

## *Governing the Atom Brief No. 7*

# Navigating the CTBTO: The Policy-Making Organs, Programmes, and Contribution to Science Diplomacy

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This brief is focused on the Preparatory Commission of Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), including its structure, the way its policy-making organs take decisions, what each of them considers, and the CTBTO's contribution to science and capacity-building. The Comprehensive Nuclear-Test-Ban Treaty (CTBT) is the result of long-standing public opposition to nuclear

testing and international pressure to make further progress towards nuclear disarmament. Following several other treaties, including the Partial Nuclear Test Ban Treaty and the Threshold Test Ban Treaty, designed to limit nuclear testing, negotiations on the CTBT concluded in 1996. Owing to difficulties in achieving consensus in the Conference on Disarmament (CD), the CTBT was transmitted to the United Nations

General Assembly, where it was adopted and opened for signature.<sup>1</sup>

## Structure

Article II of the CTBT establishes the CTBTO to implement the Treaty upon its entry into force. State Signatories felt that the activities envisioned under the Treaty, especially the verification system, would need to be fully operational upon entry into force, so they established the CTBTO Preparatory Commission as an interim organisation, simply referred to as “the Commission” within the CTBTO and often as “the PrepCom” by delegates.<sup>2</sup> The PrepCom’s Provisional Technical Secretariat (PTS) consists of seven major programmes, broadly aligning with its activities and associated Divisions:

- Major Programme 1: International Monitoring System (IMS)
- Major Programme 2: International Data Centre (IDC)
- Major Programme 3: On-Site Inspection (OSI)
- Major Programme 4: Evaluation and Audit
- Major Programme 5: Policy Making Organ Support
- Major Programme 6: Administration, Coordination and Support
- Major Programme 7: Legal and External Relations

The IMS, IDC, and OSI are the three technical components of the CTBT’s

verification regime, sometimes called by delegates “the three pillars” of the CTBT, by analogy with the language from the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). As of 2024, the IMS consists of more than 300 seismic, hydroacoustic, infrasound, and radionuclide stations, as well as laboratories hosted by 89 countries worldwide. These IMS stations continuously feed data to the IDC, which processes and analyses this data for use by the PTS and the State Signatories. In addition to monitoring for nuclear weapons testing, data from the IMS stations can be used to detect and differentiate between earthquakes, tsunamis, and other events, such as the effects of climate change, the timing of monsoon rains, and even whale behaviour. For its part, the OSI Division works to prepare on-site inspection procedures and related technologies, pending the Treaty’s entry into force.

The PrepCom itself is composed of a plenary that includes all CTBT State Signatories and the PTS, run by international civil servants. The plenary bases its work on subsidiary bodies composed of two Working Groups, which prepare recommendations for adoption by the PrepCom. Working Group A focuses on administrative and budgetary matters while Working Group B deals with verification issues related to the IDC, the IMS, and OSI Divisions. The PrepCom and the Working Groups each usually meet twice per year. State Signatories may also request joint meetings of Working Groups A and B. All of the policy-making organs aim to take decisions by consensus.

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<sup>1</sup> United Nations General Assembly, Comprehensive Nuclear-Test-Ban Treaty (UNGA Resolution 50/245), 17 September 1996.

<sup>2</sup> CTBT Meeting of State Signatories, Resolution Establishing the Preparatory Commission for the Comprehensive Nuclear Test-Ban-Treat Organization (CTBT/MSS/RES/1), 27 November 1996.

The PTS and the Working Groups are complemented by an Advisory Group on financial, budgetary, and other administrative matters, comprising experts nominated by State Signatories, serving in their individual capacities. The PTS Executive Secretary is appointed by the PrepCom and is, among other things, responsible for appointing senior PTS officials and ensuring equitable geographical representation as stipulated in the Treaty.

### Working Group A (WGA)

WGA meetings are intended to provide recommendations to the PrepCom for adoption on administrative and budgetary matters across the Major Programmes. These meetings are relatively short, normally two or three days, and are attended primarily by Vienna-based diplomats. The agenda for WGA can change from meeting to meeting, but it regularly considers the following matters.

### Auditing

Article 8.d. of the Annex in the resolution establishing the PrepCom stipulates the creation of administrative and financial procedures, including an independent audit. This audit is defined in an Internal Audit Charter, which is reviewed at least every three years and supported by the Internal Audit and Oversight Section. This Section makes recommendations to maximise organisational efficiency. The Internal Audit also serves as a liaison between relevant offices in the CTBTO and an External Auditor, who is appointed by the PrepCom after a competitive process for a mandate of two years, corresponding to the upcoming budget biennium. In practice, the External Auditor is usually renewed once for a second mandate.

