
CURRENT LEGAL DEVELOPMENTS

The Comprehensive Nuclear Test Ban Treaty

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1. INTRODUCTION

In 1954, following the US explosion of a large thermonuclear device in the South Pacific, Prime Minister Nehru of India led the first international call for a comprehensive ban on nuclear testing. It took until 10 September 1996 for the General Assembly of the United Nations to adopt¹ the Comprehensive Nuclear Test Ban Treaty (CTBT).² As at the end of April 1997, it had been signed by 142 states including the five nuclear-weapon states.

On entry into force, the CTBT will prohibit all nuclear explosions (not only nuclear-weapon test explosions), create a new international organisation to ensure implementation, and provide for verification of compliance through a global network of monitoring stations ('the International Monitoring System') and a system for on-site inspections.

The text of the CTBT was negotiated in an *ad hoc* committee of the Conference on Disarmament,³ in Geneva, which operates by consensus. Work began in January 1994 but, due to polarised views on key issues, progress was very slow. The nuclear-weapon states saw the CTBT primar-

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1. See UN Doc. A/50/L.78 (1996) for the resolution. It was adopted by 158 votes in favour, 3 votes against and 5 abstentions. India, Bhutan, and Libya voted against. Tanzania, Syria, Lebanon, Mauritius, and Cuba abstained. The Democratic Peoples' Republic of Korea, Eritrea, Lesotho, the Seychelles, and Zambia did not vote.
 2. See UN Doc. A/50/1027 (1996) for the text of the CTBT. It is also contained in Conference on Disarmament Doc. CD/1427 (1996).
 3. The Conference on Disarmament is an autonomous negotiating body - the only multilateral disarmament negotiating forum. It is the successor body to the Ten Nation (1958-1960) and Eighteen Nation (1961-1968) Disarmament Committees, and the Committee on Disarmament (1969-1984). It was renamed the Conference on Disarmament in 1984. Its membership was expanded from 38 to 61 states in June 1996.

ily as a non-proliferation measure. Many of the non-nuclear-weapon states saw it primarily as a disarmament measure. These very different starting points produced very different approaches to the text on the key issues of scope and entry into force. There were also widely diverging approaches to the verification regime, although these were driven more by national security considerations than by the non-proliferation/disarmament debate. By the end of 1995 there was a great deal of conflicting text on the table, and very little narrowing of the differences.

The impetus to find compromises and move forward more rapidly was given by the Decision of the 1995 Review and Extension Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT).⁴ As well as extending the NPT indefinitely, the Conference adopted a set of principles and objectives which included a commitment to complete negotiation of the CTBT 'no later than 1996'. That decision was followed in December 1995 by UN General Assembly Resolution 50/65 which called upon the negotiating states to conclude the CTBT in time for its signature before the start of the next session of the General Assembly - i.e., by early September 1996.

It was against that background that Ambassador Jaap Ramaker of the Netherlands skilfully chaired the ad hoc committee through its final stages, changing its working methods so as to meet the deadline. He tabled a series of Chairman's texts aimed at striking compromises between the opposing positions on the table. It was his text of 14 August 1996⁵ which, although it did not achieve consensus in the Conference on Disarmament, was acceptable to such an overwhelming majority of delegations that Australia was able to table it at the General Assembly and to achieve its adoption within the time-limit.

2. THE SCOPE OF THE PROHIBITION

Under Article 1 of the CTBT, each state party "[...] undertakes not to carry out any nuclear-weapon test explosion or any other nuclear explosion, and to prohibit and prevent any such nuclear explosion at any place under its jurisdiction or control." The second paragraph of Article 1 expands the

4. See IAEA Doc. INFCIRC/474 (1995); and also NPT/Conf.1995/32/Dec.1-3 (1995).

5. Conference on Disarmament Doc. CD/1427.

prohibition to “[...] causing, encouraging, or in any way participating in” the conduct of a nuclear explosion.

The scope of the prohibition for States Parties will therefore extend to any nuclear explosion, anywhere. There are no exceptions. It will not be limited to nuclear-weapon test explosions, and there will be no geographical limitation. (Only the obligation to prohibit and prevent others from conducting nuclear explosions will be limited to places under the jurisdiction or control of the state.) And the prohibition will be forever - there is no duration Article.⁶

The nuclear-weapon states accepted from the outset of the negotiation that the CTBT would extend to all environments the ban on underwater and atmospheric nuclear explosions contained in the 1963 Partial Test Ban Treaty.⁷ They made it clear, however, that this would not prevent them from continuing to conduct activities for the safety and maintenance of their nuclear stockpiles. There was a good deal of speculation during the negotiation that the nuclear-weapon states therefore intended to continue nuclear test explosions with very small yields. This led to drafting suggestions by several delegations aimed at preventing any such exception. Announcements by the US, the UK, and France in the summer of 1995 of their support for a ‘zero yield’ CTBT (i.e. one that banned *all* nuclear explosions, whatever the yield), dispelled many of the doubts and laid the ground for a very straightforward text of Article 1.

