



Enforcing the Comprehensive Nuclear-Test-Ban Treaty: The Role of Consultation and Clarification

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I. Executive Summary

The verification mechanisms of the Comprehensive Nuclear-Test-Ban Treaty (CTBT) have undergone significant development since the treaty was agreed almost 30 years ago. The International Monitoring System (IMS) and its supporting International Data Centre (IDC) have grown to the extent that they can reliably detect all but the smallest nuclear weapon test explosions in any environment. The treaty's on-site inspection mechanism has been exercised and will be exercised again in 2025. However, the treaty's consultation and clarification mechanism has received far less attention.

Article IV.C. of the treaty stipulates that:

“Without prejudice to the right of any State Party to request an on-site inspection, States Parties should, whenever possible, first make every effort to clarify and resolve, among themselves or with or through the Organization, any matter which may cause concern about possible non-compliance with the basic obligations of this Treaty.”

If concerns arise that a state party has carried out a nuclear weapon test, will states agree when it is or is not possible to clarify those concerns in this way? Will they agree on when “every effort” has been made to resolve those concerns? And will they agree on how this mechanism should be used to support, rather than complicate, their approach to verification and enforcement? An examination of the negotiating history of the CTBT suggests that the language of Article IV.C obscures different expectations for consultation and clarification. Case studies from other relevant regimes indicate that the way in which consultation and clarification are (or are not) pursued can significantly influence the way compliance is ultimately demonstrated and enforced.

This report argues that the invitation in Article IV.C gives states a valuable opportunity to engage informally with each other to build confidence in their commitment to the CTBT and to dispel ambiguous signals that may cast doubt on that commitment. Nuclear-armed state signatories may draw inspiration from this article to reinforce their voluntary test moratoriums and encourage mutual restraint. Test site transparency—including voluntary site declarations and visits—could be a good place to start in this regard.

This report also argues that it is easier to build confidence behind the scenes than it is to resolve concerns in public. Case studies from the Chemical Weapons Convention and Biological Weapons Convention show that formally pursuing consultation and clarification creates a very public stage. Without a shared understanding of how that stage should be used, it could be vulnerable to misuse. State signatories may wish to consider what role the CTBT Executive Council should play in directing proceedings, how the Technical Secretariat should support the players, and how the outcomes would be perceived by the broader audience of all states parties. The CTBT expects that at its entry into force, all aspects of its verification regime—including Article IV.C—shall be capable of meeting the verification requirements of the treaty. State signatories may wish to revisit their expectations for consultation and clarification in this regard. Article IV.C opens a door through which a huge array of requests (whether pertinent or vexatious), information (whether public or private), and goals (whether virtuous or cynical) could be pursued. By exploring how consultation and clarification could be used or misused, state signatories to the CTBT can build towards a shared understanding of how Article IV.C can strengthen the treaty and support its entry into force.



Consultation and Clarification in the CTBT

The Comprehensive Nuclear-Test-Ban Treaty (CTBT) obliges its states parties 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 their jurisdiction or control.¹ It also obliges them to refrain from causing, encouraging, or in any way participating in the carrying out of any nuclear weapon test explosion or any other nuclear explosion.

To verify compliance with these obligations, Article IV of the CTBT sets out a verification regime that consists of:

- An International Monitoring System (IMS) of seismic, radionuclide, hydroacoustic, and infrasound detectors supported by an International Data Centre (IDC) for distributing monitoring information to states parties;
- On-site Inspections (OSIs), which states parties may request in order to clarify whether a nuclear weapon test explosion has been carried out;
- Voluntary Confidence-Building Measures (CBMs), through which states parties can notify the CTBT Organization (CTBTO) of non-nuclear explosions whose seismic signatures could be confused as nuclear weapon test explosions; and
- Consultation and Clarification mechanisms, through which states parties are encouraged to clarify and resolve any matter which may cause concern about possible noncompliance with the basic obligations of the CTBT.

The CTBT was adopted by the UN General Assembly nearly 30 years ago but is not yet in force. The treaty will only enter into force when all 44 of its “Annex 2” states have ratified it.² In the meantime, the Preparatory Commission for the CTBTO (an interim body established shortly after the treaty was agreed) has been laying the groundwork to prepare for the treaty’s entry into force. One of its major duties in this regard has been establishing the global verification regime set out in Article IV, which expects that “at entry into force of this Treaty, the verification regime shall be capable of meeting the verification requirements of this Treaty.”

To date, this work has focused on establishing the IMS and the accompanying IDC and preparing an on-site inspection capability. The IMS is arguably very well developed. According to the US National Academy of Sciences, if a state wanted to conduct an underground nuclear weapon test with 90% confidence that they would evade the CTBT IMS seismic network, the yield of the test would have to be limited to a yield equivalent to less than 100 tons of conventional explosive.³ The CTBTO Provisional Technical Secretariat has also fleshed out the means through which it would deliver the requirements of an on-site inspection. It has carried out tabletop exercises and directed exercises of certain inspection capabilities and two Integrated Field Exercises incorporating several different inspection capabilities.⁴ It is now highly likely that an on-site inspection would detect evidence of a nuclear explosion with a yield greater than about 100 tons.⁵

The Consultation and Clarification mechanism in Part C of Article IV has received significantly less attention. Article IV.C of the CTBT stipulates that:

“Without prejudice to the right of any State Party to request an on-site inspection, States Parties should, whenever possible, first make every effort to clarify and resolve, among themselves or with or through the Organization, any matter which may cause concern about possible non-compliance with the basic obligations of this Treaty.”

The roles and responsibilities of states parties in the verification and enforcement of the CTBT highlight the importance that Article IV.C may come to hold in achieving that goal. In the event of any possible noncompliance, it is up to states parties to judge compliance and to respond through the CTBT Executive Council or its Conference of States Parties.⁶ While this is similar to other regimes such as the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and the Chemical Weapons Convention (CWC), states parties to those regimes can turn to a Technical Secretariat for help in judging when noncompliance has occurred.⁷

1. The term ‘states parties’ is used here to describe those parties to the CTBT once the treaty has entered into force. While the CTBT is not in force, this paper refers to ‘state signatories’ (who have signed the treaty). The term is used also to include those signatory states that have also formally completed their consent to be bound by the treaty (‘ratifying states’).

2. Annex 2 to the treaty defines these states as those that formally participated in the work of negotiating the treaty and who had significant nuclear power or research reactors at the time.

3. Committee on Reviewing and Updating Technical Issues Related to the Comprehensive Nuclear Test Ban Treaty, Policy and Global Affairs and National Research Council, *Comprehensive Nuclear Test Ban Treaty: Technical Issues for the United States* (National Academies Press, 2012), p. 105. For comparison, it has been estimated that the average yield of the smallest US tests from 1976 through to the negotiation of the CTBT in 1992 was approximately 6 kilotons. Robert Norris and Thomas Cochran, *United States Nuclear Tests July 1945 to 31 December 1992* (Natural Resources Defense Council, 1994), p. 62.

4. A third Integrated Field Exercise is scheduled to be conducted in 2025.

5. Committee on Reviewing and Updating Technical Issues Related to the Comprehensive Nuclear Test Ban Treaty, Affairs and Council, *Comprehensive Nuclear Test Ban Treaty: Technical Issues for the United States*, p. 73.

6. The roles and responsibilities of these policy-making organs of the CTBTO are set out in CTBT Articles II.B and II.C.

7. Article XII.C of the IAEA Statute requires that in the implementation of safeguards, “the inspectors shall report any non-compliance to the Director-General who shall thereupon transmit the report to the Board of Governors.” The statute—and individual safeguards agreements between the IAEA and non-nuclear weapon states—goes on to expect member states in the Board of Governors to determine a response. While the CWC stipulates that the Executive Council of States Parties ultimately determines whether noncompliance has occurred, the Technical Secretariat has a significant role in verifying day-to-day compliance and must inform the Executive Council of any ‘doubts, ambiguities or uncertainties about compliance.’

In contrast, the verification architecture of the CTBT is designed to help states parties draw their own conclusions about compliance with the treaty. The IDC collects, processes, and analyses all monitoring data from the IMS and distributes it to states parties in both raw and analysed forms—leaving it to them to make the final judgement on whether a suspicious event is compliant or not.⁸ The CTBT also recognises that states parties can use sovereign “national technical means”—such as satellites and domestic seismic or radionuclide monitoring systems—to inform their judgement, as long as they do so “in a matter consistent with generally recognized principles of international law.”⁹

If the CTBT IMS or their own national technical means (or a combination of both) were to give states parties a reason to doubt the compliance of another state party, what are they meant to do about that? Without affecting states parties’ general right to engage informally and diplomatically with another state or to request an on-site inspection, Article IV.C offers three formal routes for consultation and clarification:

- A state party may make a request directly to another state party relating to any matter which may cause concern about possible noncompliance with the main obligations of the treaty. The requesting state party must respond to the requesting state party as soon as possible, but in any case, no later than 48 hours after the request. Either party may inform the CTBT Executive Council and Director-General of the Technical Secretariat of the request and response if they choose to.
- A state party may request the Director-General of the Technical Secretariat to assist in clarifying any matter which may cause concern about possible noncompliance. If so requested, the Director-General would provide “appropriate information in the possession of the Technical Secretariat relevant to such a concern.” The Director-General would also inform the CTBT Executive Council of the request and information provided, if asked to by the requesting party. This request to the Technical Secretariat may or may not be made in parallel to any direct engagement with another state party of concern.

- A state party may request the Executive Council to obtain clarification from another state party on any matter which may cause concern about possible noncompliance with the treaty. In this case, the Executive Council shall engage with the state party of concern and forward their response to the requesting state party within 96 hours of their original request.¹⁰ The requesting state party may request further clarification if they deem the response from the state party of concern to be inadequate. If they remain unsatisfied after further clarification, they may request a special meeting of the Executive Council, who shall consider the matter and make any recommendations for enforcement actions. The Executive Council must keep all other states parties informed about the request and its response.

Whether and how states parties take up this invitation in response to a concerning event is ultimately a political choice, which will be shaped by many circumstantial factors that will differ from event to event. When presented with information or an event that raises questions about possible noncompliance, the approach of concerned states parties to consultation and clarification will depend on their perspective of:

- The nature of the possible noncompliance,
- The information indicating possible noncompliance, and
- Their expectations of what role consultation and clarification should play in verification and enforcement.

The nature of the possible noncompliance

The CTBT’s consultation and clarification mechanism encourages states parties to work together to clarify and resolve any matter which may cause concern about possible noncompliance with the basic obligations of the treaty. These basic obligations set a straightforward standard for compliance: States parties must not carry out nuclear weapon explosions, and must refrain from causing, encouraging, or in any way participating in such an explosion. There are no routine declaration, reporting, or inspection requirements in the CTBT for states parties to comply (or possibly not to comply) with.

8. Safeguards agreements between the IAEA and non-nuclear weapon states forbid the IAEA from publishing or communicating to any state, organization, or person any information obtained by it in connection with the agreement.

9. Comprehensive Nuclear-Test-Ban Treaty Organization, The Comprehensive Nuclear-Test-Ban Treaty (United Nations, 1998), Article IV paragraph 5, https://www.ctbto.org/sites/default/files/2023-10/2022_treaty_booklet_E.pdf.

10. The Executive Council must forward a request for clarification via the Director-General as soon as possible, but within 24 hours of its receipt. The requested state party must provide clarification as soon as possible, but within 48 hours of receipt of the request. The Executive Council then has another 24 hours to pass that clarification back to the requesting state party.

The CTBT does not discriminate between different nuclear weapon test explosions, and a small nuclear weapon test explosion is as much a violation of the treaty as a large one. Nevertheless, states parties may see some violations as more significant than others, depending on what advantage the violator might gain from them,¹¹ or how close they come to the “zero yield” interpretation of compliance that nuclear-armed state signatories seem to have coalesced around.¹² States parties may also consider the intention behind a violation. Keeping nuclear weapon experiments below the zero-yield threshold is a delicate and precise exercise, and it is feasible that an experiment might unintentionally or momentarily exceed this compliance threshold.¹³ States parties may treat such a violation differently from the purposeful conduct of a larger-scale nuclear weapon test explosion. States parties may also need to confront a possible violation that cannot be easily attributed to another state party; for example, indications of a nuclear weapon test explosion carried out in international waters.¹⁴ The perceived significance, intention, and attributability of a suspected noncompliance will influence whether and how concerned states parties might engage with possible culprits to address their concerns.

The information indicating possible noncompliance

The CTBT IMS is a powerful tool to help states parties identify, characterize, and attribute potential noncompliance, but it is not perfect. It is possible that states parties will be presented with conflicting or ambiguous information from the IMS, where seismic, radionuclide, and other signals do not perfectly align to paint a clear picture of a nuclear weapon test explosion.¹⁵ States parties will also have different capabilities and capacities to collect, analyse, and interpret this monitoring information.¹⁶

Some states parties also have national technical means that expand on, complement, and exceed the shared monitoring capability of the CTBT IMS. While this may provide additional evidence to support their identification, characterization, and attribution of potential noncompliance, that evidence may not be available or useable by other states parties. A state party may not be willing or able to share evidence collected through national technical means that might reveal classified or sensitive information about those means; if it were both willing and able, other states parties may not understand or trust that information.¹⁷

If concerned states parties wish to respond to possible noncompliance within the bounds of the CTBT, they would have to consider the perspectives of other states parties. Any on-site inspection request would require the affirmative votes of at least 30 members of the 51-strong Executive Council to be approved. Any decision to redress and remedy noncompliance with the treaty—whether in the Executive Council or the Conference of States Parties—would need the support of at least two-thirds of their members. States parties would have different information and different capabilities at their disposal when forming a judgement on possible noncompliance and what to do about possible noncompliance. The manner and extent to which concerned states parties engage with the party of concern (and each other) may help smooth out these discrepancies and support cohesive decision-making.

