described, NTM is a unique measure on the disarmament and nonproliferation treaties including the CTBT. Since NTM is often regarded as synonym to espionage, such intrusiveness and unequal accessibility became a major focus of criticism by NTM have-nots even to this day. For instance, Japanese government has not determined yet that there had been a nuclear test; it just stated that there had been a high probability of a

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nuclear test explosion, even though the U.S. and the ROK had officially made judgments that stand on each NTM.

<sup>6</sup> ODNI News Release (No.19-06), "Statement by the Office of the Director of National Intelligence on the North Korea Nuclear Test," 16 October 2006.

[http://www.odni.gov/announcements/20061016\\_release.pdf](http://www.odni.gov/announcements/20061016_release.pdf) (accessed 27 December 2007)

<sup>7</sup> FOI, "Annual Report 2006," Official Website of the Swedish Defence Research Agency. [http://www.foi.se/upload/omfoi/infomaterial/FOI\\_%C3%85R\\_06\\_eng\\_webb.pdf](http://www.foi.se/upload/omfoi/infomaterial/FOI_%C3%85R_06_eng_webb.pdf) (accessed 4 January 2008)

<sup>8</sup> *Yomiuri Online*, 25 October 2006.

<http://www.yomiuri.co.jp/feature/fe7000/news/20061025i213.htm> (accessed 4 January 2007)

nuclear test having been conducted. This might be a case that neither the IDC products nor the particular states' NTM information was sufficient enough to convince that the event observed was a nuclear explosion.

Although the information derived from states' intelligence activities is useful in some cases to estimate and narrowing down the area to be inspected, overdependence to the particular states' NTM raised serious concerns of many state parties during the negotiation of the CTBT. In addition, information provided from specific states' intelligence activity might contain the potential hazard of "disinformation".

## **(2) Can we deter further nuclear tests?**

For the sake of preventing the spread of nuclear weapons, long-heralded CTBT under the NPT regime will play an important role in deterring both the nuclear powers and new nuclear-weapon states from testing its nuclear explosive devices. In the light of the number of signatory states, it is no doubt that the CTBT gradually molds of the international norm to prohibit nuclear explosion. However, the case of the DPRK's nuclear test has shown that the emergence of new nuclear weapon-states is deterred neither by the treaty nor its verification regime. This leads to a point that the deterrence based on the treaty verification regime will raise the political costs of pursuing a clandestine underground nuclear test, but will not always have an impact on a decision making of the convinced proliferators.

The case of the DPRK's nuclear test has also indicated that the combination of provisionally operating IMS network and particular states' NTM of verification have little power to discourage the country that seeks to develop the nuclear weapons.

All these means that the facilitation of the entry into force of the CTBT with fully functional verification measures will be a key to raise deterrent effects against the future potential violators pursuing a clandestine underground nuclear test. Then after the treaty came into effect, reducing the convinced proliferators' political incentives to withdraw from the CTBT will become crucial for the global society to prevent any further nuclear testing.

Under the current circumstances whereas the U.S. holds the key to promote ratification of the CTBT and as long as the U.S. government places the nuclear non-proliferation as the axis of its foreign policy, prompt ratification of the treaty is the most cost effective way to reinforce the NPT regime.

**Conclusion:**

As was mentioned, the CTBTO Prepcom today faces serious budgetary problem. The number of countries with suspended voting right indicates the failing momentum not only for the promotion of early entry into force of the CTBT but also for the maintenance of the IMS network and other verification related programmes including OSI, unfortunately. Increasing number of free riders of the IDC products without paying its assessed contribution frustrates those who pay. Also, it is very important to note that the treaty's verification regime, especially OSI, has its role fundamentally as a deterrent against possible violator's clandestine nuclear test explosion. For the sake of prevention of newly emerging nuclear-weapon states, bringing the treaty into effect at an early stage and raising the political costs for the convinced proliferators to conduct own nuclear tests will be the best solution for the state signatories to recoup their past investments.

If the current situation of IMS/IDC provisional operation will continue, it might be possible that both the world wide nuclear test monitoring infrastructure and future deterrence will go down into the drain.

Among the Annex 2 states that have not yet ratified the treaty, the U.S. government should realize its responsibility to promote ratification of the treaty and reaffirm its recognition of the need for the CTBT.

Today, after the experience of the DPRK's nuclear test, every state signatories of the CTBT should combine the wisdom to seek a solution for the early entry into force of the treaty, and not squander the past huge investments. Real action toward "a world free of nuclear weapon"<sup>9</sup> is the task, which the international community as a whole has to undertake, and the entry into force of the CTBT will guide the best way to maximize its effect under the NPT regime.

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<sup>9</sup> George P. Shultz, William J. Perry, Henry A. Kissinger and Sam Nunn, "A World Free of Nuclear Weapons," *The Wall Street Journal Op-Ed*, 4 January 2007.  
[http://www.fcni.org/issues/item.php?item\\_id=2252&issue\\_id=54](http://www.fcni.org/issues/item.php?item_id=2252&issue_id=54) (accessed 4 January 2008)