Impact of Ukraine War on South Korea’s Military Strategy and Future Warfare

Hong-Cheol Kim
President, Joint Forces Military University

Introduction

Most analysts predicted that the Ukraine War would not be a large military operation. In addition, most, including Putin, did not expect the war to be prolonged. Also, as future warfare scholars have predicted, the Ukraine War is a high-tech war, however it has shown that war has not changed in the fact that it has maintained the elements of friction, fear, and destruction. Thus, one must be willing to research and evaluate these unpredictable features to establish future Korean military strategies, because there are important implications for future defense policies. Consequently, the discussions here are focused on the five important factors to consider when further developing military policies.

1) An earlier version of this paper was presented at the 9th JFMU international conference.
First, we need comprehensive preparation for an all-out war as well as a nuclear war. The Ukraine War has shown us that the arguments made by experts who advocate for more attention towards regional military provocations instead of total war have flaws. Before the war, most military experts believed that there was a very low likelihood of a Russian overt military invasion and were more concerned about a hybrid war short of the use of military forces. However, Putin believed that a Ukrainian regime change through a short and decisive war was possible. Putin’s misperception and miscalculation incapacitated the negotiation efforts of France and Germany. In the end, the strategic wartime transition period through the grey zone strategy and hybrid warfare were almost skipped in favor of a “Special Military Operation”, which is a direct military action in Ukraine. When Russia struggled with the Ukrainian military’s stark resistance and military support from international organizations and states, Putin threatened to use nuclear weapons on those countries that assisted Ukraine. In addition, a military exercise including possible use of nuclear weapons was held in the vicinity of Moscow in order to deter any direct interference in the war by the U.S. and NATO allies.

Scholars such as Arrenguin-Toft (2005), Wagner (2007), Kim (2010), and Waltz (1979) explained that weaker states that prepare for war will absorb tactics that were successful in the past. By applying it to their military through training and exercises, they prepare for any future conflict against stronger states. Even countries that rely on nuclear weapons for their survival, such as North Korea, use ways of conducting war from a weaker state’s (such as Ukraine’s) point of view, while researching and conducting exercises of Russia’s all-out war aspects and strategic nuclear threats (Escalate to de-escalate). Therefore, it is imperative that our military establish new strategies that counter these plans and establish a nuclear and non-nuclear OPLAN that includes ROK and the U.S., while regularly conducting military exercises of this OPLAN. With this in mind, I believe the latest plans for ROK-US exercises to be conducted and the development of the ROK-US OPLAN, which includes nuclear response, are encouraging.

Second, we need comprehensive preparation for a proxy war that can result from a US-China hegemonic competition. Before the Ukraine War, many future warfare scholars (Mazarr 2015; Galeotti 2015) have predicted that it is highly likely that Russia and China will use coercion through military power and grey zone strategies instead of large-scale overt military actions. However, Russia employed an unprovoked military invasion and crossed the psychological line of the European people in the 21st century. Also, China threatens Taiwan with bellicose rhetoric that China will initiate military actions against Taiwan if it declares independence. On the other hand, the U.S. is maintaining strategic ambiguity that implies it may use force to intervene if China physically attacks Taiwan. This is a clear sign that we may be headed to a conflict resulting from hegemonic competition in North East Asia.

During the 45 years in the Cold War era, there were approximately 62 proxy wars backed by the U.S. and the Soviet Union. Even these days, there are many cases that may lead to similar proxy wars. For example, areas such as the South China Sea, East China Sea (Dioyudao/Senkaku), Taiwan Strait, and Ieo-do face endless territorial disputes and
can quickly cause a proxy war in the current acceleration of hegemonic rivalry between China and the U.S. To make matters worse, KJU is engaged in a dangerous survival game by threatening the U.S. mainland with long-range missiles capable of loading nuclear warheads.

According to John Mearsheimer (2018; Jeong 2022, p. 11), a professor at the University of Chicago, because Poland, bordering with Ukraine, and South Korea act as corridors between heartland states (Mackinder 1904) and rim states (Spykman 1944), they are geopolitically most unfortunate. As a proof of this, Poland and Ukraine were unable to escape the direct/indirect influence of war during the two World Wars and even today. Can South Korea avoid another Korean War as a geopolitical corridor that is in a whirlpool of US-China hegemonic competition intertwined with North Korean nuclear weapons? This depends on how diligently we work to prepare while having a long-term vision for the future. Thus, our task at this critical juncture is to prepare for various situations by establishing comprehensive military strategies and executable operational plans.