Expectations for consultation and clarification

Depending on the nature of their compliance concern and the information available to support it, concerned states parties may look at the invitation to consultation and clarification in Article IV.C differently. If their concerns are significant and underpinned by

11. A state may be able to use a very low-yield test (equivalent to a few tens of kilograms of TNT where evasion from IMS detection becomes likely) to revalidate an old nuclear weapon design. It may need to turn to higher-yield testing (where IMS detection is more likely) to make significant developments in warhead design.

12. Key P-5 Public Statements on CTBT Scope (US Bureau of Arms Control, Verification, and Compliance, 2011) <<https://2009-2017.state.gov/t/avc/rfs/173945.htm>>. The US interpretation of this threshold is that a nuclear weapon test explosion cannot create a self-sustaining supercritical chain reaction.

13. Declassified US intelligence documents indicate that a low-yield “hydronuclear” experiment had a “mishap” and went out of control at China’s Southwest Institute of Fluid Physics in 1993. Proliferation Digest: Special Issue on Advanced Conventional Weapons (US Director of Intelligence, 1995) CIA/DI/PD95-011CX, <<https://nsarchive2.gwu.edu/NSAEBB/NSAEBB200/19951130.pdf>>.

14. In this event it is not clear who concerned states parties would approach to clarify and resolve their concerns.

15. Even where IMS signals suggest that it is highly likely that an observed event was a man-made nuclear weapon test explosion, there will always be some uncertainty that cannot be resolved without on-site inspection. The UK has argued that “there is no known remote method of determining unambiguously whether an underground event was man-made in origin and, if so, was due to a nuclear explosion.” John Walker, ‘The CTBT: Verification and Deterrence’, *VERTIC Brief*, no. 16 (2011) <<https://www.vertic.org/media/assets/Publications/VB16.pdf>>.

16. The CTBTO Provisional Technical Secretariat encourages state signatories to establish National Data Centres to obtain, examine, and analyse IMS information, and provides training, software packages, and bulletins of processed IMS data to support states in that regard.

17. During the negotiation of the CTBT some states argued that information gained from national technical means should not be admissible when considering a request for an on-site inspection, and others argued that requests that incorporated such information should be treated differently to those that were based only on IMS information. These concerns did not constrain the rights given in the treaty for states parties to draw on national technical means.

robust and plentiful information, consultation and clarification may seem like an unhelpful distraction from the more direct resolution available through an on-site inspection. However, any request for an on-site inspection must either set out the results of a requester's pursuit of clarification under Article IV.C or explain why they did not pursue clarification in that manner.¹⁸ Concerned states parties must therefore consider not just their own expectations for consultation and clarification, but also the expectations of those they may have to persuade on the Executive Council (and if necessary, the Conference of States Parties).

The negotiators of the treaty had different expectations in this regard. Some states wanted to strengthen the causal link between consultation, clarification, and an on-site inspection—hoping that the former should precede the latter “as a rule.”¹⁹ These states also suggested that any clarification provided by a questioned state party should be considered by some form of technical or scientific advisory group before any follow-up request for on-site inspection be considered by the Executive Council. Other states rejected a causal link, worried that pursuing the former could unduly delay an on-site inspection, which relies on detecting transitory test indicators. Others pointed out that consultation and clarification could be pursued in parallel with the consideration of an on-site inspection request.²⁰ Some proposed dropping the dedicated section on consultation and clarification, reflecting only its general principles in the verification articles.²¹ An internal summary of negotiations circulated shortly before the agreement was finalized explained:

“most delegations accepted the validity of a mandatory consultation and clarification process [when requesting an on-site inspection] provided it did not unduly delay EC [Executive Council] consideration or the launching of the OSI itself; several delegations considered that provision for a parallel ‘C and C’ throughout the OSI process should be included; and, a few delegations insisted that ‘C and C’ was an essential pre-requirement for any OSI decision by the EC.”²²

These differences persisted through three years of treaty negotiation and manifest themselves in the aspirational language that states parties “should, whenever possible” make “every effort” to clarify and resolve compliance concerns before requesting an on-site inspection. But will states parties agree on when it is or is not possible to clarify and resolve compliance concerns, or when “every effort” has or has not been made?²³ If one state party pursues consultation and clarification from another, would their understandings of that mechanism align sufficiently for success? If a state party asks the Executive Council to pursue consultation and clarification on their behalf, would the Executive Council’s approach match the expectations of the requesting state party?

There is little publicly available information demonstrating that states parties have converged on a common understanding about how consultation and clarification should work in practice once the CTBT has entered into force. When state signatories established the Preparatory Commission for the CTBT Organization, their indicative list of possible verification tasks for the Preparatory Commission included “procedures for the conduct of consultation and clarification.”²⁴ Working Group B of the Preparatory Commission (which considers verification matters) started drafting some guidelines, procedural pro formas, and template letters for consultation and clarification in 2002, but this work was “ice-boxed” by the group indefinitely a year later and has not been taken further.

There is also little publicly available information demonstrating that the Provisional Technical Secretariat has considered the role that it may come to play in consultation and clarification. If concerned states parties were to request assistance from the Technical Secretariat in resolving a compliance concern, what “appropriate information in the possession of the Technical Secretariat” might be relevant to that concern? If concerned states parties submitted an on-site inspection request, how would the Technical Secretariat “seek clarification from the State Party sought to be inspected in order to clarify and resolve the concern raised in the request”? What sort of clarification do concerned states parties expect the Technical Secretariat to achieve in the short window of 96 hours

18. *Comprehensive Nuclear-Test-Ban Treaty*, Protocol Part II, 41(h).

19. Jaap Ramaker, Jenifer Mackby, Peter D. Marshall, and Robert Geil, *The Final Test: A History of the Comprehensive Nuclear-Test-Ban Treaty Negotiations* (Provisional Technical Secretariat, Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization, 2003), p. 131.

20. Paragraph 46 of the treaty gives the Executive Council 96 hours to take a decision on any on-site inspection request—enough to accommodate consultation and clarification via the Executive Council, as laid out by paragraph 32 of the treaty.

21. Ramaker and others, *The Final Test: A History of the Comprehensive Nuclear-Test-Ban Treaty Negotiations*, p. 130–135.

22. Ramaker and others, *The Final Test: A History of the Comprehensive Nuclear-Test-Ban Treaty Negotiations*, p. 154.

23. When assessing the effectiveness of the CTBT’s on-site inspection mechanism, the US National Academy of Sciences conceded that “the requirements on evidence needed for the Executive Council to call an OSI may be so high that an OSI is never called.” Committee on Reviewing and Updating Technical Issues Related to the Comprehensive Nuclear Test Ban Treaty, Affairs and Council, *Comprehensive Nuclear Test Ban Treaty: Technical Issues for the United States*, p. 72.

24. *Comprehensive Nuclear-Test-Ban Treaty Appendix*, CTBT/MSS/RES/1.

before the Executive Council must decide on the inspection request?²⁵

Building confidence in the consultation and clarification mechanism

The differing expectations of negotiating states may still exist today and may continue to exist even after the treaty enters into force. The CTBT states that “at entry into force of this Treaty, the verification regime [including consultation and clarification] shall be capable of meeting the verification requirements of this Treaty.”²⁶ It is not clear whether the uncertainties around consultation and clarification would prevent the overall verification regime from meeting this standard. Unlike the IMS, there are few quantifiable or testable metrics by which states parties can gauge the capability of the treaty’s consultation and clarification mechanism.

State signatories—who ultimately control and make use of this mechanism—may be comfortable that flexible ambiguity around consultation and clarification is better for CTBT verification than strict clarity. However, three states that held strong opinions regarding the role of consultation and clarification during the treaty’s negotiation (namely Israel, India, and Pakistan) have either not signed the treaty yet or not ratified it.²⁷ These states (among others) must eventually ratify the treaty for it to come into force, so their expectations for consultation and clarification will play a part in bringing the treaty into force.

The CTBT’s consultation and clarification mechanism is not the primary vehicle through which states parties will enforce compliance with the treaty. Neither is it a mandatory procedure through which any question or concern about compliance must go. However, state signatories cannot ignore the consultation and clarification mechanism. It manifests the expectation among states parties that they will work together to

address concerns about compliance with the treaty, and by building confidence that the consultation and clarification mechanism can achieve this, state signatories can build more support for the treaty as a whole.



As discussed above, the way in which the mechanism would ultimately be used depends on the individual circumstances of a particular compliance concern and cannot be generalized or predicted in advance. However, consultation and clarification are not new concepts.²⁸ Lessons can be learned from how these have (or have not) functioned in other regimes, particularly the Chemical Weapons Convention (CWC) and the Biological Weapons Convention (BWC). The following sections explore how states parties to those agreements have used consultation and clarification to resolve concerns regarding the possible use of chemical weapons against Alexei Navalny, the possible use of riot control agents as a method of warfare in Ukraine, the possible purposeful infestation of Cuban crops, and possible biological weapons programs in Ukraine. The case studies consider the forums concerned states parties have used, the requests they have made, and the information they have provided to support those requests. The case studies also consider how other states parties have responded, and the extent to which the compliance concerns have been addressed through this process. The polarized and uncooperative international atmosphere that has emerged in recent years echoes through these case studies, raising important questions about the role that consultation and clarification could and should play in verifying and enforcing the CTBT. But the quiet successes that have been achieved away from this environment demonstrate the valuable contribution consultation and clarification could make in building confidence in CTBT compliance.

25. As required by paragraph 42 of Article IV.D. During negotiation of the CTBT, some states argued that before the Executive Council considers any on-site inspection request, the evidence underpinning the requesting state’s concerns should be evaluated by a technical/independent third party—potentially drawn from the Technical Secretariat itself. See Ramaker and others, *The Final Test: A History of the Comprehensive Nuclear-Test-Ban Treaty Negotiations*, p. 149.

26. Comprehensive Nuclear-Test-Ban Treaty, Article IV, paragraph 1.

27. These states (among others who have since ratified the treaty) expressed a desire for consultation and clarification to be mandatory, and to take place prior to any Executive Council consideration of an on-site inspection request.

28. The Chemical Weapons Convention (CWC), the Biological Weapons Convention (BWC), the Anti-Personnel Mine Convention, the Convention on Cluster Munitions, and the Treaty on Conventional Armed Forces in Europe all contain similar consultation and clarification mechanisms.



Consultation and Clarification in the Chemical Weapons Convention

Paragraph 2 of Article IX of The Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (the Chemical Weapons Convention or CWC) states that:

“Without prejudice to the right of any State Party to request a challenge inspection, States Parties should, whenever possible, first make every effort to clarify and resolve, through exchange of information and consultations among themselves, any matter which may cause doubt about compliance with this Convention, or which gives rise to concerns about a related matter which may be considered ambiguous.”

The encouragement towards consultation and clarification here is understandably very similar to that in the CTBT, as the CWC was considered a “useful model to follow” by those negotiating the CTBT.²⁹ The CWC—like the CTBT—also requires its states parties to take the lead on identifying and responding to potential non-compliance. The convention facilitates this by requiring the Technical Secretariat of the Organisation for the Prohibition of Chemical Weapons (OPCW) to routinely provide states parties with the declarations of their peers and reports on the results of the OPCW’s verification activities.³⁰ The CWC has been in force since 1997, providing 27 years of operational experience from which lessons can be learned on the pursuit of consultation and clarification.

Early in the convention’s history—at its first Review Conference in May 2003—the United Kingdom encouraged all states parties to make use of the Article IX consultation procedures. In the first six years of the convention’s operation, the UK argued that the procedures had helped it and a number of other states gain assurance regarding possible omissions and anomalies in declarations and other issues of potential concern. The UK explained that it had:

“received responses generally in writing, and in most cases have held bilateral follow-up discussions on one or more occasions. In some cases we have been able to resolve our concerns. In some, we

have recognised that complete assurance is not possible, because accurate information about past activities is no longer available. Some States Parties have invited us to visit a specific facility in relation to which we have sought clarification. In some instances, the State Party has submitted a revised declaration to clarify an omission or ambiguity. In other cases, dialogue is continuing.”³¹

Importantly, it also pointed out that “in all these cases to date, we have sought to follow an informal, bilateral and confidential approach, rather than formally invoking Article IX of the Convention.” The UK argued that it would pursue more formal invocation of Article IX if the state party at the heart of their concerns refused to cooperate, and reiterated that they would not wait for prior consultation before requesting a challenge inspection “if concerns were serious and urgent enough” to warrant one.

Serious and urgent concerns arose in March 2018 when Sergei and Yulia Skripal were poisoned by the nerve agent Novichok in the United Kingdom,³² raising questions about Russia’s involvement and signalling a broader downturn in Russia’s international relationships in the coming years. In this case, the United Kingdom again avoided formally invoking Article IX of the convention. Having identified the nerve agent as Novichok (a finding subsequently confirmed independently by the OPCW at the United Kingdom’s request), the United Kingdom asked Russia directly through diplomatic channels to immediately and fully disclose its Novichok program as required by the CWC, and to immediately explain how the agent came to be used in the United Kingdom.³³

In response, Russia argued that it had fully declared all chemical weapon stockpiles and production facilities and had verifiably destroyed both. It also complained that the United Kingdom should have sought answers to its questions by formally invoking Article IX of the convention with “material evidence” supporting their concerns.³⁴ It went on to accuse the United States, the United Kingdom, and—indirectly—France, Germany, Poland, the Czech Republic, “and a number of other countries” of violating the CWC themselves.³⁵

29. Ramaker and others, *The Final Test: A History of the Comprehensive Nuclear-Test-Ban Treaty Negotiations*, p.130.

30. *The Chemical Weapons Convention (CWC) Annex on the Protection of Confidential Information* (Organisation for the Prevention of Chemical Weapons, 1997), Section A.2.(b).