In the final stages of the negotiation, the Indian delegation raised the argument that the CTBT should prevent the nuclear-weapon states developing new advanced types of nuclear-weapons. To achieve that, it should prohibit not only nuclear explosions, but all types of nuclear tests, for example, computer simulated tests. This approach at first enjoyed support among many of the non-nuclear-weapon states, but most dropped it when the nuclear-weapon states made it clear that they could not entertain a CTBT on that basis. Ultimately, all except India accepted a prohibition limited to nuclear explosions.

From the start of the negotiation, the Chinese delegation maintained

6. But Art. IX contains a withdrawal clause in standard terms, i.e., withdrawal by a state party is permissible on giving six months notice if extraordinary events related to the subject matter of the CTBT jeopardise the supreme interests of that state.

7. Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Underwater signed at Moscow on 5 August 1963 (depositories: United States of America, United Kingdom, Russia).

that there should be an exception to the scope of the CTBT to permit 'peaceful' nuclear explosions, i.e. nuclear explosions for purposes other than military advancement. They received support initially from the Russian delegation, but all others were strongly opposed. Many saw it as an enormous potential loophole. There were no proven viable uses of peaceful nuclear explosions and no means of ensuring that military benefit would be excluded. Compromise was reached in the last weeks of the negotiation on a provision in the Article on review of the CTBT (Article VIII). It permits peaceful nuclear explosions only if consensus to that effect is achieved at a review conference (the first is envisaged for ten years after entry into force) and if an amendment to the CTBT can be agreed that precludes any military benefits.

3. ENTRY INTO FORCE

The entry into force provision (Article XIV) was one of the most difficult and protracted areas of the negotiation. Entry into force will take place 180 days after ratification by a list of 44 states identified by a complicated formula in Annex 2 to the CTBT. The list is of those states members of the Conference on Disarmament as at 18 June 1996 which "formally participated"⁸ in its 1996 session and which also appear in the International Atomic Energy Agency's (IAEA) lists of states that have nuclear power reactors and/or nuclear research reactors.⁹

There is a certain logic in tying entry into force to ratification by all those states that negotiated the CTBT that have a nuclear capability in some form. But the roots of this formulation lie more, in fact, in the non-proliferation versus disarmament debate mentioned above.

Most delegations emphasised the need for rapid entry into force and therefore favoured formulations to achieve that, e.g., a simple number of ratifications. But for those emphasising non-proliferation, the CTBT's value lay in its inhibition of potential proliferators from developing sophisticated nuclear weapons. Since all non-nuclear-weapon states that were

8. This phrase was included so as to exclude 'Yugoslavia' which is still listed as a member of the Conference on Disarmament.

9. Table 1 of the IAEA's publication *Nuclear Power Reactors in the World*, April 1996 edition; and Table 1 of the IAEA's publication *Nuclear Research Reactors in the World*, December 1995 edition.

parties to the NPT were already prohibited from such activities, the CTBT could only extend that prohibition by attracting the adherence of the five nuclear-weapon states and the three other so-called 'nuclear capable' or 'threshold' states not already parties to the NPT - India, Pakistan, and Israel.

The United Kingdom, Russia, China, and Pakistan, in particular, argued that the most effective way of ensuring that the CTBT came to bear upon the most relevant states was to make ratification by the five nuclear-weapon states and the three threshold states a condition for entry into force. This could be achieved by making entry into force conditional upon ratification by any reasonable list of states provided it included the 'essential' eight. Egypt also strongly supported this approach. Since four of the eight essential states themselves insisted on this approach, and three of the others (the US, France, and Israel) were willing to acquiesce in it, Ambassador Ramaker judged it to be the only type of formulation with a chance of attracting consensus. The formulation that appears in the CTBT is based on an original Russian proposal, and includes the eight.

