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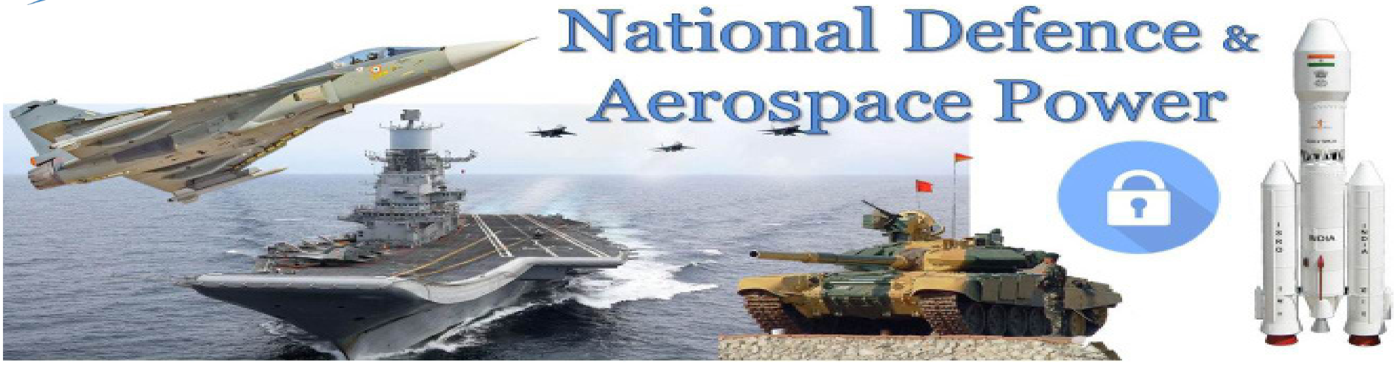

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THE RETURN OF NUCLEAR TESTING: US ALLEGATIONS AND CHINA'S PERSPECTIVES

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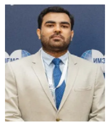

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On February 06, 2026, speaking at the Conference on Disarmament (CD) in Geneva, the United States (US) Under Secretary of State for Arms Control and International Security, Thomas DiNanno, categorically stated that China had conducted a nuclear test on June 22, 2020 and that "The PLA (China's People's Liberation Army) sought to conceal testing by obfuscating the nuclear explosions because it recognised these tests violate test ban commitments."[1] He alleged that China had conducted this test using the so-called decoupling method, which can reduce the effectiveness of seismic monitoring and help avoid international scrutiny of nuclear testing. China, of course, refuted these claims.

This brief seeks to make sense of the US's claims, old and new, and China's counterclaims. In doing so, this article also examines how the Comprehensive Test Ban Treaty Organisation (CTBTO) assesses these claims and what real-world implications can be drawn from them.

Decoupling: A Method to Evade Scrutiny

Decoupling refers to detonating nuclear explosives in large underground cavities created by underground nuclear tests. Decoupling is also known as muffled testing. The whole idea behind decoupling was to reduce the formation of seismic waves and thus evade detection. The idea was first mooted in 1959 and presented in a US Congressional testimony in 1960. The decoupling method was advanced by the US with the Sterling experiments by the British through the Orpheus experiment, and by the Soviet Union during the Cold War. The idea of decoupling, however, remained of dubious utility. Many in the US in the 1960s, particularly government officials, were given the impression that, with a suitable cavity, a 300kt weapon test would not generate a seismic signal worth more than that of a 1kt explosion.[2] However, historical records show that while decoupling may reduce seismic activity, it will not eliminate it altogether. In general, the view on decoupling holds that an underground nuclear explosion can be conducted and that seismic activity can be reduced to some extent, but the technique will not work if the yield exceeds 10 kilotons.[3] So, to say that a 300kt weapon test would not generate a seismic signal greater than that of a 1kt explosion is not only false but also impractical. More importantly, any country wanting to conduct a decoupled nuclear test requires readiness, such as containment of bomb-produced radioactive isotopes and cavity stability. Also, given the advanced National Technical Means (NTM) available to the US, performing a decoupled nuclear test in total secrecy is easier said than done.

