

The CTBT: Analysis and Assessment¹

*Jozef GOLDBLAT*²

On 24 September 1996, a treaty banning all nuclear test explosions was opened for signature in New York. It was described by President Bill Clinton of the United States as the longest sought, hardest fought prize in arms control history. Indeed, the question of nuclear explosions had been on the agenda of bilateral (United States-Soviet Union), trilateral (Great Britain-United States-Soviet Union) and multilateral arms control negotiations ever since 1954, when India proposed a so-called standstill agreement on nuclear testing. The Indian proposal was put forward after a major radiation accident which followed an American nuclear test in the Pacific.

During the subsequent four decades of deliberations and negotiations for the cessation of nuclear testing, three treaties were concluded circumscribing the environment for test explosions and reducing the force (yield) of the explosions. Since none of these treaties had made a mitigating impact on the nuclear arms race, international pressure for a comprehensive test ban (CTB) continued. For a long time, the CTB talks dealt almost exclusively with technical means to verify compliance with a projected ban rather than with the specifics of the ban itself. The Western Powers insisted on control measures which were obviously unacceptable to the Soviet Union, whereas the Soviet Union refused to accept control measures which were obviously indispensable for the credibility of a CTB. In the atmosphere of the Cold War, characterized by unremitting nuclear competition, the sterile dispute over verification provided a convenient excuse for the great Powers to block an agreement which they were clearly not keen to achieve. After years of fruitless bargaining, the United States declared that since nuclear testing was important for the security of the Western Alliance, a CTB could only be a long-term objective to be sought in the context of nuclear arms reductions, maintenance of a reliable nuclear deterrent and expanded confidence-building measures. The Soviet

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² Consultant to UNIDIR.

Union was thus relieved from making public its own reluctance to stop nuclear testing.

The situation changed radically in 1992, when the United States Congress, following the example of Russia and France, declared a nine-month suspension of nuclear testing. Congress also resolved that the American testing programme should be terminated by 30 September 1996, after a limited number of explosions, designed primarily to improve the safety of nuclear weapons, had been carried out. In 1993, the Clinton Administration decided that the United States would use means other than test explosions to ensure the safety of its nuclear arsenal, and extended its moratorium on testing. Russia and the United Kingdom followed suit. Thus, a way was opened for bona fide negotiations on a CTB. They started at the Conference on Disarmament (CD) in January 1994, and some two years later the 50th United Nations General Assembly (UNGA) called upon the CD to complete the text of the treaty as soon as possible in 1996, so as to enable its signature by the outset of the 51st session of the Assembly.¹

The CD set up an ad hoc committee with a mandate to negotiate a nuclear test ban. In addition to the so-called rolling text of the CTB treaty (CTBT), subject to continuous changes, the Conference had before it drafts submitted by Australia and Iran. The main contentious points were:

- * the scope of the obligations of the parties;
- * entry into force of the treaty;

Nuclear Explosions, 16 July 1945-24 September 1996							
	United States	USSR/Russia	United Kingdom	France	China	India	Total
Atmosphere and underwater	217	219	21	50	23		530
Under ground	814	496	24	160	22	1	1518
Total	1032	715	45	210	45	1	2048

After 1961, all British tests were conducted jointly with the United States at the Nevada Test Site; thus the number of American explosions is actually higher than that indicated above.

Sources: Stockholm International Peace Research Institute, United States Department of Energy and National Resources Defence Council.

- * the duration of the treaty; and
- * verification of compliance.

On 28 June 1996, the Chairman of the ad hoc committee proposed a draft CTBT which included compromise formulations for the controversial issues²

This paper analyses the four problems (noted above) encountered by the negotiators and explains how they were solved. It ends with an assessment of the treaty.

Scope of the obligations under the CTBT

From the beginning, the CD negotiators agreed that nuclear-weapon test explosions should be banned at any place in the atmosphere, outer space, underwater and underground. However, since "nuclear explosion" was not defined, a controversy arose as to whether a CTB should or should not cover the so-called hydronuclear experiments (HNEs) which release small amounts of nuclear energy.³ For some, "small" meant a yield equivalent to a few kilograms of high explosives; for others, it meant a yield equivalent to tens or even several hundred tons of high explosives which is more than the explosive force of certain battlefield nuclear weapons. At one point during the negotiations, France and the United Kingdom wanted to reserve the right in "exceptional circumstances" to conduct nuclear explosions without restrictions, on yield, but they later withdrew this demand. To a certain degree, HNEs may be useful to check the safety of a nuclear weapon and to assess the significance of unforeseen physical changes in the weapon. However, their technical value is small compared to the political benefits of reaching a CTB. The tests so far conducted by the nuclear Powers must have already ensured a high degree of safety of nuclear weapons; no accidental nuclear explosion has occurred since the beginning of the nuclear age. A few detonations of the non-nuclear explosive component of nuclear weapons did take place, causing the dispersal of radioactive materials, but the risks of such occurrences were considerably lowered when the conventional explosive initiating the fission or fission-fusion reaction was replaced in most weapons with an insensitive high explosive less prone to accidental detonation. Moreover, many nuclear weapons are equipped with permissive action mechanisms disabling the weapons when their