31. The United Kingdom of Great Britain and Northern Ireland, ‘Article IX of the Chemical Weapons Convention: Aspects of Compliance,’ RC-1/NAT.13, First Review Conference of the CWC, 2003, 3.

32. Police Detective Nick Bailey, Charlie Rowley, and Dawn Sturgess (who later died) were also exposed to the nerve agent as a consequence of the poisoning.

33. Office of the Prime Minister of the UK, ‘PM Commons Statement on Salisbury Incident: 12 March 2018,’ Oral Statement to Parliament, <<https://www.gov.uk/government/speeches/pm-commons-statement-on-salisbury-incident-12-march-2018>>.

34. Russian Federation, ‘Statement by H.E. Ambassador A. V. Shulgин, Permanent Representative of the Russian Federation to the OPCW at the Eighty-Seventh Session of the Executive Council,’ 2018, EC-87/NAT.9. India and Iran joined Russia in calling for all concerns to be addressed formally through Article IX mechanisms.

35. Russian Federation, ‘Aide Memoire on Enhancement of the Chemical Weapons Convention,’ 2018, EC-M-59/NAT.4. The United Kingdom and other states have rejected these accusations as false.

Ultimately, the compliance concerns raised by these Novichok attacks remain unresolved by the Executive Council or the Conference of States Parties and no enforcement measures have been taken in line with Article XII of the convention.³⁶ Instead, the United Kingdom and other states have responded outside the architecture of the CWC, primarily through unilateral trade and economic sanctions and the expulsion of Russian diplomats.

The United States has been similarly reluctant to formally invoke consultation and clarification mechanisms under Article IX of the convention. According to the 2023 annual domestic report on CWC compliance by the US Bureau of Arms Control, Deterrence, and Stability, the US is concerned that both Iran and Myanmar are violating the CWC to varying degrees. In both cases, the US has engaged informally with both parties and made public calls for them to address US concerns.³⁷ But the US has not formally sought consultation and clarification with these states via Article IX.

When the OPCW concluded that there were reasonable grounds to believe that Syria had used chemical weapons in 2017, states parties did not use Article IX to gain clarification from Syria on what this implied regarding the declaration and destruction of their chemical weapon stockpiles. Instead, the Executive Council exercised its power under paragraph 36 of Article VIII to require Syria to properly declare its chemical weapons, its production facilities, and to resolve all outstanding issues with its initial declarations.³⁸ When the OPCW reported no revised or additional declarations from Syria, states parties suspended a range of Syria's rights and privileges under the convention.³⁹

As relations between Russia and other states parties have soured, some states parties have bucked this trend and become more willing to formally pursue compliance concerns through Article IX. The consultation and clarification mechanism in that article has been formally used by several states parties: first in response to the poisoning of Alexei Navalny in August 2020, and more recently in response to allegations that riot control agents (RCAs) have been used as a weapon of war in Ukraine.

The poisoning of Alexei Navalny

When the OPCW confirmed that Novichok had been used to poison Mr. Navalny, a group of 45 states parties invoked Article IX to request four things from Russia:⁴⁰

- A detailed description of actions taken by Russia to address the incident in light of its obligations under the CWC, including the obligation under Article VII to implement national legislation to outlaw CWC-prohibited activities;
- To share with OPCW states parties “the results and conclusions” of those actions, including an explanation for the OPCW findings regarding the agent used to poison Mr. Navalny;
- To explain what further steps were envisaged to address the incident; and
- To explain in detail the state of play of the envisaged cooperation with the OPCW, including an invitation from Russia to host an OPCW Technical Assistance Visit on its territory.

Observers have noted that these requests did not directly question whether Russia had violated the core prohibition of the convention by using chemical weapons.⁴¹ Instead, the requests are framed as an opportunity for Russia to demonstrate that it is effectively prohibiting acts that violate the convention as required by Article VII, including by penalizing such acts. On the one hand, this provided Russia with an opportunity to disown state-level involvement in the poisoning. On the other hand, it did not invite Russia to address the states' conviction that Novichok is a Russian agent that has been used in violation of the core prohibition of the convention. Bulgaria's statement to the Executive Council on behalf of the 45 requesting states explained that the OPCW was not in a position to confirm whether the Russian state carried out the attack.⁴² But statements made by some of those 45 states suggest they have little doubt that Russia carried out the attack.⁴³

36. In contrast to the case of Syria, whose rights and privileges under the convention were suspended by the Conference of States Parties in 2021 under paragraph 2 of Article XII of the convention for failing to fulfil Executive Council requests to resolve all outstanding issues regarding its declared chemical weapon stockpile and program.

37. See *Compliance With the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction Condition (10) (C) Report*, (U.S. Department of State, 2023) p. 28.

38. Decision 2 of the 94th Meeting of the OPCW Executive Council, EC-94/DEC.2.

39. Decision 9 of the 25th Session of the Conference of States Parties, C-25/DEC.9.

40. United Kingdom of Great Britain and Northern Ireland, 'Request for Circulation of a Document at the Ninety-Eighth Session of the Executive Council,' 2021, EC-98/NAT.7.

41. Oliver Meier and Alexander Kelle, 'The Navalny Poisoning: Moscow Evades Accountability and Mocks the Chemical Weapons Convention,' *Bulletin of the Atomic Scientists*, 19 October 2021.

42. Bulgaria, 'Statement Under Agenda Item 6(g) on Behalf of 45 States Parties,' 2021, EC-98 Agenda 6g.

43. For example, a US note to the media coinciding with the submission of the request states that they have “concluded that FSB agents poisoned Mr. Navalny in Russia using an unscheduled nerve agent from a Novichok group of agents, and only Russia has researched, developed, and used such chemical weapons.” The UK also circulated a note to all states parties shortly after the original request that asserted that the UK considers that the Russian state used Novichok against Mr. Navalny; see EC-98/NAT.11.

Russia's response to the request argued that the suspicions of these states were "far-fetched," going as far as to question whether Mr. Navalny was poisoned with Novichok—despite the analysis of the OPCW indicating that this was the case. Russia also used its response to distribute previously confidential correspondence between Russia, Germany, France, Sweden, and the OPCW Technical Secretariat, and to make its own requests pursuant to Article IX paragraph 2 of the convention. These requests raise questions regarding the detailed circumstances of Mr. Navalny's treatment in Germany, the interactions of states with Russia following the poisoning, and the OPCW technical assistance visit to Germany that followed the poisoning.⁴⁴ While the wording of paragraph 2 of Article IX suggests these requests should relate to a "doubt about compliance with this Convention, or which gives rise to concerns about a related matter which may be considered ambiguous," Russia's requests do not obviously relate to or address any specific doubts about compliance.⁴⁵ Nevertheless, France, the UK, Sweden, and Germany all subsequently responded to Russia's questions.⁴⁶ Since 2021, the requesting parties and Russia have exchanged statements and further requests under Article IX, with no sign that either of their compliance concerns are being resolved.⁴⁷

The use of riot control agents in Ukraine

Concerns regarding Russia's compliance with the convention were exacerbated when television reports from Russian media implied that Russia had used riot control agents, or RCAs, as a method of warfare in Ukraine—a possible violation of paragraph 5 of Article 1 of the convention. These reports were repeated by Ukrainian representatives to the OPCW. In October 2023, Germany (along with six other states) formally invoked paragraph 2 of Article IX to request clarification from Russia regarding their alleged use of riot control agents as a method of warfare. In contrast to the requests regarding the poisoning of Mr. Navalny, this request was more blunt: The states directly asked Russia whether it had "used riot control agents in combat operations in the conflict in Ukraine?"⁴⁸

While Russia did directly respond to this with a simple negative, it again instigated its own reciprocal request for clarification from Germany.⁴⁹ This reciprocal request resembled its reciprocal requests regarding the Navalny case in 2021 in that no clear doubt regarding Germany's compliance with the convention is mentioned, while Ukraine is accused of being responsible for the use of riot control agents.⁵⁰ Russia's request seeks "clarifications from Germany regarding the information available to [Germany] on the incidents mentioned" in Ukraine's own notes verbales to the OPCW.

In contrast to the exchanges over the Navalny case in 2021, both Russia and Germany escalated their requests to the Executive Council as a whole, as provided for in paragraphs 3–7 of Article IX. This mechanism raises the prospect that if the requesting party is unsatisfied with the responses given by the state in question, the Executive Council may call on the Director-General to establish a group of experts to examine "all available information and data relevant to the situation causing concern."⁵¹ If the requesting states are still subsequently unsatisfied, they may request a special session of the Executive Council or the Conference of States Parties in which the Council or Conference "may recommend any measure it deems appropriate to resolve the situation."⁵²

At the time of writing, states parties to the CWC are still seeking clarification regarding the implications of Mr. Navalny's poisoning and the reported use of RCAs in Ukraine for noncompliance with the convention. Neither Russia nor Germany has escalated their request to the Executive Council further by calling for a Special Session of the Executive Council or Conference of States Parties. Russia will lose its seat on the OPCW Executive Council in May 2024 through a vote taken at the Convention's 28th Review Conference in November 2023. This will not limit its rights to further pursue its requests for clarification under Article IX of the convention, but will limit its influence in the council—unless it requests a Special Session regarding its concerns.⁵³ In the meantime, Mr. Navalny has died in a Russian prison and reports of the use of RCAs in Ukraine are increasing.

44. Russian Federation, 'Request for Circulation of a Document at the Ninety-Eighth Session of the Executive Council,' 2021, EX-98/NAT.8.

45. While Russia requested clarification from the OPCW Technical Secretariat, the OPCW Technical Secretariat is not a state party to the convention, so it is not clear if Russia can pursue consultation and clarification from the OPCW under paragraph 2, Article IX of the convention.

46. See EC-98/NAT.10, EC-98/NAT.11, EC-98/NAT.9, and EC-98/NAT.12.

47. Statements from the original requesting state parties indicate that their concerns regarding Russia's compliance have only increased during the course of formal consultations under Article IX.

48. See EC-104/NAT.6.

49. See EC-104/NAT.7.

50. See EC-104/NAT.7.

51. See paragraph 4(e) of Article IX of the *Chemical Weapons Convention*.

52. See paragraphs 4(f) and 7 of Article IX of the *Chemical Weapons Convention*.

53. Paragraph 4(f) of the convention provides that any concerned state party requesting a Special Session of the Executive Council will be entitled to take part in that session.



IV

Consultation and Clarification in the Biological Weapons Convention

Article V of the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction (BWC) states that:

“The States Parties to this Convention undertake to consult one another and to co-operate in solving any problems which may arise in relation to the objective of, or in the application of the provisions of, the Convention. Consultation and co-operation pursuant to this Article may also be undertaken through appropriate international procedures within the framework of the United Nations and in accordance with its Charter.”⁵⁴

The broad wording of the nature and scope of consultation permitted under Article V can be construed to apply to virtually any activity related to the provisions of the BWC; it is not explicitly limited to cases of possible noncompliance. This broad scope contrasts with the scope of obligations subject to consultation and clarification under the CWC, and particularly the CTBT.

Both the BWC and the CTBT expect states parties to make their own judgements regarding noncompliance. However, the BWC (unlike the CTBT) does not provide its states parties with a routine technical monitoring system like the CTBT IMS. The BWC has no binding verification protocol or inspection provisions.⁵⁵ The voluntary exchange of compliance-related information by states parties—including information on historical offensive biological weapon programs and current research centres and laboratories—was introduced to facilitate information exchange under Article V at the Second Review Conference of the convention. These Confidence-Building Measures (CBMs) are not a legally binding commitment, and they are not used as a declaration for further verification activities. The BWC Implementation Support Unit administers review conferences and informal meetings under the convention and collects CBMs by states parties, but it is not authorized to perform any kind

of inspections or assessment of compliance.⁵⁶ Unlike the CTBT and the CWC, the BWC has no “challenge” inspection provision if a state party’s concerns are not resolved through consultation under Article V. Instead, Article VI specifies that a state party’s “breach of obligations” can be brought to the UN Security Council for investigation.⁵⁷

Consultation and clarification processes under Article V are thus by far the best option for BWC states parties seeking to address compliance concerns through the convention. In 1980, Sweden called for the establishment of a Council of Experts to assess the information provided in consultation processes under Article V, which began the process of establishing procedures for multilateral consultations adopted by the Second and Third Review Conferences.⁵⁸ The final document of the Second Review Conference declared that consultative meetings should be promptly convened upon request and that they may pull on technical expertise and specialized assistance.⁵⁹ These conclusions were built upon at the Third Review Conference, which specified that bilateral consultations could precede multilateral consultations, that a formal consultative meeting must be convened within 60 days of a request, and that “every effort should be made” to reach consensus on substantive matters before resolution by voting.⁶⁰

The consultation provisions of Article V have not been formally invoked very often. The US sought to make use of the consultative process provided for in Article V with the Soviet Union concerning the 1979 outbreak of anthrax in Sverdlovsk,⁶¹ but there is no indication that the process was formally invoked, or any further enforcement action was taken. Concerns grew regarding the Soviet Union’s compliance with the convention, and in 1991, the US and UK began to put pressure on Soviet President Gorbachev to admit the existence of a Soviet offensive biological weapons program. In their opening statements at the Third Review Conference, the US and UK both accused the

54. An English-language electronic copy of the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction can be found here: <https://front.un-arm.org/wp-content/uploads/2020/12/BWC-text-English.pdf>.

55. Attempts to establish a verification body and protocol under the BWC have so far been unsuccessful. Two different ad hoc groups established by states parties considered verification provisions, including site visits and procedures for escalating concerns unresolved by consultation to a proposed Executive Council for the Convention. However, neither group reached a final consensus to establish these provisions.

56. James Revill, ‘How the Biological Weapons Convention Could Verify Treaty Compliance,’ *Bulletin of the Atomic Scientists*, 25 March 2024 <<https://thebulletin.org/2024/03/how-the-biological-weapons-convention-could-verify-treaty-compliance/>>.