CTBT and Decoupling

The primary goal of the Comprehensive Test Ban Treaty (CTBT) is to outlaw global atmospheric, surface, underwater, and underground nuclear testing. In 1963, the Partial Test Ban Treaty (PTBT) had already circumscribed nuclear testing in the atmosphere, outer space and underwater. The US, the erstwhile Soviet Union, and the UK had joined the PTBT.[4] The 1974 Threshold Test Ban Treaty (TTBT) also established a limit on the yield of underground nuclear tests to a maximum of 150kt between the US and the erstwhile Soviet Union.[5] The CTBT, while expanding the scope of PTBT, proscribed nuclear testing in all its forms and introduced the requirement that 44 specific nations ratify the Treaty for it to become operational.[6] During the CTBT negotiation in May 1994, the US circulated a working paper for the CD, mentioning that "the international monitoring system for a CTBT should be capable of detection and identification of nuclear explosions down to a few kilotons (kt) yield or less, even when evasively conducted."[7] The CTBT itself never defined the term decoupling, and, under Article 1: Basic obligations, the Treaty simply states that "Each State

The CTBT itself never defined the term decoupling, and, under Article 1: Basic obligations, the Treaty simply states that "Each State Party undertakes not to carry out any nuclear weapon test explosion or any other nuclear explosion, and to prohibit and prevent any such nuclear explosion at any place under its jurisdiction or control."

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The CTBT never really dealt with the question of how, through decoupling, countries could escape the consequences of nuclear testing. In fact, a major factor which has become a bone of contention is whether nuclear explosions and nuclear testing are two different things or essentially the same. The International Monitoring System (IMS) has been established to detect any nuclear explosion anywhere. This is undertaken through four state-of-the-art technologies and more than 300 facilities worldwide. These include:

- Fifty primary and 120 auxiliary seismic stations
- Eleven hydroacoustic stations
- Sixty infrasound stations
- Eighty radionuclide stations

Given that the CTBT has not yet entered into force, the on-site inspection (OSI) protocol cannot be applied to any allegations of nuclear testing. However, the International Data Centre (IDC), which collects and analyses data through the IMS, remains a relevant mechanism for cross-checking any allegations of testing.[9]

China and CTBT

China played an active role in the CTBT negotiations in Geneva from 1994 until the treaty was concluded in 1996. China became the second country to sign the Treaty on September 24, 1996, despite raising some concerns about the Treaty's post-final text. Following the adoption of the Treaty, Sha Zukang, the Chinese disarmament ambassador, pointed out several disappointments, which were as follows:

1. CTBT text does not explicitly refer to "a commitment by the nuclear-weapon states not to be the first to use nuclear weapons as well as not to use or threaten to use nuclear weapons against non-nuclear-weapon countries and nuclear-free zones."[10] This made sense for China as its own nuclear doctrine remained committed to a No First Use and non-use against non-nuclear-weapon states or nuclear-weapon-free zones.

2. Dissatisfaction with regard to the procedures for examination and approval of an On-Site Inspection (OSI). According to China, the CTBT made data obtained from the IMS on par with the National Technical Means (NTM). China consistently opposed putting IMS and NTM together for the purpose of OSI throughout the negotiations.

The rationale was the limited means and technical capabilities available to countries to conduct NTM, and thus leading to issues such as discrimination in the use of such means by countries such as the US and Russia.

3. Objections to how the Treaty approves the OSI through "at least thirty affirmative votes of members of the Executive Council."[11] China, during the negotiations, was of the view that OSI remains a key pillar of CTBT; it should be approved by a two-thirds majority of all Executive Council members, which were fifty-one at that time.

However, since 1996, when China signed the Treaty, it has maintained a moratorium on nuclear testing. China conducted its last nuclear test on July 29, 1996, right before the resumption of negotiations after the tabling of the draft treaty at the end of the second 1996 session. However, China has not ratified the Treaty and asks the US to go first to ratify. According to Sha Zukang, over the years, China has also ensured the establishment of the CTBTO's IMS on its territory. The following table gives an overview of IMS in China.

