United Nations Office for Disarmament Affairs (UNODA)
Symposium Series on Transparency and Confidence-Building Measures in the context of disarmament and international security

Session 3: Measures to prevent escalation to nuclear weapons use
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This meeting was held under the Chatham House Rule. Accordingly, this summary reflects the substance of the discussion without attribution. The views expressed are those of the participants and do not necessarily reflect the views of the United Nations, UNODA, or its Secretariat.

Overview and Objectives

The third session of UNODA's Symposium Series on Transparency and Confidence-Building Measures (TCBMs) examined the emergence of TCBMs during the Cold War, and their role in the prevention of nuclear weapons use. At that time, a range of practical measures, including ballistic missile launch notifications, direct communication hotlines, military-to-military dialogue, and troop movement notifications, were established to reduce the risk of direct confrontation between nuclear-armed States. In considering TCBMs in the nuclear domain today, it was proposed that the focus should be on assessing whether these existing measures remain relevant in the current security environment or require adjustment or even specific new measures to address emerging technologies and evolving strategic dynamics. However, TCBMs cannot thrive in a vacuum and depend on sustained political will. Experts discussed the need to explore new approaches to risk reduction in light of the expanding nexus between emerging technologies and nuclear weapons as well as regional approaches to confidence-building. Properly designed and implemented, TCBMs can strengthen existing legal frameworks without being a substitute for disarmament and legal non-proliferation obligations.

Nuclear TCBMs' Emergence in the Cold War

The emergence of TCBMs in the nuclear domain is closely linked to the Cold War experience. Experts emphasized that while TCBMs cannot eliminate the probability of nuclear conflict, they can help clarify intentions, prevent miscalculations and unintended escalations and avoid potential arms racing by enhancing knowledge of adversaries' capabilities. Many of the most significant TCBMs were negotiated at the height of the Cold War (Stockholm CSBMs in the 1980s). They also included communication channels or hotlines notably those established following the Cuban Missile Crisis. Notifications of ICBMs and SLBMs launches were also introduced to avoid misinterpretation between the United States and the Soviet Union. Similar agreements were extended to other countries (China). Early US-Soviet risk reduction measures combined technical measures (US preference) and principles of relations (Soviet preference). TCBMs became

integrated into arms control agreements, a development which, whilst positive, also made them vulnerable to crises affecting the arms control architecture. From these examples, experts noted that TCBMs do not require trust but instead can and often do emerge both when relations between adversaries are stable or when in a crisis environment. It was also noted that TCBMs in the nuclear field were mostly intended for weapons that are today the least likely to be employed in armed conflicts, recalling the emergence of dual-capable cruise missiles and UAVs in current battlefields. Existing TCBMs thus need to be updated and complemented. Participants also stressed the need to strengthen political dialogue, reflect on relationship building, develop further concrete TCBMs and gain a better understanding of what constitutes the nuclear threshold for nuclear-weapon States. Experts noted that States consider TCBMs to include a wide range of elements and referred to UNIDIR's compendium on nuclear risk reduction measures as a useful resource for future reflections.

Impact of Emerging Technologies on TCBMs

Experts noted that emerging technologies have always been part of the conversation on TCBMs in the nuclear domain (such as electronic warfare as a possible driver of inadvertent escalation). What currently appears different, however, is the scale and pace of technological development and their inclusion in nuclear weapon systems. While substantial investments in emerging technologies by nuclear-weapon States are visible, experts cautioned that their full implications remain difficult to assess, particularly given their likely cross-cutting impact. Experts emphasized that the risk calculus of nuclear-weapon States may change if functionalities in emerging technologies undermine second strike capabilities, affect defensive capabilities or impact data presented to decision-makers. The integration of emerging technologies may also affect cyber capabilities, ballistic missile submarines, defense interceptors, strikes on ground-based radars or NC3 systems. Beyond second strike consideration, these technologies are driving a reconceptualization of nuclear deterrence as evidence by recent announcements by nuclear-weapon States. [1] Technological integration does not need to be sophisticated to have strategic consequences. As emerging technologies are further embedded in systems, it appears difficult to isolate dialogue on nuclear TCBMs from TCBMs in other domains (emerging technologies, outer space). At the same time, participants further noted that technologies could help in reducing risks. Reference was made to the IAEA and CTBTO's use of AI in their monitoring systems. Experts noted that shared concern (in particular regarding the need for human control) can promote dialogue on this nexus, referring to a working paper[2] submitted at the NPT Review Conference or United Nations Security Council resolutions. They recognized the value of actions at the unilateral level, political agreements and

