



Defense
Development
Exhibition “Self-
Defense 2021”
(KCNA/Kyodo)

Chapter 4

The Korean Peninsula

Missile Diversification in North and South Korea

AKUTSU Hiroyasu (Lead author, Section 1)

MUROOKA Tetsuo (Section 2)

Summary

In 2021, which marked the tenth anniversary of President of the State Affairs Kim Jong Un’s succession to power, North Korea focused on diversifying missile capabilities (including launch methods). Such efforts were in line with Kim’s report made at the 8th Congress of the Workers’ Party of Korea in January. The report unveiled his aims to launch new type ballistic missiles, new type long-range cruise missiles, railway-borne missiles, the Hwasong 8 hypersonic missile, and new type surface-to-air missiles. Against this backdrop, the International Atomic Energy Agency and the South Korean Armed Forces’ Joint Chiefs of Staff revealed there were indications of operation of nuclear facilities in North Korea.

North Korea adopts a “dialogue and confrontation” policy with the United States while it began to show flexibility with South Korea. Pyongyang, for example, reversed its reluctance to President Moon Jae-in’s proposal to declare an end to the Korean War and restored the inter-Korean lines of communication, all the while maintaining readiness to counter South Korean military threats. In addition, the North Korean and Chinese leaders reaffirmed their cooperation in July, on the 60th anniversary of the Sino-North Korean Mutual Aid and Cooperation Friendship Treaty. Due to the novel coronavirus disease (COVID-19) pandemic and other circumstances, however, it did not lead to the full resumption of bilateral trade.

In South Korea, President Moon Jae-in entered the final year of his term in 2021 retaining more power than previous presidents. The presidential election was a contest between Lee Jae-myung, the candidate of the progressive ruling party, the Democratic Party of Korea, and Yoon Suk-yeol, the candidate of the conservative opposition party, the People Power Party. If the former wins, President Moon’s conciliatory North Korea policy will be upheld fundamentally, while if the latter wins, there may be a change in policy leading to stronger backlash from North Korea.

President Moon made a series of efforts to realize the “end-of-war declaration” for the Korean War. The idea was to revive the stalled inter-Korean and U.S.-North Korea relations. However, the “end-of-war declaration” was not realized in 2021 amid the halt in U.S.-North Korea dialogue. While adopting a conciliatory North Korea policy, the Moon administration sought to diversify strike capabilities, such as submarine-launched ballistic missiles (SLBM), and extend the range of missiles and increase their yield in order to deal with “threats from all directions,” which include not only North Korea but also neighboring countries.

Keywords

missile diversification end-of-war declaration

ROK presidential election SLBM

1. North Korea's Missile Diversification and Hard-line and Soft-line Policies toward the United States and South Korea

(1) Accelerated Missile Development

The succession of President of the State Affairs Kim Jong Un as supreme leader marked the tenth anniversary in 2021. During this year, North Korea more actively developed missiles and missile capabilities, so as to build on the achievements and overcome the challenges laid out by Kim in his January report at the 8th Congress of the Workers' Party of Korea (WPK).¹ Table 4.1 below lists the main achievements in military technology and capabilities that were outlined in the report.

Table 4.1. Main achievements in defense technology claimed by North Korea (last five years)

Main achievements
Developed and perfected the super-large multiple launch rocket system (MLRS)
Developed and perfected the new type tactical missile and medium-range cruise missile capable of carrying conventional warheads
Completed development and research of warheads, including the guidance technology for multi-warhead missile and the supersonic gliding flight warhead for new type ballistic missiles, and started preparations for their prototype production
Set goals for the modernization of medium-sized submarine armaments
Completed design and research of the new nuclear-powered submarine and reached the final examination stage
Perfected designs of electronic weapons, unmanned striking equipment, means of reconnaissance and detection, and military reconnaissance satellite

Source: Compiled by the author based on KCNA, January 9, 2021.

The challenges are listed in Table 4.2.

As of October 2021, North Korea's missile and nuclear-related activities since March can be understood as efforts to verify the achievements and resolve the challenges detailed in the aforementioned report. Test firings

were conducted that showcase the increasing variety and diversity of North Korea's missile capabilities, including launch methods, such as new type ballistic missiles, new type long-range cruise missiles, railway-borne missiles, hypersonic missiles, and new type surface-to-air missiles. Table 4.3 lists North Korea's missile launches in 2021 as of October.

Table 4.2. Main challenges facing defense technology claimed by North Korea (next five years)

Main challenges
Making nuclear weapons smaller, lighter, and tactical
Improving precision to strike and annihilate any strategic target within a 15,000-kilometer range
Developing and introducing the supersonic gliding flight warhead <u>in a short period</u>
Issues related to <u>possessing</u> nuclear-powered submarines and <u>underwater-launch nuclear strategic weapons</u> (significant for improving long-range nuclear striking capability)
Securing reconnaissance and information gathering ability by operating a military reconnaissance satellite <u>in the near future</u>
Promoting development of reconnaissance means, including reconnaissance drones capable of precision reconnaissance up to 500 kilometer depth into the front
Realizing intelligent, precise, unmanned, high-performance, and lightweight equipment as a basic task facing defense science and technology

Source: Compiled by the author based on KCNA, January 9, 2021.

On March 25, North Korea fired a total of two missiles in an eastward direction from the vicinity of Sondok on the country's east coast. The missiles were of the same type as the new type ballistic missile unveiled on January 14 during a military parade held in conjunction with the 8th Party Congress. Both missiles flew around 450 kilometers at an altitude of less than 100 kilometers, a lower trajectory than that of North Korean Scuds, and landed outside Japan's exclusive economic zone (EEZ). According to North Korea's Academy of National Defense Science (ANDS), the missiles fired were a "newly developed new-type tactical guided projectile," constituting a weapon system which improved the warhead weight to 2.5 tons, and accurately hit targets that were

Table 4.3. North Korea's major missile launches in 2021 (including those announced by North Korea)

Date	Type, altitude, flight distance
March 25	Two new type ballistic missiles, altitude below 100 kilometers, flight distance approx. 450 kilometers
September 11 and 12	Two new type long-range cruise missiles, altitude unknown, flight distance 1,500 kilometers
September 15	Two new type railway-borne ballistic missiles, maximum altitude approx. 50 kilometers, flight distance approx. 750 kilometers
September 28	One Hwasong 8 hypersonic missile, altitude unknown, flight distance unknown
September 30	One new type surface-to-air missile, altitude unknown, flight distance unknown
October 19	One new type SLBM, maximum altitude approx. 50 kilometers, flight distance approx. 600 kilometers

Sources: Compiled by the author based on KCNA and Ministry of Defense of Japan.

600 kilometers away in the Sea of Japan.² ANDS mentioned that the test-firing confirmed the reliability of the improved solid-fuel rocket engine through engine ground jet tests and their test-firing processes, and reconfirmed the irregular orbit features of the low-altitude gliding leap type flight mode. It assessed, “The development of this weapon system is of great significance in bolstering up the military power of the country and deterring all sorts of military threats existing on the Korean Peninsula.”

