

# 2022 INSS RESEARCH REPORT

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## The Summaries

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# Table of Contents

NO	TITLE	PAGE
1	Advancement of Nuclear Capabilities Under the Kim Jong Un Regime and Shifts in North Korea's Policy Toward South Korea	2
2	The National Defense Development Plan of North Korea during the Kim Jong Un Era: Focusing on the Process of Strengthening Deterrence	3
3	Characteristics of North Korean Cyberthreats and Countermeasures: Focusing on the Kim Jong Un Era	5
4	U.S. Policy Against Cyber Attacks and Implications for South Korea: SolarWinds Case	7
5	Aspects and Issues of U.S.-China Ideological Competition: Focusing on Normative Competition	8
6	The North Korean Regime's Utilization of Mt. Daeseong Revolutionary Martyrs' Cemetery to Secure Legitimacy	10
7	50 Years of Inter-Korean Dialogue and Emerging Security Issues: Agreement Execution and Challenges	12
8	China's Overseas Influence Expansion Strategy	14
9	Landscape of Terrorist Threats in the Era of Post Covid-19 and Counterterrorism Strategies for Republic of Korea	16
10	Kim Jong-un's Science and Technology Policy: The "Brilliant Blueprint" and Unbalanced Development	18
11	Inter-Korean Cooperation Measures for Cultural Integration	20
12	Power Elite Recruitment in China and Russia: A Comparative Study	21
13	The Biden Administration's Cyber Security Policies and Implications: Focusing on Cyber Deterrence	23
14	Cybersecurity Implications of AUKUS	25
15	A Review of Techno-Geopolitics: Semiconductor Supply Chain Restructuring and Strategic Considerations	27
16	National Critical Technologies and Technology Sovereignty in the Digital Transformation Era: Data, Network, and Artificial Intelligence	29
17	South Korea's Strategic Response to North Korea's Advanced Nuclear Capabilities and Nuclear Threat	30
18	Review on 30 years of inter-Korean Basic Agreement	32
19	The Political Economy of Moneylender in North Korea: Exploring Possible Changes and Impacts under the Kim Jong-Un Regime	34
20	The Significance and Features of North Korea's New Rural Doctrine	35
21	The Atlantic Powers' Indo-Pacific Strategy and Implications for South Korea's Geostrategic Initiative	37
22	Tasks for Overcoming Distrust Between U.S.-North Korea and Successful Denuclearization Negotiations	39
23	The U.S. Response to China's Space Strategy	41

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## Advancement of Nuclear Capabilities Under the Kim Jong Un Regime and Shifts in North Korea's Policy Toward South Korea

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Jae Hong Ko

During the past decade under the Kim Jong Un regime, North Korea's policy toward South Korea has displayed a repetition of freezing and thawing of inter-Korean relations in the form of confrontation and dialogue. This study examines the correlation between North Korea's nuclear advancement process and its South Korean policy shift during three periods throughout Kim Jong Un's reign. During the first period from 2013 to 2017, Pyongyang focused on developing its nuclear capabilities to target the U.S. mainland. North Korea's policy stance toward South Korea exhibited a parallel feature of confrontation and appeasement. From 2018 to 2019, after Kim Jong Un declared North Korea's nuclear arsenal complete, Pyongyang opted for a selective compromise with South Korea by concluding and maintaining the inter-Korean military agreement but declining inter-Korean exchanges and economic cooperation. From 2020 to 2022, North Korea pursued the development of tactical nuclear weapons and delivery systems. In this third period, Pyongyang shifted to a hostile stance toward Seoul, suggesting a possible preemptive nuclear attack. Under the Kim Jong Un regime, North Korea's policy approach toward South Korea has changed according to its foremost national agenda of advancing its nuclear capabilities. North Korea will likely continue to develop its nuclear capabilities to attack the U.S. mainland and threaten South Korea. Furthermore, North Korea will attempt to use its hostile policies toward South Korea as a breakthrough to restore U.S.-North Korea relations.

Keywords: South Korean policy, advancement of nuclear capabilities, completion of nuclear force, inter-Korean military agreement, tactical nuclear weapon, U.S.-North Korea Summit

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**The National Defense Development Plan of  
North Korea during the Kim Jong Un Era:  
Focusing on the Process of Strengthening Deterrence**

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Bomi Kim

This study analyzes that North Korea's development of nuclear program during the Kim Jong Un era over the past decade has been strengthened deterrence against the U.S. and diagnoses the feasibility of a new national defense development plan. Since Kim Jong Un took power, North Korea has been sticking to its policy of strengthening self-defense capabilities by conducting four nuclear tests and diversifying the types and ranges of means of delivery vehicles. At the eighth meeting of the Workers' Party of Korea in January 2021, Kim Jong Un proposed a five-year plan to develop various weapons systems, including super-large nuclear warheads, hypersonic weapons, nuclear-powered submarines and reconnaissance satellites. In line with the policy of North Korea to strengthen its nuclear program, Pyongyang is constantly releasing threatening remarks against the adversaries, and the nuclear posture of North Korea also has shifted aggressively by enacting a new nuclear policy decree on September 8, 2022. But why does North Korea insist on strengthening its nuclear program, which is under the highest level of economic sanctions? Has North Korea still not given up on its dream of the unification with its armed forces? This study answers these questions that the perception of North Korea's failure to secure deterrence against the U.S. is leading to indiscriminate expansion of the structure of nuclear forces. While focusing on improving nuclear deterrence against the U.S. over the past decade, Pyongyang probably has come to the conclusion that sufficient deterrence between the U.S. and North Korea cannot be achieved by possessing a few number of nuclear warheads, and that it is important to have a credible nuclear threat. This belief led to the expansion of nuclear program, such as missile development at various ranges, development of SLBM, and increased nuclear yields through 4 nuclear tests. But as South Korea's efforts to reverse the standoff with superior conventional

weapons as well as the overwhelming U.S. nuclear capabilities continued, Pyongyang's threat perceptions led to development for bigger nuclear arsenals with a strong and viable transport systems and the adoption of an offensive nuclear posture.

