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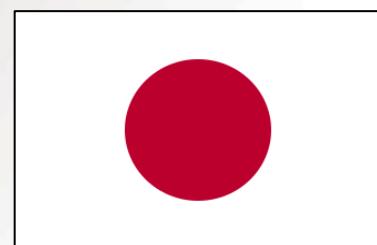
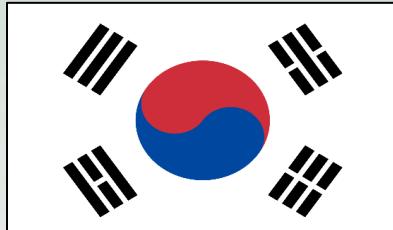
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Northeast Asia Biological Chemical and Security Roundtable – July 21st – 22nd, 2025



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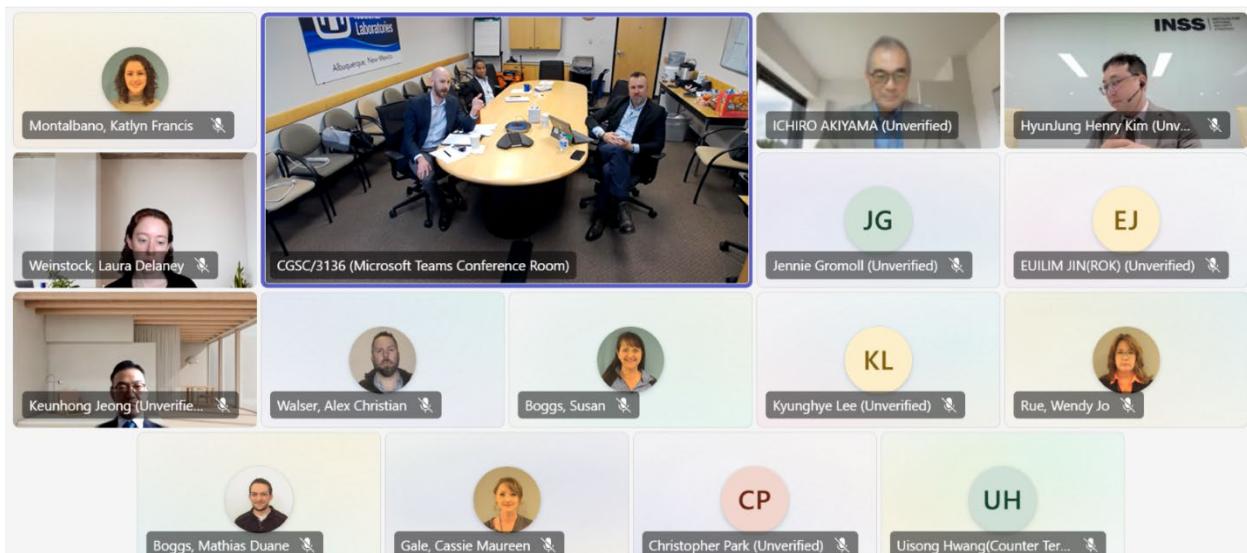


OVERVIEW

On July 21-22, 2025, Sandia National Laboratories (SNL) Cooperative Monitoring Center (CMC) convened a group of chemical and biological experts from Japan (JAP), Republic of Korea (ROK), and the United States (USA) to discuss topics related to the Democratic Republic of Korea's (DPRK) chemical and biological weapons (CBW) programs. Panelists joined the event both in-person and virtually and included former government officials, military experts, and scholars, providing a broad range of global security expertise to the event. The primary objective of the event was to (1) assess the current CBW threat landscape posed by DPRK, (2) to discuss how to mitigate these threats as a group of 'like-minded' states, (3) provide an initial platform for developing policy recommendations for each respective government should opportunities for dialogue with DPRK materialize in the coming years.

SINCE ITS FOUNDING AT SANDIA NATIONAL LABORATORIES IN 1994, THE COOPERATIVE MONITORING CENTER (CMC) HAS USED CUTTING-EDGE SCIENCE, ENGINEERING, AND TECHNOLOGY TO BUILD COOPERATIVE ENGAGEMENTS AROUND THE WORLD IN ORDER TO STRENGTHEN INTERNATIONAL SECURITY. THE CMC WILL CONTINUE TO HIGHLIGHT THE IMPORTANCE OF SCIENCE-DRIVEN COLLABORATION FOR INTERNATIONAL PEACE AND STABILITY IN THE 21ST CENTURY BY PROVIDING A VENUE IN WHICH EXPERTS FROM AROUND THE WORLD CAN EXPLORE THE USE OF SHAREABLE TECHNOLOGY AND RESEARCH TO ADVANCE GLOBAL STRATEGIC STABILITY. EXAMPLES INCLUDE CONFIDENCE AND SECURITY BUILDING MEASURES AND MONITORING AND VERIFICATION OF TREATIES AND OTHER AGREEMENTS.