On September 13, North Korea's ANDS announced the successful test-firing of newly developed new type long-range cruise missiles on September 11 and 12. The announcement reported that the launched cruise missiles flew 1,500 kilometers in 7,580 seconds along an elliptical and figure-eight trajectory and hit their targets. It further cited that long-range cruise missiles had been under development for two years as part of a core project of national defense. “The missile has strategic significance in giving us an effective means of deterrence to suppress the military activities of hostile forces and ensure our security,” ANDS assessed.

North Korea has been developing anti-ship cruise missiles for coastal defense

based on Russian-made models, and they are known to have been test-fired since the 1990s.³ Under the Kim Jong Un regime, North Korea announced the launch of five new type anti-ship cruise missiles in February 2015,⁴ three anti-ship cruise missiles in June 2015,⁵ and several surface-to-ship cruise missiles in June 2017.⁶ While North Korea had launched short-range cruise missiles, this was the first time it announced the launch of long-range cruise missiles. When North Korea announced test launches of cruise missiles, it released photos showing the missile hitting its target. For example, when a cruise missile was fired from Wonsan in eastern North Korea into the Sea of Japan in June 2017, it announced that the missile “flew in a precise circle and detected and hit the target ship floating on the east sea of Korea” and published photos of the missile in the *Rodong Sinmun*.⁷ Following the test-fire on September 11, however, no such photos were published. Despite North Korea's assessment that the test-fire was a success, the launch may have failed and thus photos cannot be released. If so, North Korea will likely repeat the test-firing until it is able to release images showing it was successful. Furthermore, if North Korea recognizes that cruise missiles are not subject to the United Nations (UN) Security Council resolutions, the hurdle to repeat the launch may not be very high.

In addition, North Korea launched two more ballistic missiles on September 15. North Korea announced that the railway-borne missile regiment of the Korean People's Army used a railway-borne missile system to fire the missiles, which flew approximately 800 kilometers and hit their targets.⁸ The missiles flew along an irregular trajectory and are estimated to have fallen within Japan's EEZ, about 300 kilometers north of



A railway-borne missile being launched (KCNA/Kyodo)

Hegura Island off Japan's Noto Peninsula.

Such a railway-borne system, previously developed by the former Soviet Union, is not a new idea or technology. Radio Free Asia (RFA) reported in 2016 that North Korea had begun developing railway-borne missiles.⁹ This report suggests that China's refusal to export large-vehicle mobile launchers to North Korea prompted Pyongyang to begin developing a train-based mobile launcher. According to the report, one of North Korea's technological challenges at the time was figuring out how to load a 100-ton class long-range missile onto a North Korean freight car with a maximum payload of around 60 tons.

Meanwhile, on September 15, the day North Korea launched the railway-borne missiles, South Korea (also referred to as the Republic of Korea or ROK) announced the successful underwater test-fire of a submarine-launched ballistic missile (SLBM). The SLBM test-fired by South Korea "looked somewhat like a poor weapon without all its shape and far from an underwater weapon," said ANDS President Jang Chang Ha on September 20. Judging it was "clearly not SLBM" and was a tactical ballistic missile with a range "less than 500 km," he assessed "Such meaningless missile is just for 'bragging' and 'self-comforting.'"¹⁰ It cannot "be an effective military attack means in a war," President Jang analyzed, noting, "we have meditated over its [South Korea's] purpose of giving attachment to the development of submarine-launched weapon system."

Furthermore, North Korea announced ANDS launched the newly developed Hwasong 8 hypersonic missile on September 28.¹¹ Kim Jong Un's January report had foreshadowed the introduction of the hypersonic missile "in a short period" (see Table 4.1). The North Korean announcement said the test-firing "ascertained the stability of the engine as well as of missile fuel ampoule that has been introduced for the first time."

Pak Jong Chon, a member of the Presidium of the Political Bureau and secretary of the WPK who observed the test-firing with leading officials of the national defense science sector, reportedly "referred to the strategic importance of developing and field deploying hypersonic missiles, as well as to the

military significance of turning all missile fuel systems into ampoules."¹² North Korea's announcement, however, did not make any mention of such military significance. Simply put, fuel ampoule is a technology that keeps liquid fuel in the missile for a certain period of time, instead of having to inject liquid fuel into the missile just before the launch.¹³ "Ampoulization" allows for more instantaneous missile launches. The ROK Joint Chiefs of Staff assessed, "This missile is in the early stages of development, and it will take a considerable period of time for it to be deployed in actual warfare." Nevertheless, some ROK experts fear the ampoulization technology will make it difficult to detect signs of North Korean missile launches.¹⁴

Shortly after the September 28 launch, Kim Song, North Korea's ambassador to the UN, delivered a speech at the UN General Assembly in New York. In the speech, he asserted North Korea's right to self-defense and weapons testing, and underscored North Korea's right to "develop, test, manufacture, and possess" weapons systems.

North Korea announced on October 1 that it launched a new type anti-aircraft missile for air defense on the previous day, September 30.¹⁵ According to the announcement, the test launch was conducted to verify "comprehensive combat performance" and opened prospects for the missile's practical use. North Korea appears to be attempting to improve Anti-Access/Area Denial capabilities using cruise missiles for coastal defense and surface-to-air missiles for air defense.

Lastly, North Korea announced that ANDS test-fired a new type SLBM on October 19.¹⁶ According to the Ministry of Defense of Japan, North Korea launched one SLBM eastward from the vicinity of Sinpo on the eastern side of the Korean Peninsula. The missile is estimated to have flown on an irregular trajectory for approximately 600 kilometers at an altitude of up to around 50 kilometers before falling into the Sea of Japan east of the Peninsula.¹⁷ North Korea's announcement states the new type SLBM was launched from the "8.24 Yongung" ship from which ANDS conducted its first successful SLBM test-firing five years ago. The announcement also mentions, "Many advanced

control guidance technologies have been introduced, including flank mobility and gliding skip mobility.”

The UN Security Council did not issue a statement condemning neither North Korea’s September 15 and 28 ballistic missile and other launches, nor its October 19 SLBM launch. This was reportedly because of China and Russia’s opposition to the issuance of such statements.¹⁸ This attitude of the two countries is, in effect, decreasing the international community’s ability to restrain missile launches by North Korea.

Meanwhile, regarding nuclear development, Sweden’s Stockholm International Peace Research Institute (SIPRI) reported on June 14 that North Korea’s estimated nuclear weapon inventory increased from 30–40 warheads in the previous year to 40–50 warheads as of January 2021.¹⁹ On August 27, the International Atomic Energy Agency (IAEA) released a report stating there were indications that the 5,000 kW graphite moderated reactor at North Korea’s nuclear facility in Yongbyon had been restarted.²⁰ Additionally, on October 8, Won In-choul, chairman of the ROK Joint Chiefs of Staff, revealed that an audit of the National Defense Committee of the National Assembly found on October 6 that the nuclear facility in Pyongsan in southern North Korea was in normal operation. “It continues to produce nuclear materials, such as uranium and plutonium,” and “Ore mined in Pyongsan, where a uranium refinery plant is believed to be located, is being supplied to the nuclear facility,” he said. He further revealed that North-South denuclearization negotiations have been stalled for a long time.²¹ In light of the Kim Jong Un regime’s default course of action and his January report at the 8th Party Congress, North Korea is unlikely to agree to denuclearization in the form demanded by the United States and the ROK. This was reaffirmed by the report of the Joint Chiefs of Staff regarding the stalemate in denuclearization negotiations.