The Indian delegation reacted very strongly against this formulation. In their view, it was an unprecedented and unacceptable attempt to force India to ratify a treaty against its will. The text addressed only non-proliferation concerns and not disarmament concerns. The Indian delegation had tabled language which in their view placed the CTBT in a disarmament context by making it the first step in a 'time-bound framework' leading to the total elimination of nuclear weapons. They had done so in particular by linking entry into force to declarations to be made by all states at the time of ratification, committing themselves to the elimination of nuclear weapons within a specified time period (to be negotiated). Although the objective of eliminating nuclear weapons in a time-bound framework was shared by many non-nuclear-weapon states, all recognized that it was not acceptable to the nuclear-weapon states and that insistence on its inclusion would effectively have blocked conclusion of the CTBT.

The entry into force Article was India's principal reason for refusing to join a consensus in the Conference on Disarmament and for its vote against the text in the UN General Assembly. Toward the end of the negotiation, India announced that the failure of the text to take account of its key concerns, notably the lack of a commitment by the nuclear-weapon states to the elimination of all nuclear-weapons, meant that India would not sign or ratify the CTBT. Pakistan, in response, said that it would ratify the CTBT

when India does - in line with its position on the NPT.

What prospect is there for entry into force, therefore? First, the very fact that entry into force will not take place until the 44 states including India and Pakistan have ratified will produce its own form of incentive to ratify. The overwhelming number of positive votes in the General Assembly followed by a very high number of early signatures is a good indication that widespread ratification will follow. As time passes and the CTBT attracts ratifications by states from all regions of the world, those states will be looking to India and Pakistan to trigger entry into force. This expectation will be all the stronger for the fact that the signatory states are investing a lot of time, money and political commitment in working rapidly in Vienna to create the CTBT Organisation and to set up the International Monitoring System.

Second, the entry into force Article itself provides for a mechanism for 'facilitating' entry into force. If the CTBT has not entered into force four years after its opening for signature, i.e., 24 September 2000,¹⁰ there will be a conference of all States that have deposited instruments of ratification to consider the matter.¹¹ The conference would not be able to waive any of the requirements for entry into force, but would at least provide a high profile forum where further encouragements to those that have not yet ratified could be voiced.

4. THE ORGANIZATION

At entry into force, the Comprehensive Nuclear Test Ban Treaty Organization will come into being in Vienna. All CTBT States Parties will be members. It will consist of a Conference of the States Parties, an Executive Council (51 members elected by the Conference) and a Technical Secretariat.

The Conference, which will normally meet annually, will be the prin-

10. Art. XIV actually says "[...] three years after the date of the anniversary of its opening for signature". There is some disagreement as to what this means exactly - three years after opening for signature, or four. The most natural interpretation in the author's view is that the anniversary of opening for signature is one year after the date of opening for signature, and that three years from that anniversary therefore means four years after opening for signature.

11. *Id.*, provided a majority of them so request.

cial organ of the Organisation, responsible for overseeing the implementation of the CTBT and the activities of the Executive Council and the Technical Secretariat.

The Executive Council will be responsible for the routine running of the Organisation. Its composition will be representative of the regional groups.¹² Each regional group will allocate at least one third of its seats to states in its region based on criteria such as nuclear capability, security interests and the number of CTBT monitoring facilities on the territory of the state concerned.¹³ By this means, a category of 'continuous' members of the Executive Council will be created. The remaining seats for each region will be rotated within the regional group according to formulae which ensure that all states parties will, at some point, sit in the Executive Council.¹⁴

The primary function of the Technical Secretariat will be to assist States Parties, the Conference and the Executive Council in the implementation of the CTBT. It will be responsible for supervising the operation of the International Monitoring System, operating the International Data Centre (a computer system to collect and process information from the International Monitoring System) analysing that information and making it available to the States Parties and other organs of the Organisation.¹⁵

The preparations for the establishment of the Organisation are already well under way. The PrepCom, consisting of all CTBT signatory states, started work in New York in November 1996 and continued in March this year in Geneva. Since April, it has transferred to Vienna. The Provisional Technical Secretariat is already established in the headquarters building in Vienna, co-located with the International Atomic Energy Agency (IAEA). Provision is made in the CTBT for cooperation between the two organisations, but the nature and extent of that cooperation remains an open question at present.¹⁶

12. There will be six regional groups under the CTBT as opposed to the five regional group system of the United Nations. They will be Africa; Eastern Europe; Latin America, and the Caribbean; the Middle East and South Asia; South East Asia, the Pacific, and the Far East; and North America and Western Europe.