57. Because of the veto power of the permanent members of the Security Council, this recourse is considered “effectively inoperative.” Jonathan B. Tucker, ‘Strengthening Consultative Mechanisms Under Article V to Address BWC Compliance Concerns,’ Harvard Sussex Program Occasional Paper, Issue 1 (May 2011) <http://hsp.sussex.ac.uk/new/_uploads/hspop/HSPOP_1.pdf>.

58. Tucker, ‘Strengthening Consultative Mechanisms Under Article V to Address BWC Compliance Concerns’.

59. ‘Final Document, Second Review Conference of the Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction,’ 30 September 1986, BWC/CONF.II/13.

60. ‘Final Document, Third Review Conference of the Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction,’ 9–27 September 1991, BWC/CONF.III/23.

61. ‘Summary Record of the Third Meeting, Second Review Conference of the Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction,’ 9 September 1986, BWC/CONF.II/SR.3.

Soviet Union of noncompliance but did not call for an Article V consultative meeting.⁶² The 1992 Trilateral Agreement between the US, UK, and the post-Soviet Russian Federation incorporated three rounds of site visits. Despite sophisticated protocols for visits and the demonstration of evidence of past Soviet noncompliance, the Trilateral Agreement had fallen apart by 1995 amidst American and British frustrations over unresolved questions, Russian counter-allegations, and insistence on reciprocity.⁶³

One could argue that as a consultation between states parties in relation to the objective of the BWC, the Trilateral Agreement took place implicitly under Article V. Yet throughout the Trilateral Agreement, Article V was not formally invoked by process nor in plenary statements. Information exchanges regarding compliance concerns took place privately and outside of the formal procedures set out in the Third Review Conference final document. The US and UK may have leveraged the threat of a formal multilateral Article V consultation, involving presentation of intelligence collected on the illicit Soviet program, to engage Russia in trilateral consultations and site visits. However, it has been suggested that other initiatives under US–Russia diplomacy took precedence over BWC compliance concerns, which were not high priority enough to risk jeopardizing their fragile diplomatic relationship.⁶⁴

Around the same time, the international community was addressing concerns regarding Iraq's WMD programs discovered during the First Gulf War. As part of ceasefire negotiations, Iraq was forced in June 1991 to ratify the BWC, to which it had been a signatory since 1972. When evidence emerged that Iraq had failed to meet its obligations under Article II to destroy all its biological weapons within nine months of ratification, clarification and investigation took place under the United Nations Special Commission (UNSCOM) and not under Article V or VI of the BWC.⁶⁵ UNSCOM had already been established in April 1991 by Security Council Resolution 687 and was tasked with supervising the destruction of Iraq's weapons of mass destruction.⁶⁶ In the context of Iraq's very recent ratification of the BWC and ongoing UNSCOM verification, it made

sense that Article V consultations went uninvoked, leaving the issue to a pre-existing UN task force with widespread international support and a comprehensive mandate.

Formal multilateral consultative meetings under Article V have taken place only twice since the BWC's entry into force: first in 1997 when Cuba raised concerns about US noncompliance, and again in 2022 when Russia alleged noncompliance by Ukraine and the US.

The outbreak of thrips in Cuba

Cuba's pursuit of clarification began after an outbreak of *Thrips palmi* Kary was detected in December 1996. A Cuban commercial airline pilot had reported intermittent releases of a substance from an American S2R aircraft overflying Cuba a few months earlier; the US responded that the pilot had released smoke to warn the Cuban aircraft of his presence.⁶⁷ In June 1997, Cuba then submitted a request to Russia as a depository of the BWC to convene a multilateral consultative meeting under Article V, which took place from August 25th to 27th at the Palais des Nations in Geneva.⁶⁸ The meeting was well attended: 81 states parties and 3 signatories participated. The states parties elected a geographically diverse bureau of a chairman (UK) and vice chairmen (Brazil, Canada, Iran, Netherlands, Nigeria, Russia) to consult on the information presented and manage the rounds of successive observations until the end of the year.⁶⁹

Cuba argued at the meeting that *Thrips palmi* Kary had until December 1996 not been found in Cuba, and the population size of the outbreak suggested that it had begun around the same time as the reported overflight of the US aircraft. Cuba also argued that the US airplane was equipped with a sprinkling system to destroy crops, which could have been used to spread the outbreak. Cuba contended that together this was evidence of "biological aggression" by the US.⁷⁰ In response, the US presented the aircraft's flight manifest and specifications to demonstrate that its herbicide tanks would have been full of

62. Michael Moodie, 'The Soviet Union, Russia, and the Biological and Toxin Weapons Convention,' *The Nonproliferation Review*, Spring 2001, <<https://www.nonproliferation.org/wp-content/uploads/npr/81moodie.pdf>>.

63. David C. Kelly, 'The Trilateral Agreement: Lessons for Biological Weapons Verification,' *VERTIC Verification Yearbook*, 2002.

64. Moodie, 'The Soviet Union, Russia, and the Biological and Toxin Weapons Convention.' Higher-priority issues may have included "loose nukes," the Cooperative Threat Reduction program, and Russia's arms transfers to Iran.

65. J.P. Perry Robinson, 'Memorandum Submitted by Professor J P Perry Robinson, University of Sussex,' House of Commons Select Committee on Foreign Affairs, Appendices to the Minutes of Evidence, 25 July 2000, <https://publications.parliament.uk/pa/cm199900/cmselect/cmcaff/407/407ap30.htm>

66. 'Chronology of Main Events', United Nations Special Commission, n.d. <[Chronology/chronologyframe.htm](https://www.un.org/News/Press/docs/1999/19990319990301.htm)> [accessed 14 March 2024]

67. Raymond A. Zilinskas, 'Cuban Allegations of Biological Warfare by the United States: Assessing the Evidence,' *Critical Reviews in Microbiology*, no. 25:3, (1999) p. 173–227, DOI: 10.1080/10408419991299202.

68. James Revill, 'The Past, Present and Future of BWC Article V Consultations,' UNIDIR, 27 July 2022, <<https://unidir.org/the-past-present-and-future-of-bwc-Article-v-consultations/>>.

69. 'Report of the Formal Consultative Meeting of States Parties,' 29 August 1997, BWC/CONS/1.

70. 'Note verbale dated 28 April 1997 from the Permanent Mission of Cuba to the United Nations Addressed to the Secretary-General,' 29 April 1997, A/52/128.

fuel and incapable of dispersing thrips. The US also reiterated that the release of smoke to signal presence was consistent with the S2R pilot's training, and presented other scenarios which could explain the appearance of thrips in an unexpected region of Cuba.⁷¹

Following the meeting, states parties were given a month to submit their observations on the consultation – only a few of which went beyond general statements of support to the US or Cuba to include technical analysis of the evidence presented.⁷² The elected bureau then reconvened with representatives from Cuba and the US for another round of consultation before issuing its final report, which reflected the lack of consensus between members. Ultimately, the process did not reach a “definitive conclusion” due to “the technical complexity of the subject and to the passage of time.” However, the bureau agreed that the requirements of Article V and the procedures established during the Third Review Conference had been fulfilled “in an impartial and transparent manner.”⁷³ The US was neither exonerated nor found to have not complied, but despite the lack of a clear outcome, Cuba did not pursue any further action.

This abrupt end to a flurry of consultation and clarification confused many observers and participants in the process. Cuba's approach to consultation was drawn out over a year, aired in two multilateral forums, and made first use of a very public consultation process. It would not be unreasonable to assume that it was as much a political gesture as a genuine request for clarification. Having aired its grievances and sufficiently implicated the US, Cuba may have considered its aims achieved and felt no need to take the matter further. Last, the adherence to the procedures and geographically diverse representation among the bureau members lent valuable collective legitimacy to the process outcomes.⁷⁴ Despite the lack of consensus, only one state party (the Democratic People's Republic of North Korea) judged that noncompliance had occurred; all other submissions were either inconclusive or judged there to be insufficient evidence for Cuba's allegations. In such an

environment, it would have been difficult for Cuba to justify invoking other mechanisms such as Article VI to continue pressing the issue.

Biological cooperation between the US and Ukraine

More recently, Russia requested a formal consultative meeting under Article V to address its concerns regarding the compliance of Ukraine and the United States with their obligations under Articles I and IV of the BWC. In June 2022, Russia brought a note verbale to the UK and the US as fellow BWC depository states, formally calling a multilateral consultative meeting under Article V. In its request, Russia asserted that it had tried to resolve its concerns via bilateral consultation with the US and Ukraine but still had unanswered questions.⁷⁵

As the only depository not directly involved, the UK convened formal consultative meetings in August and September 2022. It was once again well attended by 89 states parties and one signatory, who heard questions by Russia to the US and Ukraine which had been initially submitted for bilateral consultation.⁷⁶

Unlike the concerns raised by Cuba, these did not centre on one incident. Instead, Russia put forth a range of concerns that focused primarily on the US Department of Defense funding biological laboratories in Ukraine under the Cooperative Threat Reduction (CTR) program. By the end of the consultative process, Russia had issued 23 working papers during this consultation process, 13 of which were iterations on the initial questions it had submitted. As the process went on, Russia added more questions while reiterating those which had already been addressed in presentations by the US and Ukraine.⁷⁷ It presented 184 pages of scanned documents—including copies of agreements, plans, research reports, project documentation, correspondence (including internal Ukrainian governmental correspondence), and patent applications—attached as an evidential annex.⁷⁸

71. Including southward spread by hurricanes or high winds from the Bahamas (demonstrated on maps provided to the meeting) or introduction through human travel and commerce. Maps are reflected in figures 5 and 6 in Zilinskas, 'Cuban Allegations of Biological Warfare by the United States.'

72. It is interesting to note that observations made by members in support of Cuba avoided directly accusing the US of noncompliance, and instead largely sought to extend the consultation and clarification process while further information could be collected.

73. Julian Perry Robinson, 'News Chronology: November 1997 through February 1998,' CBW Conventions Bulletin, no. 39 (March 1998), <http://hsp.sussex.ac.uk/new/_uploads/bulletin/cbwc39.pdf>.

74. Nicholas Sims, *The Evolution of Biological Disarmament* (Oxford University Press, 2001).

75. The US later submitted scans of the documents exchanged during these bilateral exchanges with Russia, pointing out that the evidence Russia provided to support its concerns was heavily blurred and illegible. The US responded bilaterally inviting more readable documents to be submitted, but instead Russia moved to formally invoke Article V. See 'Response by the United States of America to the Request by the Russian Federation for a Consultative Meeting Under Article V of Biological and Toxin Weapons Convention,' 5 September 2022, BWC/CONS/2022/WP.4; and pages 25–27, 'Bilateral Diplomatic Exchanges Between the United States and the Russian Federation Preceding the Russian Federation's Request for an Article V Consultative Meeting Under the Biological and Toxin Weapons Convention,' 9 September 2022, BWC/CONS/2022/WP.51.

76. See BWC/CONS/2022/WP.2 and BWC/CONS/2022/WP.3.

77. See 'Questions of the Russian Federation to the United States and Ukraine,' 7 September 2022, BWC/CONS/2022/WP.26, which was submitted during the right to reply after the US and Ukrainian presentations.

78. Weapons Proliferation Agreement Between the US and Ukraine, (US Department of State, 29 August 2005) see Annex: <https://documents.unoda.org/wp-content/uploads/2022/09/WP2-annexes-for-website.pdf>.

Through its submissions, Russia argued that several US and Ukrainian activities “indicated noncompliance” with the BWC. These arguments included:⁷⁹

- That the military source of funding for CTR projects, lack of declarations regarding these projects in CBM submissions, and a focus on research which Russia did not consider high priority for Ukrainian public health indicated that Ukraine was not complying with Article I, Part 1 of the BWC and that the US was not complying with Article IV.
- That the number of strains of cholera and anthrax reported at the Mechnikov Anti-Plague Scientific and Research Institute exceeded the quantity needed for protective and peaceful purposes, and that Ukraine had insufficient biosafety and biosecurity regulations in place to manage dangerous pathogens.
- That Ukrainian research into migratory birds and bat populations as vectors of disease was not for peaceful purposes and indicated Ukraine was not complying with Part 2 of Article I.
- That the filing of a US patent in 2015 designing a UAV for aerial release of mosquitoes as a vector indicated the US was not complying with Article IV.

Though Ukraine and the US did not answer each of Russia’s specific questions, they addressed all areas of concern raised by Russia. Their opening statements reaffirmed their compliance with the BWC, support for Article V, and compliance with CBM reporting requirements.⁸⁰ The information they presented to support their arguments included presentations from legal advisors and scientists involved in the projects that concerned Russia, evidence and explanations of the support the US had given to Ukraine, and clarifications of certain cooperation agreements that they argued Russia had misinterpreted.⁸¹ Both parties also pointed to Russian research and patent designs that were very similar to those claimed by Russia to be evidence of US and Ukrainian noncompliance.

After the initial exchanges between Russia, Ukraine, and the US, 42 other states parties delivered statements. The final report of the consultative meeting stated that no consensus was reached. Nonetheless, states parties agreed that “the consultation was fully in conformity” with the protocols outlined at the Third Review Conference.⁸² After the consultative meeting concluded, Belarus, China, Cuba, Nicaragua, Russia, Syria, Venezuela, and Zimbabwe made a statement concluding that Russia’s questions remained unresolved and calling for the use of Article VI to bring the questions to the UN Security Council.⁸³ The US asserted that this joint statement had already been circulated before the consultative meeting had started, and before the US and Ukraine had presented their responses. US Representative Ken Ward accused Russia of abusing the Article V process, having “prejudged the outcome of this consultation.”⁸⁴ Russia escalated its concerns by invoking Article VI and introducing a resolution to the UN Security Council to investigate noncompliance by the US and Ukraine with the BWC. This resolution was rejected. The US, UK, and France voted against, while all 10 non-permanent members abstained. Aside from Russia, only China voted for the resolution.⁸⁵

Having tried and failed to pursue its allegations through Article VI, Russia has returned to accusing states parties of noncompliance in plenary sessions at all BWC meetings since then. At a BWC plenary session in December 2023, the US unilaterally pronounced the Article V consultation process “completed and closed.”⁸⁶

79. See BWC/CONS/2022/WP.2, BWC/CONS/2022/WP.3, BWC/CONS/2022/WP.6, BWC/CONS/2022/WP.7, BWC/CONS/2022/WP.8, BWC/CONS/2022/WP.9, BWC/CONS/2022/WP.10, BWC/CONS/2022/WP.11, BWC/CONS/2022/WP.12, BWC/CONS/2022/WP.13, BWC/CONS/2022/WP.14, and BWC/CONS/2022/WP.21.