Going forward, there are several possibilities for North Korea’s moves for its nuclear and missile programs. Assuming North Korea makes good on the January report at the 8th Party Congress, it could remain consistent with its established policy of increasing the variety and diversity of nuclear weapons

and missiles. For example, it may launch SLBMs or ballistic missiles it calls “satellites” and conduct test flights of reconnaissance drones. In other words, North Korea may conduct cruise missile test flights and test-firings of ballistic missiles along irregular trajectories, aiming to further improve the capabilities that were considered as achievements. Of course, in the absence of a summit meeting or an official high-level dialogue with the Joseph Biden administration, the North’s firing of an intercontinental ballistic missile (ICBM) in anticipation of a strong reaction from the United States cannot be ruled out. In any event, North Korea is anticipated to continue with efforts to improve its military technology.

New types of North Korean weapons were unveiled at the Defense Development Exhibition “Self-Defense 2021” on October 11 (the exhibition ran until October 22). While North Korea did not hold a military parade on October 10, which marked the 76th anniversary of the WPK’s founding, these weapons were ultimately showcased at the exhibition to domestic and international audiences. North Korea’s ambitions to improve military technology to strengthen military capabilities against the United States and South Korea were underscored once again in President Kim’s speech at the exhibition. Alongside stressing the need to deter war on the Korean Peninsula, President Kim justified that the North’s defense capabilities must continue to be strengthened, on the grounds that the ROK is aspiring to improve combat capabilities by introducing stealth fighters, high-altitude reconnaissance drones, and a large number of high-tech weapons under strong U.S. patronage.²² “The United States has frequently sent signals that it is not hostile to our state, but its behaviours provide us with no reason why we should believe in them,” he said, reiterating his distrust of the United States. In addition to ICBMs believed to be the Hwasong 17 and Hwasong 15 types, several strategic and tactical weapons were shown in the “Self-Defense 2021” video, including what seems to be the Hwasong 8 hypersonic missile launched in September.²³ Missile launches were concentrated in September and continued until October 19 while the exhibition was ongoing. North Korea is thought to have showed off the

missiles at the exhibition in order to impart a stronger impression of its defense technological achievements to domestic and international audiences.

(2) Hard-line and Soft-line Policies toward the United States and South Korea

On the one hand, North Korea ignored the Biden administration's informal attempts to make contact with Pyongyang before it officially took office, and continued to repeatedly criticize the United States' North Korea policy. On the other hand, the supreme leader, President Kim Jong Un, indicated in June 2021 that he would prepare for both dialogue and confrontation with the new U.S. administration. As this illustrates, North Korea appears to be taking both hard-line and soft-line approaches with the United States as of date.

President Moon Jae-in proposed to declare the termination of the Korean War in his speech at the 76th Session of the UN General Assembly in New York on September 21. On September 23, North Korea's vice minister of foreign affairs issued a statement that called the proposal "premature."²⁴ However, on the same day, Kim Yo Jong, vice department director of the WPK Central Committee, released a statement suggesting a flexible stance, noting North Korea was "ready to discuss" the issue on the condition that the South scraps its "double standards" and hostile policy toward North Korea.²⁵ Furthermore, on September 29, President Kim Jong Un delivered a policy speech on the second day of the 5th Session of the 14th Supreme People's Assembly of the DPRK, in which he stated that the communication lines that have been suspended over the U.S.-South Korea combined exercises would be reactivated in early October.²⁶ With regard to the "independent reunification of the country," President Kim stated in his report in January, "Whether the north-south relations can be restored and invigorated or not entirely depends on the attitude of the south Korean authorities." Without a resumption of dialogue with the United States, North Korea may be beginning to show a flexible attitude toward South Korea in order to achieve some results in the tenth year of President Kim Jong Un's reign as supreme leader. As indicated by President Kim's remarks at "Self-Defense 2021," however, North Korea appears to be increasingly wary of

South Korea's increased combat capability.

As regards North Korea-China relations, President Kim Jong Un sent a congratulatory telegram to Chinese President Xi Jinping on the 60th anniversary of the Sino-DPRK Mutual Aid and Cooperation Friendship Treaty on July 11. In the telegram, he recognized that "the hostile forces become more desperate in their challenge and obstructive moves" and said he intends to continue to develop the bilateral relationship.²⁷ Likewise, in his congratulatory telegram to President Kim, President Xi expressed hope for advancement of the bilateral relationship.²⁸ Prior to the first U.S.-North Korea summit in June 2018, President Kim visited China in May, following on from his visit in March, during which he and Xi held a meeting and agreed to coordinate closely. Nevertheless, amid the COVID-19 pandemic and other disruptions, trade between China and North Korea did not fully resume by the end of 2021.²⁹

2. The Moon Jae-in Administration's Appeasement Policy toward North Korea and Defense Capability Enhancement

(1) President Moon Jae-in's Retention of Political Power and the Presidential Election Outlook

In South Korea, the Moon Jae-in administration entered its de facto final year in 2021, and fierce competition for the next presidential seat unfolded between the candidates of the ruling progressive party, the Democratic Party of Korea (DPK), and the largest conservative opposition party, the People Power Party (PPP). Whether or not the new government that takes office in May 2022 will remain progressive or shift to conservative will probably make a difference in inter-Korean relations, the U.S.-ROK alliance, and South Korea's defense capability enhancement, and by extension, affect the security environment in Northeast Asia.

The ROK Constitution limits the presidential term to one five-year term. Partly for this reason, successive presidents have become "lame ducks" at

the end of their terms, unable to fully implement their policies amid faltering approval ratings. President Moon Jae-in had a formidable approval rating of over 80% when he took office in May 2017, but it began to decline in 2018. While his approval rating temporarily surged during the second quarter of 2020, boosted by the COVID-19 control measures of his administration, disapproval began to exceed approval from December 2020. The primary reason for disapproval was the administration's failure to curb real estate prices, which surged beyond the reach of the middle class.³⁰ Furthermore, the public became disheartened by the revelations of scandals among administration and ruling party officials, despite President Moon's commitment to equality and fairness.

That said, in the second quarter of his fifth year in office, President Moon's approval rating was 39% (53% disapproved; Gallup Korea poll). This compares favorably with the ratings of Presidents Roh Moo-hyun (24% approved, 66% disapproved) and Lee Myung-bak (25%, 58%) during a similar period and for Park Geun-hye (12%, 80%) before her impeachment (December 2016).³¹ The DPK, which backs the Moon

administration, still maintained a single-party majority in the National Assembly, although it was defeated by the PPP in the April 2021 mayoral elections in the two largest cities, Seoul and Busan.³² In addition, in the presidential election campaign, as shown below, the DPK candidate was in a close race with the PPP candidate. With these conditions in place, President Moon retained political power to a degree rarely seen in a South Korean president near the end of his term. As a result, he was able to maintain a conciliatory North Korea policy, as discussed in the next section.