13. Art. II, para. 29(a) CTBT.

14. Art. II, paras. 29(b) and (c) CTBT.

15. See Art. II, paras. 42-53 CTBT for the functions of the Technical Secretariat.

16. Art. II, para. 8 CTBT.

5. THE VERIFICATION REGIME

The CTBT verification regime is more extensive than that of any other arms control or disarmament treaty.¹⁷ Its principal components are the International Monitoring System and the provisions concerning on-site inspections.¹⁸

5.1. The international monitoring system

It is the International Monitoring System that will make the CTBT unique among arms control and disarmament treaties. A global network of seismological, hydroacoustic, infrasound and radionuclide monitoring stations that will transmit information back to the International Data Centre in Vienna, where the Technical Secretariat will analyse it and make it available to all States Parties.

It is not expressly stated in the CTBT, but the working assumption of the scientific experts that put together the list of International Monitoring System stations¹⁹ was that it would be capable of detecting, identifying, and locating nuclear explosions anywhere in the world down to a yield of one kiloton. Coverage will not be uniform, and in fact in many parts of the world the system will be capable of detecting significantly smaller nuclear explosions. This global detection capability should prove a powerful disincentive to any would-be violators of the CTBT.

The PrepCom has already started work, through a task force of scientific experts, on planning the setting-up of the International Monitoring System. The aim is for it to be functional (albeit not 100%) by the end of 1998. It remains to be seen whether this is technically and financially feasible. Encouraging, in this regard, is the fact that the International Monitoring System and the International Data Centre do not have to be created from scratch. Since the 1970s, the Conference on Disarmament has been working (through its Group of Scientific Experts' Technical Test) on how data could be transmitted from a prototype network of seismic stations to a prototype Data Centre operated by the US government. Through that

17. See Art. IV and the Protocol to the CTBT.

18. Its other components are the consultation and clarification provisions set out in paras. 29-33 of Art. IV, and the confidence-building provisions set out in para. 68 of Art. IV and pt. III of the Protocol.

19. Contained in Ann. 1 to the Protocol to the CTBT.

experiment, approximately sixty percent of the primary seismic stations are already functional, and a great deal of knowledge and expertise has been gained.²⁰

5.2. On-site inspections

Each State Party will have the right to request an on-site inspection on the territory of another State Party to clarify whether a nuclear explosion has been carried out.²¹ Inspections will be carried out by experts designated by the Director General of the CTBT Organisation from a list of experts nominated by the States Parties.²² It will fall to the Executive Council to consider on-site inspection requests and to decide whether the inspection should be carried out.²³ The negotiation of the Executive Council procedure for this decision (the so-called 'trigger mechanism') was another of the most difficult areas of the entire CTBT negotiation, and ultimately was the key to completing the text.

The two main issues were the number of votes required in the Executive Council to approve an on-site inspection; and whether or not 'national technical means' (e.g., satellite photography) could be used as a basis, either alone or in conjunction with information from the International Monitoring System, for an on-site inspection request. On the first issue, the western countries plus Egypt and Iran wanted an on-site inspection to be automatically approved unless two-thirds of the Executive Council voted to block it. China, Russia and many others wanted the request to require positive approval by two-thirds of the Executive Council. On the second issue, the US was strongly in favour of the possibility of national technical means as a sole basis for an on-site inspection request. China was the main proponent of a requirement of corroborating information from the International Monitoring System.

In the final weeks of the negotiation, a compromise was reached on, on the one hand, 30 votes in favour being required in the Executive Council to approve an on-site inspection (which is closer to the Chinese and Russian position) and, on the other hand, acceptance that national technical means

20. Primary stations are those that will transmit data continuously to the International Data Centre. Auxilliary stations will do so only on request.

21. Art. IV, paras. 34 and 35 CTBT.

22. See pt. II of the Protocol to the CTBT.

23. Art. IV, para. 46 CTBT.

could be the sole basis of an on-site inspection request.

Following an on-site inspection, the inspection team will produce a report of its findings. The inspected state will have the opportunity to submit comments and corrections while it is in draft form. When finalised, it will be distributed to the requesting state, the inspected state, the Executive Council and to all other States Parties.²⁴ The Executive Council will then 'address any concerns as to' whether there has been a violation of the CTBT.²⁵

6. DISPUTE PREVENTION AND SETTLEMENT

Although the CTBT contains only one substantive prohibition - that against conducting nuclear explosions - there will be many sources of potential dispute. For example, there might be disputes about procedure in the Executive Council or the Conference, or disputes about the financial obligations.²⁶ Disputes about whether a nuclear explosion has been conducted should (hopefully) happen rarely, if at all. One potential source of dispute that should not be overlooked is that of suspected preparations for the conduct of a nuclear explosion. The necessary preparations for an underground nuclear test are very extensive, and it is they that have often alerted the world in recent years to the imminence of a nuclear explosion.²⁷ Preparations will not, *per se*, be prohibited by the CTBT, but it is clear in various provisions that they are a legitimate source of concern that States Parties will be able to raise in the CTBT Organisation.²⁸

