2022-12

CREATING A SOLID FOUNDATION FOR CREDIBLE U.S. EXTENDED DETERRENCE ON THE KOREAN PENINSULA

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THESIS

CREATING A SOLID FOUNDATION FOR CREDIBLE U.S. EXTENDED DETERRENCE ON THE KOREAN PENINSULA

by

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December 2022

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REPORT DOCUMENTATION PAGE	*Form Approved OMB No. 0704-0188*

1. AGENCY USE ONLY *(Leave blank)*	**2. REPORT DATE** December 2022	**3. REPORT TYPE AND DATES COVERED** Master's thesis

4. TITLE AND SUBTITLE CREATING A SOLID FOUNDATION FOR CREDIBLE U.S. EXTENDED DETERRENCE ON THE KOREAN PENINSULA	**5. FUNDING NUMBERS**
6. AUTHOR(S) Seryoung Kim	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000	**8. PERFORMING ORGANIZATION REPORT NUMBER**
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A	**10. SPONSORING / MONITORING AGENCY REPORT NUMBER**

11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release. Distribution is unlimited.	**12b. DISTRIBUTION CODE** A

13. ABSTRACT (maximum 200 words)

While the United States has reduced the overall number of nuclear warheads supporting U.S. extended deterrence in East Asia, North Korea has been developing additional nuclear weapons and missiles to maintain a stronger security posture against the United States. Therefore, South Korea, which is protected by the U.S. nuclear umbrella, is getting more skeptical of the credibility of the U.S. nuclear policy in regard to South Korea. Meanwhile, a well-organized North Atlantic Treaty Organization (NATO) Nuclear Planning Group (NPG) has assured allies of the credibility of the U.S. extended deterrence policy in Europe. This study demonstrates that South Korea could enhance its assurance of U.S. commitment to extended deterrence by adopting the NATO NPG as a model of a nuclear consultative body. Enhancing South Korea-U.S. nuclear policy coordination as presented in this thesis would bolster extended deterrence of North Korea's threats and enhance South Korea's assurance of U.S. extended deterrence.

14. SUBJECT TERMS Nuclear Strategy, Extended Deterrence, Alliance, Deterrence, Assurance, Nuclear Sharing, NATO, NPG, NPT, SNOWCAT, Steadfast Noon, Non-Strategic Nuclear Weapon, Nuclear Weapon, ICBM, SLBM, East Asia, ROK-US, EDSCG, TTX, Korean Peninsula, the Republic of Korea, South Korea, North Korea, Security	**15. NUMBER OF PAGES** 101
	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT Unclassified	**18. SECURITY CLASSIFICATION OF THIS PAGE** Unclassified	**19. SECURITY CLASSIFICATION OF ABSTRACT** Unclassified	**20. LIMITATION OF ABSTRACT** UU

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. 239-18

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**MASTER OF ARTS IN SECURITY STUDIES
(EAST ASIA AND THE INDO-PACIFIC)**

from the

**NAVAL POSTGRADUATE SCHOOL
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ABSTRACT

While the United States has reduced the overall number of nuclear warheads supporting U.S. extended deterrence in East Asia, North Korea has been developing additional nuclear weapons and missiles to maintain a stronger security posture against the United States. Therefore, South Korea, which is protected by the U.S. nuclear umbrella, is getting more skeptical of the credibility of the U.S. nuclear policy in regard to South Korea. Meanwhile, a well-organized North Atlantic Treaty Organization (NATO) Nuclear Planning Group (NPG) has assured allies of the credibility of the U.S. extended deterrence policy in Europe. This study demonstrates that South Korea could enhance its assurance of U.S. commitment to extended deterrence by adopting the NATO NPG as a model of a nuclear consultative body. Enhancing South Korea-U.S. nuclear policy coordination as presented in this thesis would bolster extended deterrence of North Korea's threats and enhance South Korea's assurance of U.S. extended deterrence.

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LIST OF ACRONYMS AND ABBREVIATIONS

CCPT	Combined Command Post Training
CFC	Combined Forces Command, Korea
CMCC	Counter Missile Capability Committee
DCA	Dual-capable aircraft
DSC	Deterrence Strategy Committee
EDPC	Extended Deterrence Policy Committee
EDSCG	Extended Deterrence Strategy and Consultation Group
HLG	High-Level Group
KR	Key Resolve
MCM	Military Committee Meeting
MDCA	Mutual Defense Cooperation Agreement (between Greece and the United States)
NATO	North Atlantic Treaty Organization
NAC	North Atlantic Council
NCMA	National Command and Military Authorities Headquarters
NPG	Nuclear Planning Group
NPT	Nuclear Nonproliferation Treaty
NSNWs	Non-strategic nuclear weapons
PPGs	Provisional Political Guidelines for the Initial Defensive Tactical Use of Nuclear Weapons by NATO
ROK	Republic of Korea / South Korea
SAC	Strategic Air Command
SACEUR	Supreme Allied Commander Europe
SCM	Security Consultative Meeting
SHAPE	Supreme Headquarters Allied Powers Europe
SIOP	Single Integrated Operational Plan
SLBMs	submarine launched ballistic missiles
SLWPG	Senior Level Weapons Protection Group
SNOWCAT	Support of Nuclear Operations With Conventional Air Tactics

STRATCOM	U.S. Strategic Command
THAAD	Terminal High Altitude Area Defense
TTX	Table-top exercise
IAP	Indo-Asia-Pacific
ICBMs	Intercontinental Ballistic Missiles
UFG	Ulchi Freedom Guardian

ACKNOWLEDGMENTS

Studying here at NPS was the greatest opportunity in my life. NPS showed me a bigger world than Korea where I have lived all my life. First of all, I want to thank Professor Huntley. After meeting Professor Huntley at NPS, who showed me how to study the area I was interested in, I was able to gain a lot of insight into the field of nuclear strategy. And I also want to thank Professor Larsen, who played a big role in helping me build up the basic knowledge of nuclear strategy needed to complete my thesis. In addition, I thank all my NPS friends for broadening my perspective of the world. Especially, I could not finish my studies here without the support of Korean classmates, Maj. Do and Capt. Bang. I would also like to thank USN Jo, who has been a great strength by my side, as a friend and a mentor.

Furthermore, I want to thank Professor Young-jun Kim at Korea National Defense University for giving me lots of opportunities to participate in various seminars in Korea. It helped me a lot in developing constructive arguments in my thesis. Thank you, Professor Yong-sup Han, Young-jun Park, and Chang-hee Park, for everything you have taught me. Lastly, I thank all my friends and family back home for supporting me through my time here at NPS, so I can finish my master's program smoothly. I will not forget this accomplishment for the rest of my life.

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I. INTRODUCTION

A. MAJOR RESEARCH QUESTION

North Korea has been trying to develop more nuclear weapons and missiles to gain a better security position against the United States. At the same time, the United States has decreased its total number of nuclear warheads. To some observers, it appears as though the United States has reduced the role of nuclear weapons in its extended deterrence commitments to East Asia. Thus, South Korea and Japan, under the nuclear umbrella of the United States, have become less confident in the nuclear policy of the United States.

This study evaluates whether the Republic of Korea's (ROK) adoption of a formal nuclear sharing mechanism, like the North Atlantic Treaty Organization's nuclear sharing policy, is appropriate for increasing South Korean assurance in the U.S. extended deterrence commitment. Therefore, this thesis seeks to answer the following two-fold question: Could enhancing the ROK - U.S. nuclear policy coordination improve extended deterrence against North Korea and bolster deterrence assurance for South Korea?

B. SIGNIFICANCE OF THE RESEARCH QUESTION

The extended deterrence commitment of the United States served as a strong shield against potential attacks by communists during the Cold War, but its necessity and credibility have been called into question since the collapse of the Soviet Union. After the collapse of the Soviet Union, the international security environment changed dramatically. The threat of nuclear war at the global level grew distant, but the risk of smaller-scale nuclear attacks increased,[1] and the United States has been trying to reduce the role of nuclear weapons in terms of security. In particular, the following two changes are

[1] U.S. Department of Defense, *Nuclear Posture Review Report* (Washington, DC: U.S. Dept. of Defense, 2010), 3.

noticeable in East Asia and raise questions about the credibility of the U.S. extended deterrence commitment.

First, the United States and South Korea alike worry that the nuclear capabilities of North Korea continue to grow, weakening the credibility of the U.S. extended deterrence for allies in East Asia. North Korea has continued to develop its nuclear program since it first tested its nuclear capabilities in 2006. Such advancement poses a considerable burden and dilemma on South Korean and U.S. authorities' strategy to deter North Korea's nuclear weapons program. To be specific, as the North Korean nuclear capability approaches the ability to strike the U.S. mainland, anxiety over the credibility of the U.S. extended deterrence is growing. In addition, the increased quantity of nuclear weapons and enhanced performance of North Korean missiles magnify the difficulties for South Korea and the United States.

Second, U.S. continued efforts to reduce the role of nuclear weapons and the size of its nuclear warheads have undermined the allies' faith in U.S. nuclear policy. This trend of reducing the size of U.S. nuclear warheads began in 1970, gained momentum after the end of the Cold War, and accelerated after the Barack Obama administration. The Obama administration publicly stated that it was making efforts to reduce the role of U.S. nuclear weapons and reduce the number of nuclear warheads as a first step toward realizing a "nuclear-free world."[2] According to a 2021 U.S. government release, the stockpile of U.S. nuclear warheads decreased from its peak of 31,255 in 1967 to 3,150 as of September 2020.[3]

For Asian allies against North Korea's growing nuclear threats, this diminished U.S. nuclear capability gives North Korea, a potential adversary, an opportunity to

[2] White House Press Releases, "Remarks by President Barack Obama in Prague—As Delivered," *White House Press Releases, Fact Sheets and Briefings / FIND* (Washington: Federal Information & News Dispatch, LLC, 2009), https://search.proquest.com/docview/190563587?pq-origsite=primo.

[3] U.S. Department of State, "Fact Sheet: Transparency in the U.S. Nuclear Weapons Stockpile," no. 10/5/2021 (n.d.): 3, https://www.state.gov/wp-content/uploads/2021/10/Fact-Sheet_Unclass_2021_final-v2-002.pdf. See also Evan Braden Montgomery, *Extended Deterrence in the Second Nuclear Age: Geopolitics, Proliferation and the Future of U.S. Security Commitments* (Washington, DC: Center for Strategic and Budgetary Assessments, 2016), 12.

misinterpret U.S. actions[4] and allows allies to predict the failure of the extended deterrence. Moreover, there are growing opinions and viewpoints among many scholars and politicians that South Korea should arm itself with nuclear weapons rather than continue to rely on a less credible U.S. extended deterrence.[5] These new concerns over U.S. extended deterrence policy indicate why the United States should take a new approach to extended deterrence in East Asia in the second nuclear age after the Cold War.

However, neither South Korea acquiring nuclear weapons nor redeployment of U.S. nuclear weapons in South Korea is likely, especially in the near term. Therefore, to examine a more realistic method for responding to the situation, the following research question was selected for in-depth research: "Could enhancing ROK-U.S. nuclear policy coordination improve the extended deterrence of North Korea and deterrence assurance for South Korea?"

This study aimed at finding more practical ways to increase the credibility of extended deterrence so that not only can South Korea be assured of the nuclear policy of the U.S. extended deterrence, but also the United States can maintain or strengthen its deterrence power in East Asia. This thesis specifically uses NATO's Nuclear Planning Group (NPG) as a model for ROK-U.S. nuclear policy coordination to examine whether this coordination process can establish "South Korea's NPG." Such an organization may be necessary in circumstances that continue to evolve in order to improve the credibility of U.S. policy. In addition, this approach will be an effort to further strengthen the alliance relationship between the United States and South Korea and find a solution for regional security stability.

C. LITERATURE REVIEW

This literature review is largely centered on three parts. Firstly, I focus on the discussion of the second nuclear age and scholars' arguments on why the U.S. extended

[4] Keith B. Payne, "Why U.S. Nuclear Force Numbers Matter," *Strategic Studies Quarterly: SSQ* 10, no. 2 (June 2016): 20, https://www-proquest-com.libproxy.nps.edu/docview/1793664962?pq-origsite=primo.

[5] Payne, 26.

deterrence in East Asia is less credible. Next, I analyze the studies on NATO's nuclear sharing and the NPG, including the meaning of NPG establishments and NATO states' involvement in the NPG. The last part of the literature review is about scholars' research on NATO's nuclear sharing as a model of nuclear policy coordination in South Korea.

1. The Changing Security Circumstances and the Challenges to the Credibility of U.S. Extended Deterrence in East Asia

North Korea's continuous development of nuclear weapons and U.S. attempts to decrease nuclear warheads have caused South Korea and Japan to question whether they are secured by U.S. nuclear capabilities in light of the shifting strategic environment after the Cold War.

a. The U.S. Extended Deterrence Commitment to Its Allies and Partners

In reorganizing the world order after World War II, the United States strengthened relations with European and Asian allies through a commitment to extended deterrence. During the Cold War, the United States deployed non-strategic nuclear weapons (NSNWs) in Europe and South Korea to increase the credibility of its commitment. For a long time, the United States has guaranteed the national security of its allies and partners under its nuclear umbrella without the allies and partners developing their own nuclear weapons.[6] Although extended deterrence is not necessarily achieved only through the development of nuclear weapons, during the Cold War, the two concepts were almost always connected—an association that continues to this day.[7]

b. The Advent of the Second Nuclear Age and the U.S. Pivot to Asia

Following the fall of the Soviet Union, however, the altered geopolitical environment has cast doubt on the idea of extended deterrence. Even though the nuclear stockpile arms race between the United States and the Soviet Union ceased, this fact did not mean that nuclear weapons have been eliminated. North Korea, Pakistan, and India

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[6] Montgomery, *Extended Deterrence in the Second Nuclear Age*, 2.

[7] Jeffrey A. Larsen, "US Extended Deterrence and Europe: Time to Consider Alternative Structures?," in *The Future of Extended Deterrence: The United States, NATO, and Beyond* (Washington, DC: Georgetown University Press, 2015), 44.

have joined the nuclear club, while Israel, which has been an unofficial member for a considerable amount of time, is officially considered a nuclear club member. Iran also seeks membership in the nuclear club. Meanwhile, Russia and China, which are U.S. opponents in the new power race, continue to add hypersonic missiles and intercontinental ballistic missiles (ICBMs) capable of bypassing the U.S. missile defense system to their arsenals.[8]

Because of these factors increasing pressure on the United States, America's defense difficulties have become more significant than they were previously. This evolving nuclear component following the end of the Cold War is known as the second nuclear age. In this new security climate, prospective adversaries have become stronger, and allies who are questioning the U.S. extended deterrence commitment want greater certainty.[9]

In addition, in 2011, U.S. President Obama announced a plan called "pivot to Asia."[10] Obama was confident that the Indo-Asia-Pacific (IAP) area will have a significant impact on the success or failure of the U.S. grand strategy in the 21st century. He also foresaw that the United States would face significant long-term security difficulties from China's expansion in the IAP area and the prospect that Beijing would become America's global peer competitor in addition to being a power in the IAP.[11] The 2010 U.S. National Security Strategy was altered in January 2012 to reflect that the United States will shift its military resources and security interests away from Europe and toward Asia, a region of increasing significance and potential volatility.[12] Despite the current focus on the war in Ukraine, concern over the long-term growth of China's power indicates that Asia has emerged as a more significant U.S. security region than it has been in the past.

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[8] Paul J. Bracken, *The Second Nuclear Age: Strategy, Danger, and the New Power Politics*, 1st ed. (New York: Times Books, 2012).

[9] Joseph F. Pilat, "A Reversal of Fortunes? Extended Deterrence and Assurance in Europe and East Asia1," *Journal of Strategic Studies* 39, no. 4 (2016): 582, https://doi.org/10.1080/01402390.2016.1168016.

[10] Montgomery, *Extended Deterrence in the Second Nuclear Age*, 23.

[11] Douglas T. Stuart, *The Pivot to Asia: Can It Serve as the Foundation for American Grand Strategy in the 21st Century?* (Carlisle, PA: Strategic Studies Institute and U.S. Army War College Press, 2016), 1–2.