Initial discussions centered on understanding the capabilities and intentions of the DPRK concerning its CBW programs. This assessment required a thorough review of available analysis reports, recent developments in DPRK's military capabilities, and the implications of these threats on regional and global security. Additionally, discussions delved into historical non-proliferation efforts aimed at curbing the spread of chemical and biological weapons. Participants examined past treaties, agreements, and diplomatic initiatives that have been employed to address CBW proliferation, highlighting both successes and failures. By analyzing these historical contexts, the experts aimed to draw lessons that could inform future strategies. The roundtable also provided an opportunity to discuss the role of international organizations, such as the United Nations and the Organisation for the Prohibition of Chemical Weapons (OPCW), in facilitating non-proliferation efforts and ensuring compliance with international norms.



In later stages of the event, the discussions focused on identifying effective mitigation strategies and building consensus on actionable next steps to address the DPRK's CBW programs. Participants emphasized the necessity of international collaboration, recognizing that a unified approach is critical to countering the multifaceted threats posed by the DPRK. Discussions included enhancing information-sharing mechanisms, conducting joint training exercises, and developing contingency plans to respond to potential CBW incidents. The importance of preparedness was underscored, with experts advocating for the leveraging of existing frameworks and partnerships to strengthen collective security. Ultimately, the roundtable successfully fostered a cooperative environment where like-minded nations could collaborate to develop robust strategies that address emerging threats and promote regional stability.

KEY DISCUSSIONS

The Northeast Asia Chemical and Biological Security Roundtable Event brought together experts and stakeholders to engage in critical discussions surrounding the challenges and opportunities in chemical and biological security within the region. Participants shared insights on current threats, best practices, and collaborative efforts aimed at enhancing security measures. This section will summarize the discussions held during each session. Topics during the roundtable included:

Session 1: Introduction & Current Threat Landscape

Panelists assessed DPRK's CBW threats, highlighting the regime's offensive capabilities and its use of CBWs as leverage for regime survival and global influence. Existing frameworks, such as the Chemical Weapons Convention (CWC) and the Biological Weapons Convention (BWC), were discussed. Panelists noted limitations in engaging DPRK due to its non-membership in the CWC and overall lack of transparency. While multilateral pressure and sanctions have been applied, DPRK's isolationist stance and strategic use of CBWs as bargaining tools complicate efforts to reduce threats.

Session 2: Chemical Weapons Threats Posed by DPRK

Panelists examined DPRK's CW capabilities, including traditional agents like sarin and emerging threats such as fentanyl and fourth-generation Novichok. Delivery methods, such as drones and ventilation system targeting, were identified as significant concerns. Export controls and targeting precursor chemicals were emphasized as key strategies for preventing CW development and use. The CWC was discussed as a foundational framework, though its limitations in addressing novel threats were acknowledged.

Session 3: Biological Weapons Threats Posed by DPRK

Discussions focused on DPRK's BW capabilities, including traditional pathogens, as well as novel biotechnologies such as gene editing and synthetic biology. Delivery methods, such as trash balloons, were highlighted as unconventional but effective tactics. The BWC was discussed as a foundational framework, though its lack of verification mechanisms limits its application to DPRK.

Session 4: Consensus Building & Closing Remarks

Panelists explored conditions for re-engaging DPRK on CBW topics, emphasizing the importance of inflection points, such as regime changes or political unrest, as opportunities for dialogue.