In the second half of 2021, both parties



DPK candidate Lee Jae-myung and PPP candidate Yoon Suk-yeol shaking hands on November 24, 2021, Seoul (Yonhap News Agency/Kyodo News Images)

held preliminary elections to choose their candidate for the next presidential election. As their respective candidates, the DPK chose then Governor of Gyeonggi Province Lee Jae-myung on October 10, and the PPP chose former Prosecutor General Yoon Suk-yeol on November 5. Lee trailed Yoon in approval ratings, despite polls showing a strong desire for change from a progressive to a conservative government.³³ Both candidates were beset by allegations against themselves and their families. Additionally, Yoon repeatedly made gaffes, resulting in intensified internal strife within the party and a drop in approval rating. In January 2022, the approval rating for Ahn Cheol-soo, leader of the centrist People Party, rose sharply, making the outcome still unpredictable.³⁴

Lee and Yoon's campaign pledges diverge considerably on the foreign and security policies of South Korea. Depending on who is elected president, the policies on North Korea, the United States, China, and Japan could differ significantly. The North Korea policy of Lee Jae-myung encourages its denuclearization through the easing of economic sanctions and provision of assistance to North Korea, with the condition (snapback) that sanctions will be immediately reimposed if North Korea violates its commitments. Lee is attempting to do what the Moon Jae-in administration could not realize due to failure to obtain U.S. support. As such, it is expected that South Korea will experience challenges in coordinating with the United States and other countries that do not support North Korea's nuclear armament. Lee intends to meet in person with the U.S. president and President Kim Jong Un to make progress on denuclearization.³⁵

Meanwhile, Yoon Suk-yeol proposes to disable North Korea's nuclear weapons and missiles by expanding Korean Air and Missile Defense (KAMD) and "ROK-U.S. extended deterrence," as well as provide economic assistance commensurate with progress in North Korea's denuclearization.³⁶ When such an initiative was tried in the past by the Lee Myung-bak administration, it was met with opposition from North Korea, and inter-Korean relations fell into a stalemate. The same situation could well repeat itself. Furthermore, Yoon pledges to establish a permanent three-way dialogue channel between North

and South Korea and the United States in Panmunjom.

Regarding policies toward the United States and China, Lee's policy is that, while the United States is the only ally, the ROK has a strategic partnership with China and does not have to choose one country or the other.³⁷ Additionally, he has pledged to realize the early transition of wartime operational control (OPCON).³⁸ Meanwhile, Yoon gives top priority to the alliance with the United States, including strengthening "ROK-U.S. extended deterrence" and considering the ROK's participation in the Japan-Australia-India-U.S. cooperation framework (the Quad). He advocates that the ROK-China relationship should be one of "mutual respect," based on his assessment that the ROK's position was downplayed during the Moon Jae-in administration. Furthermore, he indicated he would not be bound by the "Three Nos," announced by the Moon administration in October 2017 with China in mind. They are: 1) not making an additional deployment of Terminal High Altitude Area Defense (THAAD); 2) not joining the United States-led missile defense; and 3) not developing Japan-U.S.-ROK security cooperation into a military alliance.³⁹

With regard to Japan, Lee Jae-myung said he would continue to uphold the Moon Jae-in administration's two-track strategy of dealing resolutely with "historical issues, territorial sovereignty issues, and issues concerning the life and safety of the people," while promoting exchange and cooperation in the economic, social, and diplomatic fields.⁴⁰ Lee believes Japan is taking steps to become a military power and promote the resurgence of militarism, in sharp contrast to the reality in Japan. He has in fact called Japan an "enemy state,"⁴¹ and it cannot be ruled out that he would take a tougher stance on Japan than the Moon administration.

In contrast, Yoon Suk-yeol contends that the Japan-ROK Partnership Declaration issued by Prime Minister Obuchi Keizo and President Kim Dae-jung in October 1998 already presents a "comprehensive vision" of the Japan-ROK relationship in the future. His stance is to cooperate with Japan based on this declaration, while "upholding a firm position on matters concerning

territory, sovereignty, and past history." He further proposed to harmonize Japan-U.S.-ROK security cooperation and Japan-China-ROK functional cooperation.⁴² It remains to be seen how a rational approach to Japan will be received by the South Korean people.

On defense policy, both candidates agree to strengthen the capabilities of the ROK Armed Forces by introducing advanced technologies, such as artificial intelligence and unmanned systems. Lee Jae-myung prioritizes independent defense, albeit premised on the U.S.-ROK alliance, and pledges to realize an early OPCON transition as mentioned above.⁴³ Yoon Suk-yeol, conversely, prioritizes U.S.-ROK cooperation. His position is that OPCON should be transferred when the ROK Armed Forces have reconnaissance capabilities to lead the U.S.-ROK combined defense posture, coupled with capabilities to deal with North Korea's nuclear weapons and missiles, as well as when the security situation has simmered down to a certain degree (conditions-based OPCON transition).⁴⁴ Regarding conscription, Lee proposes to increase the number of non-commissioned officers who volunteer for "medium-term" service and shorten the service period of conscripted soldiers. In contrast, Yoon proposes to enhance support for the college education, employment, and start-ups of soldiers while maintaining the conscription system.⁴⁵

(2) "End-of-War Declaration" Aspirations

In 2021, President Moon Jae-in continued to take a conciliatory stance toward North Korea, seeking to break the deadlock of inter-Korean relations and U.S.-North Korea relations. As part of this effort, President Moon proposed the Korean War "end-of-war declaration" again at the UN General Assembly on September 22, as mentioned in the previous section. It calls for three parties (South Korea, North Korea, and the United States) or four parties (the three parties plus China) to declare an end to the Korean War, which has remained in a state of armistice since 1953, and advance to the next stage of signing a peace treaty. The North and the South had already agreed to "work together to advance" the "end-of-war declaration," both during the October 2007 summit

meeting between then President Roh Moo-hyun and then National Defense Commission Chairman Kim Jong Il and during the April 2018 summit meeting between President Moon and State Affairs Commission Chairman Kim Jong Un. However, neither of these agreements materialized in concrete form amid the breakdown of inter-Korean and U.S.-North Korea dialogues. President Moon Jae-in hoped that reiterating calls for an “end-of-war declaration” would create momentum for resuming the stalled U.S.-North Korea denuclearization negotiations.⁴⁶

Speaking to South Korean reporters after his speech at the UN General Assembly, President Moon Jae-in commented that the “end-of-war declaration” is a political declaration and will therefore maintain the armistice regime under the existing armistice agreement and will not affect the stationing of U.S. forces in the ROK.⁴⁷ As observed in the previous section, however, North Korea’s seeming interest in the “end-of-war declaration” is coupled with preconditions, namely, demands on South Korea and the United States to retract their hostile policy and “double standards” against North Korea. These demands may refer to the lifting of economic sanctions, the withdrawal (or at least downsizing) of U.S. Forces Korea (USFK), and de facto U.S. and ROK acceptance of North Korea’s development and possession of nuclear weapons and ballistic missiles (e.g., those with a range that cannot reach the U.S. mainland). It thus cannot be denied that the result will be contrary to President Moon’s explanation or expectation.