Third, in order to deter threats from North Korea and neighboring states, we must consider the reinforcement of the UNC’s (United Nations Command) role in addition to the ironclad ROK-US alliance. The U.S. has established the Ukraine Defense Contact Group (UDCG), which is composed of South Korea, NATO, EU and 40 other states. The UDCG provides Ukraine with wartime information, weapons, ammunition, and supplies. Ukraine is not a member of NATO, so it cannot receive any direct military assistance. This differentiates the ROK-US alliance from Ukraine’s. More importantly, 16 of the sending states reaffirmed direct military assistance when it comes to the resumption of a war on the Korean Peninsula. It is conceivable that this unique advantage is very rare and hard to find in any other case around the world.

Unlike the past, however, the potential danger of the advancement of North Korean nuclear missiles has made it difficult to claim for certain that the 16 sending states and the international societies will cooperate and provide military augmentation as planned. This is why we must strengthen the ROK-US alliance further and review the UNC’s role to be able to accommodate international support from the 16 sending states as well as other like-minded nations. In a similar vein, it is also important that we need to fortify our relations with NATO members and regularly participate in military exercises with states involved in Indo-Pacific strategies.

Fourth, the research and concept development regarding ‘urban operations’ should be pursued, because a potential war on the Korean Peninsula is estimated to have a focus on complex and potentially costly urban combats. When Russian BTG (Battalion Tactical Group) attacked Kyiv and other major cities, the Ukrainians cut off Russia’s lines of communications, which were crucial for maintaining Russia’s military offenses. In addition, anti-tank weapons, such as Javelins and NLAWs, were utilized to target and neutralize Russian armored fighting vehicles (AFVs), thus exposing the weakness of the BTG. It ultimately forced Russia to employ a contingency operational plan in the Donbas region.

Although South Korea consists of 70 percent mountains, there are many metropolitan areas. After the Korean War, South Korea is not the only one that developed its economy. North Korea also has over 11 cities with a population of over 300,000. Additionally, the rapid growth of the portable weapon system has exacerbated the complexity of
close- and long-range urban operations. This is why we need to improve our doctrines and field manuals regarding urban operations, and build essential military capabilities correspondingly. We also require an extensive plan, the need to execute regular training on how to utilize our military assets, and we should test the sustainability of our military power in an urban combat environment.

Fifth, we need to develop a detailed military strategy and operational concept as well as appropriate military strength to secure air superiority under the conditions of nuclear threats and nuclear war environment. The ROK-US alliance is supposed to strike crucial pre-planned targets in the early stage of the war to eliminate the majority of NK’s nuclear threats and set the stage for the procurement of air superiority. However, nuclear deterrence depends on how well State A withstands the 1st strike from State B and State A’s ability to retaliate with nuclear weapons in the 2nd strike against State B. This is why most nations with nuclear weapons have more SLBMs, the second-strike capability, than ICBMs, ceteris paribus. North Korea also wishes to build its nuclear capability to initiate its 2nd strike punishment. It is developing and operationalizing various transportation methods, such as TEL, Railroads, and so forth. Moreover, KJU continuously builds and test-fires to obtain credible SLBM capabilities.

In order to deter North Korea’s insatiable nuclear aspirations, the Korean military needs to rapidly revise and advance its Non-Nuclear Triad systems. The reasons are as follows. First, the original Kill Chain has almost lost its value due to the multiplication of launching methods that North Korea can employ to fire its missiles as well as the advent of solid-fuel missiles. Therefore, there needs to be an improvement from the idea of Kill Chain to the Kill Web (AI based Mosaic Warfare) that can use distributed Land-Sea-Air-Cyberspace-Space assets to quickly respond to TCTs (Time Critical Targets) and TSTs (Time Sensitive Targets). Moreover, if one of systems in Kill Web is attacked, then the rest can quickly reinforce and retaliate. For this reason, the Korean military should build the necessary military assets that enable us to implement this new concept.