[12] Larsen, "US Extended Deterrence and Europe," 48.

c. The Challenges to the Credibility of U.S. Extended Deterrence Arising from Changing Situations in East Asia

In the changing strategic environment, North Korea's continued development of nuclear capabilities and U.S. efforts to reduce nuclear warheads have raised allies' doubts about whether South Korea and Japan are protected by U.S. nuclear capabilities. First of all, North Korea's increased nuclear missile capabilities pose a considerable burden and dilemma on the South Korean and U.S. authorities' strategy, especially concerning extended deterrence. To be specific, North Korea conducted various state-of-the-art short-range missile tests including KN-23 and KN-24, strengthened its ability to attack South Korea in case of emergency, and developed massive ICBMs such as the Hwasong-type 15 and 16 that can directly attack the U.S. mainland. In addition, North Korea is trying to complete a submarine-type 5 that can hit Guam directly from the sea with submarine launched ballistic missiles (SLBMs), which have a range of 3,000km.[13] Under these circumstances, Asian allies have expressed doubts about whether the United States would sacrifice New York for Seoul amid threats from North Korea's ICBMs, as European countries "had doubts that Washington would truly employ its strategic nuclear forces on their behalf."[14]

The credibility of the U.S. extended deterrence has also been questioned as a result of its attempts to reduce the number of its nuclear weapons. As a first step toward reaching a "nuclear-free world," the Obama administration made clear its support for lowering the function and number of American nuclear weapons.[15] The number of U.S. nuclear weapons declined from 32,000 in 1967 to 4,760 in 2015.[16] For Asian allies against North Korea's growing nuclear threat, this reduction diminished U.S. nuclear capabilities, increased the likelihood of North Korea the challenging U.S. resolve to defend its allies

[13] Jungsup Kim, "After the Hanoi Summit, the trend of North Korea's tactical and strategic weapons development and implications for the evolution of the nuclear deterrence doctrine," *Sejong Institute*, Sejong Policy Brief, no. 2021–6 (2021).

[14] Montgomery, *Extended Deterrence in the Second Nuclear Age*, 3.

[15] White House Press Releases, "Remarks by President Barack Obama in Prague—As Delivered."

[16] Montgomery, *Extended Deterrence in the Second Nuclear Age*, 12.

with its limited nuclear arsenal,[17] and invited allies to fear American abandonment, which is the U.S. withdrawal from their defense.[18] There is also the risk that this decision will restrict the U.S. president's nuclear response choices. Because effective deterrence varies based on the opponent's capabilities, timing, and circumstance, no one can accurately assess the degree to which U.S. nuclear power discourages hostile action by the enemy.[19]

2. The Policy of NATO's Nuclear Sharing and the NPG

Scholars argue whether adopting NATO's nuclear sharing policy could enhance the credibility of extended deterrence in a changing East Asia. However, many people simply presume that NATO's nuclear sharing policy necessitates placing NSNWs directly on the territory of U.S. allies. For a more in-depth understanding of the policy, the concept of NATO's nuclear sharing and NPG should be explored.

a. The Policy of Nuclear Sharing in NATO

The United States has acknowledged the inherent volatility of extended deterrence and tried to persuade its partners that the U.S. commitment to extended deterrence will be honored. During the Cold War, the United States delivered large-scale nuclear power to various allies as an assurance strategy of extended deterrence. Through on-site presence, this tactic aimed to deter both possible nuclear and conventional strikes. The United States placed NSNWs in South Korea and elsewhere in East Asia as part of this policy.

At the termination of the Cold War, the United States evacuated the majority of these weapons, although it is thought that hundreds of nuclear warheads remained at six facilities in five NATO nations.[20] In addition, the United States established the notion of

[17] Payne, "Why U.S. Nuclear Force Numbers Matter," 20.

[18] Brad Roberts, *The Case for U.S. Nuclear Weapons in the 21st Century* (Stanford, CA: Stanford University Press, 2016), 199.

[19] Payne, "Why U.S. Nuclear Force Numbers Matter," 15–20.

[20] Somar Wijayadasa, "Nuclear Weapons Are Illegal Under International Law," Nuclear Abolition News and Analysis, accessed October 26, 2022, https://www.nuclearabolition.info/index.php/1880-nuclear-weapons-are-illegal-under-international-law.

sharing nuclear weapons with allies, which is commonly known as "nuclear sharing."[21] In other words, even though the United States possesses these nuclear weapons, NATO allies construct contingency strike plans as part of the NPG by training and preparing the allies' bombers to launch nuclear assaults in the event of an emergency.

b. NATO's Nuclear Sharing Arrangements

More specifically, the United States and allies' bombers will drop U.S. nuclear weapons deployed in the NATO region in wartime, where European countries designate dual-capable aircraft (DCA) that carry out both conventional and nuclear attacks. These nuclear weapons are B61-3/4 gravity-dropped bombs, kept in underground storage, with six additional bases in place for the deployment of nuclear weapons in case of emergency.[22] Among the deployed nuclear weapons, B61-3 ranges from 0.3–170 kilotons and B61-4 ranges from 0.3–50 kilotons; these can be delivered by the F-15E, F-16, and PA-200 tornadoes in European countries.[23] The United States and its European allies are currently in the process of upgrading the B61 bombs to the B61-12. Training for the B61-12 is supposed to start for the European units in early 2023, and late 2023 or 2024 could see the arrival of the first weapons at the first base. Along with the non-strategic fighter jets F-15E, F-16, and F-35A, these bombs will be installed on the strategic bombers B-2 and B-21.[24]

U.S. NSNWs deployed in Europe carry out three main functions. The first is preventing the proliferation of nuclear weapons in Europe. This is because without the presence of U.S. nuclear weapons, European countries will be motivated to develop their

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[21] Thomas M. Nichols et al., *Tactical Nuclear Weapons and NATO* (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2012), 259.

[22] Hans M. Kristensen, "U.S. Nuclear Weapons in Europe," November 1, 2019, 13, https://uploads.fas.org/2019/11/Brief2019_EuroNukes_CACNP_.pdf.; Hans M. Kristensen, "U.S. Nuclear Weapons in Europe," *Arms Control Today* 35, no. 3 (April 2005): 13, https://www-proquest-com.libproxy.nps.edu/docview/211251344/fulltextPDF/14FFAAA080C64926PQ/1?accountid=12702.

[23] Kristensen, "U.S. Nuclear Weapons in Europe"; Kristensen, *Arms Control Today,* 75.

[24] Hans M. Kristensen, "NATO Steadfast Noon Exercise and Nuclear Modernization in Europe," *Federation of American Scientists* (blog), October 17, 2022, https://fas.org/blogs/security/2022/10/steadfast-noon-exercise-and-nuclear-modernization/.

own.[25] Second, nuclear sharing promotes political unity among NATO countries because they share the advantages, responsibilities, and risks of deploying nuclear weapons.[26] Third, the forward deployment of nuclear weapons increases the deterrence and defense options of NATO forces, enabling a flexible military response.[27]

c. The NATO NPG and the Meaning of Establishment

Nuclear sharing between the United States and its European allies is discussed and implemented through the NPG, which is constituted by the NATO member states' defense ministers. In this study, the background of the emergence of the NPG is especially meaningful. Before 1967, European allies were worried about NATO's security due to suspicions of a lack of information about U.S. nuclear operations. In response, some allies suggested that it might be better to arm themselves with nuclear weapons.[28] Thus, the NPG was established, which has been "the main forum for discussing, debating, and educating the allies about what is, fundamentally, U.S. nuclear policy."[29] Overall, through the NPG, the United States learned to deal with the alliance's concerns, and the alliance was able to get information about U.S. nuclear weapons.

Since 1967, the NPG has played an important role in assuring European allies of U.S. nuclear guarantees and in leading nuclear exercises and plans.[30] Specifically, the NPG has covered a variety of topics, such as the use of nuclear weapons and the challenges

[25] Ildo Hwang, "Alliances and Nuclear Sharing: The NATO Case and the Implications on Reintroducing of TNW into the Korean Peninsula," *National Strategy* 23, no. 1 (2017): 9, https://doi.org/10.35390/sejong.23.1.201703.001.

[26] NATO, "Fact Sheet: NATO's Nuclear Sharing Arrangements," *Public Diplomacy Division (PDD)*, accessed October 13, 2022, https://www.nato.int/nato_static_fl2014/assets/pdf/2022/2/pdf/220204-factsheet-nuclear-sharing-arrange.pdf.

[27] David S. Yost, "US Extended Deterrence in NATO and North-East Asia," March 2010, 19, https://calhoun.nps.edu/handle/10945/61406.

[28] Timothy Andrews Sayle, "A Nuclear Education: The Origins of NATO's Nuclear Planning Group," *Journal of Strategic Studies* 43, no. 6–7 (2020): 922, https://doi.org/10.1080/01402390.2020.1818560.

[29] Sayle, "A Nuclear Education," 953.

[30] Chuck Hagel et al., "Preventing Nuclear Proliferation and Reassuring America's Allies" (Chicago Council on Global Affairs, 2021), 15, http://www.jstor.org/stable/resrep29698.

involved in nuclear planning.[31] It has been the most prestigious organization to discuss and decide on NATO's nuclear policies. The organization examines all matters concerning the safety, security, survival, command control, and deployment of nuclear weapons, as well as matters concerning nuclear arms control and non-proliferation and changes in response to evolving threats. The organization adopts "consensus" as a decision-making method, so no action can be decided or implemented if any country opposes it.[32]

The NPG centers on regular meetings attended by ministerial cabinets (mainly defense ministers) of major NATO members. An important point in the operation of the NPG is the fact that a separate permanent support organization has been formed and operated to assist with the discussions of the NPG. In 1968, the Staff Group was created to serve as the secretariat for the NPG Conference, and in 1977, the High-Level Group was formed to strengthen the continuity of related discussions and provide technical advice.

Although the United States maintains a certain number of NSNWs in Europe, the NPG provides opportunities for non-nuclear European states to engage the United States on nuclear extended deterrence policies in Europe. This engagement plays a vital role in building assurance of U.S. commitments among non-nuclear NATO allies. The purpose of this thesis is to determine if, and how, a similar consultative body could provide similar support to South Korean assurance in U.S. extended deterrence commitments in the face of North Korean threats.

3. Prior Studies about Adopting the Policy of NATO's Nuclear Sharing as a Model of Nuclear Policy Coordination in South Korea

The credibility of extended deterrence requires the deterrence of potential enemies and the assurance of allies. Despite the growth of North Korea's nuclear capabilities and the reduced role and scale of U.S. nuclear warheads, North Korea can still be deterred by U.S. overwhelming nuclear capabilities. The problem, however, could be an assurance.

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[31] Shaun Gregory, *Nuclear Command and Control in NATO: Nuclear Weapons Operations and the Strategy of Flexible Response*, 1st ed. 1996. (Houndmills, Basingstoke, UK: Macmillan Press Ltd., 1996), 31, https://doi.org/10.1057/9780230379107.

[32] ODASD(NM) (The Office of the Deputy Assistant Secretary of Defense for Nuclear Matters), *Nuclear Matters Handbook 2020* (ODASN(NM), 2020).

South Korea has become less assured about U.S. extended deterrence in this situation, as there is concern about the possibility that the United States may not use nuclear weapons for its East Asian allies. Likewise, this question of assuring allies is more difficult than deterring the enemy. As a result, many scholars argue that NATO's nuclear sharing policy should be adopted in East Asia as a means of assuring U.S. allies. However, this discussion should be divided between those who see such an approach as presuming the direct deployment of the U.S. NSNWs or developing its nuclear weapons in South Korea and those focusing directly on creating a planning group such as NATO NPG to find a more feasible solution for the credible extended deterrence.

a. Redeployment of the U.S. Non-Strategic Nuclear Weapons (NSNWs) or Development of Own Nuclear Weapons in South Korea

According to Hwee-rhak Park (a former director of North Korea policy at the Ministry of National Defense in South Korea and a security expert), South Korea's development of nuclear weapons is unlikely to succeed because the international check system based on the Nuclear Nonproliferation Treaty (NPT) is extremely solid.[33] Thus, South Korea relies on the United States to achieve its external balance under the U.S. nuclear umbrella. However, the commitment to extended deterrence is not guaranteed, as the use of nuclear weapons is so critical that it is not easy to fulfill just because it is promised. Accordingly, it may be unreasonable to assume the United States would retaliate against North Korea with strategic nuclear weapons for an attack on South Korea. Therefore, Park argues, non-nuclear states threatened by nuclear powers have a strong incentive to create a mechanism by which the United States can implement extended deterrence, such as a model based on NATO's nuclear sharing.[34] He asserts that if U.S. nuclear weapons are deployed forward in Northeast Asia, the possibility of using them as well as the U.S. responsibility to defend its allies will increase.[35] He adds that a group like

[33] Hwee-Rhak Park, "The Nuclear Balance against North Korea and South Korea-Japan Security Cooperation," *Korean Japanese Military & Culture* 30 (2020): 63–90.

[34] Park.

[35] Park.

NATO NPG could reduce the burden on a U.S. president's decision to use nuclear weapons.[36]

The current Vice-Minister of National Defense of South Korea, Beom-chul Shin, also advocates the redeployment of U.S. NSNWs in East Asia. He asserts that the U.S. extended deterrence currently guaranteed in East Asia is less reliable than NATO's nuclear sharing policy.[37] Whether or not to deploy or use NSNWs in a "Tailored Deterrence Strategy" [38] depends entirely on the will of the United States. He adds that South Korea only requests the circulation of strategic assets in South Korea as well as the use of nuclear weapons but cannot participate in the process, whereas NATO states can participate in the process of U.S. nuclear policymaking by allowing U.S. NSNWs to be mounted on bomber planes of NATO member states.[39] Considering this point, Shin concludes that the current "Tailored Deterrence Strategy" is insufficient in terms of the effectiveness of deterrence compared to NATO.[40]

The results of the 2022 South Korean Public Opinion study conducted by the Asan Institute align with the above claims. According to the survey, "70.2% of South Koreans (respondents) supported developing indigenous nuclear weapons" and "59% of South Koreans supported the redeployment of U.S. tactical nuclear weapons in South Korea; 38.3% opposed."[41] Meanwhile, nearly 90% (88.9%) of the respondents believed the

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[36] Park.

[37] Beom-Chul Shin, "A ROK-U.S. Alliance Strategy Tailored to North Korea's Advanced Nuclear Capabilities," *Korean National Strategy* 6, no. 1 (2021): 97–119.

[38] The ROK Minister of National Defense and the U.S. Secretary of Defense approved "the Tailored Deterrence Strategy" at the 45th SCM held in October 2013. It was the first deterrence strategy that the United States set up with an individual ally. Its strategic concept is more advanced than the general concept of "extended deterrence" because it is optimized for the situation on the Korean Peninsula. (Source: Ministry of National Defense, *2020 Defense White Paper* (Seoul: Ministry of National Defense, Republic of Korea, 2020), 73.)

[39] Shin, "A ROK-U.S. Alliance Strategy Tailored to North Korea's Advanced Nuclear Capabilities," 97–119.

[40] Shin, 97–119.

[41] J. James Kim, Chungku Kang, and Geonhee Ham, "South Korean Public Opinion on ROK-U.S. Bilateral Ties," *The Asan Institute for Policy Studies*, 2022, 28–32, http://en.asaninst.org/contents/south-korean-public-opinion-on-rok-u-s-bilateral-ties/.

United States would intervene in the event of a war on the Korean Peninsula.[42] These results suggest that South Koreans support the development of their own nuclear weapons or the redeployment of U.S. NSNWs while still maintaining a high level of confidence in the U.S. security guarantee.[43]

In addition to these considerations, there are several grounds supporting the redeployment of U.S. NSNWs in South Korea, as some NATO states host U.S. NSNWs on their soil. However, none of these theories have addressed how nuclear weapons could effectively be introduced into South Korea. Countries possessing U.S. nuclear weapons should be prepared to suffer economic costs, military opportunity costs for protecting or managing warheads, and diplomatic costs if their collaboration with other nations is questioned.[44] Moreover, there would be significant civilian fatalities might if the enemy uses nuclear weapons against them.[45] Without consideration of these factors, the justification for merely introducing these nuclear weapons into South Korea may be implausible. In addition, the United States government claimed in 2012 that it had no intentions to redeploy NSNWs in South Korea.[46] Thus, discussions of creating a planning group such as NATO NPG as part of the deployment of U.S. nuclear weapons in South Korea are less useful to the research in this thesis.

b. The Enhancement of Current Nuclear Consultative Bodies Like NATO NPG

Interestingly, after studying the Asian model of extended deterrence, some NATO experts argue that forward-deployed nuclear weapons are not necessary to convince allies

[42] Kim, Kang, and Ham, 22.