80. See BWC/CONS/2022/WP.21 and BWC/CONS/2022/WP.22/Rev.1. The US in particular argued that it had not failed to make proper CBM submissions, as these submissions required only information on activities within its national territory.

81. For examples, see ‘Presentation—Ukraine’s Compliance with Obligations Under the BTWC and Engagement in BTRP Activities,’ 6 September 2022, BWC/CONS/2022/WP.24; ‘Statement to the Article V Consultative Meeting Under the Biological and Toxin Weapons Convention, by Samuel W. McDonald, Legal Adviser to the U.S. Delegation,’ 6 September 2022, BWC/CONS/2022/WP.25; and ‘United States Technical Briefing to the Article V Consultative Meeting under the Biological and Toxin Weapons Convention,’ 9 September 2022, BWC/CONS/2022/WP.38.

82. ‘Final Report of the Formal Consultative Meeting of the States Parties,’ 19 September 2022, BWC/CONS/2022/3.

83. ‘Joint Statement on the Results of the Consultative Meeting of the States Parties to the Convention on the Prohibition of Biological and Toxin Weapons (BTWC) under BTWC Article V,’ 12 September 2022, BWC/CONS/2022/WP.63.

84. ‘Opening Statement to the Article V Consultative Meeting Under the Biological and Toxin Weapons Convention, U.S. Special Representative Kenneth D. Ward,’ 6 September 2022, BWC/CONS/2022/WP.22/Rev.1.

85. ‘Security Council Rejects Text to Investigate Complaint Concerning Noncompliance of Biological Weapons Convention by Ukraine, United States,’ (UN Meetings Coverage and Press Releases, 9180th Meeting (PM), 2 November 2022) SC/15095, <https://press.un.org/en/2022/15095.doc.htm>.

86. Bureau of International Security and Nonproliferation, ‘U.S. National Statement at the BWC Meeting of States Parties, December 13, 2023,’ 14 December 2023, <https://www.state.gov/u-s-national-statement-at-the-bwc-meeting-of-states-parties-december-13-2023/>.



V

**Lessons Learned
for the CTBT**

The formal and informal pursuit of consultation and clarification

The UK's experience with resolving anomalies and concerns regarding declarations under the Chemical Weapons Convention demonstrates that when states parties engage informally and at a low level, they can successfully resolve low-level compliance concerns. Where a state party can remedy an individual low-level compliance problem to the satisfaction of those concerned, it can build confidence in its broader compliance without risking the political damage of having its transgressions revealed to a larger audience. Where a concerned state party cannot unambiguously resolve a compliance concern with another party, the willingness of that party to constructively engage can demonstrate reassuring transparency and good faith. The nature of informal and discreet engagement makes it hard to identify and analyse cases in which such engagement has successfully resolved concerns: Success depends on and is demonstrated through discretion. States may be routinely engaging with each other in this manner to discuss concerns without any obvious public sign.

However, the obligations under the CWC are broader than those of the CTBT (including obligations to make declarations of current and historic activities and to verifiably abandon past weapons) and the invitation to consultation and clarification in the convention is correspondingly broad. The CTBT's basic obligations—and its invitation to consultation and clarification—is much narrower, focusing on nuclear weapon test explosions. Where states parties' concerns relate to a nuclear detonation, it may be hard for them to informally engage at a low level to resolve such a high-level concern.

The wording of the invitation in Article IV.C provides leeway for a broader interpretation of consultation and clarification, which provides greater scope for lower-level engagement on lower-level compliance concerns. By inviting engagement on “any matter which may cause concern about possible noncompliance with the basic obligations of the treaty,” the treaty recognizes that states parties may engage with each other on broader topics such as their

national implementation measures (Article III), their requirement to provide data into the IMS, and their general requirement to cooperate to facilitate verification (Article IV.A).

It may also provide a window through which states parties could clarify and resolve questions about what constitutes and what does not constitute noncompliance. A collection of statements by nuclear-armed state signatories to the CTBT suggests that these states agree that the CTBT prohibits any nuclear weapon test explosion that generates a nuclear yield.⁸⁷ The US argues that this threshold implies that “all nuclear explosions that produce a self-sustaining, supercritical chain reaction of any kind whether for weapons or peaceful purposes” are prohibited.⁸⁸ However, it is not clear if all states agree with this interpretation, and the US believes that Russia has carried out nuclear weapon experiments that do not abide by their interpretation.⁸⁹ While the CTBT does not discriminate between small or large noncompliance, states parties may be willing to engage informally at a low level to resolve where noncompliance starts.

States parties could also see Article IV.C as an invitation to engage on possible preparations to carry out a noncompliant nuclear weapon test explosion. While the CTBT does not discuss preparations or readiness for nuclear weapon testing,⁹⁰ states parties may justifiably see any indications of an imminent nuclear weapon test explosion as a matter concerning possible future noncompliance. Discreet bilateral engagement in response to such indications has encouraged testing restraint in the past,⁹¹ and Article IV.C may provide useful legitimacy for such engagement in the future.⁹² In the absence of any current noncompliance, states parties may have greater opportunity to proactively build confidence in current and future compliance. Nuclear-armed state signatories who wish to do so may consider offering voluntary visits to their historic testing sites, and this opportunity is discussed in more detail below.

87. US Bureau of Arms Control, Verification, and Compliance, 'Key P-5 Public Statements on CTBT Scope.'

88. 'Scope of the Comprehensive Nuclear Test-Ban Treaty,' fact sheet, (US Bureau of Arms Control, Verification, and Compliance, 2012) <<https://2009-2017.state.gov/t/avc/rls/212166.htm>>.

89. See *Adherence To and Compliance With Arms Control, Nonproliferation and Disarmament Agreements and Commitments*, (US Department of State, April 2022) p. 28.

90. Some states (including Brazil, Finland, Germany, and Sweden) wished to include preparations for testing in the scope of the ban, arguing that “if preparations were noted, a challenge on-site inspection would be better than waiting for the nuclear explosion to take place.” However, France, Russia, and the US opposed this inclusion arguing that it would be too difficult and costly to verify. See Ramaker and others, 'The Final Test,' p. 58.

91. US bilateral engagement with India in the 1990s encouraged India to refrain (albeit temporarily) from carrying out a nuclear weapon test. Some declassified documentation from that engagement can be found here: <https://www.wilsoncenter.org/publication/the-clinton-administration-and-the-indian-nuclear-test-did-not-happen-1995-1996>.

92. It is not clear, however, whether states parties would interpret Article IV.C as allowing a more formal and public engagement on impending noncompliance. Concerned states parties would have to rely entirely on national technical means to support this use of Article IV.C, as the IMS is oriented only towards detecting the act of noncompliance and not preparations for noncompliance.

The risks presented by the formal pursuit of consultation and clarification

The case studies above demonstrate why the UK may have been reluctant to escalate its pursuit of consultation and clarification from Russia to a formal level under the CWC: It is very difficult to successfully resolve compliance concerns through public consultation and clarification. In all the formal cases of consultation and clarification described above, none have yet resulted in a clear and unambiguous statement of compliance or noncompliance. The process surrounding the poisoning of Alexei Navalny and the use of RCAs in Ukraine continues. The clarification of Ukraine's and the US's compliance with the BWC can be seen as complete only in a procedural sense. This outcome may be satisfactory for a state party seeking to obscure their noncompliance, or a state party seeking to confuse and exacerbate concerns about noncompliance. But it may not be satisfactory for those that expect the mechanism in CTBT Article IV.C to actually clarify and resolve compliance concerns.

The case studies above also shine a light on a particular risk presented by formal consultation and compliance mechanisms: They can be used in bad faith to confuse and exacerbate noncompliance concerns. Russia may genuinely hold the concerns it has raised under the auspices of Article IX of the CWC and Article V of the BWC, but the way it has used those articles has created more confusion than clarity. While all international mechanisms are vulnerable to misuse if states act in bad faith, some aspects of consultation and clarification lend themselves to misuse—both intentional and unintentional.

First, concerned states parties can share any information they feel necessary to support their request for clarification. To support its requests, Russia has publicly shared confidential correspondence it was party to, open sources (like research reports, presentations, and public patents), confidential correspondence it was not party to, and other information potentially collected through intelligence activities. They have shared personal and contact information of individuals who are tangentially related to their concerns, irrespective of whether they represent the state party of concern or not. In response, other states have shared media reports, equipment designs, legal advice, and intricate details of individual or bilateral projects related to the area of concern.⁹³

There are no restrictions regarding the admissibility or inadmissibility of information exchanged through consultation and clarification, other than those states parties might impose on themselves out of concerns for secrecy, sensitivity, and proliferation. This presents a risk that too much—rather than too little—information is presented to interested states parties. The sheer volume of information and requests presented by Russia in relation to its BWC concerns could overwhelm states parties with limited resources at their disposal, forcing them into assumptions or ambivalence. It also raises the risk that overwhelmed states parties will not be able to properly authenticate and characterize the information presented, causing them to either accept fake or fraudulent information or doubt authentic information. Russia's requests to the US and Ukraine under the BWC were supported by information that was in places blurred and illegible,⁹⁴ suggesting that during formal public consultation, the quantity of information could be perceived as more valuable than its quality.

Second, there are no restrictions on the requests that can be made through consultation and clarification. When suspicions arose regarding Russia's potential use of RCAs as a method of warfare in Ukraine, the concerned states parties simply asked Russia whether it had violated the CWC by using RCAs in the conflict. In contrast, states parties sought clarity on their concerns regarding the poisoning of Alexei Navalny by requesting a demonstration of Russia's compliance with the convention and its cooperation with the OPCW. Russia has avoided directly requesting a statement or demonstration of compliance or noncompliance. It has instead requested a vast array of small questions which, when taken individually, have no obvious link to a compliance concern, but whose answers could be taken collectively to degrade confidence in the compliance of others, or of the concerns others have with Russia.

A request that could not reasonably be fulfilled (such as one requesting sensitive or proliferative information or locations) could be used to portray the requested party as evasive and uncooperative. Frivolous requests that do not clearly relate to a compliance concern could be used to sow inconclusive and open-ended seeds of doubt regarding the behaviour of the state party in question.⁹⁵ Similarly, requests that are designed only to prove accusations of noncompliance without leaving an opportunity for the accused to demonstrate compliance empty the process of its meaning by pre-judging the outcome. The alleged circulation by Russia of a joint statement on the outcome of the recent consultative meeting under the BWC prior to the actual meeting is an example of this risk.⁹⁶

93. While satellite imagery has so far played little to no role in supporting or responding to requests during consultation and clarification under the CWC or BWC, it could come to play a more significant role in these exchanges. This is perhaps particularly the case for questions surrounding the use of RCAs as a method of warfare in Ukraine.

94. See pages 25–27, 'Bilateral Diplomatic Exchanges Between the United States and the Russian Federation Preceding the Russian Federation's Request for an Article V Consultative Meeting Under the Biological and Toxin Weapons Convention,' 9 September 2022, BWC/CONS/2022/WP.51.

95. Article IV.D. of the CTBT allows the Executive Council to redress any on-site inspection request that it considers to be "frivolous or abusive" but does not allow addressing any request for consultation and clarification that may be similarly frivolous or abusive.

96. The requests of 45 states parties to the CWC for Russia to explain its domestic response to the use of Novichok on its territory is a less obvious example. By fulfilling this request Russia would have tacitly acknowledged the bigger noncompliance concerns of some of those states parties, something Russia was not willing to do.

Mitigating the risks of consultation and clarification

Thankfully, the case studies above also demonstrate how these risks could be mitigated in the context of the CTBT. The presence or absence of a “neutral” apolitical technical authority during the consideration of any potential noncompliance can have a big influence on the states parties involved in that consideration. When states parties sought clarification from Russia in relation to the poisoning of Alexei Navalny, they did so with information from the OPCW Technical Secretariat stating that Mr. Navalny had been exposed to a nerve agent from the Novichok group. While this did not assign responsibility to a state party or determine noncompliance, this information may explain why 45 states parties were willing to support the request to Russia. In contrast, six states parties were willing to join Germany in formally requesting clarification from Russia regarding the potential use of RCAs in Ukraine—where the Technical Secretariat has not drawn any conclusions regarding the agents being used.

In contrast, if states parties to the CTBT were concerned enough about a possible nuclear weapon test explosion to pursue formal and public consultation and clarification, they would probably do so supported by authenticated, familiar, and trusted information from the CTBT’s IMS. The CTBT also gives concerned states parties the opportunity to call on the Technical Secretariat to assist in resolving compliance concerns by providing “appropriate information in the possession of the Technical Secretariat relevant to such a concern.”⁹⁷ This information may extend beyond data received through and processed from the IMS (which would routinely be made available to states parties irrespective of any compliance concern). Additional information could include the techniques used to process, analyse, and store that data, and the overall performance of the IMS. It could also include data received from Cooperating National Facilities which are not formally part of the IMS, and how the Technical Secretariat has authenticated that data. The Secretariat would have to provide this information within the bounds of any confidentiality procedures, and it would stop short of attributing or acquitting noncompliance to a concerning event. However, the presence, absence, and form of the information would shape the perspectives and expectations of any states parties called on (in the Executive Council or the Conference of States Parties) to respond to that concerning event. The information provided by the Technical Secretariat may also set a standard

of quality, clarity, and conciseness that other states parties would need to live up to during their consultations.