Second, the diversification of KAMD measures is necessary. For the terminal phase interception capability of KAMD, the interconnection of THAAD and PAC-3 should be achieved. Likewise, Chun-Kung and L-SAM programs are needed to be developed for that level of precision and interoperability. The Korean military also needs to be able to achieve asset advancement for the midcourse phase interception capability (SM-3 variant, Laser-equipped satellites capable of counter space and missile defense operations, etc.) and the boost phase interception capability (Laser-equipped UAV, PAC-3 MSE-equipped fighter jets, etc.). Most importantly, the Korean military should take measures to neutralize NK missiles in the left of launch phase through various methods such as Cyber Warfare, Electromagnetic Warfare, and so forth to perfect our KAMD system.

Third, KMPR must be built to completely eliminate any additional nuclear use attempts by thoroughly destroying the enemy’s nuclear facilities and NC3 (Nuclear command, control and communications). In other words, the Korean military makes sure that not only the enemy’s underground facilities are eliminated, but also that their will to continue fighting to the end is destroyed. This can be achieved through raising our weapon system’s penetration ability and destructiveness. Additionally, the military and defense authority should give special attention to special force’s equipment in order to allow them to infiltrate and accomplish their missions. The Korean military also
need to establish a comprehensive plan and test it through regular exercises assuming a nuclear use environment. In this way, it can possess feasible deterrence by punishment abilities that can dissuade North Korea’s nuclear use attempts in a less destructive way.

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Conclusion

No Korean soldier wishes to put himself in a position like that of the last Ukrainian warrior in Mariupol. No South Korean citizen wants the tragedy of Ukraine to happen on the Korean Peninsula. Nevertheless, the bleak reality of the China-US hegemonic competition and the sophistication of North Korean missiles capable of carrying nuclear warheads make our future very unstable. Abraham Lincoln once said, “The best way to predict the future is to create it.” It means that contriving pertinent plans is the most efficient way to address the uncertainty around the future. Therefore, in order for us to deter the fluctuation of unpredictability derived from future security challenges, we must strive to create our future with a well-trained military and viable military strategies, as well as operational plans.

The Credible Mechanism for a U.S. Extended Deterrence Commitment

Hackyoung Bae
Assistant Professor, Korea National Defense University

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Introduction

A U.S. official has warned that North Korea could conduct a seventh nuclear test “at any time” for tactical nuclear weapons. Since its first nuclear test, N. Korea has been developing its nuclear technology for nuclear advancement. Meanwhile, South Korea has tried to develop a conventional force and operational concepts to deter North Korea’s nuclear capability. For example, S. Korea has developed the concept of 3K (Kill-chain, Korea Air Missile Defense, Korea Massive Punishment and Retaliation) and force development to realize 3K at the tactical level. However, it has limitations to deter N. Korea’s nuclear capability only with conventional weapon systems. Thus, significant attention has been drawn to the idea of reintroducing U.S. tactical nuclear weapons onto the Korean Peninsula. If the Joint Declaration on the Denuclearization of the Korean Peninsula makes it difficult for S. Korea to have nuclear capability, we need a more concrete structure to guarantee U.S. extended-deterrence commitment. By bench-marking the U.S.’s nuclear sharing with other countries, I suggest a NATO Model for an optimal option-sharing “nuclear deterrence mission, related political responsibility and decision-making” without sharing physical nuclear warheads.
From the U.K.’s Nuclear Sharing to the NATO Model

Beginning of the U.K.’s Nuclear Sharing

In 1953, during a Bermuda meeting with U.S. President Dwight Eisenhower, Prime Minister Winston Churchill proposed cooperation on how the U.S. could use nuclear weapons deployed in the United Kingdom. The U.K. had two main concerns at that time.

First, the U.K. succeeded in its first atomic bomb test, but the production of nuclear weapons was delayed. This means the U.K. needed temporary nuclear weapons until it had begun to the mass-production of nuclear weapons.

Second, if the U.K. allowed the U.S. to deploy nuclear weapons on U.K. territory, the U.S. could use nuclear weapons deployed in the U.K.’s territory without its consultation.

Even with these concerns, prioritization of deterring the Soviet Union’s nuclear capability convinced the U.K. to allow the U.S. to deploy its nuclear weapons. Since 1952, the U.S. has deployed a variety of tactical nuclear weapons in the U.K., Netherlands, Belgium, Germany, Italy, Turkey (Türkiye), and Greece in response to the Soviet Union’s conventional expansion.