To set the scene for North Korea’s return to dialogue, the Moon Jae-in administration explored the options of resuming aid to North Korea and easing economic sanctions. On July 30, 2021, Lee In-young, minister of unification, announced the resumption of humanitarian assistance to North Korea, which had been suspended since September 2020 over North Korean forces’ shooting and killing of a South Korean civil servant. Following this announcement, the Ministry of Unification, which oversees inter-Korean relations, approved small-scale assistance by civilian organizations. On September 24, the ROK government decided to disburse a total of 10 billion won from its fund to ROK

civilian organizations, with aid for nutrition and health in North Korea capped at 500 million won (approximately 47 million yen) per project.⁴⁸ However, because of North Korea’s continued rejection of ROK assistance and the closure of the China-North Korea border due to COVID-19, it appears that such ROK support has not been realized.

Senior officials in the Moon administration urged for sanctions relief on numerous occasions. For instance, when Chung Eui-yong, minister of foreign affairs, spoke at the Council on Foreign Relations (CFR) in the United States on September 22, he proposed that Washington consider easing sanctions as an incentive (to bring North Korea to the negotiating table), noting North Korea had not launched a long-range missile since November 2017.⁴⁹ While not formally announced, Minister Chung is thought to have made the same proposal to the U.S. government. As of the end of December 2021, the United States has not endorsed these proposals, and sanctions relief has not been realized along with the “end-of-war declaration.”

The mode and scale of the annual U.S.-ROK combined military exercises were another area to which the Moon Jae-in administration sought to circumvent North Korean opposition as much as possible. Every year, the U.S. and ROK forces conducted a large-scale field training exercise in March and a large-scale command post exercise in August. Since August 2018, however, the field training exercise had been suspended and the command post exercise had been reduced in scale based on the progress in inter-Korean and U.S.-North Korea relations. During his New Year’s press conference on January 18, 2021, President Moon emphasized that U.S.-ROK exercises were for defensive purposes. At the same time, he expressed the view that “This is a matter we can discuss [with North Korea],” saying “(North Korea) gets very nervous and sensitive [about the exercises] every time.”⁵⁰ Some in the Moon administration even called for the postponement (de facto cancellation) of the combined U.S.-ROK exercises.⁵¹ Although the U.S. Department of Defense did not directly object to this ROK stance, it likely has concerns that not holding large-scale field training exercises would adversely affect the readiness of the U.S. and

ROK forces. In the end, the March and August exercises were conducted as a command post exercise on a reduced scale without field training.

As for ROK-U.S. relations, President Moon Jae-in held his first summit meeting with President Biden in Washington, D.C. on May 22, 2021. The two leaders reaffirmed their commitments under the U.S.-ROK alliance, including the United States' provision of extended deterrence to the ROK as well as denuclearization of the Korean Peninsula and establishment of permanent peace through dialogue with North Korea. New developments included positive evaluation of the Quad, albeit without declaring the ROK's participation, and mentioning the importance of preserving peace and stability in the Taiwan Strait.⁵² In the past, the ROK avoided involvement in such matters out of concern for China. The summit meeting, meanwhile, led to the termination of the U.S.-ROK Missile Guidelines, which had limited the range of South Korea's ballistic missiles to 800 kilometers. Taken together, some in South Korea interpret that the Biden administration sought to equip the ROK with deterrent mechanisms against China in exchange for not forcing South Korea to join the Quad.⁵³

On December 2, 2021, a ROK-U.S. Security Consultative Meeting (SCM) was held in Seoul, attended by Defense Minister Suh Wook and Secretary of Defense Lloyd J. Austin III. At this SCM, it was agreed that a full operational capability (FOC) assessment necessary for OPCON transition would be conducted during the 2022 U.S.-ROK combined command post exercise.⁵⁴ What this means is President Moon Jae-in failed to deliver on his pledge to achieve OPCON transition during his term in office as part of efforts to realize independent defense. Due to COVID-19 and other factors, the FOC assessment could not be conducted during the 2021 U.S.-ROK command post exercise. Incidentally, if a war were to occur under the existing structure, OPCON for ROK combat forces is exercised by the ROK-U.S. Combined Forces Command (CFC), whose commander and deputy commander are a U.S. Army four-star general and ROK Army four-star general, respectively. Following the transition, the Future Combined Forces Command (F-CFC), whose commander

is a ROK four-star general and whose deputy commander is a U.S. four-star general, will have OPCON.⁵⁵

As to relations with Japan, ROK courts have rendered a series of judgments ordering the Japanese government and Japanese companies to pay compensation in connection with the issue of former civilian workers from the Korean Peninsula and the issue of former comfort women. The judgments neglect the principle of state immunity under international law and the 1965 Japan-ROK Agreement on the Settlement of Problems concerning Property and Claims and on Economic Co-operation. The Moon Jae-in administration has not taken any measures to correct this violation of international law, and Japan-ROK relations thus continue to be in "an extremely difficult situation."⁵⁶ Meanwhile, Japan-U.S.-ROK trilateral cooperation continued on the North Korean nuclear and missile issues. Furthermore, although the Moon administration notified Japan in August 2019 that the Japan-ROK Agreement on the Protection of Classified Military Information (GSOMIA) would be terminated in order to counter the enhancement of Japanese export controls,⁵⁷ the administration continued the agreement under the official pretext that it "suspended the effect of the notice."

Amid intensifying competition between the United States and China, the Moon administration has struggled to reconcile the U.S.-ROK alliance with the ROK-PRC strategic cooperative partnership. China is the largest trading partner for the ROK and a partner with which it hopes to cooperate toward the denuclearization of North Korea and the establishment of a peace regime on the Korean Peninsula. Militarily, however, the ROK is also wary of stepped-up activities by China's naval and air forces in the waters around the ROK, as the next section will examine. The ROK is increasingly demanded by the U.S. government to "stand together in confronting China's ambitions and authoritarianism."⁵⁸ These are expected to become serious issues for the new South Korean president who will take office in May 2022.

(3) Strike Capability Diversification by the ROK Armed Forces

The Moon Jae-in administration has implemented the "Defense Reform 2.0"

plan since 2018, a year after the administration came to power. Namely, it has sought to reduce the number of ROK Armed Forces personnel from 599,000 in 2018 to 500,000 in 2022 (all reductions in the Army), while increasing strength through equipment modernization of the Army, Navy, and Air Force. This trend was institutionalized in 2005 during the Roh Moo-hyun administration as “Defense Reform” and was carried over to subsequent conservative administrations. The factors behind this shift were the issue of coping with the declining birthrate, i.e., decreases in the draft-eligible population, and the need to improve the capabilities of the ROK Armed Forces for OPCON transition.