Keywords: North Korea, nuclear weapons, Kim Jong Un, defense strengthening plan, nuclear deterrence

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## Characteristics of North Korean Cyberthreats and Countermeasures: Focusing on the Kim Jong Un Era

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Bomi Kim  
Il-Seok Oh

Along with the rapid development of North Korea's cyber capabilities during the Kim Jong Un era, the number of cases of illegal use of cyber capabilities at the regime level is increasing. Since Kim Jong Un took power, North Korea has been widely using cyber capabilities as one of its asymmetric forces along with nuclear and missile programs. North Korea has been conducting cyberattacks on financial institutions, foreign governments, military and defense companies, and energy research institutes around the world for various purposes such as asset theft and leakage of military classified information. In particular, North Korea's profits obtained through malicious cyber activities serve as a cash supply chain for the Kim Jong Un regime, which desperately needs funds to support its nuclear and missile programs, which is an obstacle to international efforts for denuclearization. Accordingly, this research aims to identify North Korea's cyberthreat capabilities and characteristics in the Kim Jong Un era, and examines security countermeasures of the international community, while suggesting what policies we need to establish based on this. Specifically, in Chapter 2, the study introduces North Korea's cyber capabilities and major hacker groups in the Kim Jong Un era, analyzes the characteristics of North Korea's cyber attacks into five categories: cryptocurrency attacks, ransomware attacks, stealing of new technologies in the defense industries, collecting information on foreign policy related to North Korea, and securing COVID-19 vaccine technology. Chapter 3 sheds light on the international community's countermeasures against North Korea's cyber threats in terms of economic sanctions, ransomware countermeasures, and cryptocurrency attack countermeasures. Chapter 4 presents our rational countermeasures considering the malicious cyber activities of the Kim Jong Un regime and the international community's countermeasures, but discusses the need for more aggressive

countermeasures. Finally, the future prospects of North Korea's cyber threats are predicted in the conclusion.

Keywords: North Korea, Kim Jong Un era, cyber attack, cryptocurrency, ransomware

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## U.S. Policy Against Cyber Attacks and Implications for South Korea: SolarWinds Case

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So Jeong Kim

In response to increasing cyber attacks, the U.S. has implemented cyber attack severity assessments and developed countermeasures through legislation, regulations, presidential executive orders, and ministry-level strategies. A comparative analysis between the U.S. and South Korea regarding their response strategies to cyber attacks has revealed that South Korea needs improvement in various areas. South Korea lacks the criteria to determine the severity of a cyber attack, needs to revise its methodology to assess the severity and impact of an attack, requires the development of response criteria and additional response options, and needs to establish legal and institutional foundations for implementing countermeasures. In addition, cyber retaliation should identify the potential risks and victims, assess the costs and effects of the operation, and determine whether consent and notification from transit countries and incidental victims are necessary. To this end, South Korea needs to establish the legitimacy of policy enforcement and execution regarding cyber countermeasures without violating fundamental rights. The criteria and basis for future responses to critical cyber incidents will most likely influence domestic governance and international cooperation with allies. Thus, South Korea must also strive to form an internal and external consensus.

The revised version of South Korea's cybersecurity strategy should encompass the main contents of the national cyber deterrence strategy. Securing its legal and institutional legitimacy is essential to enabling the utilization of the existing cyber attack severity assessment methodology and national response matrix. The public-private sector should also establish policy decision-making criteria that can be implemented and double down on efforts to enhance its human resource capabilities.

Keywords: proportionate response, countermeasure, cyber attack severity assessment methodology, national response matrix

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## **Aspects and Issues of U.S.-China Ideological Competition: Focusing on Normative Competition**

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Woen Sick Kim

This study examines the aspects and issues of the ideological contest between the U.S. and China with a focus on normative competition. It also aims to assess the ripple effects of the rivalry while suggesting principles of response for the South Korean government.

The rise of China and the intensified U.S.-China confrontation have exacerbated bilateral conflicts over ideology and values. With the escalating rivalry between the U.S. and China for global hegemony, ideological competition, regarded to have ended after the Cold War, has made a comeback.

The ideological competition between Washington and Beijing plays out on two levels: domestic democracy and international democracy. Regarding domestic democracy, U.S. liberal democracy and Chinese socialist democracy are vying for systemic superiority. Concerning international democracy, Washington and Beijing are at odds over the leadership of the global order. While the United States and China acknowledge the international norms of respect for state sovereignty and free trade, both criticize the other for undermining the multilateral order. Also, the U.S. emphasis on human rights clashes with China's logic based on respect for sovereignty.

The U.S.-China ideological competition is not simply limited to ideology, but has expanded to the realms of economy and technology. Under such a situation, other countries experience heightened pressure to choose an alignment. South Korea faces a similar dilemma in the security field and increasingly in the economic and technology sectors.

The South Korean government must pinpoint the normative issues of the ongoing ideological competition and its background to establish a rationale and principle for a legitimate response to the U.S.-China rivalry. South Korean diplomacy can attain universal persuasiveness only after it responds with universally justifiable principles based on a clear understanding of normative issues. South Korea confronts the vital task of easing the extreme blocization and alleviating the pressure of choosing between the U.S. and China while securing autonomy to expand its national interests and ultimately establish peace on the Korean Peninsula.

Keywords: U.S.-China competition, ideology, norms, domestic democracy, international democracy

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## The North Korean Regime's Utilization of Mt. Daeseong Revolutionary Martyrs' Cemetery to Secure Legitimacy

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Jongwon Kim

This report examines how North Korea seeks to secure the regime's legitimacy by utilizing mausoleums, with a focus on the Mt. Daeseong Revolutionary Martyrs' Cemetery. State-led commemorations and recollections of the deceased have served as a mechanism to maintain and justify the supreme leaders' powers, as manifested through the national cemetery constructed after North Korea established itself as a modern state.

The Revolutionary Martyrs' Cemetery is the burial site of 151 revolutionary martyrs, of which 141 were military commanders of the Korean People's Revolutionary Army (KPRA), an anti-Japanese guerrilla unit led by Kim Il Sung. The Revolutionary Martyrs' Cemetery, thus, is an embodiment of Kim Il Sung's eulogy to his comrades.

The North Korean regime has strived to channel individual longings and memories into national recollections by opening the Revolutionary Martyrs' Cemetery to the people and having them pay their respects to the patriotic martyrs. North Koreans are obligated to visit the cemetery on public holidays such as the Day of the Sun (Kim Il Sung's birthday), the Day of the Shining Star (Kim Jong Il's birthday), the Day of the Foundation of the Republic, and the Day of the Foundation of the Workers' Party of Korea, and also on folk holidays such as Chuseok (Korean Thanksgiving Day). Through such mandatory visits, the regime aims to promote the Revolutionary Martyrs' Cemetery as a site that fosters numerous revolutionary heirs succeeding the revolutionary spirit of the patriotic martyrs.

