North Korea's Biological and Chemical Weapons and the Path to Denuclearization

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Biological and chemical weapons are just as efficient and effective as nuclear weapons in wreaking mass destruction, and as they are much cheaper to produce, are sometimes referred to as "the poor man's nuclear weapons." North Korea's possession of such weapons is one aspect in which it has asymmetric power over South Korea, and if attached to long-range artillery or short-range ballistic missiles, these weapons have the ability to inflict serious fatalities. As the peace process on the Korean Peninsula continues to move forward, all weapons of mass destruction, including nuclear weapons, missiles, and of course biological and chemical weapons must be removed as part of verifiable disarmament. There is a great deal of controversy over whether biological and chemical weapons are being included within the negotiations between the US and North Korea, as well as what place such weapons occupy in the concept of "denuclearization" or in denuclearization's final goal. While it is justifiable to include all weapons of mass destruction in dismantlement, the issue must be approached carefully for the sake of success in the negotiations.

Following the Singapore Summit of June 12, 2018, the US clarified its intent to include biological and chemical weapons in the process of North Korea's nuclear disarmament. National Security Advisor John Bolton established on July 1, 2018 that North Korean denuclearization should include nuclear weapons as well as biological and chemical weapons and ballistic missiles, a statement which immediately made waves. On July 25, 2018, at a hearing held by the Senate Foreign Relations Committee, Secretary of State Mike Pompeo said in response to a question from Senator Edward Markey that the US and North Korea had discussed biological and chemical weapons and were on the same page ("We've talked about CBW. Their CBW program is being part

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of that denuclearization and as I said they have indicated that they fully understand the scope of what denuclearization entails").

Following the ruptured negotiations at the Hanoi Summit in late February of 2019, John Bolton reiterated in a number of interviews that the US demands to North Korea for denuclearization included biological and chemical weapons as well as nuclear weapons and missiles. On March 5, 2019, Senator Cory Gardener, Chairman of the Senate Foreign Relations Subcommittee on East Asia, the Pacific, and International Cybersecurity Policy stated in a closed briefing after receiving a report on the results of the Hanoi Summit from United States Special Representative on North Korea Stephan Biegun that the talks covered biological and chemical weapons as well as nuclear weapons ("So not only nuclear but we're talking weapons of mass destruction, chemical weapons as well. And there was discussion of human rights as well at the summit…").

Reviewing the past 18 months of negotiations between the US and North Korea, it is clear that there is a need for greater attention on whether biological and chemical weapons are included in the final goal of denuclearization, and if they are, deeper consideration of at what step of the process they should be dealt with.

The international community has continued to speculate as to the current state of North Korea's chemical and biological weapons, and the country is thought to be the world's third-largest possessor of such weapons after the US and Russia. North Korea began producing chemical weapons in the 1980s, and is now in possession of between 2,500 and 5,000 tons. It is estimated that the regime holds a number of chemical warfare agents including adamsite (DM), chloroacetophenone (CN), chlorobenzalmalononitrile (CS), chlorine (CL), cyanogen chloride (CK), hydrogen cyanide (AC), sulfur mustard (H, HD, or HL), phosgene (CG and CX), sarin (GB), soman (GD), tabun (GA), and V-series (VM and VX) agents. It is also thought to be in possession of the majority of deadly biological agents including anthrax (anthracnose), clostridium botulinum (botulinum food poisoning), cholera bacteria (cholera), bunyaviridae (epidemic hemorrhagic fever), yersinia pestis (bubonic plague), smallpox virus (smallpox), salmonella typhimurium (typhoid), shigella (dysentery), brucella (brucellosis), staphylococcus (staphylococcal infection), rickettsia prowazekii (epidemic typhus), and alimentary toxic aleukia (yellow rain).

Unlike the development of nuclear weapons and missiles and the location of launch vehicles, it is difficult to assess the precise location of chemical and biological weapons production facilities or even whether or not they are being produced. This is due to the production of toxic biological and chemical weapons in facilities disguised as chemical factories and fertilizer factories.

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Chemical and biological weapons can be produced at a relatively low cost inside fertilizer factories, pesticide factories, pharmaceutical plants, chemical plants, and so on. It is difficult to confirm whether or not such weapons are being produced, and the evidence of production can be easily destroyed. This is why it is impossible to get a solid grasp of the current status of chemical weapons in the country. In addition, as certain chemical and biological weapons like VX are made up of multiple components and are not deadly unless two or three components are combined, producers, who are not the developers of chemical formulas, may not be able to know whether or not they are producing the materials to create biological or chemical weapons. North Korea's controversial and inhumane chemical weapons tests cannot be left out of this discussion. North Korean defectors have provided testimony with regard to the regime's testing of chemical and biological weapons on North Korean citizens. Such tests have been targeted at political prisoners and disabled persons, and known tests include those conducted at Camp 22, Kim Il Sung University Medical College, Kim Man Yu Hospital, Bacteria Research Laboratories 201 and 501, and others. Experts have compiled these testimonies and published a report on such tests, using them as examples of North Korean human rights violations.