International Monitoring System in China

Station Profiles	Station Name	Status	Station Name	Status	Station Name	Status	Station Name	Status
Primary Seismic	Hailar	Certified	Lanzhou	Certified	N/A	N/A	N/A	N/A
Auxiliary Seismic	Baijiatuan	Installed	Kunming	Installed	Sheshan	Installed	Xi'an	Installed
Radionuclide	Beijing	Certified	Lanzhou	Certified	Guangzhou	Certified	N/A	N/A
Radionuclide Laboratories	Beijing	Planned	N/A	N/A	N/A	N/A	N/A	N/A
Infrasound	Beijing	Under Construction	Kunming	Certified	N/A	N/A	N/A	N/A
Hydroacoustic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Source: Compiled by the authors from CTBTO, https://www.ctbto.org/our-work/ims-map#ims.[12]

Decoupling, China, and Nuclear Test Allegations

One of the most important aspects of a decoupled nuclear test is that it requires several scientific and technical capabilities. In the past, only the US and Russia had experience in conducting decoupled nuclear tests.[13] It is unclear whether China has developed this capability. Even if a country wants to conduct a decoupled nuclear test, it would be challenging to conceal the preparations for the test. The following challenges need to be overcome for a country to conduct a decoupled test:

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1. Construction and evacuation of a large cavity without detection.
2. A strong confidence in the cavity stability
3. Containment of bomb-produced isotopes, such as those of Xenon.
4. Avoiding satellite observation of equipment and cables meant to monitor the explosions.

Except for China's heightened activity at the Lop Nur complex, which has been mentioned since 2024, there is little public evidence that China has conducted underground tests. In fact, the IMS has not produced any observations or data of any nuclear test conducted by China on June 22, 2020. The executive secretary of the CTBTO also backed this line of argument and stated that the IMS "did not detect any event consistent with the characteristics of a nuclear weapon test explosion."[14] If there exists no data or evidence which supports the US claims, then what exactly does the US want to achieve with this particular allegation?

Possible Motivations for the US Allegations

The US has accused both Russia and China of conducting nuclear testing. On October 29, 2025, just before a scheduled meeting with China's President Xi Jinping, President Donald Trump announced that the US would resume nuclear weapon testing. He claimed Russia, China, North Korea and Pakistan are already conducting nuclear tests.[15] The latest 2025 US State Department Compliance Report also stated that "Due to the lack of transparency with regard to their respective nuclear testing activities and previously identified adherence issues, the United States remains concerned about China and Russia's adherence to their respective moratoria."[16] In fact, in the last four Compliance Reports, the US has questioned the moratorium commitments of Russia and China and made claims about either the conduct of nuclear testing or preparation for the same. The allegations of nuclear testing seem to be aimed at getting China to be more open about its nuclear modernisation. The second reason might pertain to the US's own desire to test a nuclear device.[17]

In 1993, the US provided its own definition of nuclear testing moratorium, which is "a commitment not to conduct 'nuclear explosive tests'". For the US, any nuclear testing which goes against its "Zero-Yield" standards constitutes a breach of the nuclear moratorium. Since August 1995, the US has followed a moratorium based on a zero-yield standard, which means "the moratorium covers any nuclear explosive test that is supercritical–which produces a self-sustaining chain reaction."[18]

China's Official Position

On November 27, 2025, China released White Paper on "China's Arms Control, Disarmament, and Nonproliferation in the New Era." It reaffirmed its endorsement of the CTBT. The paper noted that China was one of the initial signatories to the Treaty in September 1996 and has since maintained a ban on nuclear testing. Since 2016, five CTBT radionuclide and seismic monitoring stations, located in Lanzhou, Guangzhou, and Beijing, have received certification. The Kunming infrasound station was accredited in August 2025. The White Paper additionally documents China's involvement in the CTBT verification framework, including participation in National Data Centre workshops, on-site inspection initiatives, and continuous collaboration with the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organisation.[19]