Inclusion of Russia and/or China as moderators was discussed as a potential strategy for increasing DPRK's willingness to cooperate. International partnerships were highlighted as critical, though panelists stressed the need to align goals among the US, Japan, and ROK before expanding

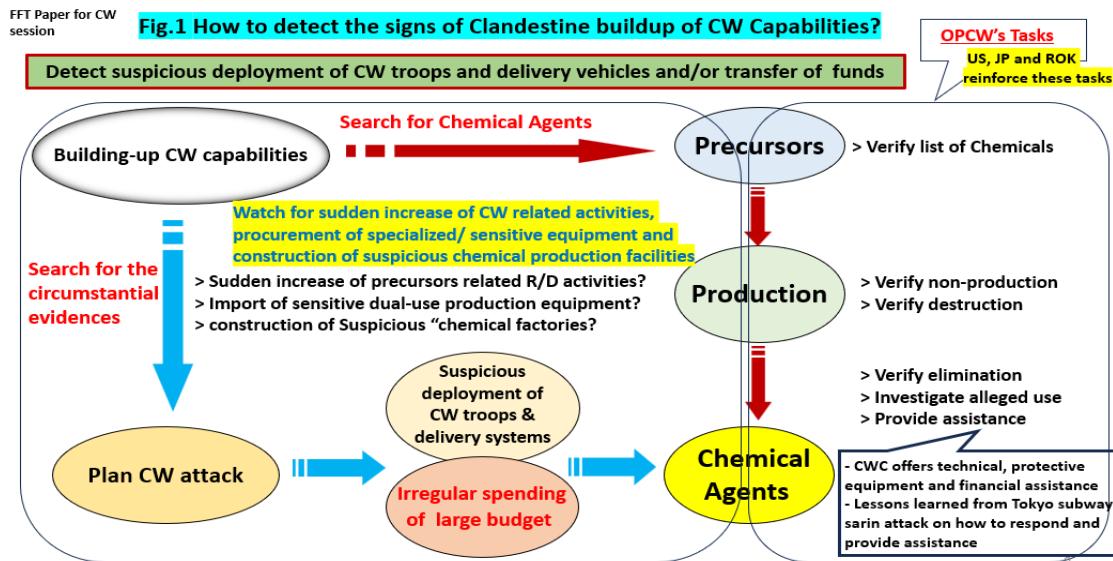


Figure 1: Outline of strategies used to detect clandestine weapons programs developed and presented by Japanese chemical/biological weapons expert, Dr. Ichiro Akiyama.

discussions to additional countries.

CONSENSUS STATEMENTS

The discussions at the Northeast Asia Chemical and Biological Security Roundtable Event culminated in a series of consensus statements that reflect the collective understanding and priorities of the participants. These statements serve as a foundation for future collaboration and action, emphasizing the importance of unified efforts in addressing chemical and biological security challenges in the region. The roundtable participants reached consensus on the following statements regarding DPRK's CBW threats and potential mitigation strategies:

1. Threat Landscape

- DPRK's CBW capabilities pose a significant threat to regional stability and security.

- Maintaining public health and safety, in addition to countering CBW development and use, is an important goal of biosecurity efforts
- Emerging technological threats, such as novel chemical agents, synthetic biology, and innovative delivery methods, (1) may be pursued by DPRK in the near-term and (2) require heightened vigilance and preparedness.
- Insufficient transparency in biosafety and biosecurity practices hinders a proper assessment of the risks associated with accidental research-related bio-incidents and lab leaks in the DPRK that could have global repercussions, adding to the risks posed by the intentional use of chemical and biological agents from the country.

2. Challenges in Engagement

- Updated insights on DPRK CBW programs, capabilities, goals, and opportunities for off-ramps could likely be gained through direct dialogue, leveraging emerging capabilities through open-source documents, or other communication methods.
- It is likely that DPRK uses weapons programs, including CBW, as leverage for maintaining power and gaining global influence in support of priorities involving survival of the current regime. Further engagement can help refine this understanding and inform incentivization and/or non-proliferation efforts.
- DPRK is comfortable in isolation but can play the role of antagonist and non-conformist in the region. Engaging with, rather than ignoring the regime is therefore more likely to be effective and may eschew further provocative actions from the DPRK.

3. Limitations of Frameworks

- DPRK is not a signatory to the CWC, making it difficult to verify compliance with the convention.
- Existing frameworks, while valuable, are insufficient on their own to fully prevent CBW development and use by the DPRK.

4. Trilateral Cooperation:

- Enhanced collaboration among the United States, Japan, and South Korea is essential for improving CBW threat detection, response, and deterrence.
- Joint training, capacity-building, and information-sharing should be prioritized to strengthen regional security in NE Asia.
- Coordination among likeminded countries can improve preparedness and attribution networks to deter CBW use by DPRK.