Principal among the CTBT's provisions for prevention and settlement of disputes will be the verification regime itself. The existence of the International Monitoring System and the possibility of on-site inspections should prove powerful disincentives to the conduct of nuclear explosions. Their dispute settlement role would come into play through, for example, clarifying that a suspect event is an earthquake rather than a nuclear

24. See Art. IV, paras. 62-68 CTBT for the provisions concerning reports of on-site inspections.

25. A formulation devised because it was not possible to agree that the Executive Council should have the power to decide whether or not there has been a violation.

26. Contained in paras. 9-11 of Art. II CTBT.

27. They have usually been detected by 'national technical means'.

28. See, e.g., para. 41 of Art. II and para. 31 of Art. IV CTBT.

explosion.

More common, however, should be the use of the consultation and clarification provisions.²⁹ Consultation will be obligatory whenever there is a dispute.³⁰ Without prejudice to the right to request an on-site inspection, states will be required first to make every effort to clarify and resolve a dispute. In the event of a request from one State Party to another for clarification, a reply will be obligatory within 48 hours. States Parties will have the right to involve the Director General of the Organisation and/or the Executive Council in this procedure. If the requesting State Party is not satisfied with the clarification obtained, it will have the right to request a meeting of the Executive Council for consideration of what action, if any, should be taken.

The Conference and the Executive Council will themselves have various powers in relation to the settlement of disputes. Both, for example, will be able to initiate consultation with disputing States Parties and to call for action to be taken within a specified time to ensure compliance with the CTBT.³¹ Where a State Party fails to comply with such a request, the Conference will have the power to restrict or suspend that state's rights (e.g., to vote) under the CTBT.³² In any serious case, where damage to the object and purpose of the CTBT may occur, the Conference will have the power to recommend 'collective measures' (e.g., trade sanctions) to States Parties.³³

There is also provision for reference of a situation to the United Nations for consideration,³⁴ and for reference to the International Court of Justice.³⁵

29. See paras. 29-33 of Art. IV CTBT for the consultation and clarification procedures discussed in this paragraph.

30. Para. 2 of Art. VI CTBT.

31. See para. 41 of Art. II and Art. VI CTBT.

32. Para. 2 of Art. V CTBT.

33. Para. 3 of Art. V CTBT.

34. Para. 4 of Art. V CTBT. The power lies with the Conference or, in urgent circumstances, the Executive Council. In the case of a nuclear-weapon test explosion in violation of the CTBT, the appropriate UN organ would certainly be the Security Council.

35. Para. 2 of Art. VI CTBT. The reference would either be reference of a dispute, by the parties to that dispute; or reference of a question by the Conference or the Executive Council in order to obtain an advisory opinion.

7. CONCLUSION

The adoption of the CTBT with such overwhelming support was a major international achievement. It signifies the will of almost every nation in the world to put an end to nuclear explosions for all time. The difficult and protracted nature of the negotiations is witness not only to fundamental differences of approach, but also to the seriousness and thoroughness that all delegations brought to the subject. The fact that the differences were resolved in a way acceptable to nearly all is a tribute to the skill and judgment of Ambassador Ramaker.

Although each of the five nuclear-weapon states had, by the end of the negotiation, declared moratoria on nuclear-weapon testing, there can be no underestimating the obligations that they will take on under the CTBT. Along with all other States Parties, they will be prohibited for all time from conducting any nuclear explosion, anywhere. The prohibition will be backed up by a verification regime capable of detecting and locating a nuclear explosion anywhere in the world.

There is some uncertainty over entry into force caused by the announcements of India and Pakistan. But ratification of the CTBT by a very large number of states over the next few years will produce a mounting international call, in all regions of the world, for ratification also by those states whose ratifications will trigger entry into force. The expectations of the international community will be all the greater once the International Monitoring System becomes functional in the next two years or so. If entry into force has not taken place by the year 2000, the international conference will throw the spotlight on this issue, and further increase the pressure. It should hopefully not be too long, therefore, before Prime Minister Nehru's wish is realized, and nuclear-weapon test explosions are ensigned to the history books for all times.

*Huw Llewellyn**

* Legal adviser to the United Kingdom Permanent Representation to the Conference on Disarmament, and to the United Kingdom Mission to the Office of the United Nations and Other International Organisations at Geneva. The views expressed in this article are the author's and do not necessarily reflect those of the United Kingdom government.