Until the Park Geun-hye administration, force development was premised on the North Korea threat, especially its nuclear and missile threats. This was followed by potential threats, which are considered to refer mainly to neighboring countries although specific countries were not mentioned. After the Moon Jae-in administration took office, however, terms such as “threats from all directions,” which are thought to include both North Korea and neighboring countries, came into increasing usage.⁵⁹ The Moon administration may have wished to avoid mentioning North Korea by name in order to pursue dialogue with North Korea. Another reason, as will be discussed below, may have been to signal the ROK’s growing consciousness of developments in neighboring countries, including China.

The force buildup is designed to deal with mainly three areas of threat: 1) North Korea’s nuclear weapons and missiles; 2) “threats from all directions,” such as China; and 3) North Korea’s conventional forces. Of course, as examined below, the forces in the first area, for example, can also be used in other areas in some cases.

The Moon Jae-in administration vows that a system to counter nuclear and WMD threats will deter and deal with the first threat of North Korea’s nuclear weapons and missiles.⁶⁰ This system consists of a “strategic strike system” and KAMD. The strategic strike system combines the Park Geun-hye administration’s “Kill Chain” and “Korea Massive Punishment and Retaliation” (KMPR) plans. Under the Park administration’s strategies, if signs of North

Korea’s use of nuclear missiles are detected, the ROK’s ballistic and cruise missiles or other weapons would be used to destroy North Korean launch pads (Kill Chain). If North Korean nuclear weapons caused damage to South Korea, then its missiles and special operations forces would be used for retaliation to eliminate the North Korean leadership (KMPR).⁶¹ These plans are no longer explicitly explained by the Moon administration, probably to avoid provocative actions against North Korea. In practice, however, the ROK continues to build up forces along the lines of this doctrine.

Long-range precision strike capabilities constitute the core of the strategic strike system. The ROK Armed Forces are already capable of projecting a variety of warheads from land, sea, and air platforms. In order to destroy protected missile launch sites and command posts in North Korea, the ROK has striven to develop longer-range missiles and precision guidance and to increase their power, including more warhead weight.⁶² On September 15, 2021, South Korea announced it successfully developed a high-powered ballistic missile, which has “dramatically” increased the warhead weight and is capable of penetrating concrete buildings and underground tunnels with precision.⁶³ According to South Korean reports, this missile, known as “Hyunmoo-4,” has a range of 800 kilometers, long enough to target all of North Korea, and has a load capacity of 2 tons.⁶⁴ Incidentally, the deployed ballistic missile Hyunmoo-2C has the same range but a load capacity of only 500 kilograms. As was stated in the previous section, the U.S.-ROK Missile Guidelines that limited the range of South Korean ballistic missiles to 800 kilometers were terminated in May 2021. As a result, missiles with even longer ranges and more weight are expected to be developed in the future.

KAMD—an abbreviation which the Moon administration tends not to use—refers to a system that deploys the indigenous missiles Cheongung-II (M-SAM, intercept altitude 20–25 kilometers) and PAC-3 (intercept altitude 30–40 kilometers) for lower-tier defense. In the future, the middle tier will be covered by L-SAM (intercept altitude 40–60 kilometers) currently under domestic development. The ROK has sought to strengthen KAMD’s detection and

surveillance capabilities, such as improving the capabilities of ground-based early warning radars and planning the launch of reconnaissance satellites. Yet the system relies heavily on the U.S. forces for intelligence, and the ROK's upper-tier defense is covered by the USFK Army's THAAD system (40–150 kilometers). Nonetheless, South Korea has underscored that KAMD is a separate system from the United States-led ballistic missile defense. Its main motivation is to avoid a backlash from China. For this reason, while the ROK Navy has three Aegis destroyers and plans to build three more by 2028 (construction of one of them began in February 2021), the destroyers are not fitted with SM-3s for ballistic missile interception and the ROK has been unable to announce their installation as a future plan.⁶⁵ As North Korean missiles gain the ability to take lofted trajectories, conduct gliding flights with an irregular trajectory, and fly at hypersonic speeds and at low altitudes, some have voiced concern that KAMD lacks the capabilities to provide sufficient defense.⁶⁶

Capabilities that were developed highly mindful of the “threats from all directions” include SLBMs and their submarine platforms, along with light aircraft carriers (LAC). On September 15, 2021, the ROK Ministry of National Defense announced that a submarine successfully launched an SLBM underwater.⁶⁷ The submarine is believed to be the 3,000-ton class *Dosan Ahn Changho*, just commissioned in August, and is reportedly equipped with six Vertical Launching Systems (VLSs). The SLBM launched was an improved variant of the Hyunmoo-2B ground-launched ballistic missile (range 500 kilometers), and reportedly flew more than 400 kilometers and hit its target.⁶⁸ This would imply that the ROK Armed Forces have acquired a new means to accurately strike ground targets from underwater, which is difficult to detect in advance. While this, of course, gives the ROK with more means to strike North Korea, Cheong Wa Dae (office of the president) has emphasized rather the significance of “securing deterrence capabilities against threats from all directions.”⁶⁹

By 2033, the ROK Navy intends to construct and operationally deploy an LAC that is 265 meters long and 43 meters wide, weighs approximately

30,000 tons, and can carry over ten short takeoff and vertical landing fighters (presumably F-35B). The Navy explains the LAC's utility as a strike capability in the event of a contingency with North Korea and for protecting sea lines of communication. It also cites the LAC's usefulness

for disputes that could occur over maritime interests with neighboring countries, namely, China and Japan. The Navy particularly stresses China's stepped-up activities of aircraft carriers and maritime patrol aircraft in the Yellow Sea near South Korea's territorial waters,⁷⁰ suggesting the ROK takes the Chinese threat seriously. The South Korean media has similarly expressed concern over the Chinese aim to turn the Yellow Sea into an inland sea.⁷¹

The LAC was included in the budget for the first time in FY2021 (the ROK's fiscal year is the calendar year). That said, whereas the government requested 10.1 billion won for this fiscal year, the National Assembly approved only 100 million won for commissioned research on the grounds that the appropriateness of the request had not been sufficiently examined. Likewise, in the FY2022 budget deliberations, whereas the government requested 7.2 billion won, ruling and opposition party members of the National Defense Committee of the National Assembly agreed to approve only 500 million won for data collection, reasoning that public understanding was inadequate. President Moon Jae-in expressed dissatisfaction with this proposed reduction internally, and on December 3, 2021, the ruling DPK passed a budget bill which restored the initial 7.2 billion won in its entirety, overriding objections of opposition parties. In this manner, the South Korean LAC moved from the conceptual stage to the