5. Incentivization and Disincentivization Strategies:

- Targeted sanctions, based on a risk-informed approach, for dual-use equipment and materials should be strengthened to limit DPRK's ability to develop novel CBW agents.
- DPRK has strong domestic and international reasons to maintain CB capabilities. Japan, Korea, and the US will need to focus on reducing the risk of use of these capabilities while continuing efforts to encourage DPRK to eschew CBW programs.
- Identifying the correct incentive(s) that appeal to DPRK's leadership is critical to fostering meaningful engagement.

6. Preparedness and Mitigation:

- While current conditions are unlikely for DPRK to faithfully engage in a variety of dialogues focused on ending its CBW programs, strategies and plans must be prepared for if the current regime—or future leadership—suddenly seek out engagement and signal willingness to end the CBW program. Meanwhile, risk reduction and mitigation strategies should be employed to deter any CBW development and use by DPRK.
- Developing attribution networks, biosurveillance systems, and early warning systems will enhance readiness to respond to CBW incidents from the DPRK. Strengthening data sharing mechanisms and fostering deeper cooperation among key partners could provide a solid foundation for coordinated and effective responses.
- Monitoring chemical precursors, emerging biotechnologies, and production equipment at key choke points is critical for disrupting CBW development by DPRK.
- Open science medical countermeasure development and other trust-building measures should be prioritized as a national security matter to improve CBW attack response capabilities.
- DPRK's CBW tactics may focus on targeting chokepoints that would otherwise be used to provide logistic support to South Korea and Japan during an attack. This may significantly disrupt the international community's ability support South Korea and Japan, particularly if persistent agents are used. Trilateral cooperation on bolstering supply chain resilience should be emphasized as a result.

7. International Partnerships:

- To address challenges with advancing technologies, such as synthetic biology and gene editing, particularly given their convergence with other emerging technologies like Artificial Intelligence, current frameworks like the Australia Group and the BWC will need to be carefully tailored and/or expanded.

- Joint exercises, laboratory visits, and scientific engagement among the United States, Japan, South Korea, and other partners (where meaningful/appropriate) can improve regional preparedness and foster dialogue with DPRK if opportunities arise.
- Partnership with additional global partners (Australia, Russia, China, ASEAN, etc.) may be useful in countering risks associated with CBW threats from DPRK, but additional partners should serve specific roles to maintain focus and prevent the slowing for progress.

CONCLUSION

The roundtable event highlighted the intricate challenges associated with addressing the chemical and biological weapons (CBW) threats posed by the Democratic People's Republic of Korea (DPRK). Panelists emphasized that the multifaceted nature of these threats requires a coordinated international response, as the implications extend beyond regional security to global stability. The discussions revealed that the DPRK's CBW capabilities are not only a concern for neighboring countries but also for the international community. This complexity is compounded by the DPRK's unpredictable behavior and its historical reluctance to engage in meaningful dialogue regarding its weapons programs. As such, the need for international collaboration becomes paramount, with nations needing to share information, resources, and strategies to effectively counter the evolving threats.

The uncertainty surrounding the DPRK's willingness to engage in diplomatic discussions was a focal point of the roundtable. Despite this uncertainty, panelists reached a consensus on the importance of maintaining readiness and developing unified strategies among likeminded countries. This readiness involves not only military preparedness but also diplomatic initiatives that can foster trust and open channels of communication. The experts discussed the necessity of establishing frameworks for collaboration that would allow countries to respond swiftly and effectively to any potential CBW incidents. By aligning their approaches and sharing best practices, nations can create a formidable front against the risks posed by the DPRK, thereby enhancing their collective security and advancing non-proliferation efforts.

Finally, the roundtable underscored the critical role of continued dialogue, monitoring, and scientific engagement in mitigating the threats associated with DPRK's CBW programs. Panelists stressed that ongoing communication among nations is essential for building mutual understanding and trust, which can facilitate more effective cooperation. Additionally, robust monitoring mechanisms are necessary to track the developments of DPRK's CBW capabilities and ensure compliance with international norms. Scientific engagement, including collaborative research and development initiatives, can also play a vital role in addressing the challenges posed by CBW threats. By fostering a culture of openness and collaboration, the international community can work together to reduce the risks associated with DPRK's CBW programs and contribute to a safer and more secure global environment.



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