[43] Kim, Kang, and Ham, 43.

[44] Stephan Frühling and Andrew O'Neil, "Nuclear Weapons, the United States and Alliances in Europe and Asia: Toward an Institutional Perspective," *Contemporary Security Policy* 38, no. 1 (2017): 8, https://doi.org/10.1080/13523260.2016.1257214.

[45] Frühling and O'Neil, 8.

[46] Wade L. Huntley, "Speed Bump on the Road to Global Zero: U.S. Nuclear Reductions and Extended Deterrence in East Asia," *The Nonproliferation Review* 20, no. 2 (2013): 321, https://doi.org/10.1080/10736700.2013.799945.

or deter the enemy.[47] Rather, "a dense network of nuclear information and consensus mechanisms" is more important for NATO cohesion and the credibility of U.S. extended deterrence.[48] Meanwhile, arrangements relating to the issue of coordinating nuclear weapons between the United States and its allies—the scope and use of formal or informal consultative bodies and statements related to U.S. nuclear guarantees—were more tangible and easier to understand than the vague question of whether extended deterrence would succeed in discouraging enemies.[49]

In this context, it was meaningful to establish the Extended Deterrence Strategy and Consultation Group (EDSCG) in South Korea in 2016. This was developed by the Extended Deterrence Policy Committee (EDPC) in 2009, raising the level of the conversation partner. The EDSCG was launched under the "Secretary of Diplomacy and Defense 2+2" system of South Korea and the United States to share nuclear deterrence policies and further discuss practical methods of the nuclear umbrella, missile defense, and conventional weapons mobilization. It was a consultative body aimed at developing the discussion of extended deterrence at a bilateral level by referring to the nuclear planning group operated by NATO. However, the EDSCG has not made substantial progress. Only two meetings were held (as described above), and then consultations disappeared after the third EDSCG meeting in March 2018, when dialogue with North Korea was promoted in earnest. The discussion also remained at the level of taking into account the placement of American strategic resources on the Korean Peninsula at a time when North Korea's nuclear and missile threats persist, rather than the specific operation of nuclear weapons and nuclear deterrence.[50]

Many studies have shown that when the alliance partners, such as NATO NPG members, actively participate in U.S. decision making, deterrence reliability increases.

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[47] Larsen, Jeffrey A., "US Extended Deterrence and Europe," 46; Karl-Heinz Kamp, "NATO's Nuclear Posture Review: Nuclear Sharing Instead of Nuclear Stationing" (NATO Defense College, 2011), 7, http://www.jstor.org/stable/resrep10400.

[48] Kamp, "NATO's Nuclear Posture Review," 7.

[49] Frühling and O'Neil, "Nuclear Weapons, the United States and Alliances in Europe and Asia," 9.

[50] Shin, "A ROK-U.S. Alliance Strategy Tailored to North Korea's Advanced Nuclear Capabilities," 97–119.

However, no specific studies have been found on how to create this kind of NPG between South Korea and the United States. Solely, Il-do Hwang presents the necessity of forming a joint permanent organization to support EDSCG as a starting point for making South Korea's NPG. This is because if a joint, permanent organization is established that constantly considers comprehensive and creative alternatives instead of exchanging demands and arguments with each other at the intermittent consultation table, it can be expected to catalyze upgrading discussions on extended deterrence.[51] However, this discussion is limited and does not systematically examine how NATO NPG functions as a potential model for ROK-U.S. consultations. This thesis will fill that gap in prior research by utilizing the example of the NATO NPG to assess the sufficiency of the current EDSCG to generate an equivalent degree of South Korean assurance in the credibility of the U.S. extended deterrence commitment.

D. POTENTIAL EXPLANATIONS AND HYPOTHESES

This study began to find an answer to the research question, "Could enhancing the ROK-U.S. nuclear policy coordination improve the extended deterrence of North Korea and deterrence assurance for South Korea?" The ROK-U.S. nuclear policy coordination method was to raise the existing non-permanent organization, the EDSCG, to the level of NATO NPG.

The first hypothesis is that creating institutionalized consultative bodies between the United States and South Korea is more feasible than deploying the U.S. NSNWs directly within South Korea's territory. Deploying U.S. NSNWs in South Korea would cause great regional insecurity. As in the case of NATO's nuclear sharing arrangements, planning and exercises for dropping nuclear bombs into the North Korean region with South Korean bombers would come as a greater threat to North Korea[52] and extend to China and Russia as well. The costs involved in deploying nuclear weapons are also

[51] Hwang, "Alliances and Nuclear Sharing," 22.

[52] Kim, "After the Hanoi Summit, the trend of North Korea's tactical and strategic weapons development and implications for the evolution of the nuclear deterrence doctrine."

enormous. Alternatively, institutionalized organizations improve collaboration by lowering transaction costs, promoting agreements, and reducing uncertainty.[53] Furthermore, an organization for cooperation on nuclear weapons helps to create or maintain the cohesion of the allies from threats with different strategic priorities among them.[54] Finally, the establishment of an institutionalized body on nuclear weapons operations is crucial to the allies' support. In part, this is because the United States requires the allies to provide consent and contributions in terms of political and financial costs in almost all cases when it has to control or choose not to use nuclear warheads.

The second hypothesis is that these institutionalized consultative bodies will increase the credibility of extended deterrence to deter North Korea and assure South Korea. A measure of the stubborn alliance relationship lies in how well the parties coordinate their disagreements rather than how well they agree.[55] Ji-na Kim of the Korean Institute for Defense Analysis pointed out that there is a big difference between the United States and South Korea in recognizing the value and role of the consultative mechanism. The United States sees the current EDSCG as a forum for information exchange and discussions on security concerns, whereas South Korea considers it a function of establishing joint operational nuclear plans.[56] To overcome this gap in perception, the United States and South Korea must reach a consensus on set purpose within a more institutionalized and permanent consultative body.

In conclusion, the thesis research hypothesizes that deepening the EDSCG into an institutionalized consultative body that addresses all aspects of extended nuclear deterrence on the Korean peninsula, using NATO NPG as an example and measure, can enable U.S. extended deterrence in Asia. Doing so will not only better deter North Korea but also alleviate anxiety in South Korea, substantially enhancing the credibility of extended deterrence without in some form returning deployed nuclear weapons to South Korea.

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[53] Frühling and O'Neil, "Nuclear Weapons, the United States and Alliances in Europe and Asia," 9.

[54] Frühling and O'Neil, 18.

[55] Huntley, "Speed Bump on the Road to Global Zero," 326.

[56] Jina Kim, "The U.S. Policy Direction of the Korean Peninsula and South Korea's Preparation: Focusing on the Implications of the 2+2 Meeting," *KIDA Defense Issues & Analyses*, no. 1844 (2021).

E. RESEARCH DESIGN

As in the case of South Korea, Greece deployed U.S. NSNWs and withdrew them within its territory after the Cold War. Regardless of whether Greece hosts U.S. NSNWs, it has been playing an active role by participating in NATO NPG and nuclear mission operations. Therefore, in this thesis, I analyze how Greece has become assured about the U.S. extended deterrence and compare this situation with that of South Korea to prove how a consultative body like the NATO NPG can make South Korea assured.

Next, to strengthen the EDSCG to a comparable level as the NATO NPG, I examine the organization of NATO's consultative bodies and South Korea's consultative bodies and match respectively. NATO's related organizations, which deal with security policies (especially the way war is carried out), have been maintained on three main levels. At the top are two consultative bodies: the North Atlantic Council (NAC) and the NPG. Next is the Military Council, in which top military commanders in each country participate; below that are two major military commands, including the Supreme Headquarters Allied Powers Europe (SHAPE) led by the Supreme Allied Commander Europe (SACEUR). This NATO consultative structure in some ways resembles and in other ways diverges from the organization of the ROK-U.S. alliance. The bilateral alliance includes the National Command and Military Authorities Headquarters (NCMA), the annual Security Consultative Meeting (SCM) of the ROK and the U.S. defense ministers, the annual Military Committee Meeting (MCM) of the two countries' military leaders, and the ROK-U.S. Combined Forces Command (CFC).

The similarities and differences between these structures invite comparison to draw lessons from NATO for increasing South Korean assurance in U.S. security guarantees. This study first assesses how the NPG, within the larger structure of NATO, functions to sustain or strengthen allies' assurance in U.S. nuclear extended deterrence commitments in Europe, specifically among NATO's non-nuclear members. The study then evaluates what components of the NATO NPG mechanism might be adopted and applied to the EDSCG structure within the ROK-U.S. alliance to find out how much-enhanced coordination on

nuclear policies can strengthen South Korea's assurance of the nuclear component of U.S. extended deterrence of North Korean threats.

F. THESIS OVERVIEW AND CHAPTER OUTLINE

This study begins by dealing with the credibility problem of U.S. extended deterrence caused by the strategic environment that has changed since the collapse of the Soviet Union. Then, the research aims to discover how the NPG plays a role in convincing European allies of U.S. extended deterrence within NATO. The discussion will examine why the redeployment of the U.S. NSNWs is not feasible and how the existing EDSCG can become a more institutionalized consultative body by adopting components of the NATO NPG mechanism. In doing so, the EDSCG will enhance deterrence of North Korea's threats and South Korea's assurance. In conclusion, the thesis will discuss the implications of this study.

II. THE ASSURANCE FUNCTIONS OF NATO'S NUCLEAR SHARING MECHANISM

The United States grew into a great power economically, politically, and militarily during World War II. Likewise, the Soviet Union, which grew into a threatening power during World War II, had shown an ambition to dominate Eastern Europe. Thus, the United States led the formation of a Western alliance against the most powerful communist entity to contain the spread of communism in post-World War II. During this process, the United States, Canada, and ten Western European countries established NATO in 1949 to provide collective security against the Soviet Union.[57] The Soviet Union responded to NATO by forming the Warsaw Pact with its allies in 1955.[58] In this way, after World War II, the world order became a "balance of power" centered on the two poles of the United States and the Soviet Union.

In response to the Soviet threat, the United States strengthened relations with European and Asian allies through the extended deterrence commitment based on conventional and nuclear military capabilities so that the allies would not need to develop their own nuclear capabilities. Here, a policy of extended deterrence means that states ensure the security of the allies by preventing an armed attack against allies.[59] Specifically, during the Cold War, the United States deployed NSNWs and U.S. military forces in Europe and East Asia to increase the credibility of its extended deterrence commitment. With this strategy, the United States sought to suppress both potential nuclear and conventional attacks through on-site presence. Furthermore, the United States developed the concept of using nuclear weapons in consultation with allies; in Europe, this concept is referred to as "nuclear sharing."[60]

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[57] Office of the Historian, "Milestones: 1945–1952," U.S. Department of State, accessed June 14, 2022, https://history.state.gov/milestones/1945-1952/foreword.

[58] Editors of Encyclopaedia Britannica, "Warsaw Pact | Summary, History, Countries, Map, Significance, & Facts | Britannica," accessed June 14, 2022, https://www.britannica.com/event/Warsaw-Pact.

[59] Paul K. Huth, "Deterrence and International Conflict: Empirical Findings and Theoretical Debates," *Annual Review of Political Science* 2, no. 1 (1999): 27.

[60] Nichols et al., *Tactical Nuclear Weapons and NATO*, 259.

The basic principle in terms of sharing nuclear warheads is that not only the DCA countries with U.S. NSNWs but also all NATO members participate in the process of discussing major issues related to these warheads. Additionally, decisions related to deployed U.S. NSNWs in Europe are made according to the unanimity of all participating countries.[61] For this process, there is an institutional consultative body called the NPG, which comprises the NATO member states' defense ministers (except France). The NPG aims to include European members more directly in the development of NATO's nuclear doctrine.[62] In addition to NSNWs, the NPG also may also discuss U.S. and U.K. strategic nuclear weapons and policies relevant to NATO deterrence planning. In this chapter, I explore the organization of the NATO NPG and what role the non-nuclear NATO allies have played, in the NPG as well as the potential implications of allies' assurance for NATO.

A. THE ORGANIZATION OF THE NATO NPG

Before looking at the organization of the NPG, it is important to understand the overall organization of NATO. Each NATO member state has a "delegation" at NATO Headquarters in Brussels, Belgium, which participates in consultations and helps NATO make decisions or take collective action. Each delegation's role and duty are to represent its NATO member state. Every level of the NATO committee has a representative from every member nation.[63] NATO's related organization, which deals with security policies (especially how war is carried out), has been largely divided into two stages. On the top level are two consultative bodies: the North Atlantic Council (NAC), which was formed in 1952, and the NPG, which was formed in 1966 (see Figure 1).[64]

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[61] Mark Fitzpatrick, "How Europeans View Tactical Nuclear Weapons on Their Continent," *Bulletin of the Atomic Scientists* 67, no. 2 (2011): 57–65, https://doi.org/10.1177/0096340211399405.

[62] J. Michael Legge, *Theater Nuclear Weapons and the NATO Strategy of Flexible Response* (Santa Monica, CA: RAND Corporation, 1983), 1.

[63] NATO, "National Delegations to NATO," NATO, accessed September 1, 2022, https://www.nato.int/cps/en/natohq/topics_49205.htm.

[64] Hwang, "Alliances and Nuclear Sharing," 14.

The NPG serves as the senior body on nuclear affairs among the allies and addresses specific policy concerns related to nuclear forces, whereas the NAC is the supreme authority within NATO.[65] Its deliberations span a wide variety of nuclear policy topics, such as the overall potency of NATO's "nuclear deterrent, the safety, security, and survivability of nuclear weapons," and communications and information technologies.[66]

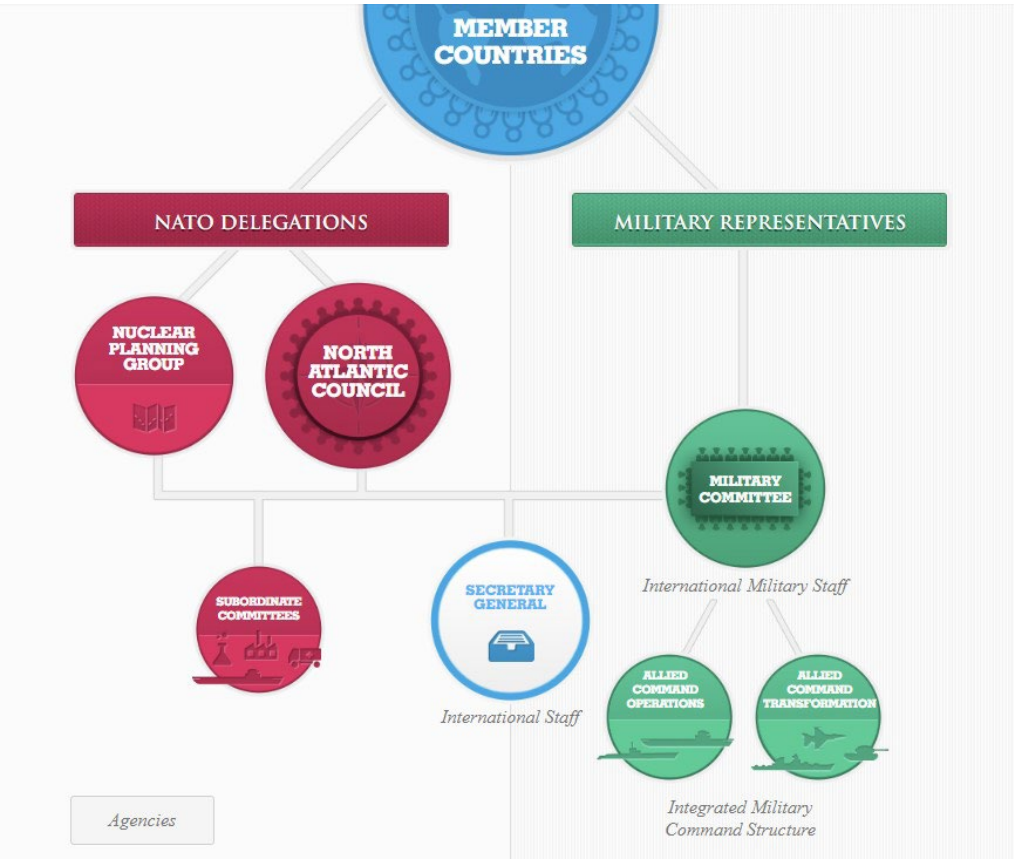

Figure 1. NATO's Working Structure[67]

[65] NATO, "Nuclear Planning Group (NPG)," NATO, accessed September 1, 2022, https://www.nato.int/cps/en/natohq/topics_50069.htm.