### Budget

Every two years, the PTS submits a biennial Programme and Budget proposal, which is



The International Data Centre (IDC) at the CTBTO headquarters in Vienna. Credit: CTBTO



considered in sequence by the Advisory Group, WGA and WGB, and finally, the PrepCom for approval. The budget is traditionally zero-real growth, meaning that the budget is revised to account for inflation but not otherwise increased. Savings are identified, so that the PTS can take into account more programmatic activities, despite the zero-real growth budget policy. The PrepCom approves the appropriations for the first year of the biennium and approves an adjustment for the second year, mostly related to price adjustments and limited budgetary transfers between Major Programmes.

The budget consists of assessed contributions in accordance with the UN scale of assessment and adjusted to take into account differences in membership between the UN and the PrepCom. The collection rates of assessed contributions in 2022 and 2023 were above 90 percent each year, though many States are in arrears, some for many years. If a State Signatory has not paid its financial obligations in full within one calendar year of receipt of the request, it loses its right to vote in the PrepCom until receipt of payment. However, the PrepCom may allow State Signatories to vote regardless "if it is satisfied that the failure to pay is due to conditions beyond the control of the member".<sup>3</sup>

The CTBTO is also authorised to accept voluntary contributions outside of its regular Programme and Budget.

Many State Signatories in WGA seek to ensure that the budget is balanced between the IMS, IDC, and OSI, as well as between

verification and non-verification activities, such as capacity-building.

### **Sustaining the International Monitoring System (IMS)**

Upon the establishment of the PrepCom, some existing national assets were incorporated into the CTBTO's IMS, facilitating early operability at the time. As a result, equipment and related infrastructure in some of the older facilities is facing obsolescence, no longer holding up to current technological standards. In recent years, WGA has examined as a matter of priority a sustainable financial plan for maintaining the over 300 IMS stations globally, some of which have yet to be certified. Some State Signatories argue that, until the Treaty enters into force, the IMS is deployed provisionally for qualification purposes only and should not be fully maintained at this time. Others argue that, by not adequately maintaining the existing IMS, considerably higher implementation costs will be incurred upon entry into force, also noting that the IMS is already delivering valuable data.

### **Other Organisational Issues**

WGA debates further administrative issues of concern to State Signatories, including equitable gender and geographical representation in the PTS. There is also a drive to promote multilingualism; the Commission is undertaking activities to foster the use of all official Commission languages in its work. This includes the issuance of official documents, capacity-building activities in other languages, and

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<sup>3</sup> CTBT Meeting of States Signatories, Annex to the Resolution Establishing the Preparatory Commission for the Comprehensive Nuclear Test-Ban-Treat Organization (CTBT/MSS/RES/1), pp. 5(a)-5(b), 27 November 1996.



increased outreach in languages other than English, including at the CTBTO's biennial Science and Technology (SnT) Conference and diplomatic seminars, among others.

### **Working Group B (WGB)**

WGB meetings are usually longer than WGA meetings – approximately 10 days – and attract large delegations, primarily technical experts who are not based in Vienna. During these meetings, directors from the IDC, IMS, and OSI Divisions provide technical briefings, which are considered by the Working Group for further action.

### **International Data Centre (IDC)**

The resolution creating the PrepCom stipulates that it should establish an initial plan for the progressive commissioning of the IDC and the IMS. To this end, WGB has developed milestones for the design, planning, installation, testing, validation, and initial operation of the IDC.

WGB continues to consider the IDC's effectiveness, efficiency, and reliability through ongoing experiments and workshops with State Signatories. It also considers progress on the availability of IDC data to State Signatories for scientific exchange, as well as the authentication of that data to prove against any tampering. Critical to the above tasks, WGB considers items related to improving the connectivity of the Global Communications Infrastructure (GCI) that transfers data from IMS stations worldwide to the IDC in Vienna. A draft IDC Operations Manual is also under continuous development by the PTS and review by WGB.