ROK Navy's *Dosan Ahn Changho* submarine that is thought to have successfully launched an SLBM (Yonhap News Agency/Kyodo News Images)

design stage.⁷²

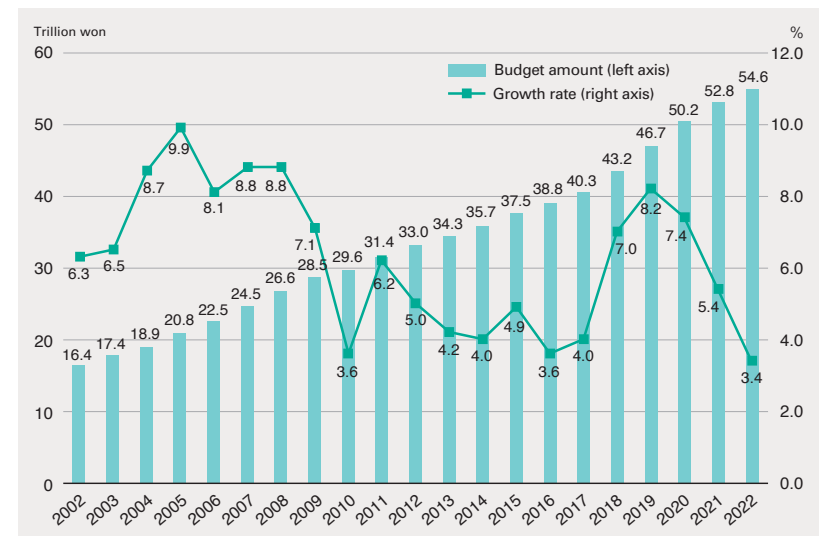
The third area of force buildup is improving capabilities for warning, monitoring, and countering North Korean conventional forces. As was touched upon earlier, significant troop cuts will be made in the ROK Army. Accordingly, the number of Army corps will be reduced from eight as of 2017 to six by 2026, while the number of divisions will decrease from 39 to 33 over the same period. Therefore, the operational area of each corps and division is being expanded. Specifically, the firepower, armored capabilities, and air power of the corps will be strengthened. The mobile power of general divisions (infantry divisions) will be enhanced by introducing wheeled armored vehicles, wheeled self-propelled howitzers, and other equipment. One Quick Response Division capable of air assault was established in January 2021.⁷³ In addition, reconnaissance drones and robots (e.g., for reconnaissance, hazardous material disposal, and delivery) are being introduced at a rapid pace.⁷⁴ Separate from missile defense, the ROK is scheduled to develop the “Korean Iron Dome,” or long-range artillery interception system, for protecting the metropolitan area and other areas from North Korean rocket artillery.⁷⁵

South Korea has also put efforts into the use of space as a base for supporting the modernized forces. In July 2020, it launched the first dedicated military communications satellite (using SpaceX, Falcon 9). In addition to the aforementioned reconnaissance satellite program, plans are underway to develop the Korean Positioning System (KPS), which will launch dozens of microsatellites to monitor North Korea and other countries at all times, and enable access to location information to the nearest centimeter on the Korean Peninsula and its periphery (by the target year of 2035).⁷⁶ The ROK also established a Space Center in the Air Force in September 2021 and indicated it would further strengthen space operations capabilities, such as space situational awareness.⁷⁷

As was touched upon earlier, the FY2022 defense budget was approved at a plenary session of the ROK National Assembly in December 2021. It amounts to 54.611 trillion won, up 3.4% from the previous fiscal year.⁷⁸ The budget has

grown by 3.3 times since 20 years ago. Moreover, the allocations for procuring new equipment and developing new technologies (force enhancement budget) account for approximately 30% of the budget. This budget financially supports the vigorous force modernization efforts described above. The ROK’s defense budget for FY2022 is equivalent to \$46.28 billion (1,180 won per dollar). If the budget continues to grow at this rate (6.3% per year on average during the Moon Jae-in administration), it will soon surpass Japan’s defense budget (\$48.49 billion in FY2022; 5.480 trillion yen budget request converted at 113 yen to the dollar), giving the ROK the second largest defense budget in East Asia after China.

Figure 4.1. The ROK’s defense budget (2002–2022)



Note: The budget amount is the initial budget amount for each fiscal year and does not include supplementary budget amounts.

Sources: Compiled by the author based on ROK Ministry of National Defense (MND), *2020 Defense White Paper* (Korean version) (Seoul: MND, 2021); ROK MND press release, December 3, 2021.

NOTES

- 1) KCNA, January 9, 2021.
- 2) KCNA, March 26, 2021.
- 3) Jonathan McLaughlin, “North Korea Missile Milestones – 1969-2017,” Wisconsin Project (January 23, 2018); “Notable Missile Tests,” Missile Defense Advocacy Alliance (April 2019).
- 4) KCNA, February 7, 2015.
- 5) KCNA, June 15, 2015.
- 6) KCNA, June 9, 2017.
- 7) KCNA, June 9, 2017.
- 8) KCNA, September 16, 2021.
- 9) Radio Free Asia, August 30, 2016.
- 10) KCNA, September 20, 2021.
- 11) KCNA, September 29, 2021.
- 12) Ibid.
- 13) Vann H. Van Diepen, “Six Takeaways from North Korea’s ‘Hypersonic Missile’ Announcement,” *38 North* (October 13, 2021).
- 14) *JoongAng Ilbo*, September 30, 2021.
- 15) KCNA, October 1, 2021.
- 16) KCNA, October 20, 2021.
- 17) [Japan] Ministry of Defense, “Kitachosen no misairu to kanren johu (zokuho)” [Information related to North Korea’s missile activities (follow-up)], Ministry of Defense website, October 19, 2021.
- 18) *Yomiuri Shimbun*, October 21, 2021.
- 19) JIJI.COM, June 14, 2021.
- 20) International Atomic Energy Agency, Atoms for Peace and Development, Board of Governors General Conference, The Director General, *Application of Safeguards in the Democratic People’s Republic of Korea* (August 27, 2021).
- 21) *Dong-A Ilbo*, October 7, 2021.
- 22) *Rodong Sinmun*, October 12, 2021.
- 23) *Rodong Sinmun*, October 12, 2021.
- 24) KCNA, September 24, 2021.
- 25) KCNA, September 24, 2021.
- 26) *Rodong Sinmun*, September 30, 2021.
- 27) KCNA, July 11, 2021.
- 28) *Yomiuri Shimbun*, July 11, 2021.
- 29) *Mainichi Shimbun*, December 27, 2021.
- 30) Gallup Korea Research Institute, “Daily Opinion,” Gallup Korea website, September 30, 2021.
- 31) Ibid.; *Seoul Shinmun*, October 1, 2021.
- 32) ROK National Assembly, “Seat Number Status,” National Assembly website.
- 33) Gallup Korea Research Institute, “Daily Opinion,” Gallup Korea website, December 2, 2021.
- 34) Gallup Korea Research Institute, “Daily Opinion,” Gallup Korea website, January 6, 2022.
- 35) Lee Jae-myung, “Unification and Diplomatic Initiative in the Era of Great Transformation,” Lee Jae-myung blog, August 22, 2021.
- 36) Yonhap News, November 12, 2021.
- 37) Lee Jae-myung, “Unification and Diplomatic Initiative in the Era of Great Transformation.”
- 38) Lee Jae-myung, “Smart Independent Defense with the People,” Lee Jae-myung blog, October 1, 2021.
- 39) Yoon Suk-yeol, “Foreign and Security Policy Pledges,” Yoon Suk-yeol blog, September 22, 2021; Yoon Suk-yeol, “Yoon Suk-yeol’s Vision (5) Foreign Affairs and Security,” Yoon Suk-yeol blog, October 30, 2021; Yonhap News, November 12, 2021; ROK National Assembly, *Foreign Affairs and Unification Committee Record*, Audit Session, October 30, 2017, 6-7; Watanabe Takeshi, “The Korean Peninsula: Wavering North-South Relations,” in *East Asian Strategic Review 2021*, English edition, ed. National Institute for Defense Studies (NIDS) (Tokyo: NIDS, 2021), 103.
- 40) Lee Jae-myung, “Unification and Diplomatic Initiative in the Era of Great Transformation.”
- 41) Newsis, November 25, 2021; Yonhap News, December 14, 2016.
- 42) Yoon Suk-yeol, “Foreign and Security Policy Pledges”; Yonhap News, November 12, 2021.
- 43) Lee Jae-myung, “Smart Independent Defense with the People.”
- 44) Newsis, December 2, 2021.
- 45) Yoon Suk-yeol, “Foreign and Security Policy Pledges.”
- 46) ROK Ministry of Foreign Affairs, “Address by President Moon Jae-in at 76th Session of United Nations General Assembly” (September 24, 2021); Watanabe Takeshi, “The Korean Peninsula: Wavering North-South Relations,” 95.
- 47) Cheong Wa Dae, “President Moon Jae-in’s Press Occasion Inside Code One on September 22 (Wed.) (Full Text),” Cheong Wa Dae website, September 24, 2021.
- 48) Yonhap News, July 30 and September 24, 2021.
- 49) “A Conversation with Foreign Minister Chung Eui-yong of the Republic of Korea,”