[66] NATO.

[67] Source: NATO, "What Is NATO?," NATO, accessed December 5, 2022, https://www.nato.int/nato-welcome/index.html.

An important point about the organization of the NPG is that a separate, permanent support organization has been formed and operated to further the discussions of the NPG.[68] The NPG Staff Group organizes the work of the NPG. Members of the state delegations from all the participating member nations make up this group. The Staff Group completes meticulous work for the NPG Permanent Representatives (or Ambassadors) in charge of the national delegations. The NPG High-Level Group (HLG) is the senior advisory body on nuclear policy and strategy matters for the NPG. The Senior Level Weapons Protection Group (SLWPG), which was in charge of managing nuclear weapons safety, security, and survivability issues, was replaced by the HLG in 1998–1999. At that time, the HLG took over the activities and commitments of the SLWPG. The HLG is presided over by the United States and is made up of experts from allied capitals and country policymakers (at the policy director level). Together, they debate issues pertaining to the safety, security, and efficacy of NATO's nuclear deterrent as well as components of NATO's nuclear strategy, planning, and force posture (see Figure 2).[69]

NPG Subgroups	Participants	Roles
Staff Group	- Members of the national delegations	- Carrying out the NPG's detailed work
High-Level Group	- National policymakers - Experts from allied capitals	- The senior advisory body to the NPG on nuclear policy and planning issues

Figure 2. NPG's Organization

[68] Hwang, "Alliances and Nuclear Sharing," 14.

[69] NATO, "Nuclear Planning Group (NPG)."

B. THE ROLE OF NON-NUCLEAR NATO ALLIES

The NPG, which was founded in 1966 and held its first meeting in 1967, has been the "senior body on nuclear materials in the alliance" for more than 50 years.[70] So far, the NPG has offered "a useful forum for the European allies to voice their concerns about nuclear use and to have their preferences accounted for in NATO policy."[71] With these factors in mind, how was the NPG established and what have European allies done specifically for NATO's common security?

1. Political Drivers of Establishing the NPG

Before 1967, European allies were worried about NATO's security due to suspicions arising from a lack of information about U.S. nuclear operations. In the 1950s, the United States, as part of NATO's war plan, shared only very limited information about nuclear weapons with its allies. Gradually, the United States realized that NATO's major conflicts among member states stemmed from the limited information provided to allies about the U.S. nuclear arsenal and its intention to use it.[72]

To be specific, the lack of U.S. nuclear information caused European allies to be confused, suspicious, and worried about NATO's security. There were two major sources of uncertainty inside the alliance. The first was any knowledge of the capabilities and objectives of the American deterrent force, particularly Strategic Air Command (SAC). The second was the specifics of how and when NATO's nuclear weapons would be used.[73] The allies desired discussions of strategic and policy concepts rather than merely reports on American specifics.[74] Some states wondered whether it would be better to develop nuclear weapons themselves.[75] This confusion in the 1950s and 1960s led U.S. Secretary

[70] NATO.

[71] Lawrence Freedman, *The Evolution of Nuclear Strategy*, Fourth edition. (London: Palgrave Macmillan, 2019), 372.

[72] Sayle, "A Nuclear Education," 921.

[73] Sayle, 927.

[74] Sayle, 950.

[75] Sayle, 922.

of Defense Robert McNamara to think that such friction with European allies came from the lack of information about the enormous atomic power that the United States should have in a war in support of NATO.[76]

Therefore, McNamara initiated a formal alliance consultative machinery. In May 1965, he suggested that a "select committee" of NATO members be established to enhance collective participation in nuclear issues related to planning or policy and to make a more effective consultative body.[77] He saw that continuing nuclear cooperation with allies was important for the allies' unity and credibility. This approach was adopted by the Nuclear Planning Working Group. In December 1966, it was formalized as the Nuclear Defense Affairs Committee and the Nuclear Planning Group.[78] As a result, for the United States, the NPG has been "the main forum for discussing, debating, and educating the allies about what is, fundamentally, U.S. nuclear policy."[79]

For NATO's European allies the NPG was a forum for obtaining critical nuclear information related to Europe's security from the United States. At the same time, the establishment of the NPG enabled allies to influence the U.S. policy of extended deterrence that seeks to ensure Europe's security. Because of the short range of U.S. nuclear weapons deployed in Europe during the Cold War, European allies could expect that if the East and West went to war, nuclear weapons would explode near or within the territory of European allies. Therefore, European allies under the U.S. nuclear umbrella were interested in nuclear-related information coming from the United States. Specifically, the European allies wanted to know what type of weapons, how many of them, when and where would be deployed. In addition, European allies tried to influence the U.S. nuclear strategy and the selection of targets for Europe because such factors immediately affected the security of the European allies. Specifically, the Federal Republic of Germany, which was

76 Sayle, 922.

77 Legge, *Theater Nuclear Weapons and the NATO Strategy of Flexible Response*, 14.

78 Freedman, *The Evolution of Nuclear Strategy*, 376.

79 Sayle, "A Nuclear Education," 953.

interested in German unification, was concerned with keeping NATO's nuclear bomb from exploding in East Germany.[80]

2. The Non-Nuclear NATO Allies' Accomplishment in the NPG

Meanwhile, there was a lot of work for the NPG to handle: establishing general political guidelines for the use of nuclear weapons deployed in Europe, making rapid and concise decision-making procedures within a framework of political control, and calculating the numbers of nuclear weapons needed to defend the West from the Soviet Union.[81] These urgent security issues were discussed at the NPG annual meeting, which was a forum where the European allies kept sustaining influence on its nuclear plans and posture in Europe.[82]

For example, in the 1960s, allies were divided on whether nuclear weapons should be used to give political signals to the Warsaw Pact regarding the first use of nuclear weapons. During this process, in 1969, NPG ministers presented specific political guidelines called "Provisional Political Guidelines for the Initial Defensive Tactical Use of Nuclear Weapons by NATO (PPGs)."[83] These PPGs explicitly showed that the normal forum for deciding the use of nuclear weapons would be the Defense Planning Committee, "where member governments would be able to express their views, especially on the political and military objectives of the proposed use of nuclear weapons, the method of use and the possible consequences either of use or non-use."[84] The Defense Planning Committee, distinct from the NPG, considers nuclear weapons use within a broader range of issues. However, undertaking nuclear missions requires explicit political approval by the NPG.[85]

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[80] Karl-Heinz Kamp and Robertus CN Remkes, "Options for NATO Nuclear Sharing Arrangements," *Reducing Nuclear Risks in Europe: A Framework for Action*, 2011, 79, https://www.jstor.org/stable/pdf/resrep14270.10.pdf.

[81] Legge, *Theater Nuclear Weapons and the NATO Strategy of Flexible Response*, 17.

[82] Kamp and Remkes, "Options for NATO Nuclear Sharing Arrangements," 79.

[83] Legge, *Theater Nuclear Weapons and the NATO Strategy of Flexible Response*, 21.

[84] Gregory, *Nuclear Command and Control in NATO*, 32–33.

[85] NATO, "Fact Sheet."

In addition, the NPG is responsible for jointly discussing the principles of the U.S. nuclear operation plan. It is the basis of the nuclear sharing protocol and consists of the Single Integrated Operational Plan (SIOP) made by the U.S. SAC from 1961 to 2003 and the European theater of operations plan currently under the U.S. Strategic Command (STRATCOM).[86]

Most important of all, NATO allies strengthen their security goal of nuclear deterrence by continuing to communicate through the NPG in line with the changing security environment. After the Cold War, the West and Russia negotiated to reduce each other's vast numbers of weapons, resulting in a much smaller number of U.S. nuclear weapons deployed in Europe than there were during the Cold War.[87] On September 27, 1991, U.S. President George H.W. Bush announced that the United States would withdraw most NSNWs from the world, removing 2,400 nuclear warheads from Europe. However, there were still 1,400 air-delivered nuclear bombs left in seven European countries.[88] The NPG officially supported the U.S. decision. Later, after further discussion, the NPG determined that the 1,400 nuclear warheads were excessive. In 1993, the U.S. removed an additional 85% of that deployment from Europe (see Figure 3).[89]

[86] Gregory, *Nuclear Command and Control in NATO*, 25–39.

[87] Lawrence Freedman, "International Security: Changing Targets," *Foreign Policy* 110, no. 110 (1998): 48–63, https://doi.org/10.2307/1149276.

[88] Kristensen, "U.S. Nuclear Weapons in Europe," April 2005, 32.

[89] Kristensen, 32.

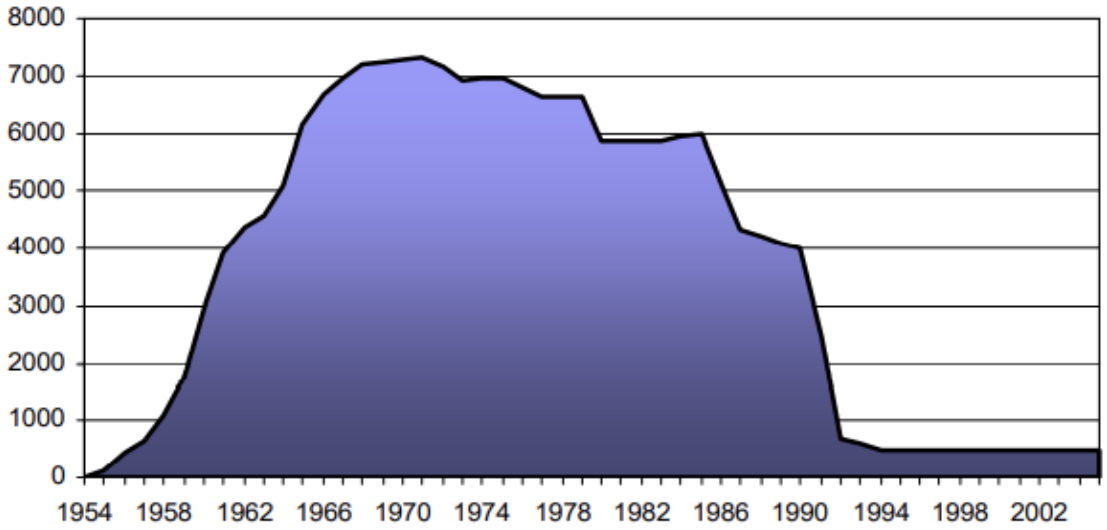

Figure 3. U.S. Nuclear Weapons in Europe, 1954–2005[90]

Despite the decreased number of nuclear weapons in Europe, NATO allies have developed their nuclear posture through ongoing consultations in the NPG. This is in line with the changing security environment, including Russia's unprovoked and unlawful war against Ukraine. The 2022 Strategic concept from the NATO Summit in Madrid specifically demonstrates that "NATO's deterrence and defense posture is based on an appropriate mix of nuclear, conventional, and missile defense capabilities, complemented by space and cyber capabilities."[91] Likewise, NATO allies keep trying to affirm the significance of nuclear deterrence in light of evolving challenges.[92]

3. Non-Nuclear NATO Allies' Attitude toward NSNWs in Europe

Overall, as NATO states exchanged various opinions on nuclear weapons in the NPG, the allies were able to develop the perception that U.S. nuclear weapons in NATO territory belong to NATO rather than the United States. In particular, the U.S. nuclear capabilities offered through the extended deterrence policy have empowered all NATO

[90] Source: Kristensen, 24.

[91] NATO, "NATO's Nuclear Deterrence Policy and Forces," NATO, accessed September 27, 2022, https://www.nato.int/cps/en/natohq/topics_50068.htm.

[92] NATO.

allies to respond to common threats.[93] In this way, European allies became more professional and responsible for the U.S. extended deterrence policy by sharing information and conducting numerous discussions through the NPG. The establishment of explicit "Guidelines for Nuclear Consultation" in 1969, the definition of particular guidelines for the initial use of nuclear weapons, and a few concise directives on how to operate follow-on nuclear weapons in the 1970s are all included in this material and debates.[94] In other words, the NPG gained significant influence over the United States in terms of making and developing a nuclear strategy for Europe. Likewise, European allies "were increasingly able to insert their ideas and principles in the process of strategy evolution."[95]

However, not all European allies want to have U.S. NSNWs in their territory. Germany and other European allies have suggested withdrawing the nuclear weapons deployed on their soil. In 2009, Foreign Minister and now German President Frank-Walter Steinmeier called for "American weapons to be removed from Germany."[96] These claims stemmed from reduced nuclear threats after the collapse of the Soviet Union. Steinmeier pointed out that "the B61 nuclear bombs were relics from the Cold War that had once been destined for targets in the territory of what are now NATO member states in Eastern Europe."[97] Additionally, Canada and Greece removed U.S. nuclear weapons from their territory in 1984 and 2001, respectively. Furthermore, Denmark, Norway, Spain, and Iceland have consistently resisted allowing American nuclear weapons to be stationed on their soil even during times of peace.[98]

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[93] Stephen M. Walt, "Alliance Formation and the Balance of World Power," *International Security* 9, no. 4 (1985): 28, https://www-jstor-org.libproxy.nps.edu/stable/2538540?sid=primo#metadata_info_tab_contents.

[94] Karl-Heinz Kamp, "Germany and the Future of Nuclear Weapons in Europe," *Security Dialogue* 26, no. 3 (1995): 283–84, https://doi.org/10.1177/0967010695026003006.

[95] Kamp, 283–84.

[96] Mautner-Markhof, Frances, "Nuclear Sharing in Europe and the NPT: Relevance for the Korean Peninsula," *Korea National Defense University*, RINSA FORUM, 72 (2021): 7.

[97] Karl-Heinz Kamp, "Nuclear Implications of the Russian-Ukrainian Conflict" (NATO Defense College, 2015), 4, https://www.jstor.org/stable/resrep10312?pq-origsite=summon.

[98] Hugh Beach, "The End of Nuclear Sharing?: U.S. Nuclear Weapons in Europe," *The RUSI Journal* 154, no. 6 (January 2010): 50, https://doi.org/10.1080/03071840903532916.

Moreover, there has been a view among scholars that the concept of deploying NSNWs in Europe is no longer useful. This is because the United States has been able to project nuclear weapons to potential adversaries who invaded NATO states by using strategic nuclear weapons, including ICBMs and SLBMs of submarines outside of Europe, since the 1970s.[99]

To be clear, the important detail to point out regarding this nuclear sharing policy is that the ultimate use of nuclear weapons is fully exercised by the U.S. president through the National Command Authority, which includes the Secretary of Defense and the Chairman of the Joint Chiefs of Staff. U.S. law states that only the president monopolizes basic rights to operate and launch nuclear weapons and is not restricted to war situations involving major allies. In addition, although there is a bilateral agreement with the United States for NATO to discuss the use of nuclear weapons in advance, none all of these regulations are not compulsory. Ultimately, U.S. presidents are free to exercise their final decision on nuclear use.[100]

C. ALLIES' ASSURANCE IN NATO

Every time the U.S. nuclear policy changed in line with the threat of the Soviet Union during the Cold War, NATO's nuclear sharing policy evolved. During this time, the NPG played a major role in keeping the Soviet Union from invading Europe until the Soviet Union collapsed in 1991. For European allies, the U.S. policy of extended deterrence is the core concept of security. Even though the Cold War ended, Russia maintained Soviet nuclear weapons and is again a major threat to NATO; therefore, NATO still effectively sustains deterrence power through regular consultation and military exercises between allies.

In terms of the policy of extended deterrence, the harder task is to try to convince allies that the U.S. commitment to extended deterrence would be fulfilled in times of need. The prior British Minister of Defense Denis Healey once said that "it takes only five

[99] Freedman, "International Security."