The case studies above also demonstrate the importance of group decision-making in the pursuit of consultation and clarification. Following the open-ended exchange of requests regarding the poisoning of Mr. Navalny, states parties concerned regarding the use of RCAs as a method of warfare in Ukraine requested that the OPCW Executive Council pursue their requests on their behalf. It is not yet clear how the Executive Council will pursue both Germany’s and Russia’s requests simultaneously. However, a report, decision, or feedback from the Executive Council will have more authority and power to shape the consultation process towards some type of conclusion.⁹⁸ The Executive Council may also call on the Director-General of the OPCW to establish a group of experts (from inside or outside the Technical Secretariat) to examine relevant evidence and submit a factual report to the council on its findings.⁹⁹ The outcomes of the Executive Council’s decisions could reverberate through to any follow-on actions the concerned states parties may take, many of which (including the request for challenge inspections) would have to go through the Executive Council.

The procedural approach to consultation and clarification under the BWC also demonstrates the value of pursuing collective approaches to resolving concerns regarding potential noncompliance. While the consultative meetings that have been convened so far have not unambiguously clarified the compliance or noncompliance of states parties, they have served to focus and contain the process and legitimize its outcomes. While the recent Consultative Meeting gave Russia the opportunity to air its grievances (albeit in a closed meeting within the BWC), the inconclusive findings of that meeting reverberated through to the UN Security Council where Russia went on to (unsuccessfully) further pursue its concerns. The completion of the meeting also seemed to dampen interest in Russia’s further pursuit of their concerns within the BWC.

The opportunity in CTBT Article IV.C. to pursue consultation and clarification via the Executive Council is, on paper, more time-consuming than approaching a concerning state party directly. But by deferring to the authority of the Executive Council, concerned states parties can have more confidence that their pursuit of clarification will reach a more definitive conclusion—even if that conclusion is not confirmation of their concerns.

97. Similarly, the Protocol to the CTBT allows states parties to request from the CTBTO International Data Centre an expert technical analysis of IMS data and other relevant data provided by that party, to help that state identify the source of a specific event.

98. In contrast, states parties pursuing formal consultation and clarification directly with a concerning state party can conceivably continue that pursuit indefinitely. The requests and counter-requests in pursuit of clarity over the poisoning of Mr. Navalny perhaps demonstrate this.

99. Paragraph 4(e) of Article IX of the *Chemical Weapons Convention*.

Building confidence in CTBT consultation and clarification

The first paragraph of Article IV of the CTBT states that at entry into force of this treaty, the verification regime shall be capable of meeting the verification requirements of this treaty. This includes its consultation and clarification mechanism. When state signatories established the Preparatory Commission for the CTBT Organization in November 1996 after the treaty was agreed, their indicative list of possible verification tasks for the Preparatory Commission included “procedures for the conduct of consultation and clarification.”¹⁰⁰

The risks and opportunities described above might encourage the Preparatory Commission to restart work towards procedures for the conduct of consultation and clarification. States parties to the BWC decided on procedures for consultation and clarification, and as discussed above this has established some useful boundaries for that process. Well-defined procedures could be used to set requirements for the requests that should be made, the information that can be exchanged, and the boundaries within which the pursuit of clarification can happen, and they give legitimacy to what emerges from the process. They could also be used to minimize opportunities for the misuse of Article IV.C to spread disinformation and confuse rather than clarify compliance issues.

However, Russia’s approach to the recent BWC Consultative Meeting demonstrates that processes can still be used in bad faith. Cuba’s use of that process also demonstrates that even when a process is carried out ‘correctly’, it may not ultimately achieve its goal of clarifying or resolving issues of compliance. If CTBT states parties become concerned that someone has detonated a nuclear weapon, a procedural approach to consultation and clarification should not become an obstacle course they have to navigate before they can respond. If CTBT states parties develop less significant or broader compliance concerns (for example, regarding their Article IV.A obligation not to interfere with elements of the treaty’s verification regime) they should not be forced into a formal, public process when informal consultation may be more productive. Procedural restrictions regarding the admissibility or inadmissibility of information might curtail abuses of the process, but they would also curtail opportunities to identify novel, targeted approaches to resolving ambiguities. Rather than working towards procedures for the

conduct of consultation and clarification, the CTBTO Preparatory Commission may build more confidence in the capability of this mechanism by exploring and revisiting their expectations of what it can achieve and how that should be achieved. The scope of the invitation in Article IV.C could be read narrowly or broadly, influencing the circumstances in which states parties might take up this invitation (either formally or informally). The range of requests made through this invitation would influence how much clarity and what resolution might emerge as a result. The quantity, quality, and provenance of the information exchanged throughout the process would also influence how states parties might be able to engage in and contribute to the resolution and clarification of noncompliance concerns. The information that the CTBTO Technical Secretariat can and should provide on request would also influence the judgements states parties would draw from the process. Exploring these factors would help states understand their expectations better and recognize what might be an unreasonable or unrealistic approach to consultation and clarification.

The case studies above suggest that it may not be realistic for states parties to fully clarify and resolve every concern about possible noncompliance that might arise through the formal use of Article IV.C. While the treaty encourages the pursuit of this goal, it is perhaps unreasonable to expect that goal to be achieved through consultation and clarification alone.¹⁰¹ The on-site inspection mechanism has been carefully negotiated, designed, and exercised to ensure it can give clarity and resolution as to whether a state party has detonated a nuclear weapon. The consultation and clarification mechanism should complement rather than compete with this aspect (and all other aspects) of the treaty’s verification regime. The aspirational language in Article IV.C recognizes this when it encourages concerned states parties to “whenever possible” make “every effort” to clarify and resolve their concerns before requesting an on-site inspection. States can help build confidence that consultation and clarification will play this constructive role by revisiting their expectations for this mechanism, and exploring what is possible when their efforts are channelled towards this aspiration.

100. Comprehensive Nuclear-Test-Ban Treaty, Appendix, CTBT/MSS/RES/1.

101. The challenges in clarifying and resolving BWC compliance concerns through Article V of that treaty in the absence of an agreed verification protocol illustrates this point.



VI

**Building Confidence
and Clarifying
Ambiguities Through
Site Visits**

The nuclear-armed state signatories to the CTBT—and their expectations for consultation and clarification under the treaty—warrant particular attention. All but one of these states are known to have carried out nuclear weapon test explosions in the past,¹⁰² and the risk that they may do so again in the future may give other states parties cause for concern about possible noncompliance with the CTBT. As discussed above, in the absence of serious and urgent concerns regarding noncompliance, informal consultation and clarification can build valuable confidence among states parties. And the broad invitation to consult and clarify under the CTBT is an opportunity for nuclear-armed states to be imaginative in how they build that confidence. This section considers what role visits to former nuclear weapon test sites could play in this regard.

While the prohibitions of the CTBT are not yet in force,¹⁰³ China, France, Russia, the UK, and the US have all declared voluntary moratoriums on nuclear weapon test explosions. In the meantime, these state signatories carry out stockpile stewardship activities that aim to keep their nuclear arsenals safe, secure, and reliable in the absence of nuclear weapon test explosions. For the US, Russia, and China, these activities often take place in, around, or are related to known historic nuclear weapon test sites. For example, the US “maintains readiness to conduct an underground nuclear explosive test, if required, to ensure the safety and effectiveness of the Nation’s stockpile or if otherwise directed by the President.” It does this by “exercising capabilities and workforce at the national security laboratories and the [former testing site] Nevada National Security Site.”¹⁰⁴ Official Russian statements to the media also indicate that they maintain a readiness to carry out underground nuclear weapon tests at their Novaya Zemlya site.¹⁰⁵ These activities may also

involve subcritical nuclear test explosions, which (according to the US definition) “are driven by high explosives and contain [special nuclear material] that never achieves a critical configuration and does not create a nuclear yield.”¹⁰⁶

The CTBT does not prohibit states parties from maintaining the ability to carry out nuclear weapon test explosions or preparing to carry out nuclear weapon test explosions.¹⁰⁷ Neither does it prohibit states parties from carrying out other nuclear weapon tests, including subcritical explosions that do not produce a nuclear yield.¹⁰⁸ Maintaining a very high level of test readiness in which a nuclear weapon test explosion seems imminent would not in itself be a violation of the CTBT (or current test moratoriums). However, such readiness could degrade restraint and increase the chances that nuclear-armed signatory states would ultimately carry out an explosive test—particularly while the testing restraint of some nuclear-armed signatories rests on the perceived restraint of others.¹⁰⁹ Significant increases in test-site activities may be ambiguous, particularly where those activities generate seismic signals resembling man-made explosions or where they release detectable radionuclides that resembling nuclear explosions (or both).¹¹⁰ Activities that push the boundaries of the zero-yield threshold for nuclear weapon test explosions also challenge the confidence that nuclear-armed states are not testing nuclear weapons.¹¹¹ If the CTBT were to enter into force, readiness activities could become a matter which may cause concern about possible noncompliance with the basic obligations of the treaty.

Commercially available satellite imagery can help to identify and assess activities at nuclear test sites, including changes to the site infrastructure, the deployment of equipment, the excavation of tunnels and the drilling of shafts, and the general

102. Israel is a state signatory to the CTBT. While it is broadly acknowledged that Israel has nuclear weapons, there is no indication that it has carried out a nuclear weapon test explosion.

103. China, France, Russia, the UK, and the US are all obliged by the Partial Test Ban Treaty not to carry out nuclear weapon test explosions in the atmosphere, in outer space, and under water.

104. US National Nuclear Security Administration, *Fiscal Year 2022 Stockpile Stewardship and Management Plan*, (US DOE and NNSA, 2022), p. 4–29, 30. The UK has historically collaborated with the US on nuclear weapon testing at the Nevada National Security Site—where it relied on US capabilities for shaft drilling, test canisters, data transmission cables, and data collection equipment. As such, US efforts to maintain its testing capabilities also serve indirectly to maintain some testing capabilities the UK may rely on if it were to also return to nuclear weapon testing. See ‘Nuclear Testing: A UK Perspective,’ in *U.S.-UK Nuclear Cooperation after 50 Years*, ed. by Jenifer Mackby and Paul Cornish (Center for Strategic and International Studies, 2008).

105. ‘Russia’s Novaya Zemlya Nuclear Test Site Ready to Resume Tests If Need Be, Says Official,’ TASS News Agency, 8 February 2023, <<https://tass.com/defense/1573143>>.

106. US National Nuclear Security Administration, *Fiscal Year 2022 Stockpile Stewardship and Management Plan*, p. 85.

107. Some States (including Brazil, Finland, Germany, and Sweden) wished to include preparations for testing in the scope of the ban, arguing that “if preparations were noted, a challenge on-site inspection would be better than waiting for the nuclear explosion to take place.” However, France, Russia and the US opposed this inclusion arguing that it would be too difficult and costly to verify. See Ramaker and others, ‘The Final Test,’ p. 58.

108. Some states (including Egypt, Cuba, India, Iran, Pakistan, and Sri Lanka) wished to include all forms of nuclear weapon testing—including subcritical testing—in the scope of the ban. See Ramaker and others, ‘The Final Test,’ p. 70.

109. A senior Russian diplomat has explained that Russia would return to nuclear tests if the US did so. ‘Russia Will Only Resume Nuclear Tests if the US Does It First, a Top Russian Diplomat Says,’ Associated Press, 10 October 2023, <<https://apnews.com/article/russia-putin-nuclear-test-parliament-ban-treaty-105906e065ea2ade6a47b930644be9e>>.

110. For example, the US Source Physics Experiment involved the detonation of a series of conventional explosives with yields up to 50 tons of TNT. These were intended to generate seismic signals that resemble those of nuclear weapon explosions. The US notifies the CTBTO PTS of these explosions in advance so they can use the explosions for IMS calibration purposes.

111. The US has assessed that Russia has conducted “supercritical” nuclear weapon tests since announcing its nuclear explosive testing moratorium in 1996, and the US assesses that these tests fail to adhere to the “zero yield” standard—which they understand applies to both the CTBT and the voluntary moratoriums currently in place. See US Department of State, *Adherence To and Compliance with Arms Control, Nonproliferation and Disarmament Agreements and Commitments*, p. 28.

tempo of work on the site. Recent analysis of such imagery by One Earth Future's Open Nuclear Network programme demonstrates that Russia, China, and the US are each maintaining several tunnels at their respective test sites that may be available for potential future tests.¹¹² The analysis also identifies new buildings and new drilling activities that may be related to their ability to carry out nuclear weapon tests. As a nonintrusive and shareable technology, such imagery could play an important role in raising (and subsequently resolving) matters which may cause concern about possible noncompliance with the basic obligations of the CTBT.