### **International Monitoring System (IMS)**

During WGB meetings, State Signatories review the operation of IMS stations and provide direction on the recapitalisation of existing stations and the consideration of



Maintenance work at infrasound station IS7 in Warramunga, Australia, September 2024. Credit: CTBTO





On-site inspection build-up exercise at Gyöngyös, Hungary, June 2024. Credit: CTBTO

new verification technologies not currently in use. While WGA considers the organisational programme and budget overall, WGB drives the process of identifying the technical needs for IMS sustainment, currently from the period of 2026 to 2048. As with other aspects of the CTBTO's verification activities, this includes the drafting of operational documents.

### **On-Site Inspection (OSI)**

The CTBTO has been developing its OSI capabilities since the Treaty was opened for signature. Once the Treaty enters into force, State Signatories (then considered CTBT Member States) will be able to request inspections of sites affected by alleged nuclear explosions to support the data received by the IMS and authenticated by the IDC.

In this respect, the CTBTO conducts regular exercises with State Signatories to improve OSI procedures and raises capacity for State Signatory counterparts to support real on-site inspections. Other activities in support

of OSI verification work include the development of health and safety plans, upgrading equipment, and further developing the OSI Operational Manual. WGB provides input and direction to the PTS for all of these activities.

### **Preparatory Commission Meetings**

The PrepCom is the CTBTO's primary policy-making organ and considers recommendations submitted by Working Groups A and B and the Advisory Group. There is a strong emphasis on ensuring that all States, particularly those with fewer resources, have access to the necessary training, technology, and financial support to participate fully in the Treaty's verification regime. Regular, well-funded capacity-building activities and broader participation in decision-making processes are consistently advocated. Additionally, resource management is a priority, with calls for a balanced approach across the verification system to avoid financial strain

and ensure equitable support for all State Signatories' participation in the PrepCom's activities.

Efforts to promote the universalisation and early entry into force of the Treaty are central during PrepCom meetings as are, until such time, global ratification and maintaining the moratorium on nuclear tests. Concerns over possible preparations for nuclear testing are also raised. Further attention is directed at improving gender balance, geographical diversity, and transparency within the PTS's staffing, particularly in leadership positions. PrepCom meetings also consider any other items proposed by State Signatories.

In the event of a nuclear test, the PrepCom can convene emergency meetings on short notice to assess the situation, with the PTS providing timely data and analysis. Such meetings should facilitate consultations

among State Signatories to coordinate the international response and uphold the Treaty's objectives.

## Article XIV Conferences

Per the CTBT's Article XIV, the Treaty enters into force once all 44 States listed in Annex 2 of the Treaty ratify it. These so-called Annex 2 States are those that formally participated in the 1996 session of the CD and possessed nuclear power or research reactors at the time. As of November 2024, nine Annex 2 States are outstanding.

Per Article XIV.2. of the CTBT, since the Treaty did not enter into force within three years after it opened for signature, the UN Secretary-General convenes the biennial Conference on Facilitating the Entry into Force of the CTBT, with the primary objective of advancing the Treaty's ratification, especially by the Annex 2 States.



2023 Article XIV Conference at the UN headquarters in New York, September 2023. Credit: CTBTO



Each conference is presided over by two Co-Presidents, one from a developing State Signatory and another from a developed State Signatory. Decisions at the conference are made by consensus of ratifying States, ideally culminating in a Final Declaration that includes steps for States to take toward ratification, with particular focus on the remaining Annex 2 States.

Unlike other meetings, Article XIV Conferences are open to non-governmental participation. Although Article XIV Conferences are intended to produce a Final Declaration, procedural issues, particularly related to the Rules of Procedure, have occasionally delayed or prevented the adoption of decisions.

## The CTBTO's Contribution to Science and Development

The CTBTO fosters global scientific cooperation and innovation through initiatives like the Science and Technology (SnT) Conferences, ad hoc events, and technical programmes. The biennial SnT Conferences bring together scientists, experts, and policy-makers to discuss advances in verification technologies.

The CTBTO organises regional outreach events, encouraging dialogue between scientists and policy-makers as part of the CTBTO's continued contribution to global peace and security. In addition to its contribution to the CTBTO's verification activities, the IMS data is also used for natural disaster monitoring and climate studies, expanding the system's impact beyond nuclear test detection.

The CTBTO's capacity-building efforts, including the Technical Experts Support

Programme (TESP) and the National Data Center for All (NFCs4All) initiative, aim to strengthen the technical skills of State Signatories, particularly in developing countries, ensuring that they can fully benefit from IMS data.



Vienna Center for Disarmament and Non-Proliferation

The VCDNP is an international non-governmental organisation that conducts research, facilitates dialogue, and builds capacity on nuclear non-proliferation and disarmament.



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