[100] Hwang, "Alliances and Nuclear Sharing," 19.

percent credibility of American retaliation to deter the Russians, but ninety-five percent credibility to reassure the Europeans." This comment demonstrates the difficulty of the assurance aspect of the extended deterrence commitment.[101]

Before the establishment of the NPG in 1966, European allies who did not have enough information about U.S. nuclear operations were concerned about the future of NATO's security. Thus, to convince the allies of its capability, the United States established the NPG to regularly discuss and share key nuclear information, including the U.S. nuclear operational plans and details on Russia's highly developed nuclear capabilities.[102] Through these NPG discussions, the allies became responsible members of NATO's nuclear sharing policy. Likewise, the United States learned to deal with its allies' concerns, and its allies were able to get information about U.S. nuclear weapons to gain assurance in the U.S. extended deterrence commitment.

1. Consultative Mechanisms for Allies' Assurance

Consultative procedures are crucial to allies' assurance because they give these players a platform to directly engage with American authorities on a variety of defense-related matters and express their opinions on how the United States might effectively cooperate with them to jointly ensure their defense.[103] In this context, the roles of NPG consultations and NSNWs in assurance should be distinguished. In the 1950s, the United States deployed its nuclear weapons on the territory of European allies to protect their European allies from Soviet threats, but this had not fully assured the allies. In the late 1950s, Germany questioned the consolidation of U.S. security guarantees, and these concerns were shared among European allies such as the Netherlands and Belgium.[104] As Soviet intermediate-range missile development became more active, European allies' concerns and public interest in Europe's security grew.

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[101] Yost, "US Extended Deterrence in NATO and North-East Asia," 17.

[102] Legge, *Theater Nuclear Weapons and the NATO Strategy of Flexible Response*, 15.

[103] Justin V. Anderson and Jeffrey A. Larsen, *Extended Deterrence and Allied Assurance: Key Concepts and Current Challenges for U.S. Policy*, INSS Occasional Paper 69 (USAF Academy, Colorado: USAF Institute for National Security Studies, 2013), 19.

[104] Legge, *Theater Nuclear Weapons and the NATO Strategy of Flexible Response*, 10.

In response, the United States sought to assure its European allies by involving them in the nuclear decision-making process like the NPG. Through the NPG, the United States was able to communicate continuously and regularly with its allies, thereby making them less suspicious of U.S. extended deterrence policy. This aspect of the development of the NPG is notable: while the deployment of NSNWs in Europe was considered important for deterrence, it was the communication with allies that was more important for their assurance.

2. Combined Exercises for Allies' Assurance

NATO holds meetings of the NPG—its senior nuclear weapons body—and plans its yearly nuclear weapons drills every year.[105] Through the NPG, NATO, which has established nuclear policies and guidelines, conducts nuclear mission exercises annually to check its nuclear plan and the plan's implementation. More importantly, combined exercises are considered a significant aspect of assurance for allies as well. For many allies, these exercises serve as proof that America is prepared to stand "shoulder to shoulder" with their armed forces in the event of future hostilities. Many American allies abroad also think that having the chance to train with American forces enhances the strength of their defenses. These military exercises give all the participating militaries vital experience and prepare them to fight alongside each other in a future conflict through coordinated maneuvers, simulated combat operations, and coordination between headquarters.[106]

To be specific regarding a nuclear deterrence exercise of NATO, there is an annual exercise called "Steadfast Noon" involving soldiers and aircraft from NATO countries. Each year, a different NATO member hosts this exercise.[107] The allies supply infrastructure and capabilities to assist the U.S. nuclear weapons deployed forward in Europe; DCA are essential to this operation.

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[105] Outlook Web Desk, "NATO Holds Key Nuclear Group Meeting, Calls Use Of Nukes By Putin A 'Very Important Line,'" *Outlook India*, October 14, 2022, sec. International, https://www.outlookindia.com/international/nato-calls-nuclear-weapons-very-important-line-as-putin-threatens-nukes-holds-key-meet-over-nuclear-weapons-news-229960.

[106] Anderson, Larsen, and Holdorf, *Extended Deterrence and Allied Assurance*, 20.

[107] NATO, "NATO Launches Annual Deterrence Exercise," NATO, accessed October 13, 2022, https://www.nato.int/cps/en/natohq/news_187041.htm.

On the other hand, supporting contributions, are equally significant and enable a larger number of non-nuclear allies to take part in the nuclear burden-sharing arrangements. The "Support of Nuclear Missions through Conventional Air Tactics (SNOWCAT)" mission, in which partner fighters escort DCA in the event of a nuclear mission, is a prime illustration of these non-nuclear allies' participation in NATO's nuclear mission.[108] Because any nuclear-armed jets heading toward their targets may require refueling both on the way to and from their targets, the nuclear operation requires conventional components. The present generation of European DCA is not designed to be low observable, therefore other components need to be in place first to pave the way. These components can involve physically taking out the enemy's air defenses or starting a coordinated campaign of electronic or cyberattacks to take down such networks.[109]

The Czech Republic, Denmark, Greece, Hungary, Norway, Poland, and Romania assist in nuclear missions through conventional air support, while the United States and four NSNW-hosting allies participate in "Steadfast Noon" with DCA.[110] Even though Turkey hosts U.S. NSNWs without participating in NATO nuclear missions, it contributes DCA (Turkish F-16s) as "reserve units and a contingency mission."[111] Like Turkey, Greece plays a part with reserve units and a contingency mission even though it no longer hosts nuclear weapons (they were removed in 2001). These exercises, according to NATO, aid in maintaining the safety, security, and efficacy of the alliance's nuclear deterrent.[112]

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[108] NATO, "NATO Nuclear Policy in a Post-INF World - Speech by NATO Deputy Secretary General Rose Gottemoeller at the University of Oslo," NATO, accessed October 14, 2022, http://www.nato.int/cps/en/natohq/opinions_168602.htm.

[109] Joseph Trevithick, "NATO Members Train to Nuke a 'Fictional' Enemy After Major Russian Drills," The Drive, October 17, 2017, https://www.thedrive.com/the-war-zone/15211/nato-members-train-to-nuke-a-fictional-enemy-after-major-russian-drills.

[110] Rowan Humphries, "Fact Sheet: U.S. Nuclear Weapons in Europe," Center for Arms Control and Non-Proliferation, August 18, 2021, https://armscontrolcenter.org/fact-sheet-u-s-nuclear-weapons-in-europe/.

[111] Kristensen, "NATO Steadfast Noon Exercise And Nuclear Modernization in Europe."

[112] NATO, "NATO Launches Annual Deterrence Exercise."

3. A Brief Case Study of Assurance: Greece

Soon after NATO's formation, the Supreme Headquarters Allied Powers Europe (SHAPE) planned to build 153 weapons stockpile facilities around Europe by 1959 to keep nuclear warheads for NATO's nuclear-capable weapon systems.[113] As discussed earlier in this chapter, five NATO allies are believed to continue to host such facilities. Two other NATO nations that hosted the American NSNWs were Canada and Greece,[114] but both have now had U.S. NSNWs withdrawn from their territory. These NATO cases are similar to that of South Korea, which also saw U.S. nuclear weapons withdrawn after the Cold War. Between these two countries, Greece more closely resembles South Korea in terms of geographic location to the threat and alliance relationship with the United States. Therefore, a focus on how NPG participation helps sustain assurance in U.S. deterrence commitments in Greece can be instructive for South Korea.

a. Greece's Role in Nuclear Consultative Mechanisms

Greece has participated in the NPG's regular consultative body and activities related to organizing and developing policies on the safety and security, control, and non-proliferation of nuclear weapons. This participation from Greece has not changed much since the withdrawal of U.S. nuclear weapons from Greek territory in 2001. Remarkably, this development received no mention at the NATO summit in December 2001, and the final NPG communiqué after the December meeting used typical language, affirming "the continuing validity of the fundamentally political purpose and the principles underpinning the nuclear forces of the allies as set out in the alliance's 1999 Strategic Concept."[115]

Greece need not worry about playing a smaller role in NATO's nuclear policies even if the last of the U.S. nuclear weapons were removed from its soil.[116] That is because regardless of whether NATO partners host American nuclear weapons or not, the NPG

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113 Sayle, "A Nuclear Education," 927.

114 Sayle, "A Nuclear Education," 927.

115 Robert S. Norris and Hans M. Kristensen, "US Tactical Nuclear Weapons in Europe, 2011," *Bulletin of the Atomic Scientists* 67, no. 1 (2011): 55, https://doi.org/10.1177/0096340210393931.

116 Beach, "The End of Nuclear Sharing?," 50; Kristensen, "U.S. Nuclear Weapons in Europe," April 2005, 54–56.

provides equal participation and security for all NATO member states when it comes to decisions involving nuclear weapons.

On November 3, 2021, Greece hosted the "NATO Nuclear Policy Symposium," which is the alliance's main nuclear policy event. It focused on a wide variety of nuclear defense-related issues, such as how to improve the alliance's deterrence and defense posture, advance arms control goals, and determine the top priorities for changing NATO's nuclear policy.[117] Likewise, Greece has participated in NATO's nuclear consultative mechanisms for assurance and continues to support NATO's nuclear deterrence doctrine regardless of whether Greece hosts U.S. NSNWs or not.

b. Greece's Participation in Nuclear Mission Exercises

As mentioned earlier, combined military exercises are seen as a crucial component of allied assurance.[118] In addition to participating in the development of nuclear planning through the NPG, Greece contributes to NATO's nuclear mission through regular military training. Since U.S. NSNWs were withdrawn from Greece in 2001, Greece has participated in nuclear mission exercises by supporting nuclear operations with conventional air tactics.

This includes participation in the important SNOWCAT mission described above. In addition, according to the 2022 Steadfast Noon exercise, Greece supported the nuclear sharing mission by contributing DCA. These DCA, which are capable of carrying nuclear weapons, are provided as reserve troops and for a contingency mission, even though Greece no longer has any nuclear weapons on hand.[119]

Thus, Greece plays a significant role in nuclear mission military exercises by operating conventional air tactics and contributing DCA as a reserve. This role has remained consistent despite the reported end of nuclear weapons storage in Greece.

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[117] NATO, "NATO Secretary General Addresses Annual Nuclear Policy Symposium," NATO, accessed October 11, 2022, https://www.nato.int/cps/en/natohq/news_188247.htm.

[118] Anderson, Larsen, and Holdorf, *Extended Deterrence and Allied Assurance*, 20.

[119] Kristensen, "NATO Steadfast Noon Exercise And Nuclear Modernization in Europe."

c. The Measures to Enhance Greece's Assurance of Nuclear Deterrence

Overall, Greece's case shows that participating in nuclear policymaking and nuclear military exercises plays an important role in allies' assurance in the policy of U.S. extended deterrence[120] regardless of whether allies host U.S. NSNWs in their territory. Furthermore, the interaction between Greece and the United States to solidify defense cooperation after the nuclear withdrawal suggests that Greece's assurance in U.S. security promise continues to grow. The first effort was launching a Strategic Dialogue. The initial Greece-U.S. Strategic Dialogue took place between the governments of the two nations on December 13, 2018 in Washington, D.C.[121] The topics of a Strategic Dialogue include "regional cooperation, defense and security, trade and investment, energy, law enforcement, and counterterrorism, and people-to-people ties."[122] This strategic dialogue later led to the development of a roadmap for defense cooperation between the two countries in 2019 and 2021. The two nations develop trust in a variety of strategically significant domains.

The second effort to enhance Greek assurance is the revision of the Mutual Defense Cooperation Agreement (MDCA) between Greece and the United States.[123] The MDCA's second revision and its five-year renewal, which were signed on October 14, 2021 in Washington, D.C., signaled the growth of the security and defense cooperation between Greece and the United States.[124] The upgraded MDCA permitted the United States to operate a naval support mission at the deep-water port and airport at Souda Bay in Crete

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120 Kristensen, "U.S. Nuclear Weapons in Europe," April 2005, 54–56; Beach, "The End of Nuclear Sharing?," 50.

121 U. S. Embassy in Athens, "Joint Statement Regarding the Inaugural United States-Greece Strategic Dialogue," U.S. Embassy & Consulate in Greece, December 14, 2018, https://gr.usembassy.gov/joint-statement-regarding-the-inaugural-united-states-greece-strategic-dialogue/.

122 U.S. Department of State, "U.S. Relations With Greece," *United States Department of State* (blog), August 21, 2021, https://www.state.gov/u-s-relations-with-greece/.

123 The officials of the governments of the Hellenic Republic and the United States of America signed the Mutual Defense Cooperation Agreement (MDCA) between Greece and the United States in Athens in July 1990. The first amendment to the MDCA was signed by the two nations on October 5th, 2019. The eight or ten-year length, followed by an indefinite renewal, was the basis of the American plan. But the renewal persisted yearly. The MDCA was extended for a further five years in Washington on October 14th, 2021.

124 Evelyn Karakatsani, "Greece External Relations Briefing: The Deepening of Greece and USA Cooperation," *China-CEE Institute* (blog), November 15, 2021, https://china-cee.eu/2021/11/15/greece-external-relations-briefing-the-deepening-of-greece-and-usa-cooperation/.

and have U.S. personnel stationed at several additional places around Greece.[125] This agreement especially enhanced U.S. defense spendings in several locations in the Greek territory, such as Alexandroupolis, Larissa, Stefanovikeio, Litochoro, and Souda Bay in Crete.[126] U.S. investment in bases in Greece undoubtedly strengthens Greek assurance in the U.S. commitment to extended deterrence, especially because fortifying military sites is one method of credible extended deterrence by denial.[127]

d. Greece's Assurance of Nuclear Deterrence

According to Brooks and Rapp-Hopper, taking part in nuclear military drills and policymaking as well as attempting to strengthen defense cooperation might give Greeks more assurance in the U.S. commitment to extended deterrence.[128] However, it is not exactly clear whether Greece has the same or increased assurance in U.S. commitment to extended deterrence after the withdrawal of U.S. NSNWs from Greek territory in 2001. This is because neither the Greek government nor the U.S. government has mentioned this withdrawal of U.S. NSNWs from Greek territory at all.[129] Thus, to discover changes in Greek assurance, indirect evidence comes from important Greek leaders' statements and Greek public opinion.

First of all, Greek elites' formal remarks about its alliance with the United States show Greece's strong assurance in the United States. To be specific, when the MDCA was extended for another five years in October 2021 in Washington, D.C., Greek Prime Minister Kyriakos Mitsotakis said that the signing of this agreement "seals the upgrading of relations between Greece and the United States" and at the same time "highlights Greece's role as a pillar of security and stability in the region."[130] Greek Minister of National Defense Nikolaos Panagiotopoulos also expressed his opinion about the renewal

125 U.S. Department of State, "U.S. Relations With Greece."

126 Karakatsani, "Greece External Relations Briefing."

127 Linton Brooks and Mira Rapp-Hooper, "Extended Deterrence, Assurance, and Reassurance in the Pacific during the Second Nuclear Age," *Strategic Asia* 14 (2013): 269.

128 Brooks and Rapp-Hooper, 269.

129 Kristensen, "U.S. Nuclear Weapons in Europe," April 2005, 56.

130 Karakatsani, "Greece External Relations Briefing."

of the MDCA in an interview, saying that the United States "is and will always be a main strategic partner of Greece." He added that the MDCA "depicts this relation exactly and it is constantly under a process of upgrade in recent years."[131]

Secondly, the Greek public's favorable perception toward the United States after the withdrawal of U.S. NSNWs is closely connected to Greek assurance in the U.S. extended deterrence policy. According to the study by Pew Research Center, Greece's U.S. favorability slightly increased (see Figure 4). Thus, it may be claimed that this overall increase in the Greek public's favorability toward the United States is an important outcome because it is connected to the people's conviction that America would defend Greece from external threats.