To secure the legitimacy of his leadership inherited from his father, Kim Jong Il led the expansion project of the Revolutionary

Martyrs' Cemetery and issued an official statement paying homage to the anti-Japanese guerilla unit and revolutionary seniors. In addition, Kim Jong Il set up a hierarchy of the revolutionary seniors in the order of the leader, anti-Japanese revolutionary fighters, Fatherland Liberation War participants, and contributors to socialist construction, and arranged the burial sites accordingly. Kim Jong Un, the third Kim to rule North Korea following the hereditary succession of power, also strives to secure the regime's legitimacy by summoning the revolutionary martyrs in his continuous references to the legacy of the anti-Japanese revolution. In particular, North Korea faces a regime crisis with its dire economic situation due to international sanctions, isolation from the international community, and depleted resources. Therefore, Kim Jong Un's frequent remarks and associations with the Revolutionary Martyrs' Cemetery seem to help buttress and maintain the North Korean regime.

Keywords: Mt. Daeseong Revolutionary Martyrs' Cemetery, legitimacy, anti-Japanese guerrilla forces, memory

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## 50 Years of Inter-Korean Dialogue and Emerging Security Issues: Agreement Execution and Challenges

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Ho-Hong Kim

Seoul and Pyongyang have maintained a relationship, albeit with ups and downs, for roughly five decades in the form of dialogues and confrontations. Inter-Korean talks are a method for resolving disagreements and reaching a consensus on a particular issue, which reflects the current circumstances and the interests of the two Koreas. Emerging security issues, however, have yet to take center stage in South-North dialogues. Emerging security challenges have been considered as secondary and subordinate to political and military issues, which inevitably constitute priority agendas in inter-Korean talks, given the situation on the divided Peninsula with military confrontation.

Starting with the July 4 Joint Statement, Seoul and Pyongyang comprehensively agreed upon emerging security issues in significant accords such as the Inter-Korean Basic Agreement, June 15 Joint Declaration, October 4 South-North Summit Declaration, April 27 Panmunjom Declaration, and September 19 Pyongyang Joint Declaration. Additionally, with an emphasis on environmental and public health concerns, the emerging security agenda began to take shape in the Inter-Korean Basic Agreement. Emerging security issues were specified and gradually gained more significance through the June 15 Joint Declaration, subsequent ministerial-level discussions, October 4 Summit Declaration, and follow-up meetings such as the prime ministerial talks and Joint Committee on Economic Cooperation.

Emerging security threats are potential factors that can enable a crisis, making it difficult to regard the issues as important or urgent and prepare beforehand. Along with views that emerging security issues are subordinate to political and military issues, such potential features inherently limit emerging security issues from

being added to the agenda list for inter-Korean talks. The emerging security agenda also accompanies the transfer of technology and equipment to North Korea which is unattainable in the face of sanctions, thus constraining the execution of agreements. Such inhibiting factors have deprived the emerging security agenda of impetus and consistency for fulfilling mutual agreements and have resulted in a crippled agenda influenced by the political and military situation.

A change in perception regarding emerging security issues as a vital and urgent agenda is necessary to achieve substantial inter-Korean cooperation and ensure practical implementations. The inter-Korean cooperative system also needs revamping with a long-term and macroscopic perspective, as opposed to existing short-term collaborations. In addition, a committee with more expertise and authority is necessary to carry out future inter-Korean dialogues and cooperative efforts. Seoul and Pyongyang also need to establish guiding principles for cooperation regarding emerging security issues, such as the reciprocity principle of mutually beneficial cooperation, the continuity principle ensuring long-term projects, and the principle of global cooperation and mutual assistance.

Keywords: South-North dialogue, emerging security agenda, mutual agreement execution

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## China's Overseas Influence Expansion Strategy

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Byung Kwang Park

This research focuses on China's efforts to expand its overseas influence which has become increasingly aggressive. China has made its intentions clear to increase its overseas influence by seeking to solidify its position as a great power that can carry out its will not only in the Asia-Pacific region but also at the global level. China ultimately seeks to displace the United States as the global hegemon and expand its practical capabilities and foundation to become a world power. However, Beijing's aggressive and unilateral approach and methods employed in its efforts to expand its overseas influence, along with its interference in the domestic politics of other countries have raised concerns. China utilizes various tactics such as persuasion, coercion, pressure, intimidation, compensation, retaliation, etc., and exploits all available means, including the media, think tanks, overseas Chinese, and the Internet. South Korea also bears the brunt of China's aggressive actions and pressure in its efforts to expand its influence abroad. China demonstrated its attempt to expand its offensive influence in ROK-China relations during the conflict over the THAAD issue. Beijing implemented a typical "three-warfare strategy" to expand its influence over Seoul while dealing with the THAAD issue to achieve its goals. Amid an escalating U.S.-China competition, the South Korean government's emphasis on "alliance diplomacy" and "value diplomacy" will only lead to Seoul becoming Beijing's main target in its influence expansion strategy. Considering the special relationship between China and North Korea, the intensifying hegemonic rivalry between Washington and Beijing, and economic security changes in the supply chain restructuring of high-tech industries such as the semiconductor, South Korea is highly likely to be included in China's top priority list for expansion of overseas influence. There are 840,000 Chinese

sojourners in Korea controlled by the Chinese government, and Chinese students account for 40% of international students in South Korea. In particular, 100,000 or 78.9% of the 126,000 foreign voters in the June 2022 local elections were Chinese citizens. Such statistics represent a great potential for China to intervene in South Korean domestic politics. Over the past several years, the Chinese Communist Party, intelligence agencies, business people, and international students, including politicians and pro-Chinese cartels, have been exposed in Western countries such as the United States, Australia, Japan and the United Kingdom. South Korea also urgently needs to develop measures and strategies to block China's domestic political intervention and respond to the unilateral expansion of influence from the perspective of national security.