- Council on Foreign Relations (September 22, 2021).
- 50) Cheong Wa Dae, “2021 New Year’s Press Conference,” Cheong Wa Dae website, January 18, 2021.
 - 51) *Chosun Ilbo*, February 1, 2021.
 - 52) Embassy of the Republic of Korea in the USA, “U.S.-ROK Leaders’ Joint Statement” (May 22, 2021).
 - 53) *Hankyoreh*, May 23, 2021.
 - 54) [U.S.] Department of Defense (DOD), “Secretary of Defense Lloyd J. Austin III and South Korean Defense Minister Suh Wook Hold a Press Conference following the 53rd U.S.-Republic of Korea Security Consultative Meeting in Seoul” (December 2, 2021).
 - 55) [U.S.] DOD, “Joint Communique of the 50th U.S.-ROK Security Consultative Meeting” (October 31, 2018); Murooka Tetsuo and Akutsu Hiroyasu, “The Korean Peninsula: North Korea’s Advanced Nuclear and Missile Capabilities, and South Korea’s Response,” in *East Asian Strategic Review 2016*, English edition, ed. NIDS (Tokyo: NIDS, 2016), 103.
 - 56) [Japan] Ministry of Foreign Affairs (MOFA), “Daikan Minkoku kiso deta” [Republic of Korea: Basic data], MOFA website, July 20, 2021.
 - 57) Watanabe Takeshi and Koike Osamu, “The Korean Peninsula: Diplomacy and Politics of Reintroducing a State of Nuclear-Missile Crisis,” in *East Asian Strategic Review 2020*, English edition, ed. NIDS (Tokyo: NIDS, 2020), 66.
 - 58) VOA Korean Program, November 24, 2021; Newsis, November 24, 2021.
 - 59) ROK Ministry of National Defense (MND), *2020 Defense White Paper* (Korean version) (Seoul: MND, 2020), 38, 48; Watanabe Takeshi and Koike Osamu, “The Korean Peninsula: Prospects of the ‘Denuclearization’ Negotiations,” in *East Asian Strategic Review 2019*, English edition, ed. NIDS (Tokyo: NIDS, 2019), 95; Watanabe and Koike, “The Korean Peninsula: Diplomacy and Politics of Reintroducing a State of Nuclear-Missile Crisis,” 90.
 - 60) ROK MND, *2020 Defense White Paper* (Korean version), 61-62.
 - 61) Murooka Tetsuo and Akutsu Hiroyasu, “The Korean Peninsula: North Korea’s Growing Nuclear and Missile Threat and South Korea’s Anguish,” in *East Asian Strategic Review 2017*, English edition, ed. NIDS (Tokyo: NIDS, 2017), 121-125; Watanabe Takeshi and Koike Osamu, “The Korean Peninsula: ICBMs and the New South Korean Government’s Alliance Politics,” in *East Asian Strategic Review 2018*, English edition, ed. NIDS (Tokyo: NIDS, 2018), 94-95; Watanabe and Koike, “The Korean Peninsula: Prospects of the ‘Denuclearization’ Negotiations,” 94-95.
 - 62) Murooka and Akutsu, “The Korean Peninsula: North Korea’s Growing Nuclear and Missile Threat and South Korea’s Anguish,” 121-123.
 - 63) ROK MND, press release, September 15, 2021.
 - 64) Watanabe, “The Korean Peninsula: Wavering North-South Relations,” 106; *Chosun Ilbo*, May 31 and September 16, 2021.
 - 65) Watanabe, “The Korean Peninsula: Wavering North-South Relations,” 101-104; *Kookbang Ilbo*, March 31, 2021.
 - 66) Newsis, October 2, 2021.
 - 67) ROK MND, press release, September 15, 2021.
 - 68) *Chosun Ilbo*, September 16, 2021; *Joongang Ilbo*, September 29, 2021.
 - 69) Yonhap News, September 15, 2021.
 - 70) ROK Navy, “Light Aircraft Carrier Specifications” and “Light Aircraft Carrier Card News,” ROK Navy website, May 6, 2021; *Kookbang Ilbo*, June 11, 2021.
 - 71) *Munhwa Ilbo*, October 5, 2021; KBS, October 16, 2021.
 - 72) Yonhap News, December 3, 2020 and November 6, 2021; Newsis, November 18 and December 5, 2021.
 - 73) Yonhap News, January 1, 2021.
 - 74) ROK MND, press release, September 2, 2021.
 - 75) Watanabe, “The Korean Peninsula: Wavering North-South Relations,” 99, 104-105; ROK MND, press release, MND website, September 2, 2021.
 - 76) *Kookbang Ilbo*, July 21, 2020; ROK MND, press release, September 2, 2021; Korea Aerospace Research Institute, “Korean Positioning System (KPS),” Korea Aerospace Research Institute website, June 25, 2021.
 - 77) *Kookbang Ilbo*, July 8, 2015 and September 30, 2021; Murooka and Akutsu, “The Korean Peninsula: North Korea’s Advanced Nuclear and Missile Capabilities, and South Korea’s Response,” 100.
 - 78) ROK MND, press release, December 3, 2021.