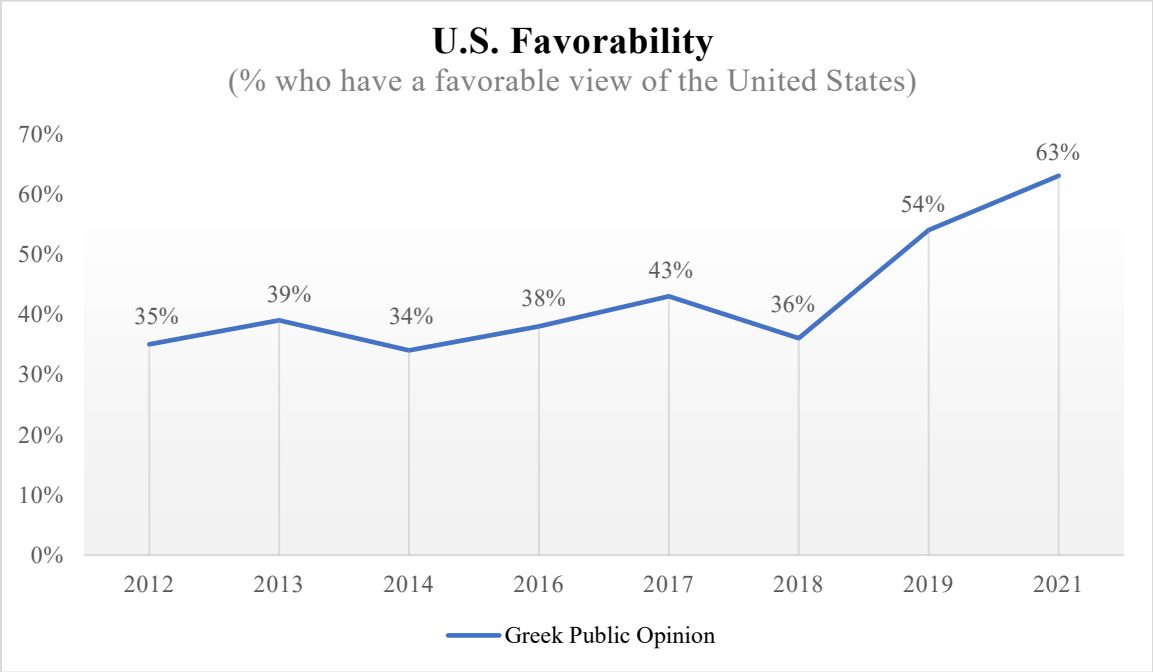

Figure 4. Greek Public Favorability of the United States[132]

[131] Hellenic Republic Ministry of National Defence, "Interview of the Minister of National Defence Nikolaos Panagiotopoulos on 'TA NEA SAVATOKYRIAKO' Newspaper," October 9, 2021, https://www.mod.mil.gr/en/interview-of-the-minister-of-national-defence-nikolaos-panagiotopoulos-on-2/.

[132] Source: Richard Wike et al., "International Attitudes Toward the U.S., NATO and Russia in a Time of Crisis," *Washingon, DC: Pew Research Center*, June 22, 2022, 14, https://www.pewresearch.org/global/2022/06/22/international-attitudes-toward-the-u-s-nato-and-russia-in-a-time-of-crisis/.

In addition, the fact that Greece was the driving force behind the removal of American NSNWs from Greece is another compelling sign that Greek assurance in the U.S. extended deterrence commitment is unaffected by the absence of U.S. NSNWs in Greece. There is no obvious explanation for Greece's withdrawal, and NATO has not provided any explanation. NATO requested that Greece utilize modern F-16s in 1998 to replace antiquated A-7E in the nuclear strike role, but the Greek government rejected the suggestion because its limited resources were more urgently required for air defense and conventional operations.[133] By making this choice, Greece limited its ability to take part in the U.S. nuclear deployment program. After years of talks, this reportedly led to the removal of 20 U.S. thermonuclear gravity bombs (B61) from Greece in 2001.[134] Nevertheless, Greece has continued to back NATO's nuclear deterrent concept, as seen by its support for pertinent alliance declarations.[135] Thus, these processes prove that Greece took into account that U.S. NSNWs did not play a significant role in upholding the U.S. extended deterrence commitment.

Nevertheless, Greece's involvement in and support of the NPG, which was created to boost the credibility of the U.S. nuclear-extended deterrence commitment in NATO, and its active participation in the nuclear mission military exercises actually demonstrate that Greece's assurance in the U.S. deterrence commitment was sustained without U.S. NSNWs. In other words, Greece maintains the same level of assurance after the U.S. nuclear withdrawal.

Overall, this case shows that Greece is assured of the commitment of U.S. extended deterrence regardless of whether U.S. NSNWs are on its territory. This deduction is based on the positive official statements of the Greek leadership toward the United States, the

[133] Kristensen, "U.S. Nuclear Weapons in Europe," April 2005, 56.

[134] Yvonni Efstathiou and Bill Kappis, "Weapons of Mass Debate - Greece: A Key Security Player for Both Europe and NATO," Institut Montaigne, accessed October 11, 2022, https://www.institutmontaigne.org/en/analysis/weapons-mass-debate-greece-key-security-player-both-europe-and-nato.

[135] Efstathiou and Kappis.

Greek public's favorable opinion of the United States, and the significance of Greece's decision to withdraw U.S. NSNWs from Greece.

D. CONCLUSION

In response to the threats posed by the Soviet Union after World War II, the United States enhanced its connections with its European and Asian allies via an extended deterrence commitment based on conventional and nuclear military forces. To bolster the credibility of its extended deterrent commitment, the United States deployed NSNWs and U.S. military personnel in Europe and East Asia during the Cold War. This plan aimed to deter both nuclear and conventional strikes by establishing a physical presence on the battleground.

In addition, the United States conceptualized the use of nuclear weapons in collaboration with allies, a policy known as "nuclear sharing" in Europe.[136] The NPG is a consultative group whose purpose is to incorporate European members more directly in the development of NATO's nuclear strategy.[137] The NPG functions as the highest body on nuclear matters among allies, and covers particular nuclear forces policy challenges within an array of nuclear policy issues.[138]

This chapter has focused on the specific assurance tasks of the NATO NPG, originating in the 1960s from European partners concerns over their lack of knowledge about U.S. nuclear activities, and U.S. recognition that an official alliance consultation system on the U.S. nuclear posture and policies was crucial for the cohesion and credibility of the alliance.[139] The establishment of the NPG was significant for NATO's European allies for two reasons: first, it provided a forum for the allies to obtain crucial nuclear information related to Europe's security from the United States; and second, it allowed the allies to exert influence over the U.S. policy of extended deterrence, which aims to secure Europe's security. The NPG annual conference became a platform where the European

[136] Nichols et al., *Tactical Nuclear Weapons and NATO*, 259.

[137] Legge, *Theater Nuclear Weapons and the NATO Strategy of Flexible Response*, 1.

[138] NATO, "Nuclear Planning Group (NPG)."

[139] Sayle, "A Nuclear Education," 921.

allies could continue to express viewpoints over NATO nuclear plans and posture in Europe, and it was there that these vital security problems were debated.[140] Consultative procedures are essential to the assurance of allies because they provide a forum for these players to directly engage with American authorities on a variety of defense-related issues. Additionally, this forum enables allies to express their views on how the United States can effectively cooperate with them to ensure their defense.[141]

After the Cold War, the West and Russia agreed to decrease each other's huge arsenals, resulting in a significant reduction in the amount of U.S. nuclear weapons stationed in Europe.[142] In addition, some academics believe that the notion of deploying U.S. NSNWs in Europe is no longer applicable, in part due to NATO conventional advantages it did not previously allowing the United States to project nuclear weapons threats to defend NATO states utilizing strategic nuclear weapons outside of Europe, such as ICBMs and SLBMs aboard submarines.[143] However, in terms of the strategy of extended deterrence, the most difficult challenge is to persuade allies that the United States would fulfill its promise to extended deterrence. By exchanging information and engaging in multiple debates through the NPG, European allies were able to be more professional and accountable with regard to the U.S. strategy of extended deterrence after the Cold War.

From this perspective, it is necessary to separate the functions of NPG consultations and NSNWs in assurance. In the 1950s, to safeguard its European friends from Soviet threats, the United States stationed nuclear weapons on the territory of its European allies. However, as Soviet intermediate-range missile development intensified, European allies and the public's anxiety about Europe's security increased. Through the NPG, the United States was able to maintain constant and consistent communication with its allies, therefore reducing their mistrust of the U.S. extended deterrence strategy. A notable feature in the

[140] Kamp and Remkes, "Options for NATO Nuclear Sharing Arrangements," 79.

[141] Anderson, Larsen, and Holdorf, *Extended Deterrence and Allied Assurance*, 19.

[142] Freedman, "International Security."

[143] Freedman.

creation of the NPG is this: although the deployment of NSNWs in Europe was deemed necessary for deterrence, contact with allies was deemed more crucial for their assurance.

To examine these observations more closely, this chapter has included a brief case study Greece. In 2001, U.S. NSNWs were reportedly removed from Greece, making its situation comparable to that of South Korea, where U.S. nuclear weapons were evacuated after the Cold War. In addition, since Greece more closely mirrors South Korea in terms of geographical proximity to the danger and alliance connection with the United States, South Korea may learn from an emphasis on how the NPG involvement helps preserve Greece's assurance in U.S. deterrent commitments.

Greece has engaged in the NPG's regular consultative body and activities related to organizing and developing policies on the safety and security, control, and non-proliferation of nuclear weapons. Since 2001, Greece's involvement has not altered much; it has maintained just as prominent a position in NATO's nuclear plans.[144] This is because, regardless of whether or not NATO allies host American nuclear weapons, the NPG ensures equal involvement and security for all NATO member states when it comes to decisions affecting nuclear weapons. Greece also contributes to NATO's nuclear posture by participating in nuclear mission exercises, a crucial role that has remained unchanged.

In general, the Greece example highlights the tendency in NATO in general that participation in nuclear policymaking and nuclear military exercises plays a crucial role in assuring allies of the U.S. policy of extended deterrence,[145] regardless of whether U.S. allies host NSNWs in the territory or not. In addition, the interaction between Greece and the United States to strengthen defense cooperation, such as through Strategic Dialogues and the revision of the MDCA after the nuclear withdrawal, suggests that Greece's assurance in the U.S. security guarantee may continue to grow.

[144] Beach, "The End of Nuclear Sharing?," 50; Kristensen, "U.S. Nuclear Weapons in Europe," April 2005, 54–56.

[145] Kristensen, "U.S. Nuclear Weapons in Europe," April 2005, 54–56; Beach, "The End of Nuclear Sharing?," 50.

The primary lesson of this chapter is that, regardless of the role that locally deployed NSNWs may play in extended deterrence, close U.S. consultation with allies on nuclear weapons postures and policies is the most important factor in allies' assurance that U.S. extended deterrence continues to support allies' security needs. Applying this lesson to U.S. extended deterrence commitments for South Korea, the most important question becomes how these two allies can develop a similarly deep level of consultation to provide the same degree of assurance to South Korea that its security needs also continue to be met, despite dramatic advances in North Korea's nuclear weapons and missile capabilities. The following chapter addresses that question.

III. NATO'S NUCLEAR SHARING POLICY AS A NEW ROK-U.S. NUCLEAR POLICY MODEL

Since North Korea developed nuclear weapons and the United States is attempting to reduce the role of nuclear weapons in terms of security after the collapse of the Soviet Union, South Korea has grown less convinced of U.S. extended deterrence. South Korea is worried that the United States may not use nuclear weapons for its East Asian allies, despite U.S. commitment to extended deterrence in Europe. Thus, there are several arguments for the redeployment of U.S. NSNWs in South Korea, as some NATO member states host U.S. NSNWs in their territory. For example, Hwee-rhak Park strongly argues that South Korea should encourage the United States to deploy NSNWs on the Korean Peninsula. He believes this will counter the lower credibility of the U.S. extended deterrence policy that followed North Korea's development of ICBMs and SLBMs, which have the ability to attack U.S. mainland.[146]

However, there are costs hosting NWNWs. Countries that possess American nuclear weapons should be prepared to incur financial expenses, military opportunity costs for protecting or maintaining warheads, and diplomatic costs if cooperation is condemned by other nations. Furthermore, if the enemy were to use these weapons to target civilians, there would be massive casualties.

The argument for merely introducing nuclear weapons to South Korea may be impractical since the U.S. government has no plans to redeploy NSNWs in South Korea.[147] Therefore, the challenge of security assurance for South Korea should be examined more broadly. Some see assurance as presuming the direct deployment of the U.S. NSNWs, or South Korea developing its own nuclear weapons. However, such assurance may also be strengthened by focusing directly on creating a solid consultative body such as the NATO NPG, which presents a more feasible solution for credible extended deterrence. This chapter examines that option in more detail.

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[146] Hwee-Rhak Park, "An Introduction to NATO's 'Nuclear Sharing' and a Preliminary Analysis on the Applicability of it to Northeast Asia," *National Security* 27, no. 1 (2021): 103–28.

[147] Huntley, "Speed Bump on the Road to Global Zero:," 321.

A. NUCLEAR DETERRENCE AFTER THE COLD WAR

Changing international conditions after the Cold War have shifted the role of nuclear deterrence significantly in ways that directly affect South Korea.

1. The Advent of the Second Nuclear Age after the Collapse of the Soviet Union and Its Features

After the collapse of the Soviet Union in 1991, the changing strategic environment created a new nuclear aspect called the Second Nuclear Age. Even though the nuclear stockpile arms race between the United States and the Soviet Union ended, and the United States withdrew most of these weapons abroad, this did not mean the end of nuclear weapons.

First of all, in entering the Second Nuclear Age, the likelihood of small-scale nuclear attacks has increased. North Korea, Pakistan, and India have joined the nuclear club. Israel has been thought to be in the nuclear club for a long time, and recently Iran has also been trying to join the nuclear club.[148] Since these countries (except Iran) did not sign up for the NPT, international society cannot control their nuclear activities. Thus, their nuclear weapons can pose a major security problem and a risk of nuclear terrorism.

Second, the credibility of the extended deterrence commitment of the United States, which served as a strong shield against potential Soviet attacks during the Cold War, has been called into question since the collapse of the Soviet Union. That is because North Korea's continued development of nuclear capabilities has raised doubts among allies in East Asia about whether South Korea and Japan could be protected by U.S. nuclear capabilities. Moreover, the United States has made efforts to reduce the role of nuclear weapons in its overall security posture, which has also served to diminish the allies' faith in U.S. nuclear policy.

Overall, as these features increase pressure on the United States, America's defense challenges become more important than they were before. In this new security environment,

[148] Bracken, *The Second Nuclear Age*.

potential enemies become stronger, and allies seek greater assurance as they question the guarantees provided by the United States.[149]

2. The Occurrence of Grave Threat in East Asia: North Korea's Nuclear Armament

North Korea's continuous nuclear capability development places a significant weight and conundrum on the South Korean and American authorities' policy—particularly with regard to extended deterrence—in the context of the shifting strategic environment. North Korea, which has been displaying its nuclear ambitions since Kim Il-sung's reign after the Korean War, finally conducted its first nuclear test in 2006 at the end of Kim Jong-il's reign and declared the completion of its nuclear weapons program 11 years later in 2017. In 2018, North Korea has stopped aggressive behavior when an atmosphere of reconciliation between the two Koreas and the United States emerged. At that time, North Korea promised to denuclearize the Korean Peninsula at the Panmunjom Inter-Korean Summit and the United States-North Korea Summit in Singapore on June 12, 2018.[150]

However, after the breakdown of the 2019 Hanoi Summit, North Korea accelerated its nuclear development rather than taking practical steps to dismantle nuclear weapons. Between May 2019 and August 2020, North Korea has conducted 16 tests of short-range missiles with a range of less than 1,000 kilometers, including the KN-23 and KN-24.[151] KN-23 and KN-24 use solid fuel that is less likely to be exposed in advance to South Korean-U.S. intelligence assets. Thus, these missiles strengthened North Korea's surprise capabilities. In addition, the new guided weapons have become more difficult to intercept through the South Korean-U.S. missile defense system because of North Korea's missiles' low altitude of 25–50 kilometers. The procedure of radar detection and missile interception was difficult, especially because these missiles fly between the highest Patriot (PAC-3) and the lowest Terminal High

[149] Pilat, "A Reversal of Fortunes?," 582.

[150] Kim, "After the Hanoi Summit, the trend of North Korea's tactical and strategic weapons development and implications for the evolution of the nuclear deterrence doctrine."