Keywords: China's influence, influence expansion, sharp power, hybrid threat, three-warfare strategy

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## Landscape of Terrorist Threats in the Era of Post Covid-19 and Counterterrorism Strategies for Republic of Korea

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Bora Park

Terrorists are rational. Considering the aspects of planning, coordinating, and acquiring the means of a terrorist attack, it can be said that terrorism is an act carried out through the rational choice of a terrorist. The fact that terrorists are rational is also reflected in the changing patterns of terrorism. The composition of terrorist propaganda and the development of a terrorist narrative, the recruitment of terrorist organization members and the training of terrorist tactics, and the methods of acquiring and using the means of terrorism reflect the changes of the times. Therefore, the changing pattern of the occurrence of terrorism also reflects the transformation the world is experiencing. The COVID-19 pandemic, which has been sweeping the world since 2020, has brought about various social and global changes. The changes brought about by COVID-19 are acting as an opportunity for the whole world to face a huge transformation. This point is the background of the study. It is a question about how the COVID-19 pandemic has brought about any changes in the occurrence of international terrorism, and how terrorist groups and terrorists are responding to the environmental changes caused by COVID-19.

This study aimed to present Korea's response strategy by examining the impact of the COVID-19 pandemic on the occurrence of international terrorism and analyzing important trends and characteristics that have emerged over the past three years. However, rather than looking at the direct relationship between the COVID-19 pandemic and the occurrence of terrorism, this study focused on the impact of the changes caused by the COVID-19 pandemic on the current occurrence and response of international terrorism. It is difficult to apply a clear causal relationship to the direct impact of the pandemic itself on the occurrence of terrorism, but the changes caused by the pandemic will have some

impact on the occurrence and response of terrorism. This study explored the patterns of international terrorism before and after the COVID-19 pandemic, and analyzed the impact of the COVID-19 pandemic on the occurrence of international terrorism by dividing it into atrophy factors and spread factors. Second, we examine the main characteristics of international terrorism outbreaks during the pandemic. It can be summarized as more accelerated diversification of violent extremism, an increase in terrorism targeting cyberspace, and an increase in the possibility of terrorism by biological weapons. Lastly, in order to find a counter-terrorism strategy in Korea compared to the patterns of international terrorism, the counter-terrorism environment was analyzed, and countermeasures against the diversification of violent extremism, the increase in terrorist use of the cyberspace, and the increase in the possibility of terrorist attacks with biological weapons were discussed.

Keywords: the era of post-COVID 19, international terrorism, violent extremism, terrorist use of the cyberspace, biological terrorism

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**Kim Jong-un's Science and Technology Policy:  
The "Brilliant Blueprint" and Unbalanced Development**

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Sangjung Byun

Kim Jong-un's science and technology policy maintains the stance of the Kim Jong-il era with the ultimate goal of becoming a science and technology power. Kim Jong-un recognizing, like his predecessors, that technological progress is of paramount importance for solving North Korea's economic difficulties and constructing a "strong and prosperous nation" underscored the development of science and technology to build a "knowledge-based economy." The 7th Party Congress of the Workers' Party of Korea (WPK) held in 2016 presented the roadmap for science and technology advancement, which includes attaining state-of-the-art levels of science and technology and accelerating developments in the economic, defense, and cultural sectors with technology as its driving force. Kim Jong-un highlighted "science and technology" advancement as a "major target to be primarily attained" for the construction of a "powerful socialist nation." It was the first time North Korea framed the development of science and technology as a preemptive goal to precede building a "socialist power." Kim Jong-un seems to have been desperate to achieve science and technological advancement and economic development to garner social support and allegiance and thus gain legitimacy for the third-generation succession of power. Kim Jong-un, however, during the 8th Party Congress of WPK held five years later in 2021, chastised the failure of the "Five-Year Strategy for National Economic Development (2016-2020)," referred to as the "brilliant blueprint," for falling short of its goals. As a follow-up measure, Kim declared the "Five-Year Plan for National Economic Development (2021-2025)," focusing on "advancing the key industries of metal and chemicals, the twin pillars of the people's economy."

On the other hand, Kim Jong-un has proclaimed a "new leap forward" in North Korea's defense science sector and munitions

industry. Kim's siege mentality and will to protect the regime and construct a "military power"; deployment of IT specialists and top talents to the national defense sector; exceptional privileges and compensations granted to scientists and engineers of the State

Academy of Defense Sciences and the National Aerospace Development Administration; and tolerance of trial and error during the technology development process, seem to have contributed to such rapid progress. However, North Korea's "new leap forward" in defense science and technology and its enhanced defense capabilities have resulted in an "unbalanced development" of science and technology and an "abnormal growth" in the defense science sector and munitions industry. The "byungjin dual construction policy of economic and national defense capabilities" adopted in October 1996 during the 2nd Party Representatives Conference focused North Korea's policies on its heavy industry (national defense), sacrificing the civilian industry. In addition, Kim Jong-un's emphasis on "nuclear advancement" as North Korea's supreme task and the development of a new weapons system has exacerbated the unbalanced growth of its science and technology sector. Without a fundamental shift in North Korea's national strategy towards regime change and reform and opening, Kim's dream of achieving the status of a "science and technology power" and "economic power" through scientific and technological development seems a distant future. The unbalanced growth of its defense science and munitions industry will likely escalate military tensions in the Northeast Asian region and increase the security risk of the North Korean regime.

Keywords: North Korea, Kim Jong-un, science and technology policy, science and technology power, defense science and technology, brilliant blueprint, unbalanced development

The Korean Peninsula has been divided for the past seventy years, a period equivalent to the passing of one generation. During this period, a good part of the two Koreas's resemblance have dissolved or changed, resulting in more differences than similarities between Seoul and Pyongyang. Nevertheless, while disparities between the divided peninsula have grown, the cultural realm still provides a common denominator. Hence, the cultural sector has been foremost when promoting inter-Korean exchanges. However, as a variable highly dependent on political issues, the cultural sector does not have the driving force to spearhead inter-Korean relations. Under such circumstances, it is necessary to identify the factors that hinder cooperative efforts in the cultural field, which is the basis for inter-Korean cultural integration and seek a solution to such challenges.