[1] A speaker referred to a recommendation made by an academic in a Chinese newspaper suggesting that China should reconsider its no-first-use (NFU) policy in the context of U.S. cyber operations. The speaker also cited arguments advanced in a recent U.S. strategic review, as well as the announcement of a space-based defense system.

[2] NPT/CONF.2026/WP.12

the engagement of civil society and private actors in developing and promoting TCBMs to strengthen strategic stability.

Regional Approaches to Nuclear TCBMs

Experts noted that TCBMs have traditionally been approached with caution at the international level, and that efforts to universalize them have often been shaped by specific regional experiences. Attempts to internationalize TCBMs, including the Comprehensive Study on Confidence-Building Measures[3] mandated by the United Nations General Assembly in 1982, were largely influenced by the European security context and focused primarily on military dimensions while paying comparatively less attention to broader political, humanitarian, or socio-economic considerations. Participants recalled the work of Dr. Aileen Baviera, who highlighted important distinctions between European and Asian approaches to confidence-building.

In the Asian context, TCBMs include confidence-building measures as process-facilitators. This can involve a mix of measures, dialogue institutionalization, cooperation also through informal channels or personal relationships. This perspective is valuable when considering TCBMs in different regional contexts. Experts also noted the significant contribution of nuclear-weapon-free zones (NWFZs), to risk reduction. NWFZs incorporate elements of TCBMs, nuclear risk reduction measures, and legally binding commitments, while also addressing humanitarian and environmental concerns associated with nuclear weapons. These dimensions have been further reinforced in regions where NWFZ member States have also ratified the Treaty on the Prohibition of Nuclear Weapons (TPNW). Not all nuclear-weapons States, however, have ratified NWFZ protocols, whilst other Zones face a lack of resources and institutionalized capabilities.

The discussion also highlighted TCBMs between India and Pakistan. The two countries have exchanged a list of nuclear facilities since 1992, have a hotline and procedures in place for nuclear accident-related notifications. Experts noted that this example demonstrates how TCBMs can survive even in politically volatile environments. With conflicts currently involving attacks on critical infrastructure, this example offers lessons and could provide a template for other nuclear-armed States. The discussion also addressed the situation in the Middle East, where participants observed that approaches to transparency may differ from those adopted in other regions. In some cases, strategic ambiguity forms an integral component of national security policies and doctrines, creating additional challenges for the development of transparency measures. Experts further stressed the close relationship between TCBMs and broader nuclear norms, noting that attacks on nuclear facilities have undermined trust and confidence, complicating efforts to strengthen transparency, cooperation, and risk reduction at both the regional and international levels. Experts

[3] Comprehensive Study on Confidence-Building Measures, Disarmament Study Series, United Nations Office for Disarmament Affairs, 1982, https://www.un-ilibrary.org/content/books/9789210585125

commended the role of UNODA in highlighting the importance of regional approaches to confidence-building.

Conclusion

Experts underscored that TCBMs remain an essential tool for reducing nuclear risks by enhancing transparency, communication, and predictability, even in periods of strategic rivalry and political tension. To remain effective, however, these measures must evolve alongside emerging technologies, be informed by diverse regional contexts, and supported by relationship building and sustained political commitment.