[151] Kim.

Altitude Area Defense (THAAD) missile defense system of 50 kilometers.[152] At a military parade in October 2020, North Korea unveiled the Hwasong-16 type (later it turned out as to be the Hwasong-17), a super-large ICBM, which is estimated to be the world's largest and heaviest liquid engine missile if it is deployed in the future. In addition to having ICBMs that can attack the U.S. mainland, North Korea test-fired a new SLBM, the Bukkeksung 3 (estimated range: 2,000 kilometers), in Wonsan Bay in October 2019. The Bukkeksung 4 and 5 that appeared at the 2020 and 2021 military parades have yet to test-fire but are being considered for use in a medium-sized submarine or planned nuclear-powered submarine. In particular, the Bukkeksung 5 (estimated range: 3,000 kilometers) is considered to have the ability to hit Guam directly from the East.[153]

As can be seen from the above discussion, since the breakdown of the Hanoi talks, North Korea has been striving to secure the viability of North Korea's nuclear forces and reliable strike capabilities against the U.S. mainland. North Korea's development of ICBMs and SLBMs shows its ability and willingness to launch a nuclear attack on the U.S. mainland. Under these circumstances, South Korea has expressed doubts about whether the United States would sacrifice New York for Seoul amid threats from North Korea's ICBMs, as European countries "had doubts that Washington would truly employ its strategic nuclear forces on their behalf." [154] According to Hwee-rhak Park, North Korea could threaten to attack U.S. cities with ICBMs and SLBMs if the United States provides extended deterrence for South Korea based on its enhanced nuclear power; therefore, in this situation, the United States would inevitably hesitate to implement extended deterrence.[155]

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[152] Kim.

[153] Myounghwan Seo, "A Study on the Establishment of U.S Extended Deterrence Policy on Korea: Focusing on the Decisions and Consultations on Deterrence Policy between South Korea and the United States," *Korea National Defense University*, 2020, https://academic.naver.com/article.naver?doc_id=881472928.

[154] Montgomery, *Extended Deterrence in the Second Nuclear Age*, 3.

[155] Park, "An Introduction to NATO's 'Nuclear Sharing' and a Preliminary Analysis on the Applicability of it to Northeast Asia."

3. U.S. Policies to Reduce the Role of Nuclear Warheads in Security

The U.S. efforts to lower the number of nuclear weapons have also raised questions about the viability of its extended deterrence. The Obama administration publicly stated that it favored reducing the role of U.S. nuclear weapons and the number of warheads as a first step toward realizing a "nuclear-free world."[156] The number of U.S. nuclear warheads decreased from 32,000 in 1967 to 4,760 in 2015.[157] For Asian allies against North Korea's growing nuclear threat, this reduction diminished U.S. nuclear capabilities, increased the chance of North Korea challenging the U.S. resolve to defend its allies with its limited nuclear arsenal,[158] and caused allies to worry about American abandonment (i.e., U.S. disengagement from their defense).[159] It also risks limiting the United States president's nuclear response options. Most importantly, no one can judge how much U.S. nuclear capability inhibits hostile action by the enemy because effective deterrence varies in the context of the enemy's ability, timing, and situation.[160]

B. SHORTCOMINGS OF CURRENT ROK-U.S. NUCLEAR POLICY COORDINATION

ROK-U.S. dialogue on the role of nuclear deterrence in South Korea has not kept up with the significant changes in international conditions and nuclear weapons developments since the end of the Cold War.

1. The Development of the Current Nuclear Consultative Body between South Korea and the United States

When North Korea conducted its first nuclear test in 2006, South Korea recognized the nuclear test as a grave threat to the balance of conventional military forces between the two Koreas as well as a matter directly linked to national survival. Meanwhile, the United States evaluated that North Korea's nuclear threat may worsen regional security and cause

156 White House Press Releases, "Remarks by President Barack Obama in Prague—As Delivered."

157 Montgomery, *Extended Deterrence in the Second Nuclear Age*, 12.

158 Payne, "Why U.S. Nuclear Force Numbers Matter," 20.

159 Roberts, *The Case for U.S. Nuclear Weapons in the 21st Century*, 199.

160 Payne, "Why U.S. Nuclear Force Numbers Matter," 15–20.

new regional nuclear proliferation in Japan and South Korea. U.S. President George W. Bush stated that the United States would provide full levels of deterrence and security commitments to protect the alliance from North Korea's nuclear threats as soon as North Korea tested a nuclear bomb.[161] In addition, the United States emphasized once again that the nuclear umbrella pledge promised in 1978 was valid. Therefore, the U.S. nuclear umbrella pledge, which had remained an explicit promise, began to be re-established under the policy of extended deterrence starting in 2006.

When North Korea conducted its second nuclear test in 2009, South Korean and U.S. defense authorities formed a South Korea-U.S. Extended Deterrence Policy Committee (EDPC) to discuss the implementation of the extended deterrence, which was upgraded to the Deterrence Strategy Committee (DSC) in April 2015.[162] In October 2016, the Extended Deterrence Strategy and Consultation Group (EDSCG) was established under the Secretary of Diplomacy and Defense 2+2 system between South Korea and the United States to share nuclear deterrence policies and further discuss practical ways to use the nuclear umbrella, missile defense, and conventional weapons.[163]

On December 20, 2016, South Korea and the United States held the first meeting of the EDSCG in Washington, DC. The United States reiterated its unwavering commitment to provide South Korea with extended deterrence using all categories of military capabilities, including the nuclear umbrella, conventional strikes, and missile defenses. In addition, the United States reaffirmed its long standing policy that any attack on the United States or its allies would face an effective and massive reaction to any nuclear bomb use.[164] Even though South Korea and the United States held the second high-level meeting of the EDSCG in Washington, DC, in 2018, the contents of the second meeting

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[161] George W. Bush, "President Bush's Statement on North Korea Nuclear Test," *The White House*, 2006, https://georgewbush-whitehouse.archives.gov/news/releases/2006/10/20061009.html.

[162] Kookbang-Ilbo, "Deterrence Strategy Committee (DSC)," Kookbang-Ilbo, accessed November 3, 2022, https://kookbang.dema.mil.kr/newsWeb/m/20210927/5/BBSMSTR_000000100042/view.do.

[163] Seo, "A Study on the Establishment of U.S Extended Deterrence Policy on Korea: Focusing on the Decisions and Consultations on Deterrence Policy between South Korea and the United States."

[164] Ministry of National Defense, "Joint Press Release on the Results of the First Meeting of the EDSCG between South Korea and the United States," accessed October 15, 2022, https://www.korea.kr/news/pressReleaseView.do?newsId=156174811.

were no different from the first meeting.[165] During the two meetings, there was no specific discussion of how the United States would operate nuclear missions to deter North Korea's nuclear threats and reaffirm the U.S. commitment to extended deterrence.

To summarize, as the North Korean nuclear threat became a reality after the North's first nuclear test in 2006, South Korea demanded a more reliable deterrence strategy to enhance the credibility of the U.S. extended deterrence strategy.[166] Since North Korea's nuclear development, the United States has repeatedly pledged its nuclear umbrella to South Korea, and the result led to the establishment of the EDSCG (see Figure 5).

Date	Nuclear Threats From North Korea	The Development of Nuclear Consultative Body
10.09.2006	- The 1st Nuclear Test *Plutonium Bomb (1kt)	
05.25.2009	- The 2nd Nuclear Test * Plutonium Bomb (7kt) - Long-range Missile Launch Test	- EDPC (2011, 2012, 2013, 2014)[167] - CMCC (Counter Missile Capability Committee) (2012, 2013, 2014) *Against North Korea's ballistic missile threats
02.12.2013	- The 3rd Nuclear Test *Uranium Bomb (12kt) *Warhead Miniaturization	
2014	- Ballistic Missile Launch Tests (ICBMs, SLBMs)	
2015	- Ballistic Missile Launch Tests	- EDPC / - CMCC (2015) - DSC (04.2015)
01.06.2016	- The 4th Nuclear Test * Hydrogen Bomb (10~20kt) - Ballistic Missile Launch Tests	- DSC - EDSCG (12.2016) *The 1st EDSCG Meeting (12.2016)
09.09.2016	- The 5th Nuclear Test * Hydrogen Bomb (10~20kt)	
09.03.2017	- The 6th Nuclear Test * Hydrogen Bomb (150~250kt) - ICBM Test (13,000km range)	

Figure 5. North Korea's Nuclear Threat and the Development of Nuclear Consultative Body

[165] Ministry of National Defense, "Joint Press Release on the Results of the Second Meeting of the EDSCG between South Korea and the United States," accessed October 15, 2022, https://www.korea.kr/news/pressReleaseView.do?newsId=156353036.

[166] Ki-Chul Park and Jae-Woo Choo, "NATO's Nuclear Sharing Strategy and Its Implications for the Establishing a New Strategy for Strengthening Extended Deterrence on the Korean Peninsula," *Journal of International Area Studies* 26, no. 1 (2022): 9.

[167] Kookbang-Ilbo, "Extended Deterrence Policy Committee (EDPC)," Kookbang-Ilbo, accessed November 3, 2022, //kookbang.dema.mil.kr/newsWeb/20210927/2/BBSMSTR_000000100042/view.do.

2. The Limitations of the EDSCG

However, the EDSCG—the only consultative body that can discuss nuclear extended deterrence between South Korea and the United States—is unstable, with its importance changing according to South Korean politics.[168] In other words, South Korea's interest in attempts to strengthen U.S. extended deterrence against North Korea's evolving nuclear threats has shifted with different presidential administrations.

Since North Korea's first nuclear test in 2006, presidents of conservative parties have largely sought to strengthen the U.S. extended deterrence to prevent the development of North Korea's nuclear capabilities development based on a solid alliance with the United States. However, with the creation of a peaceful mood between the two Koreas and the United States in 2018, the Moon Jae-in government focused on dialogue with North Korea rather than discussions on strengthening extended deterrence with the United States. As a result, the EDSCG lost its function for a while, with no regular meetings.

The EDSCG held its third meeting only in 2022 when the South Korean president changed from Jae-in Moon to Suk-yeol Yoon. To be specific, in September 2022, the third EDSCG meeting resumed after a hiatus of four years and eight months. However, despite North Korea's greatly increased nuclear threat, Seoul and Washington only reached a principled agreement again without discussing specific action plans (see Figure 6).[169]

[168] Park and Choo, "NATO's Nuclear Sharing Strategy and Its Implications for the Establishing a New Strategy for Strengthening Extended Deterrence on the Korean Peninsula."

[169] Park, Ki-Chul, "The Korea-US Extended Deterrence Strategy and Consultation Group: Evaluation and Issues," The Diplomat, accessed October 15, 2022, https://thediplomat.com/2022/10/the-korea-u-s-extended-deterrence-strategy-and-consultation-group-evaluation-and-issues/.

Year	Ideological Tendency (President)	Threats From NK	The Development of Nuclear Consultative Body
2006~ 2008	Liberal (Roh, Moo-hyun)	- The 1st Nuclear Test (10.09.2006)	
2009~ 2012	Conservative (Lee, Myung-bak)	- The 2nd Nuclear Test (05.25.2009) - Long-range Missile Launch Test	- EDPC (2011, 2012, 2013, 2014)[170] * The 1st TTX (2011) * The 2nd TTX (2012) * The 3rd TTX (2014) - CMCC (2012, 2013, 2014) * Against North Korea's ballistic missile threats
2013	Conservative (Park, Geun-hye)		
2014		- Ballistic Missile Launch Tests (ICBMs, SLBMs)	
2015		- Ballistic Missile Launch Tests (ICBMs, SLBMs)	- EDPC (02.2015)[171] * The 4th TTX - CMCC (2015) - DSC (04.2015)
2016		- The 4th Nuclear Test (01.06.2016) - Ballistic Missile Launch Tests (ICBMs, SLBMs) - The 5th Nuclear Test (09.09.2016)	- DSC * The 5th TTX (02.2016) - EDSCG (12.2016) * The 1st EDSCG Meeting
2017	Liberal (Moon, Jae-in)	- The 6th Nuclear Test (09.03.2017) - ICBM Test * 13,000km range - Declaration of "Completion of National Nuclear Weapons"	
2018			- The 2nd EDSCG Meeting
2019		- NK Ballistic Missile Launch Tests (ICBMs, IRBMs, SLBMs)	
2020			
2021			
2022	Conservative (Yoon, Seok-yeol)		- The 3rd EDSCG Meeting

Figure 6. The Development of Nuclear Consultative Bodies Depending on Presidents in South Korea

[170] Kookbang-Ilbo, "Extended Deterrence Policy Committee (EDPC)."

[171] Kookbang-Ilbo.

Moreover, until now, core nuclear information has not been shared in the extended deterrence consultative body system between South Korea and the United States. To be specific, regarding "Operation Plan 8010–12 (Updated)," a nuclear strike plan against a potential enemy written by the U.S. STRATCOM, North Korea-related information is not shared with South Korea at all for security reasons.[172]

Most importantly, North Korea has greatly developed its nuclear capabilities through continuous nuclear tests, despite efforts by South Korea and the United States to strengthen the credibility of extended deterrence. According to the report of the Rand Corporation and the Asan Institute for Policy Studies, North Korea "already could have had 67 to 116 nuclear weapons in 2020, and, by 2027, North Korea might have 151 to 242 nuclear weapons."[173] As of this writing, North Korea is likely to conduct its seventh nuclear test and increase its nuclear power.

The combination of increasing North Korean nuclear weapons capabilities and the limited scope of EDSCG discussions so far together expose how the EDSCG is not enough to appease doubts about whether the United States can provide deterrence against the Korean Peninsula. South Korean concerns are particularly strong now that North Korea has put the United States under nuclear threat to the mainland.

C. NATO NPG AS A MODEL FOR AN ROK-U.S. NUCLEAR CONSULTATIVE PROCESS.

During a parliamentary inspection of the National Defense Commission in 2017, Byung-joo Kim, the former vice commander of the South Korea-U.S. CFC, said the United States would not hesitate to respond to North Korea when North Korea fires nuclear weapons at South Korea. In response, Jin-suk Chung, a member of the Korean National Assembly, questioned how he could trust this commitment because South Korea lacked a specific institutional mechanism with the United States. Chung saw that trust between allies

172 Park and Choo, "NATO's Nuclear Sharing Strategy and Its Implications for the Establishing a New Strategy for Strengthening Extended Deterrence on the Korean Peninsula."

173 Bruce W. Bennett et al., *Countering the Risks of North Korean Nuclear Weapons*, Perspectives / Rand Corporation; PE-A1015-1 (Santa Monica, Calif: RAND Corporation, 2021), 37.

should not be expected implicitly. He added that a mechanism should be in place to ensure credibility that enables the sharing of U.S. nuclear power, as in the case of NATO.[174]

This section discusses how the NATO NPG model could increase the credibility of South Korea's U.S. extended deterrence policy, allowing South Korea to gain assurance. This section examines this process in detail by comparing the differences in extended deterrence policy with Greece, which had U.S. NSNWs deployed within its territory in the past and withdrawn after the Cold War, to the similar case of South Korea.

1. Common Nuclear Planning and Sharing Nuclear Information

In South Korea, as in the case of Greece, U.S. NSNWs were directly deployed within its territory in the 1950s, but all of them were withdrawn shortly after the end of the Cold War in the Fall of 1991.[175] Unlike Greece, however, South Korea was not guaranteed any participation in planning in terms of the use of nuclear weapons against potential adversaries threatening South Korea, either while U.S. NSNWs were within its territory or after the withdrawal. The United States said in an official statement that it guarantees a nuclear umbrella for South Korea but had not discussed any specific issues with South Korea before North Korea developed nuclear weapons. South Korea was able to communicate with extended deterrence consultative bodies after North Korea's nuclear development in 2006, but their roles were limited to general consultation on the U.S. extended deterrence policy.

As shown in Figure 7, which compiles information previously presented in this thesis, Greece was actively involved in the development of nuclear planning and sharing of nuclear information for assurance as a member of the NPG, regardless of whether is hosted U.S. nuclear weapons. Therefore, if South Korea's extended deterrence consultative bodies reach the level of jointly establishing nuclear plans and sharing the necessary

174 The National Assembly Secretariat, "Minutes of the National Assembly Meeting_20th_354th_National Audit_National Defense Committee," October 12, 2017.