Cultural integration, unlike systemic consolidation, is a long-term and gradual process. This report postulates that the different political systems of the North and South will coexist even while discussions for reunification or consolidation continue. Cultural integration has a more incremental feature compared to political and systemic coupling. Thus, it is significant to resolve inter-Korean cultural conflicts at the minimum before the consolidation phase. This research analyzes the course of cultural adaptation and integration preceding the political and systemic consolidation of the two Koreas while examining ways to minimize the conflict factors that may arise. To this end, this study assesses the impeding and propelling factors for inter-Korean cultural integration and proposes measures for facilitating cultural engagement. This report also presents some tasks Seoul faces for cultural integration amid its turbulent relationship with Pyongyang.

Keywords: reunification, cultural integration, process, inter-Korean relations, exchanges

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**Power Elite Recruitment in China and Russia:  
A Comparative Study**

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Gabyong Yang  
Seho Jang

Russia's invasion of Ukraine and the intensifying strategic competition between the U.S. and China have propelled the transition of international order. China and Russia, both revisionist states, are major driving forces that have shifted the geopolitical landscape.

The power elites of China and Russia dominate the ruling party and state apparatus and thus play an influential role in the decision-making process of the respective countries. Hence, it is crucial to assess the global perceptions of the power elites when analyzing the state behaviors of China and Russia to understand and predict changes in the international order.

This research explored the similarities and differences between the power elite recruitment systems of China and Russia, which are as follows: Regarding similarities, both countries ascribe special significance to the recruitment process as a motivating factor for the targets; apply strict state regulations to the whole recruitment process; provide a systematic education for the recruited members; and encourage loyalty to the political system. On the other hand, differences existed in the target and size of recruitment, the degree of openness and irregularities in the recruitment process, and the implications and impact of generational shifts on elite recruitment.

The elite recruitment process of China and Russia emphasizes "sustainability and stability," rather than "change and reform." Both countries underscore the leading role of the state and institutional order and coherence. A focus on "loyalty" during recruitment also makes any drastic changes in the systems and policies unlikely, even with generational shifts.

Therefore, South Korea needs to secure substantial relations and continuous networks with the power elites of China and Russia, including the next-generation elite groups, and strive to enhance such ties to ensure the elites of Beijing and Moscow maintain an amicable perspective and attitude towards Seoul.

Keywords: China, Russia, power elites, recruitment, similarity, difference

2022 INSS Research Report

No.13

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**The Biden Administration's Cyber Security Policies and Implications: Focusing on Cyber Deterrence**

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Il-Seok Oh

The Biden administration faces critical cyber security challenges posed by various cyber attacks, including the SolarWinds hack, the 2021 Colonial Pipeline ransomware attack, and cyber crimes associated with the 2022 Russia- Ukraine War. In response to such attacks, the Biden administration declared “America is Back”

and strived to strengthen liberal democratic values and secure competitiveness in cyberspace by implementing aggressive cyber security policies and retaliatory deterrence strategies.

Washington aims to enhance its cyber “deterrence by denial” strategy by establishing cyber security governance, advancing supply chain security, realigning cyber security agencies and activities, and improving legislation. The Biden administration also pursues various policies related to “deterrence by retaliation” through summits and diplomatic efforts, criticisms and warnings against adversaries, cyber economic sanctions, export controls, law enforcement, military intelligence sharing and joint exercises, and preemptive responses based on norms. The administration will also likely enhance its attribution capabilities, as cyber attribution is a prerequisite to concrete steps for deterrence by retaliation. Hence, the U.S., under its “defend forward” strategy, will likely conduct cyber attributions and carry out deterrence by retaliation measures in the form of kinetic attacks or cyber operations against China, Russia, Iran, or North Korea, if necessary.

The South Korean government needs to establish a national cyber strategy that strikes a balance between deterrence by denial and deterrence by retaliation, and propose concrete countermeasures. Furthermore, the government should modify specific laws and regulations to support deterrence by retaliation measures, including cyber economic sanctions, condemnation statements and

international recommendations, export controls, joint cyber military exercises, and law enforcement.

Keywords: cyber deterrence, deterrence by denial, deterrence by retaliation, economic sanctions, condemnation statements, export control, defend forward, attribution

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## Cybersecurity Implications of AUKUS

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Il-Seok Oh  
E.J.R. Cho

AUKUS is a strategic alliance focused on the Indo-Pacific region established by Anglosphere maritime forces representing the Indian, Atlantic, and Pacific Oceans. The AUKUS pact among Australia, the UK, and the U.S. aims to strengthen their military alliance in response to gray zone operations regarding the cyber domain, emerging technologies, and space. By encouraging trilateral cooperation with middle powers, the U.S. seeks to maintain its competitive edge over China in the Indo-Pacific region and the gray area. With U.S. and UK support, Australia also aims to gain the upper hand in its relationship with China, which has deteriorated since 2017. The UK, after Brexit, attempts to reset its role and global strategy to enhance its competitiveness in the Indo-Pacific region.

The AUKUS countries have implemented national-level strategies and policies to apply the principle of free and open navigation in cyberspace. AUKUS seeks to expand its cooperation from maritime security to gray zone operations, including the cyber realm, emerging technologies, and space by applying the principle of free and open navigation. With the Russia-Ukraine war exacerbating the division of techno-ideological blocs in cyberspace, AUKUS members have pledged to make attributions on cyber attacks, retaliate using cyber and non-cyber means, and even resort to kinetic weapons, if necessary. As a leader in emerging technologies, the U.S. along with the UK and Australia also strive to strengthen their competitiveness in cyberspace and the physical world. In addition, AUKUS can become a bridgehead for Atlantic forces such as the UK to enhance cybersecurity cooperation with Indo-Pacific countries.

AUKUS is a military technology alliance based on maritime security, however, as an informal agreement, it is open to expansion. AUKUS may likely request South Korea to participate in an expanded AUKUS Plus. South Korea, as a contributing participant of the NATO Cooperative Cyber Defense Centre of Excellence (CCDCOE), has somewhat already joined the AUKUS camp in cyberspace. Hence, the South Korean government should actively explore its participation in the cyber domain as a global pivotal state and prepare to provide technical support to a potential AUKUS Plus.