There are multiple examples of North Korea actually employing the use of chemical weapons to back the speculation regarding the regime's program. The murder of Kim Jong Nam in the Malaysian airport in February of 2017 is the most well-known, with an examination of his corpse and personal effects revealing traces of the chemical nerve agent VX. His cause of death was ruled as rapid VX nerve poisoning. It was later revealed that four North Korean suspects left Malaysia shortly after Kim Jong Nam's murder. As explained above, VX does not become deadly until two or three components are combined, making it exceedingly difficult to prevent this type of attack. North Korea has also exported chemical weapons, adding weight to the estimates of its stockpile. In February of last year, an internal report from the UN stated that North Korea has been supporting the Syrian production of chemical weapons and sending its own technicians to assist. In 2013 and 2017, Syrian forces deployed a massive amount of chemical weapons against targeted rebel forces, and it is considered highly likely that these chemical weapons were exported to Syria by North Korea. It is also possible that chemical weapons have been used against groups of defectors to render them powerless, or that chemical weapons may be used in tandem with other types of weapons.

The reality of the situation described above is that unless North Korea voluntarily discloses and gives up its chemical and biological weapons, it will be challenging for the international community to precisely assess the situation through regulatory measures and impose sanctions

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accordingly, unlike with nuclear weapons. In fact, North Korea became a signatory to the Biological Weapons Convention (BWC) three months ahead of South Korea in March of 1987. In the past, when President Trump expressed doubts over the development of North Korean biological weapons, the Head of Communications from the North Korean Ministry of Foreign Affairs Institute for American Studies said in response that "as a signatory to the BWC, (North Korea) has consistently opposed the development, production, storage and retention of biological weapons." However, despite the fact that the BWC includes a prohibition on the development, production, and stockpiling of biological weapons, the agreement does not contain an official mechanism through which to demonstrate compliance, and there is thus a limit on the possible methods through which Chairman Kim Jong Un's compliance can be confirmed. BWC protocol consists of three main elements: mandatory declaration, periodic inspections of declared facilities, and surprise inspections conducted on short notice. Supposing that BWC verification protocols are carried out using the three mechanisms listed above, then the inspection of the facilities of open countries is not difficult. However, as declaration is voluntary, there are always doubts regarding North Korea's compliance, and it is always challenging to inspect whether or not North Korea possesses offensive biological capabilities. Further, under the BWC inspection protocol, when activities have been exposed, North Korea has been able to use the explanation that its biological agents are dual-use. This is because the BWC allows for the manufacture of offensive biological agents to be disguised as the capability to produce biological agents for peaceful purposes by not restricting their manufacture in general. In the worst-case scenario, the protocol allows North Korea to withdraw from the agreement as it did from the Non-Proliferation Treaty.

Chemical weapons are even more challenging than biological weapons, although ironically, the compliance measures to confirm whether or not a country possesses chemical weapons are more systematic than those which govern biological weapons. The international organization which governs chemical weapons is known as the Organization for the Prohibition of Chemical Weapons (OPCW) and offers numerous avenues for investigation, as it was created to play the role of assisting signatory countries to the Chemical Weapons Convention (CWC) which already possessed chemical weapons in dismantling their stockpiles. The CWC, which South Korea became a signatory to in April of 1997, focuses on the complete dismantlement of all chemical weapons facilities within ten years of accession. However, North Korea is not a signatory to the agreement, and as a result it is difficult to verify whether the country possesses chemical weapons, and if so, to ensure the regime's compliance in their destruction. The OPCW is not able to investigate all of the CWC non-signatory countries, and while theoretically a joint UN-OPCW task force could check

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North Korea's compliance through inspections and sanctions, such a task force will encounter problems over the issue of sovereignty, making the chances of being able to check North Korea's compliance in this manner rather slim.

North Korea's biological and chemical weapons have not received nearly the degree of sustained international attention that its nuclear program has. Regardless, such weapons cost less to produce than nukes and are second only to nuclear weapons in terms of the ability to pose an immediate military threat. As it is highly likely that North Korea still possesses the ability to produce biological and chemical weapons despite ongoing economic sanctions, the danger cannot be ignored. When combined with other weapons such as missiles, biological and chemical weapons have the potential to cause extreme levels of fatalities. This means that even if North Korea agrees to give up its nuclear weapons, the international community must still consider the possibility that the regime's biological and chemical weapons can pose a threat.

Although President Trump and Chairman Kim Jong Un's meeting on June 30, 2019 has given rise to renewed optimism surrounding the US-DPRK negotiations, North Korea's launches of short-range ballistic missiles and improved long-range artillery have darkened the aura surrounding the Korean Peninsula itself. Although North Korea's Ministry of Foreign Affairs has stated these launches are a response to the US-ROK joint military exercises, they are also a clear indication of North Korea's improving ability to target the South. Even if denuclearization negotiations are successful and North Korea dismantles its nuclear weapons, if they continue to possess biological and chemical weapons, the regime's increasing ability to combine these weapons with traditional artillery means that they will continue to pose a military threat to South Korea. A recent report by the Congressional Research Service titled "North Korea: What 18 Months of Diplomacy Has and Has Not Achieved," states that the inclusion of biological and chemical weapons in the discussions on denuclearization, and the pursuit of their elimination in any "big deal" must be considered. While South Korea wishes to avoid frontloading early denuclearization negotiations with demands, they must work to ensure that the final result is a comprehensive agreement to guarantee peaceful North-South relations on the Peninsula ahead.

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