The U.S. and the U.K. promoted consultations under the name of “Project E” and in May 1957, President Eisenhower and Prime Minister Macmillan signed a formal Memorandum of Understanding. As a result, the U.K. first established an air-based nuclear sharing system in which U.S. tactical nuclear bombs were mounted on the U.K.’s bombers. In addition, Thor intermediate-range ballistic missiles equipped with U.S. nuclear warheads were also deployed to establish a ground-based system operated by the U.S. and the U.K. in a double-key manner.

Expansion of U.K.’s nuclear sharing to NATO

The U.K.’s nuclear sharing model expands to NATO ensuring that the benefits, responsibilities, and risks of nuclear deterrence are shared across the Alliance. The arrangements consist of nuclear capabilities, which are aircraft and infrastructure provided by a number of NATO countries and B-61 nuclear weapons under US custody and control in full compliance with the Treaty on the Non-Proliferation of Nuclear Weapons (NPT).

The procedures are if NATO is to conduct a nuclear mission, the B-61 weapons would be carried by certified NATO’s aircraft. The procedure is known as Dual-Capable Aircraft (DCA) with approval from NATO’s Nuclear Planning Group (NPG) and authorization from the U.S. President and the U.K. Prime Minister. This multi-layer approval and authorization guarantee the safety of nuclear weapons while deterring other countries’ nuclear attacks.

Importantly, NATO’s nuclear sharing arrangements are the most visible expression of the U.S. extended deterrence guarantee for the security of its allies and to help prevent further nuclear proliferation in Europe.

Limitations of Physical Sharing of Nuclear Warheads

However, the limitations of this air- and ground-based nuclear sharing system on the Korea Peninsula were the U.S.’s monopoly in controlling the storage and management of nuclear weapons. With the U.S. fully managing nuclear weapons, it took more than 10 minutes to launch a nuclear bomb in case of emergency. Also, the fixed location of nuclear arsenals were easy targets for enemy countries.

In particular, the technical limitations of Thor missiles have been pointed out. As a liquid fuel-based missile with a total range of 3,000 kilometers, weighing about 55 tons, it was impractical to launch it anywhere but from a fixed base and the missile had a lifespan of only about four years.

In the end, the U.K. decided to suspend “Project E” in 1960 and withdrew related U.S. nuclear weapons by 1962, completing its own nuclear
warhead production capacity in the late 1950s. Thor missiles were also withdrawn between November 1962 and August 1963.

In the process of this transition, the U.K. established a maritime-based sharing system not based on the platform (submarine) but on a warhead delivery system (SLBM) with the U.S. Specifically, the U.S. agreed in April 1963 to provide the UK with Polaris SLBMs which were under development.

The Polaris was successfully test-fired from the USS George Washington nuclear ballistic missile submarine (SSBN) in 1960, and the Polaris A-3 was later produced with a range of about 4,600 km and an error margin of 900 m. The U.K. formally operated its Resolution-class SSBNs with the U.S. Polaris A-3 from 1969 to 1996 when the Resolution-class was replaced with the Vanguard-class carrying the U.S. Trident II D-5 SLBM to maintain a maritime-based sharing system. Now, the U.K.'s nuclear capability is currently a single deterrence system operating from its own nuclear-powered submarines, consisting solely of these Trident II SLBMs. The U.K. currently operates four Vanguard-class nuclear-powered submarines and maintains a continuous maritime deterrent posture to ensure that at least one is always under water for a second strike.

Submarine-based nuclear posture has the strategic advantage of being difficult to be detected by an enemy, unlike air-/ground-based missiles operating in fixed locations or nuclear bombs launched from air to bombers and fighter jets. Thus, S. Korea can think of maritime-based nuclear sharing (submarine-based) as a form of nuclear sharing like the U.K.

However, the two countries must solve technical and tactical problems even as they tackle several political problems such as condemnations from neighboring countries. First, S. Korea should develop nuclear-powered submarines. For the maximum strategic value of nuclear warhead SLBMs, the submarine should be a nuclear-powered submarine. S. Korea has not yet developed a nuclear-powered submarine, even though the ROK Navy wants to acquire such a platform.