Keywords: AUKUS, Free Navigation, Cybersecurity, Global Pivotal State, Gray Zone, Emerging Technologies

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## A Review of Techno-Geopolitics: Semiconductor Supply Chain Restructuring and Strategic Considerations

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Junghyun Yoon

Recent changes in the geopolitical order attributable to the U.S.-China rivalry have raised the need to analyze the shifting geopolitical trend from an integrated perspective instead of incorporating fragmentary technological, economic, and security approaches. This study introduces the concept of “techno-geopolitics” and attempts to provide a theoretical description of the term. In South Korea “techno-geopolitics” has mainly been used in the science and technology community and industrial circles rather than for issues regarding foreign affairs, national security, and international politics. Thus, techno-geopolitics has not been considered a concept that reflects a thorough examination of the geopolitical shift from a macro perspective.

This study critically examines the limitations of the fragmentary approach and suggests that techno-geopolitics can comprehensively explain the close correlations and operating mechanisms between the technological-economic-security attributes. As a representative case, this study focuses on the semiconductor supply chain restructuring.

Today, semiconductors are critical components used for national infrastructure and advanced weapons. In particular, the U.S.-proposed chip alliance between South Korea, the U.S., Japan, and Taiwan, also known as the Fab 4, has presented Seoul with strategic concerns. In addition to issues regarding competitive advantage or labor reshuffling, the South Korean government requires a deeper understanding of technological-economic-security integration in a techno-geopolitical context.

This study also aims to explore the implications of the techno-geopolitics concept in terms of policy usefulness by reviewing the restructuring process of the semiconductor

supply chain and deriving the opportunities, challenging factors, and strategic considerations for South Korea.

Keywords: techno-geopolitics, economic security, semiconductor, Fab 4 (Chip 4), supply chain

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**National Critical Technologies and Technology Sovereignty  
in the Digital Transformation Era:  
Data, Network, and Artificial Intelligence**

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Junghyun Yoon  
Kun Sik Hong

The concept of technology sovereignty has gained momentum in the global discourse, as the intensified U.S.-China strategic competition has highlighted the blocization of technology and the importance of supply chain resilience. In particular, in the era of digital transformation, countries are making heavy investments in data (D), network (N), and artificial intelligence (A) in recognition of the significance of DNA technologies. Similar to national sovereignty, DNA constitutes the infrastructure that ensures a country's survival and prosperity in the digital age. DNA technologies also serve as stepping stones to realizing an intelligent information society. South Korea's DNA policy should be a balanced effort encompassing technological development, standard preemption, and usability enhancement. In short, it is essential to align and create an equilateral DNA ecosystem without prioritizing one specific sector.

The South Korean government should consider issues regarding technical standards, norms, and usability to enhance DNA applicability and technology sovereignty. A multilateral effort with the participation of the government, business sector, and expert groups is necessary, not to mention a high level of cooperation from the tech community for enhanced security. As a convergence of national critical technologies in the digital field, DNA's digital sovereignty can be strengthened by establishing a multilateral tech community based on strategic flexibility and enforcing the organic network of sovereignty-standards-ecosystem. South Korea should also actively contribute to the international community by preemptively responding to the global risks posed by DNA.

Keywords: technology sovereignty, digital transformation, data, network, AI

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## South Korea's Strategic Response to North Korea's Advanced Nuclear Capabilities and Nuclear Threat

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Sunghoon Lee

The primary objective of this study is to analyze and assess the patterns of the nuclear threat posed by North Korea with its advanced nuclear capabilities and propose response strategies for the South Korean government. Thus, the study will deduce the determinants for Pyongyang's nuclear use, identify possible manifestations of its nuclear threat, and suggest two strategic responses for Seoul focusing on diplomatic security and national defense.

North Korea seems to be nearing the completion phase of its nuclear development program as it strives to advance its nuclear arsenals. Furthermore, Pyongyang's recent legislation of its new nuclear doctrine displays its intention to exercise its nuclear capabilities. This study identifies three factors that may push North Korea to cross the nuclear threshold: possible alliance intervention, goal attainability, and risk-taking. Pyongyang's perception of the three factors will impact the country's decision to use nuclear forces, which will likely take the following forms: preemptive use, limited use, or use to induce alliance intervention.

In response to North Korea's advanced nuclear capabilities, South Korea needs to converge and utilize the four elements of national power, DIME (Diplomatic, Information, Military, Economy). Regarding its diplomatic security strategy, South Korea must maintain economic sanctions until North Korea makes more tangible steps toward denuclearization. It is also necessary to continue South Korea's "audacious initiative" and bring North Korea back to the negotiating table. In terms of South Korea's defense strategy, the military must accelerate the development of the three-axis defense system along with efforts for effective extended deterrence. Simultaneously, South Korea and the U.S.

should continue nuclear policy dialogues and planning consultations.

South Korea needs a strategic plan to guarantee its mid to long-term security amid the complex and uncertain security environment of the Korean Peninsula. To this end, the South Korean government should devise a comprehensive strategy encompassing issues such as the North Korean nuclear threat, U.S.-China strategic competition, the global security situation, etc.

Keywords: North Korean nuclear threat, determinants for nuclear use, diplomatic security strategy, national defense & military strategy

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## Review on 30 years of inter-Korean Basic Agreement

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Su Seok Lee  
Zeno Ahn

The basic agreement, which took effect between the two Koreas in 1992, is the first agreement reached by the South and the North on substantial changes in inter-Korean relations, which led to the era of dialogue and negotiation in the era of confrontation. The inter-Korean basic agreement has since become the basic framework for numerous inter-Korean agreements. In the past 30 years since the signing of the Basic Agreement, inter-Korean relations have continued to have dialogue, but there have been more difficulties and conflicts than dialogue. If the contents contained in the Basic Agreement had been properly implemented, inter-Korean relations would have been much institutionalized and practical. The entire contents of the inter-Korean basic agreement are composed of a preface and four chapters and 25 articles. Through the basic agreement, the South and the North officially recognized each other for the first time since the division of the two Koreas and laid down a framework for peaceful coexistence between the two Koreas. It contains practical measures to develop inter-Korean relations through the implementation of the basic agreement and to create a foundation for peaceful unification based on it. The basic agreement is significant as a comprehensive and specific agreement that contains all the basic principles of inter-Korean relations, non-aggression, exchange and cooperation, and denuclearization among the documents officially agreed by the two Koreas.