The analysis also concedes that the observed test-site activities are ambiguous. The function of new buildings cannot easily be determined from overhead imagery. Construction - including in the vicinity of known test tunnels or shafts - may not indicate increased test readiness or plans to test. Non-nuclear military activities take place in the vicinity of the Russian Novaya Zemlya test site and the Chinese Lop Nur test site. Excavations or drilling around tunnels may relate to the safe maintenance or decommissioning of historic test sites. The safe decommissioning of historic testing tunnels at the former Soviet Union testing site at Semipalatinsk, in Kazakhstan, involves the excavation of significant quantities of rock and spoil, and the backfilling of tunnels via drilling. Decommissioning that site also involved the handling and transport of nuclear weapon test-containment vessels, and even the controlled non-nuclear detonation of a legacy Soviet Union nuclear weapon that had been lodged in a tunnel for about four years.¹¹³

The US has acknowledged the value of trying to dispel some of the ambiguous signals that test-site activities could create. The Administrator of the US National Nuclear Security Administration (NNSA, which maintains the US nuclear weapon stockpile) has stated that the US is "exploring ideas to provide further transparency into our [stockpile stewardship] program. These ideas are meant for bilateral or multilateral cooperation, and we are eager to work with those who share our goal of greater transparency."¹¹⁴ One idea that the US has explored is confidence-building site visits. In 2023 it hosted the current Executive Secretary of the CTBTO Provisional Technical

Secretariat at the former testing site in Nevada, as well as at three US nuclear laboratories involved in stockpile stewardship. It also hosted 13 nongovernmental experts on arms control and non-proliferation at its Nevada facilities later that year. The administrator asserted they "sincerely look forward to future engagement with Russia and China on participation in bi- or tri-lateral verification confidence building measures."¹¹⁵

The role that confidence-building site visits can play in dispelling ambiguities and concerns regarding stockpile stewardship activities will depend on what they hope to achieve. It is helpful to highlight the distinction between a confidence-building visit (whereby the hosts try to demonstrate their compliance and good behaviour to reassure their visitors) and an inspection (whereby a visitor tries primarily to detect possible noncompliance and bad behaviour of their hosts). The distinction has an impact on the activities, equipment, personnel, logistics, and preparations involved.

In an inspection, accessing sites to resolve specific pre-existing concerns can be challenging. It requires striking a balance between the access and information requirements of the concerned party and the willingness of the concerning party to provide that access and information. Coming to and formalizing a shared understanding of how this balance will be struck in practice involves long, detailed negotiations to draw up visit protocols or agreements that are similarly detailed. Part II of the CTBT's Protocol details the treaty's on-site inspection arrangements and runs to 110 paragraphs. The CTBTO has built on these paragraphs with a test manual for exercising their on-site inspection capability that in 2006 ran to 171 pages.

Providing access to a site to demonstrate general transparency and broader compliance may be more straightforward. Here, a host state may take the initiative to offer a range of activities that it can accommodate, and through which visitors may gain a better understanding of the host's approach to test readiness. This in turn could help visitors avoid misinterpreting any ambiguous indicators in that regard, without precluding their ability to pursue any specific concerns they

112. Open Nuclear Network, 'Strengthening Nuclear Test Ban Monitoring and Verification: The Role of Commercial Satellite Imagery' (Pre-publish report, 2024).

113. This was accomplished in 1995 without generating any nuclear yield and without violating the testing moratoriums and commitments of both Russia and Kazakhstan. Ambassadors from both the US and Japan visited the tunnel shortly after the controlled detonation and "assured themselves of the complete ecological cleanliness of the work." See Chapter 3 of N.A. Nazarbayev, V.S. Shkolnik, W.G. Batyrbekov, S.A. Berezin, S.N. Lukashenko, and M.K. Skakov, *Scientific, Technical and Engineering Work to Ensure the Safety of the Former Semipalatinsk Test Site*, (Worldwide Promedia, 2017), Volume 1.

114. US National Nuclear Security Administration, 'Remarks by NNSA Administrator Jill Hruby at the CTBT: Science and Technology Conference 2023,' 19 June 2023, <<https://www.energy.gov/nnsa/articles/remarks-nnsa-administrator-jill-hruby-ctbt-science-and-technology-conference-2023>>.

115. The US National Security Advisor has said they are willing to engage in this regard without preconditions, while continuing to hold these states accountable for upholding the agreements they have signed up to and the voluntary commitments they have made. See 'Remarks by National Security Advisor Jake Sullivan for the Arms Control Association (ACA) Annual Forum,' White House Briefing Room Speeches and Remarks, 2 June 2023, <<https://www.whitehouse.gov/briefing-room/speeches-remarks/2023/06/02/remarks-by-national-security-advisor-jake-sullivan-for-the-arms-control-association-aca-annual-forum/>>.

might encounter in the future. Both the US and Russia have at different times demonstrated that they recognize the value of such confidence-building transparency.¹¹⁶ It is worth considering what activities a state might offer to demonstrate transparency and restraint in their test-related activities. Some of these activities are already known and exercised techniques within the CTBT on-site inspection system and can be used within confidence building measures. Others are incorporated routinely into the inspection regimes of other verification mechanisms.

Visual observation outside facilities

Visual observation outside facilities—from the ground or the air—could demonstrate the absence of certain features or activities that may cause concern. The Threshold Test Ban Treaty (TTBT) between the US and Russia requires both state parties to provide the other with precise descriptions of their test-site boundaries (including a diagram of those boundaries). States parties could give similar descriptions and offer visitors a chance to visually observe and confirm these boundaries (via overflight, for example), and to identify areas they may wish to tour further.

Recognizing that other sensitive activities, installations, and locations that are unrelated to nuclear weapon testing may coincide with possible tests, the CTBT allows a state party hosting an on-site inspection to declare restricted-access sites in which inspection activities are limited. Each area can be no larger than four square kilometres, and up to 50 square kilometres can be declared. States parties may explain which sites they might declare for these purposes if an on-site inspection were to be called and offer visitors the opportunity to observe from the boundaries of those sites to confirm which areas are unrelated to nuclear weapon testing.¹¹⁷ Visual inspection from the ground could also be used to demonstrate the readiness (or lack thereof) of tunnels or boreholes. Both South Africa and the Democratic People's Republic of North Korea have offered visitors such an opportunity to build confidence in their move away from nuclear testing.¹¹⁸ Some key test-related pieces of equipment—such as cranes certified to handle nuclear payloads—

may also be stored outside facilities, and be available to demonstrate their readiness for use or employment in non-test-related tasks. While offering access for visual observation outside facilities would be comparatively simple from a practical perspective, it would offer a limited amount of confidence to visitors—primarily restricted to the general layout and extent of testing sites. Some test-related activities may be accompanied by visual indicators, such as protective earth berms to isolate risks from accidental high-explosive detonations or radiological control measures (including signage and dosimetry). But if a state wished to clearly demonstrate the absence of such test-related activities, visual observation outside facilities may be insufficient.

Visual observation inside facilities

As a part of on-site inspections, the CTBT also allows access buildings and other structures in certain circumstances. If a state wished to demonstrate that certain facilities should not raise concerns about their approach to testing and test readiness, they could offer up some of these arrangements to visitors. The absence of certain equipment (such as drilling equipment, containment vessels, and diagnostic and monitoring equipment) and arrangements (such as explosive or radiological control measures), or the condition of the buildings, could help build confidence that they do not contribute to a risk of possible noncompliance.¹¹⁹

Inspiration could be drawn here from the Complementary Access provided to International Atomic Energy Agency (IAEA) inspectors via "Additional Protocol" safeguard agreements with IAEA member states. States with an Additional Protocol (according to IAEA template INFCIRC/540) observation.¹²⁰ Expanding on the broader TTBT declaration above, states may build confidence in their restraint towards nuclear testing by describing those facilities that fall outside the restricted (non-test-related) access sites described above, and offer visitors access to those facilities for visual observation.

Safely and securely escorting a group of visitors through confined and potentially hazardous

116. As discussed, the US has hosted representatives of the CTBTO Provisional Technical Secretary to the Nevada test site. Russia hosted the Executive Secretary of the CTBTO Preparatory Commission at Novaya Zemlya in 2003.

117. The Protocol to the CTBT allows an on-site inspection team to observe visually all open places within the restricted access site from the boundary of the site.

118. See David Albright, Paul Brannan, Zachary Laporte, Katherine Tajer, and Christina Walrond, 'Rendering Useless South Africa's Nuclear Test Shafts in the Kalahari Desert,' (Institute for Science and International Security Report, 30 November 2011), and Will Ripley, Tim Schwarz, and Paul Devitt, 'North Korea Blows Up Tunnels at Punggye-ri Nuclear Test Site,' CNN, 24 May 2018.

119. This would include the host state's right to apply managed access provisions to protect sensitive areas.

120. Article 6, INFCIRC/540.

facilities can be challenging, particularly where managed access provisions may be required to protect sensitive information.¹²¹ However, doing so could offer visitors a greater demonstration of the scale, purpose, and condition of certain facilities—something that cannot be achieved remotely. The US has demonstrated this in offering nongovernmental observers access to facilities on the Nevada National Security Site that are related to nuclear weapon stewardship and nuclear non-proliferation.

Briefings, interviews, and examination of records

The nongovernmental observers that were hosted at the Nevada site were also given an introductory briefing by their hosts that explained the nature and purpose of some of the activities and facilities on the site. This practice is common across many inspection and regulatory regimes, and gives visitors the opportunity to establish a baseline understanding which their subsequent activities can hopefully confirm and reinforce. The inspection regime of the Chemical Weapons Convention builds on this concept by allowing its inspectors to interview facility personnel. Their questions must relate only to information and data that are necessary for their inspection and be posed in the presence of representatives of the host state. The host state can also refuse to answer these questions.¹²² Similar provisions were proposed for a draft BWC verification protocol. A state wishing to build confidence in its nuclear test-site activities could provide visitors with the opportunity to pose questions in advance of their visit, which the host may address on-site. That state may subsequently offer the visitors an opportunity to request interviews or discussions with personnel related to the briefings given, which the host may facilitate as appropriate. This does not prevent a host state from arranging misleading briefings and interviews, but it does demonstrate a willingness to present information that visitors may seek to test and confirm through other activities.

For example, the CWC also allows its inspectors to examine documentation and records that are relevant to the inspection. A hosting state may wish to offer visitors access to certain documents that demonstrate the nature and control of the activities that take place on a test site. For

example, where boreholes have been drilled for non-nuclear prospecting activities, historical records from the drilling operations may confirm this. Similarly, where there are arrangements and procedures in place to prevent and control the criticality of any nuclear material, providing documentation that illustrates and demonstrates the implementation of these arrangements could build confidence that tests respect the zero-yield threshold. A host could also demonstrate the limitations of certain pieces of equipment that could cause concern by providing technical specifications, certifications, or operating procedures. The managed access provisions for installations and locations could be extended to records here to ensure a host can redact sensitive information from those records.

Taking measurements

The CTBT provides for a number of measurement techniques to be used during on-site inspections that could be utilized in confidence building measures. These include techniques that can detect the presence of radioactivity or radioactive materials, and to characterize radiation or materials in greater detail (including through taking and analysing samples). Inspectors can also take measurements that can identify aftershocks from an underground nuclear explosion, and detect man-made structures, equipment, or cavities underground. State signatories have also developed national technical means that could be deployed on the ground, including enhanced radiation spectrometry, Lidar,¹²³ geophysical, and remote monitoring equipment.

The measurement techniques provided for in the CTBT and available through national technical means may be designed more for detecting the remnants of a clandestine nuclear weapon test explosion and less for general confidence-building prior to any such test. These techniques may prove too sensitive to be useful as a confidence-building tool: The legacies from historic nuclear test programs may confuse the picture of current activities,¹²⁴ and hosts may fear that such tools would reveal sensitive information about activities unrelated to testing. The US has tested a range of technologies that could be used under a test-site transparency regime, evaluating them against criteria such as “intrusiveness,

121. Article 7 of INFCIRC/540 also allows the inspected state to make arrangements for managed access to prevent the dissemination of proliferation sensitive information, to meet safety or physical protection requirements, or to protect proprietary or commercially sensitive information. Lessons could be learned from the IAEA and inspected states on how these arrangements have achieved this while building confidence in compliance.

122. *Chemical Weapons Convention*, paragraph 46, Annex on Implementation and Verification.

123. Lidar refers to “light detection and ranging” equipment.

124. While detailed analysis of radioisotopes produced by nuclear testing can identify signs of recent testing and discriminate those signs from historic pre-CTBT testing, in the absence of any recent tests it may just reveal sensitive and potentially proliferative information from historic tests.

detection sensitivity, measurement confidence, equipment factors, personnel factors, and composite (an overall assessment).¹²⁵ The results of these tests have not been published, but may indicate that less sensitive and intrusive techniques that can be easily deployed may be more useful for building confidence.

In 2003 Russia hosted the Executive Secretary of the CTBTO Preparatory Commission for a helicopter overflight of the Novaya Zemlya test site and measured the broader gamma radiation dose rate to demonstrate the low level of sitewide radiation.¹²⁶ Here, the hosts may have used simple off-the-shelf radiation detectors rather than allowing the visitors to use their own more powerful equipment, trading away the strength of confidence their visitors could gain in favour of convenience. Hosts may make a similar offer to visitors accessing non-nuclear facilities on a test site (such as equipment maintenance areas or office facilities) to demonstrate the absence of radioactive materials.

What do the case studies above tell us about building confidence through site visits?

The case studies in the main report suggest that site visits have so far played a limited role in resolving questions or concerns regarding noncompliance. When states parties to the Chemical Weapons Convention raised concerns regarding potential noncompliance by Russia through the use of Novichok nerve agents, Russia did not try to dispel those concerns by offering visits to any relevant sites. Having argued that they had fully declared and verifiably dismantled their chemical weapon programs, Russia could not offer concerned states access to facilities the OPCW had not already inspected without exacerbating instead of resolving concerns.

When Russia raised concerns regarding the compliance of the US and Ukraine with the Biological Weapons Convention, the US could not offer access as the activities concerning Russia were based in the Ukraine. In its closing statement to the formal consultative meeting that Russia requested to clarify its concerns, Ukraine offered a

transparency visit to its public health laboratories for international independent experts “as soon as the Russian Federation stops its full-scale war of aggression.”¹²⁷ It is unlikely that if this visit were to go ahead it would alter Russia’s concerns.