Second, nuclear-powered submarines should be designed only for U.S. SLBMs. S. Korea successfully test-fired two SLBMs consecutively in April from the 3,000-ton Dosan Ahn Chang-ho submarine. The beam of the KSS-III Dosan Ahn Chang-ho-class is 9.6m, which might be insufficient to operate the Trident II missile (at least in side-by-side configuration) as it is approximately 3m less than both the Ohio- and the Vanguard-class Trident II SSBNs. If S. Korea shares the U.S.'s SLBM (Trident-II), it should either build a new nuclear-powered submarine and VLS or lease a U.S. submarine.

Third, S. Korea's hypothetical SLBM should change its design for the U.S.'s nuclear warheads. If changing submarines for the Trident-II SLBM is too much of a burden for S. Korea, they can simply share a nuclear warhead with its own SLBM delivery system. The U.S.'s nuclear warheads are designed for the Trident-II, not for a Korean SLBM. They should decide whether the warhead is to be redesigned for S. Korea's SLBM or S. Korea's SLBM is to be redesigned.

The NATO Model and South Korea

The NATO model for nuclear sharing gives the misperception that "sharing" means "physical sharing." NATO's Factsheet (2022) articulates the meaning of nuclear sharing as "a sharing nuclear deterrence mission, related political responsibility, and decision-making". Additionally, it says explicitly, "It is not the sharing of nuclear weapons." Thus, nuclear sharing does not necessarily mean physically sharing nuclear warheads. The NATO model focuses more on consultation and information sharing.

S. Korea can institutionalize sharing of the nuclear deterrence mission, related political responsibility and decision-making with the U.S. It would be much easier for S. Korea because
the U.S.-S. Korea alliance is one of the strongest alliances in the world. The alliance already has multi-dialog channels such as the Security Consultative Meeting and Military Committee Meeting.

Practically, the U.S. and S. Korea held the Extended Deterrence Strategy and Consultation Group (EDSCG) in September 2022, and announced the conducting of a tabletop exercise (TTX) in the near future at the joint press statement for the 21st Korea-US integrated defense dialogue. The statement reactivated the dialog for extended deterrence, and the two countries can initiate measures for nuclear sharing other than allocating nuclear warheads on the Korea Peninsula.

If S. Korea develops the Korean Peninsula model of nuclear sharing, this would be the sharing of the nuclear deterrence mission, related political responsibility, and decision-making without deployment of U.S. nuclear weapons in S. Korea territory.

However, there is a prerequisite for institutionalization of cooperation on nuclear deterrence missions. S. Korea must prove how much it is valuable and trustworthy as an ally for the U.S. to take political risks such as the sharing of nuclear missions and information.

For example, the U.S. will face a backlash not only from China and N. Korea, but also Non-Proliferation Treaty (NPT) member states. Thus, S. Korea should be a "good enough" ally for the U.S. to offset the risks. Then, If the U.S. decides to apply the NATO model to S. Korea, it will be the first time for the U.S. sharing a nuclear SLBM or nuclear weapons with a non-NATO member state.

In other words, the pattern of change in the extended-deterrence system between S. Korea and the U.S. will vary depending on the changes in the situation in northeast Asia and the Korean Peninsula. In this context, this article believes that this is the time for a new sharing system to be discussed.

From the U.S. standpoint, while dispelling the concerns of its allies, it can also secure strategic space against China. Discussions on the sharing system can be meaningful as the basis for regional threat response and development into a global alliance based on the solid Korea-U.S. alliance.

Thus, I suggest the NATO Model for nuclear sharing as the optimal option for S. Korea's security environment in sharing its "nuclear deterrence mission, related political responsibility, and decision-making" without sharing physical nuclear warheads.

In a recent interview with foreign media, President Yoon Seok-yeol suggested that the U.S. is not considering relocating nuclear weapons or sharing nuclear weapons, but the new discussion on an alternative system is significant. In addition, the establishment of various discussions and a consensus between S. Korea and the U.S. on the shared system alone can lead to a symbolic role in strengthening ties and the measures to curb North Korea.

Conclusion

N. Korea’s nuclear enhancement requires S. Korea to have a more credible deterrence structure other than conventional weapons. Additionally, as the U.S.-China confrontation intensifies, there is an increasing likelihood of Korea and the U.S. becoming close enough to become nuclear sharing allies. This is a favorable environment for S. Korea to construct a more credible extended deterrence structure.

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