The basic agreement was adopted at a time when North Korea's sense of crisis spread internally and externally during the post-Cold War period. Likewise, when the current strained inter-Korean relations are prolonged and a new breakthrough in inter-Korean relations is needed, it is necessary to revisit the

meaning and implications of the basic agreement. With the North Korean nuclear issue currently unresolved for more than 30 years, it is necessary to recall the “joint declaration on denuclearization of the Korean Peninsula” agreed between the two Koreas and refer to it in seeking ways to induce North Korea’s denuclearization according to the current situation. It is necessary to create an international environment in which North Korea can accept openness and improved inter-Korean relations without feeling threatened by the regime, so that North Korea itself recognizes that it is difficult to survive without reform and opening up and dialogue. To this end, it is necessary to find ways to create an international environment where North Korea can come to dialogue, as it did when the “Basic Agreement” was signed. Although the 21st century is said to be an era of post-Cold War, the Korean Peninsula still has a military alliance system centered on the two Koreas, a legacy of the Cold War, and North Korea intentionally raises military tensions, promoting confrontation between North Korea, China, Russia, South Korea, the U.S. and Japan. And it is a more difficult environment than when the Basic Agreement was signed, given that North Korea became a de facto nuclear state, let alone a solution to the North Korean nuclear issue, which was the biggest point of privatization. In this regard, it is also important to show that North Korea’s military provocations or hard-line policies against the South no longer work.

Keywords: Basic Agreement, relations between North and South Korea, end of the Cold War, nuclear disarmament

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**The Political Economy of Moneylender in North Korea:  
Exploring Possible Changes and Impacts under the  
Kim Jong-Un Regime**

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Jisun Yi

Unlike other post-communist countries, North Korea is considered a unique case where the informal market expands to stabilize the existing structure. To reconfirm this phenomenon, I propose the ‘political economy of moneylender’ model in which street capitalists (‘don-ju’) play a broker role between the authoritarian state and people engaged in informal markets. In addition to reconstructing the trilateral relationships among state officials, don-ju, and the borrower group, this study challenges mainstream understandings by exploring other possible roles of the don-ju in the changed economic and state policy environments under the Kim Jong-Un regime.

In recent years, due to the border closure as part of COVID-19 restriction measures, the trade and other lucrative sectors for moneylenders have been dramatically interrupted. Such interruption might have forced the don-ju group to find alternatives in order to survive. Based on the institutional economic theory, as the investment and lending activities of the don-ju shifted in terms of volume and sector, the state-don-ju partnership is hypothesized to remain strong in state-led, large-scale business sectors like housing at the expense of other lending activities for street markets. From an overall structural perspective, I suggest that the coping mechanisms of the don-ju group are likely to have contributed to the stability of state economy but less to that of the public economy.

Keywords: Informal Credit Market, Private Finance, Moneylender,  
Communist Regime, Kim Jong-Un

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## The Significance and Features of North Korea's New Rural Doctrine

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Soo-Ho Lim

North Korea's 'New Rural Doctrine' was adopted during the 4th Plenary Meeting of the 8th Central Committee of the Workers' Party of Korea (WPK) which was held in late December 2021. The overriding view in South Korea is that the new doctrine signifies a 'North Korean-style Saemaul Movement.' The resemblance between South Korea's Saemaul Movement and North Korea's new rural development is displayed in the doctrine's propagation of enhancing agricultural production (to alleviate food shortages) and resolving the urban-rural gap (by improving the rural living environment). However, such an analogy is only a partial assessment based on the fragmented reports disclosed by North Korea.

The new doctrine seems more of a revival of Kim Il Sung's 'Rural Theses,' which had been de facto discarded during the agricultural reform process since the early 2000s. Boosting farm production and closing the gap between rural and urban areas are not new but old agendas that were emphasized in the Rural Theses. It is also noteworthy that 'Thought Revolution' and 'New System of Agricultural Guidance,' the core contents of the Rural Theses, have been reemphasized and revived through 'Our-style Agricultural Guidance System' in the new doctrine. In addition, the Rural Theses was adopted amid a need to increase the government's food purchase ratio by introducing the mandatory procurement plan, which also seems to be the case for the new doctrine.

Kim Il Sung, at that time, faced an accumulation crisis that resulted from the dual policy of defense and economic development promoted while the Soviet Union and China had suspended foreign assistance. The mandatory procurement plan of

the Rural Theses aimed to overcome North Korea's accumulation crisis by exploiting the agricultural surplus of the cooperative farms. The Thought Revolution and New Agricultural Guidance System purported to facilitate exploitation by the de facto nationalization of the cooperative farms and by means of expediting the peasant-to-worker process. North Korea is confronted with another accumulation crisis due to international sanctions and the COVID-19 pandemic. Hence, the new rural doctrine can be interpreted as an attempt to increase the government's agricultural plunder by abandoning its agricultural reform policy and enhancing the collectivistic feature of the cooperative farms.

From a broader perspective, the New Rural Doctrine appears to be part of North Korea's efforts to recentralize economic management and strengthen government control on the producer and consumer goods. Therefore, the adoption of the new doctrine, amid the recent resurgence of the concept of 'complete victory of socialism' seems to signify that North Korea has completed the theoretical work for a return to economic conservatism.

Keywords: complete victory of socialism, rural doctrine, agricultural guidance system, thought revolution

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## The Atlantic Powers' Indo-Pacific Strategy and Implications for South Korea's Geostrategic Initiative

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E.J.R. Cho  
Yonghwan Choi

This study examines the Indo-Pacific strategies of the U.S. and European countries with an aim to contribute to overcoming the various layers of South Korea's "structural entanglement." The U.S.-China strategic competition and the Russia-Ukraine war have accelerated the global division of spheres of influence, shaking the foundations of the postwar order. In particular, the U.S.-China strategic rivalry, which began with trade conflicts, has gone beyond the separation of high-tech and supply chains and expanded to the political and military fields, revealing patterns of an all-out war. The problem is that the Indo-Pacific region with the utmost geostrategic significance is where the U.S.-China strategic competition takes place. The U.S. has established the Indo-Pacific strategy, a geostrategic initiative to keep China in check, expanded the Pacific Command's area from the Asia-Pacific to the Indo-Pacific region, and changed its name to the Indo-Pacific Command. Furthermore, the U.S. formed the QUAD with Japan, Australia, and India, and in terms of economy, it is promoting the Indo-Pacific Economic Framework(IPEF). In addition, the U.S. is pursuing a link between the Asia-Pacific regional alliance and the trans-Atlantic alliance. For example, the U.S., the United Kingdom, and Australia launched the security pact AUKUS in 2021. Also, the 2022 NATO Summit invited countries from the Asia-Pacific, including South Korea, Japan, Australia, and New Zealand. After the International Court of Justice (ICJ) dismissed China's claim to exclusive rights to the South China Sea in 2016, European countries supporting the freedom of navigation sent aircraft carriers to counter the China challenge in the Indo-Pacific waters. The UK and France, NATO's key forces, have also moved eastward to keep China in check in the Indo-Pacific region. In addition to the UK and France, the so-called Atlantic forces, such as the Netherlands, Germany,