When the US and the UK pressed the post-Soviet Union Russian Federation on its historic and ongoing compliance with the BWC, Russia invited American and British representatives to visit facilities associated with part of the Soviet-era biological weapons program. The hosts and visitors negotiated detailed protocols covering the duration of site visits, conditions of access, site definitions, recording conditions, vaccination requirements, the number of facilities to be visited, and the team sizes.¹²⁸

However, the visits backfired on the hosts as their arbitrary access denials, misrepresented research, and contradictory explanations did nothing to dispel distrust. They also backfired to some extent on the visitors, who had to accept reciprocal Russian visits. While Russia initially expressed no concern regarding US compliance with the BWC, their visits to dilapidated and derelict facilities in the US prompted them to claim that the US had a “mothballed capability.”¹²⁹ Following contentious visits of Russian officials to commercial Pfizer facilities, a claim emerged in Russian media that Pfizer was “producing biological weapons” and that it “not only preserved, but was modernizing the equipment designed earlier to produce biological warfare formulas.”¹³⁰ Despite US complaints, Russia did not refute this report.

The visits confirmed US and UK assessments of Soviet/Russian noncompliance with the BWC after 1975; they did not determine whether Russia was complying with the BWC at the time. It was a “lost opportunity for Russia to demonstrate unambiguously its current compliance with the BWC.”¹³¹ In retrospect, the hosts may have had other objectives—such as the deflection of the specific concerns of the US and the UK and the concealment of other activities that might cause more concern.

The best publicly available example of how states might build confidence in compliance through voluntary site visits comes from the

125. National Research Council, *The Comprehensive Nuclear Test Ban Treaty*, p.74.

126. The hosts also provided the Executive Secretary with several official meetings and visits, and an explanation of subcritical experiments carried out at the site. Comprehensive Nuclear-Test-Ban Treaty Organization, ‘Executive Secretary Visits Nuclear Test Site at Novaya Zemlya,’ CTBTO News and Events, March 2003, <<https://www.ctbto.org/news-and-events/news/executive-secretary-visits-nuclear-test-site-novaya-zemlya>>.

127. ‘Concluding Statement by H.E. Ambassador Yuriy Klymenko, Head of the Delegation of Ukraine at the Formal Consultative Meeting of the States Parties to the BTWC,’ 6 September 2022, BWC/CONS/2022/WP.46.

128. Kelly, ‘The Trilateral Agreement: Lessons for Biological Weapons Verification,’ p. 94.

129. Kelly, ‘The Trilateral Agreement: Lessons for Biological Weapons Verification,’ p. 96.

130. Radio Moscow World Service, 12 April 1994, cited in Milton Leitenberg, *Biological Weapons Arms Control*, (Center for International Security Studies, 1996) p. 11.

131. Kelly, ‘The Trilateral Agreement: Lessons for Biological Weapons Verification,’ p. 102.

UK's experience of seeking clarification and consultation through Article IX of the CWC. When explaining this experience to the first Review Conference of the CWC, the UK noted that it has "passed written questions to several States Parties seeking clarification of possible omissions and anomalies in their Declarations, or of other issues of potential concern." In response, some states parties invited them "to visit a specific facility in relation to which we have sought clarification."¹³² There is no additional information to explain what the UK's concerns were, or how the site visits resolved those concerns.

This perhaps explains why such visits may have been more successful than those described above: The interactions were carried out away from any public questions about potential noncompliance. Once such questions have been escalated it perhaps becomes harder for site visits to build confidence: The hosts must prove the absence of noncompliance rather than the presence of compliance, and the visitors must achieve a high degree of confidence to publicly step away from their initial concerns.

What does this mean for building confidence between nuclear-armed state signatories to the CTBT through site visits? First, there is a window of opportunity to build confidence in testing restraint in the absence of any pressing or specific concerns about imminent nuclear tests. While satellite imagery indicates that the US, Russia, and China are maintaining an ability to conduct nuclear weapon test explosions, there is no clear indication that either party is preparing to conduct a nuclear weapon test explosion. Once such indications arise, it may be too late to resolve the situation informally on the ground.

In the meantime, the concerns that the US has raised regarding Russia's and China's readiness to test may be addressed in part through informal site visits. For China, these concerns seem to revolve primarily around the absence of transparency itself and not any specific activity or potential activity that could conflict with China's moratorium or the obligations of the CTBT.¹³³ Here, reciprocal site visits along the lines of what the US offered NGO visitors in 2023, or what Russia offered to the CTBTO Preparatory

Commission Executive Secretary in 2003, may be sufficient to address these concerns. The US concerns that some of Russia's activities since 1996 "have demonstrated a failure to adhere to the zero-yield standard" may be more challenging for Russia to address simply through such informal site visits.¹³⁴ The US is already seeking to "develop a regime that would allow reciprocal observation with radiation detection equipment at each other's subcritical experiments to allow confirmation that the experiment was consistent with the CTBT."¹³⁵ An informal site visit to Novaya Zemlya may not be sufficient to address these concerns. If Russia and China hold similar concerns about US subcritical experiments, they may feel the same. But reciprocal informal test-site visits along the lines described above may be a necessary step to that end, getting the US's open invitation for collaboration on developing further test site transparency regimes off to a good start.

Neither the UK nor France maintains a testing capability at sovereign nuclear weapon test sites. From 1974 the UK relied on access to the US Nevada test site under the 1958 US-UK Mutual Defence Agreement to carry out nuclear weapon test explosions. France ended its underground nuclear weapon testing program in French Polynesia with a flurry of six tests shortly before France signed the CTBT. The stockpile stewardship activities of the UK and France are spread across a number of facilities rather than concentrated at former test sites. Some of the UK's activities in this regard draw on facilities shared with the US or France. The UK collaborates with the US in carrying out its own program of subcritical tests at the Nevada site, where it shares certain resources with the US (such as containment vessels).¹³⁶ The UK also has access to the EPURE joint research facility in France to carry out hydrodynamic experiments.¹³⁷

Recognizing these relationships, there may be value in nuclear-armed state signatories to the CTBT pursuing a joint and coordinated "P5" approach to building confidence in their stockpile stewardship and test-readiness activities. The official "P5 process" held five working-level meetings on doctrines and risk reduction in 2023, and a parallel nongovernmental group of experts from the P5 states have encouraged

132. 'Article IX of the Chemical Weapons Convention: Aspects of Compliance,' RC-1/NAT.13, 3.

133. US Department of State, 'Adherence To and Compliance With Arms Control, Nonproliferation and Disarmament Agreements and Commitments', p. 29.

134. US Department of State, 'Adherence To and Compliance With Arms Control, Nonproliferation and Disarmament Agreements and Commitments', p. 29.

135. US National Nuclear Security Administration, 'Remarks by NNSA Administrator Jill Hruby.'

136. The confinement vessels that the US and the UK use to contain the nuclear material undergoing testing in subcritical experiments are branded with the logos of both the UK Atomic Weapons Establishment and the US National Nuclear Security Administration. See Nolan O'Brien, 'Subcritical Experiment Captures Scientific Measurements to Advance Stockpile Safety,' Lawrence Livermore National Laboratory, 24 May 2019, <<https://www.llnl.gov/article/45371/subcritical-experiment-captures-scientific-measurements-advance-stockpile-safety>>.

137. Treaty Between the United Kingdom of Great Britain and Northern Ireland and the French Republic Relating to Joint Radiographic/Hydrodynamics Facilities, (United Kingdom, 2010). It is not clear whether all UK hydrodynamic experiments carried out at the facility are purely sovereign and independent of any French collaboration or interest.

that dialogue being expanded to include transparency regarding activities at nuclear test sites.¹³⁸

The US interest in test-site transparency is timely: While the nuclear-armed state signatories to the CTBT are watching each other's test sites with interest, none have yet raised any acute concerns regarding an imminent return to full-scale nuclear testing. While these states are publicly reluctant to independently abandon their unilateral moratoriums on nuclear weapon testing, there may be a window to start building confidence and dispelling ambiguities in test-site activities. This window may close soon. Changes in political leadership, the development and deployment of new nuclear warheads,

and increased ambiguous test-site activities could all eventually combine to create acute concerns regarding a return to full-scale nuclear testing. At that point, the demands for access or information a concerned state might need to reassure themselves and reinforce their restraint may be too high for the objects of their concern to accept. As the case studies here have shown, it is perhaps easier to build confidence in compliance by engaging early, discreetly, and with modest aims than it is to resolve compliance concerns once they have become acute and public.

138. 'P5 Experts' Roundtable on Nuclear Risk Reduction—Co-Convenors' Summary,' The Geneva Centre for Security Policy, 14 December 2023, <<https://www.gcsp.ch/global-insights/p5-experts-roundtable-nuclear-risk-reduction-co-convenors-summary>>.



VII

Conclusions

The verification mechanisms of the Comprehensive Nuclear-Test-Ban Treaty (CTBT) have undergone significant development since the treaty was agreed almost 30 years ago. In this time, the treaty's consultation and clarification mechanism has received very little attention.

Article IV.C. of the treaty stipulates that:

“Without prejudice to the right of any State Party to request an on-site inspection, States Parties should, whenever possible, first make every effort to clarify and resolve, among themselves or with or through the Organization, any matter which may cause concern about possible non-compliance with the basic obligations of this Treaty.”

If concerns arise about the basic obligations of the treaty, will states parties agree when it is or is not possible to clarify those concerns in this way? Will they agree on when “every effort” has been made to resolve those concerns? And will they agree on how this mechanism should be used to support, rather than complicate, their approach to verification and enforcement?

There is little publicly available information demonstrating that states parties have converged on a common understanding about how consultation and clarification should work in practice once the CTBT has entered into force. This report has explored the negotiating history of the CTBT and case studies of the use of consultation and clarification mechanisms in other relevant regimes to highlight some lessons learned about how such mechanisms could and should work for the CTBT.

First, when states parties engage informally and at a low level, they can successfully resolve low-level compliance concerns. The nature of informal and discreet engagement makes it hard to give a full account of how it works or does not work: Success here depends on and is demonstrated through discretion. However, states have successfully built mutual confidence in compliance with the Chemical Weapons Convention through such engagement, and CTBT state signatories should consider what opportunities Article IV.C presents for such engagement. The wording of the invitation in Article IV.C provides leeway

for a broad interpretation, through which state signatories may engage on a range of topics, from interpretations of the zero-yield threshold through to their experiences establishing national implementation measures or preparations for a possible nuclear weapon test explosion.

Second, nuclear-armed states that wish to build confidence in their nuclear testing moratoriums and support for the CTBT may consider how to increase transparency around their nuclear test sites. They could do this by voluntarily declaring certain features of the nuclear test sites and the activities that take place there and inviting states to confirm these declarations on site. A modest invitation that permits limited visual observations, interviews, and examination of documents may build confidence and encourage restraint among these states and pave the way for more ambitious transparency arrangements. The US is interested in pursuing further test-site transparency, and there may be value in China, France, Russia, the UK and the US pursuing a joint and coordinated “P5” approach to building confidence in their stockpile stewardship and test-readiness activities.

Third, the value of discreet and informal confidence-building is demonstrated by the challenges states have faced in resolving compliance concerns through the formal invocation of consultation and clarification mechanisms. None of the case studies of formal consultation and clarification discussed above have yet resulted in a clear and unambiguous statement of compliance or noncompliance.

The aspirational wording of Article IV.C and the lack of a common understanding of how it should be used gives concerned states parties a lot of useful flexibility to resolve their concerns in targeted and novel ways. However, it also makes the mechanism vulnerable to misuse. There are no restrictions regarding the admissibility or inadmissibility of information exchanged through consultation and clarification, other than those states parties might impose on themselves out of concerns for secrecy, sensitivity, and proliferation. The information exchanged through consultation and clarification may be too voluminous, too vague, too sensitive, or too unusable to helpfully resolve concerns one way or another. There are also no restrictions

on the requests that can be made through consultation and clarification. The invitation in Article IV.C could become an opportunity to make requests that are not obviously related to a clear concern of noncompliance or cannot reasonably be fulfilled.

Fourth, the presence or absence of a “neutral” apolitical technical authority during the consideration of any potential noncompliance can have a big influence on the states parties involved in that consideration. The CTBTO Executive Council and Technical Secretariat will play an important role in overseeing and supporting the use of consultation and clarification under Article IV.C. By deferring to the authority of the Executive Council, concerned states parties may have more confidence that their pursuit of clarification will reach a more definitive conclusion—even if that conclusion is not confirmation of their concerns. By turning to the Technical Secretariat for support, concerned states parties may have access to a broad range of additional information, but it is not yet clear what information the Secretariat could or should provide in this regard.

Fifth, while the Preparatory Commission may wish to mitigate these risks by defining strict and clear procedures for the conduct of consultation and clarification, such procedures may still be used in bad faith. Experiences from the Biological Weapons Convention also show that even when fulfilled, procedures may not ultimately bring any real resolution to compliance concerns. A procedural approach to consultation and clarification should not become an obstacle course to be navigated before requesting an on-site inspection. Neither should it force states parties into a formal, public process when informal consultation may be more productive.

State signatories to the CTBT may build more confidence in consultation and clarification—and the verifiability and enforceability of the treaty as a whole—by exploring and revisiting their expectations of what this mechanism can achieve and how that should be achieved. The scope of the invitation in Article IV.C could be read narrowly or broadly, influencing the circumstances in which states parties might take up this invitation. The range of requests made through this invitation could be open-ended or restricted, influencing the direction and detail of the consultations. The quantity, quality, and provenance of the information

exchanged could vary dramatically, affecting how concerned states parties might be able to engage in and contribute to the proceedings. The information that the CTBTO Technical Secretariat can and should provide on request would also influence the judgements states parties would draw from the process. Exploring these factors would help states understand their expectations better and recognize what might be an unreasonable or unrealistic approach to consultation and clarification.

Article IV.C is not the primary vehicle through which states parties will enforce compliance with the treaty. Neither is it a mandatory procedure through which any question or concern about compliance must go. However, it cannot be ignored. It manifests the expectation among states parties that they will work together to address concerns about compliance with the treaty. By building confidence that the consultation and clarification mechanism can achieve this, state signatories can build more support for the treaty as a whole.