Commenting on the White Paper, Guo Xiaobing, Director of the Centre for Arms Control Studies at the China Institutes of Contemporary International Relations (CICIR), emphasised China's consistent commitment to a moratorium on nuclear testing, contrasting it with the United States' expressed intentions to resume testing. He observed that China's nuclear force development emphasises enhancing strategic early warning, command and control, missile penetration, rapid response, and overall survivability. He argued that China's plan demonstrates a "highly restrained approach to the scale and development of nuclear weapons, refraining from comparisons with other nations regarding investment, quantity, or scale."[20]

What China Might Gain from a Renewed Nuclear Test Scenario?

Some analysts in China see the potential resumption of US nuclear testing not only as a challenge but also as an opportunity for China. A weakening of the testing norm could lower political barriers for China to address unresolved technical gaps stemming from its limited historical testing experience.

Testing Constraints and Warhead Development

China's shortcomings in nuclear development primarily resulted from late entry and constrained resources, rather than deliberate doctrinal restraint. During the two years prior to the signing of the CTBT, China focused on testing low-to medium-yield nuclear weapons, often within the 50 to 90 kiloton range. However, while it was intensively studying low- and medium-yield weapons, it could have run out of time before this phase of development was completed. China's advancement in subcritical testing capabilities cannot entirely substitute for

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empirical test data. From this perspective, relaxing the nuclear testing moratorium would mitigate the political costs associated with addressing these outstanding technical gaps.[21] Before 1996, China carried out 45 nuclear explosion tests, while the US conducted over 1,000 before halting in 1992. China has developed several warhead designs, many of which utilise more fissile material than US designs, due to the country's limited testing. For example, as fallout data from a 1976 test of DF-5 indicated, the primary consumed 7 kilogrammes (kg) of plutonium compared to the US average of 4 kg. Analysts suggest that China still uses relatively large amounts of plutonium in its warheads to reduce the amount of high explosives required, thereby lowering overall warhead mass. This design choice enhances reliability but also makes miniaturisation more difficult.[22]

Notably, scholars have argued that China need not respond passively to renewed testing pressures, or simply "restart" its nuclear programme.[23] But instead, pursue nuanced, layered responses that enable calibrated reciprocity and gradual escalation. It distinguishes low-yield nuclear weapons from tactical nuclear weapons. Yield is treated as a technical characteristic rather than a signal of intended use. On this basis, the development of low-yield capabilities is not seen as implying a shift away from China's long-standing retaliatory posture or its no-first-use doctrine.[24]

These constraints are evident in assessments of current Chinese warhead types. The #535 warhead, developed during China's last phase of testing in the 1990s, currently equips DF-31 missiles and may also be utilised in the MIRVed DF-5B, replacing the older and heavier #506 design. Newer systems such as the DF-41 and JL-3 may utilise either the #535 warhead or the more compact #5×5 design. The US Department of Defence reports that China probably seeks a "lower-yield" variant of the DF-26; however, it remains unclear whether this necessitates a new design. Analysts note that China may already possess a lower-yield alternative in the #5×5 warhead and might potentially reduce yield by deactivating the uranium secondary in current designs, similar to the US W76-2 method.[25]

Developing significantly different or lighter warheads would likely require additional nuclear tests. To avoid this, China could continue relying on previously validated nuclear packages, advanced simulations, and subcritical or extremely low-yield experiments.[26] But more testing could help. From China's viewpoint, nuclear testing is technically necessary given the number of tests it has done, yet politically costly tool. Beijing has restricted itself to sustaining readiness and conveying determination without exceeding the limits of renewed explosive testing. The sustainability of this balance will rely more on the resilience of global testing norms than solely on China's technical requirements, especially regarding the future actions of the US. At the same time, commercial satellite-based studies find extensive construction, including new tunnels, concrete buildings, drainage systems, drill rigs, and underground construction, at the Lop Nur test site. While the scale of these activities suggests increased readiness and infrastructure preparation, they do not provide conclusive evidence that China intends to resume nuclear explosive testing.[27]

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Notes:

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