Sweden, and Denmark, are showing increased interest and involvement in the Indo-Pacific region not only to keep China in check but also in preparation for the opening of the Arctic route following climate change. In other words, the Atlantic powers' preemptive response to Russia and China's interest in the Arctic route has prompted their enhanced involvement in the Indo-Pacific region. Based on such an analysis, the Atlantic powers' activities in the Indo-Pacific region will likely become more active. Therefore, the South Korean government should assess if the Atlantic powers' strategic involvement in the Indo-Pacific region is a factor of crisis or opportunity for the country.

Keywords: geopolitical strategy, Indo-Pacific strategy, Atlantic powers, U.S., Europe, U.S.-South Korea alliance, South Korea-Japan relations, UNC-Rear, global pivotal state

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## Tasks for Overcoming Distrust Between U.S.-North Korea and Successful Denuclearization Negotiations

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Yonghwan Choi  
Gee-Dong Lee

This study aims to derive the issues and tasks for resolving the North Korean nuclear problem, the foremost agenda in U.S.-North Korea relations currently mired in distrust, and build confidence between the two countries. As mistrust is not a new concept in international relations, this study analyzes the effects of distrust between the U.S. and North Korea in nuclear negotiations and strives to derive confidence-building measures.

The armistice after the Korean War, in which the U.S. fought against North Korea, has pinioned the two countries in a conflict structure and intensified the level of distrust. In particular, North Korea's nuclear development, which has continued since the post-Cold War era, is a major bilateral issue amplifying mistrust between Washington and Pyongyang.

Since the North Korean nuclear crisis in the early 1990s, North Korea and the U.S. have attempted several negotiations with no success. Past nuclear negotiations between Washington and Pyongyang demonstrate the necessity of parallel efforts to transform the armistice system, a structural variable in U.S.-North Korea relations, into a peace system to resolve the nuclear issue. In addition, it is essential to control the external variables as multilateral attributes are inherent in the armistice system on the Korean Peninsula. While institutional devices to build confidence between the two countries can be created, it is crucial to first deal with the underlying structural factors causing such distrust.

The current situation on the Korean Peninsula in 2022 has escalated to a dangerous level. North Korea's continuous development of strategic weapons has exacerbated the political and military crisis. It is necessary to lower tensions on the Peninsula

through negotiations that produce concrete results. However, the current international situation has added more obstacles to solving the North Korean nuclear issue, raising calls for concern as the cost of resolving the problem is sure to increase with time.

Keywords: U.S.-North Korea relations, North Korean nuclear issue, distrust, Korean Peninsula, nuclear negotiations

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## The U.S. Response to China's Space Strategy

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Kun Sik Hong

This study reviews Xi Jinping's space strategy and the Biden administration's response to China's space program, and its implications for South Korea. Existing space-related studies have focused on ROK-U.S. space cooperation, China's space program, space development efforts of Washington and Beijing, and China's rising space power amid U.S.-China competition. However, there is limited research on the Biden's administration's perception and response to Xi Jinping's space ambitions threatening space security. Hence, this study confirms the importance of space security in U.S.-China strategic competition, discusses the Biden administration's response to China's space threat, and explores the implications for South Korea's space security.

The Russia-Ukraine war has reaffirmed the significance of strategic space assets. The U.S.-China strategic competition has ironically created boundaries in the boundless outer space, and security issues regarding technology, cyber, and the environment have contributed to complicating the rivalry. The two countries seem to have gradually shifted their battleground to the infinite universe. Washington and Beijing are also vying to establish space norms, which define the behavior of countries in space, while actively supporting each nation's space program in the race to secure space capabilities.

Xi Jinping's development of space power is in line with China's "strong military dream" to realize the "Chinese dream." Xi continues to underscore the need for military strength to advance the "Chinese dream" of the "great revival of the Chinese nation" and believes space power will enable efficient military operations in a favorable strategic environment. The establishment of the Strategic Support Force in 2015, the expansion of related defense

budgets, and continued investment to secure space capabilities reflect China's recognition of the importance of space assets. In addition, Beijing is pushing to develop space weapons and enhance space capabilities to secure effective operational capabilities in space, resulting in China's "rise in space."

The Biden administration has adopted three main approaches to restore U.S. leadership in space. First, Biden has continued the space strategy of the former administration by pursuing space leadership through commercialization. Second, Washington has set up new security strategies that include outer space and focus on military modernization. Third, in response to China's space threats, the U.S. is strengthening cooperation with allies and partner countries in the Asia-Pacific region. Japan announced its plan to participate in NASA's Artemis program for lunar exploration, and South Korea, in May 2022, agreed to enhance cooperation with the U.S. in space, the cyber domain, quantum technology, and biology.

The implications of the U.S.-China space security competition regarding South Korea are as follows: First, the U.S. will require more active cooperation from South Korea to secure its deterrence against China. An intensified U.S.-China strategic competition will likely increase the level of involvement for allies or partner countries. Thus, South Korea will need a flexible diplomatic strategy to manage the security situation on the Korean Peninsula and its relations with neighboring countries.

Second, the commercial use of space necessitates an expanded concept of security and enhanced space capabilities. For example, U.S. export controls on strategic materials such as dual-use items are an issue for South Korea's space development. Therefore, South Korea and the U.S. should establish and maintain a cooperative coordination system for sharing policy interests. Third, South Korea needs to ramp up systematic support for its aerospace industry and science and technology sector. The successful launch

of the Korean projectile Nuri(KSLV-II) was a great leap forward for South Korea's aerospace industry. As such, South Korea should establish a systematic and long-term strategy for its space industry. A national security strategy that reflects the rapidly changing space environment is also necessary to protect the property and safety of the Korean people.

Keywords: Biden, Xi Jinping, strategic competition, space, threat, South Korea