175 Don Oberdorfer, "U.S. Decides to Withdraw A-Weapons from S. Korea," *Washington Post*, October 19, 1991, https://www.washingtonpost.com/archive/politics/1991/10/19/us-decides-to-withdraw-a-weapons-from-s-korea/3759ee3f-e9bf-4944-bfdf-2f9ea727b546/.

nuclear information for nuclear planning like the NATO NPG, assurance in the U.S. extended deterrence policy will increase.

	Greece		South Korea	
Major Threats	Conventional, Nuclear Threats (Soviet Union)	Conventional, Nuclear Threats (Russia)	Conventional Threats (North Korea)	Conventional, Nuclear Threats (North Korea)
Hosting U.S. NSNWs	O (1968~2001)	X (Withdrawal in 2001)	O (1954~1991)	X (Withdrawal in 1991)
Nuclear Consultative Body	O (NPG)	O (NPG)	X	O (EDPC in 2011, EDSCG in 2016)
Nuclear Planning Participation	O	O	X	X
Nuclear Information Sharing	O	O	X	X
Nuclear Mission Exercise	O (DCA)	O / X * DCA: preliminary support available	X	X
Nuclear Mission Support Exercise	X	O (Conventional Aircraft)	X	X

Figure 7. The Extended Deterrence Policy Comparison Between Greece and South Korea

2. Active Role in Nuclear Mission Exercises

Since the South Korea-U.S. Mutual Defense Treaty was signed in 1953, both countries have maintained a close alliance relationship. Especially, South Korea-U.S. combined exercises conducted since 1969 further strengthened this alliance. Since 2019,

however, South Korea and the United States have replaced the previous Key Resolve (KR) exercise and the Ulchi Freedom Guardian (UFG) exercise with a new Combined Command Post Training (CCPT), which is conducted twice a year (in the first and second half of the year). Without engaging in any field movement exercises, the CCPT simulates a battlefield on a computer.

In particular, these combined exercises were limited to situations using conventional power, and military exercises for nuclear missions were not conducted together as in the case of NATO. The operational practice of the extended deterrence is limited to table-top exercise (TTX) rather than actual field training. Since 2011, such exercises have been conducted five times (four times in the United States and once in Korea), and they are more like a brainstorming forum that assumes a scenario than a training session. The actual nuclear mission training is organized by the U.S. STRATCOM, and the United States conducts nuclear readiness training alone under the names of "Global Thunder" and "Global Lightning."[176] It remains to be seen whether TTX conducted on the desk will deliver a strong will to deter North Korea and assure South Korea.

As discussed above, Greece participated in the nuclear mission training by providing DCA directly before the U.S. NSNWs withdrawal. After the U.S. NSNWs were withdrawn, Greece's DCA became a reserve asset for NATO nuclear mission exercises. In addition, Greece offers conventional aircraft in SNOWCAT training, which supports NATO nuclear missions in a large framework. South Korea also has sufficient DCA assets such as F-35 and F-16 to be able to perform nuclear missions. Therefore, if it is agreed with the United States, South Korea can provide DCA or conventional aircraft in the performance of the U.S. nuclear mission training. If this contribution is accompanied by crew training, it will be possible for South Korea's pilots to operate DCA equipped with nuclear weapons in case of emergency.

[176] Park and Choo, "NATO's Nuclear Sharing Strategy and Its Implications for the Establishing a New Strategy for Strengthening Extended Deterrence on the Korean Peninsula."

South Korea's direct and indirect participation in the U.S. nuclear mission exercises, as done in Greece, could increase South Korea's assurance in the U.S. policy of extended deterrence, even if South Korea does not possess U.S. nuclear weapons in its territory.

D. THE WAY TO STRENGTHEN THE EDSCG COMPARABLE TO THE NATO NPG

1. Organization

The EDSCG has the potential to become a hub where the alliance's nuclear policies may become more coherent and well-communicated by increasing the level of consultative participants and having regular EDSCG meetings. For the EDSCG to become a strong and effective nuclear deterrent consultative body, the Staff Group in charge of specialized EDSCG activity and the HLG that offers expert-level recommendations must be formed, like in NATO.

a. Upgrading the Level of the Consultative Participants and Holding the EDSCG Meeting Regularly

Considering that NATO's ministerial cabinets (mainly defense ministers) participate in annual NPG meetings and conduct in-depth nuclear planning, the current, irregular organization of the EDSCG at the level of the vice ministers of Foreign Affairs and Defense clearly has less stature and potential.

During the course of the research for this thesis, South Korea and the United States, in their joint declaration at the third EDSCG meeting in September 2022, decided for the first time to hold the high-level EDSCG every year.[177] Looking at the past cases in which the extended deterrence consultative body was held and suspended according to the political tendencies of South Korean presidents, this decision to hold regular meetings will be helpful for the stability of the EDSCG. In addition, considering the importance of issues discussed through the EDSCG, the regularization of the EDSCG is of great help to

[177] Ministry of National Defense, "Joint Statement on the Extended Deterrence Strategy and Consultation Group Meeting," Ministry of National Defense, September 17, 2022, https://www.korea.kr/news/pressReleaseView.do?newsId=156526189.

strengthen the power of U.S. extended deterrence, as nuclear policies must continue to develop by security conditions.

Currently, the bilateral alliance between South Korea and the United States includes military consultative bodies such as the annual SCM of the two countries' defense ministers and the annual MCM of the two countries' Chairman of the Joint Chiefs of Staff. Based on these existing foundation similarities, the alliance's nuclear doctrine and nuclear strategies discussed in the NPG could be held together at the time of the SCM every year by raising the level of the dialogue for participants of the EDSCG. Enhancing the level of consultative participants in addition to holding the regular EDSCG meetings can make the EDSCG a place where the alliance's nuclear policies become more consistent and well-communicated.

b. Permanent Staff Group and High-Level Group

The establishment and management of a distinct permanent support organization specifically for the NPG discussion is a key aspect of how the NPG operates. First of all, the NPG Staff Group organizes the NPG's work. Members of the national delegations from all the participating member nations make up this group. The Staff Group completes meticulous work for the NPG Permanent Representatives (or Ambassadors) in charge of the national delegations.[178]

As South Korea and the United States agreed to hold the high-level EDSCG yearly beginning in 2023, the significance and requirement of the EDSCG-version Staff Group increased. The next EDSCG engagement will take place at the expert level in the first half of 2023 to progress initiatives before the following EDSCG meeting.[179] It is still only declarative content for now. Creating a Staff Group for future South Korea-U.S. EDSCG meetings would be more fruitful.

[178] NATO, "Nuclear Planning Group (NPG)."

[179] Ministry of National Defense, "Joint Statement on the Extended Deterrence Strategy and Consultation Group Meeting."

Another core group of the NPG is the HLG, which is the senior advisory group on nuclear policy and planning matters for the NPG. The NPG High-Level Group was established to help keep relevant discussions going and to offer technical guidance. Thus, given the importance and lethality of nuclear information, the EDSCG also needs to form this group of policymakers and nuclear experts.

For the EDSCG to become a robust and effective consultative body in terms of the nuclear deterrent, it will be necessary to give careful consideration to the formation of the Staff Group in charge of specific EDSCG work and the HLG that proposes expert-level advice, as in the case of NATO. The creation of these groups for precise communication would contribute to South Korea's assurance in the U.S. extended deterrence commitment.

2. Nuclear Planning and Sharing Nuclear Information

The U.S. extended deterrence strategy for the Korean Peninsula has been strengthened step by step as North Korea has conducted six nuclear tests so far. In the process, various consultative bodies such as ROK-U.S. NCMA, SCM, MCM, and South Korea-U.S. Integrated Defense Dialogue and the EDSCG were launched. However, no specific consultation has been made on nuclear operations.[180]

The U.S. use of nuclear weapons on the Korean Peninsula in the event of an emergency is not something the United States should simply decide alone, as the fate of all South Koreans is at stake. However, the United States has made its nuclear operation plans against North Korea without consulting with South Korea—which is directly affected by these decisions—and does not even share the core content of the plans. Above all, even if the U.S. nuclear weapons are deployed in South Korea, arbitrary U.S. decision making may still be made without sufficient consultation.[181] For example, South Korea was notified at the last minute as the U.S. deployed strategic assets such as the F-35A 5th generation

[180] Park, Ki-Chul, "The Korea-US Extended Deterrence Strategy and Consultation Group."

[181] Park, Ki-Chul.

fighter and the Ronald Reagan Carrier Strike Group in the sea of South Korea to curb North Korea's seventh nuclear test.[182]

Therefore, as in the case of NATO NPG, the United States can expect a coordinated response with South Korea if the United States in the EDSCG shares nuclear information on how, at least, the U.S. plans to use its nuclear power to counter North Korea. In addition, South Korea is an expert on the Korean Peninsula. If South Korea's opinions are reflected in the U.S. operational plan through continuous consultation at the EDSCG meetings, this will also ensure that both South Korea and the United States conduct military operations more efficiently. In this process, South Korea can trust the U.S. commitment to extended deterrence more practically, and the United States can also eliminate unnecessary elements of discord with the core ally, South Korea.

In the 2022 SCM between South Korea and the United States, expanding South Korea's participation in the U.S. extended deterrence planning and implementation process (including nuclear capabilities) was discussed. This would be the starting point for deepening and institutionalizing the content of extended deterrence beyond a simple declaration of U.S. extended deterrence commitment to South Korea. This initiative implies the possibility that the EDSCG will develop into a forum for discussing and sharing critical nuclear information, similar to the NPG.[183]

3. Nuclear Mission Exercises

If there is an operation plan, TTXs and practical maneuvering training are needed to verify it. Not only do NATO members gather every year to think deeply about the NATO nuclear doctrine, but NATO allies directly participate in military exercises to see how to operate nuclear weapons in case of emergency. The important point is that not only countries with U.S. nuclear weapons on their territory, but also non-nuclear allies without U.S. nuclear weapons on their territory, can actively participate in NATO's nuclear mission.

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[182] Park, Ki-Chul.

[183] Ministry of National Defense, "Joint Statement on the 54th Security Consultative Meeting," *Ministry of National Defense*, November 4, 2022, https://www.korea.kr/news/pressReleaseView.do?newsId=156526189.

To implement a stable and consistent nuclear operation plan in South Korea, it is necessary to regularize TTX and ensure South Korea's participation in the U.S. nuclear strategic asset deployment training based on TTX. So far, South Korea and the United States have conducted five TTXs to develop crisis management, decision-making, and effective joint deterrence measures.[184] However, since TTX is not regularized, no exercises have been implemented since 2016. In the South Korea-U.S. SCM in 2022, both countries promised the regularization of TTX. Continuous attention should be paid to ensure that this declaration is well realized.

In addition to the regularization of TTX, South Korea's contribution to the nuclear mission exercise would bolster the credibility of U.S. extended deterrence as well as South Korea's assurance. In July 2022, eight F-35As from both South Korea and the United States conducted a combined flight exercise in South Korea's airspace. It was an impressive exercise in which the two countries took turns leading the squadron. Through such practical training, South Korea and the United States were able to improve their ability to carry out combined operations and enhance the interoperability of the F-35A jointly operated by the two countries.[185] Considering that the F-35 can perform the DCA role, South Korea's F-35s can also be used as a preliminary resource for carrying out nuclear missions like they are by Greece. Therefore, crew training can be implemented as in NATO's case, and such training will further strengthen the assurance of South Korea.

E. CONCLUSION

After the fall of the Soviet Union in 1991, the shifting strategic environment spawned a new nuclear era called the Second Nuclear Age. Even though the nuclear stockpile arms race between the United States and the Soviet Union came to an end and the United States evacuated the majority of its nuclear weapons from overseas, this did not mark the end of nuclear weapons. First, the onset of the second nuclear age has raised the

[184] Shin, In-Ho, "Table Top Exercise_TTX," Kookbang-Ilbo, accessed October 16, 2022, https://kookbang.dema.mil.kr/newsWeb/m/20220629/2/BBSMSTR_000000100042/view.do.

[185] Dongodongrak, "KRUS Korean Air Force Conducts F-35A Combined Exercise For The First Time," Naver -Ministry of National Defense (blog), accessed October 18, 2022, https://blog.naver.com/mnd9090/222811030956.

potential of small-scale nuclear assaults. North Korea, Pakistan, and India have joined the nuclear club, while Iran's nuclear ambitions have become a global worry. Second, these new nuclear powers combined with a lower emphasis on nuclear weapons in U.S. security overall have raised questions about the credibility of the U.S. extended deterrence commitment among allies. In particular, North Korea's continuous development of nuclear weapons, including emergent capabilities to target the U.S. mainland, has caused East Asian allies to question whether they can be secured by U.S. nuclear capabilities.

Since the North's first nuclear test in 2006, South Korea has wanted more assurance of the credibility of the U.S. extended deterrence policy.[186] However, the ROK-U.S. dialogue on the role of nuclear deterrence in South Korea has not kept pace with the considerable changes in world circumstances and North Korea's nuclear weapons advancements. Initial efforts to develop that dialogue led to the formation of the EDSCG that can provide a focused forum for discussion of extended nuclear deterrence. However, the EDSCG—the only consultative organization between South Korea and the United States— is unstable because its prominence fluctuates based on South Korean politics.[187] As a result of the establishment of a friendly atmosphere between the two Koreas and the United States in 2018, the Moon Jae-in administration prioritized negotiation with North Korea above discussions of enhancing extended deterrence with the United States. Consequently, the EDSCG was temporarily defunct, with no regular meetings.

In addition, even when functioning, this extended deterrence consultative body has not enabled communication of key nuclear information between South Korea and the United States. The expanding nuclear weapons capabilities of North Korea and the restricted scope of EDSCG negotiations so far demonstrate that the EDSCG is insufficient to allay concerns about the U.S. ability to offer deterrence against the Korean Peninsula. Now that North Korea has posed a nuclear threat to the U.S. mainland, South Korean anxieties have intensified significantly.

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[186] Park and Choo, "NATO's Nuclear Sharing Strategy and Its Implications for the Establishing a New Strategy for Strengthening Extended Deterrence on the Korean Peninsula," 9.

[187] Park and Choo, "NATO's Nuclear Sharing Strategy and Its Implications for the Establishing a New Strategy for Strengthening Extended Deterrence on the Korean Peninsula."

Meanwhile, unlike NATO, South Korea and the United States did not undertake joint military drills for nuclear operations. The operational practice of the extended deterrence methods is restricted to TTXs as opposed to real field training. This contrasts with the case of Greece, which participates in NATO nuclear mission training and exercises. South Korea has adequate DCA assets, including F-35 and F-16 fighters, to conduct nuclear missions. Consequently, if it is agreed with the United States, South Korea could deploy DCA or conventional aircraft for U.S. nuclear mission training. Additionally, if this contribution is accompanied by crew training, South Korean pilots will be able to fly DCA armed with nuclear bombs in the event of an emergency. Even though South Korea does not hold U.S. nuclear weapons on its soil, direct and indirect involvement in U.S. nuclear mission exercises, as done in Greece, might strengthen South Korea's assurance of U.S. extended deterrence for South Korea's security.

Since the U.S. government publicly said in 2012 that it had no intentions of redeploying NSNWs in South Korea, the argument for simply bringing nuclear weapons back to South Korea may be unworkable.[188] The analysis in this chapter shows that, to create more South Korean confidence in U.S. security commitments, bringing nuclear weapons back to South Korea also may be unnecessary. Instead, the most realistic way to strengthen South Korea's assurance of U.S. extended deterrence is to enhance the EDSCG's functions and duties so this consultative body can provide the same depth of communication on nuclear posture and policies as the NATO NPG.

NATO's ministerial cabinets participate in annual NPG meetings and conduct in-depth nuclear planning, and the establishment and management of a distinct permanent support organization specifically for the NPG discussion is a key aspect of how the NPG operates. In contrast, the current irregular EDSCG at the level of the vice ministers of Foreign Affairs and Defense clearly has less stature and potential. Enhancing the level of consultative participants in addition to holding the regular EDSCG meetings can make the EDSCG a forum where the alliance's nuclear policies become more consistent and well-

[188] Huntley, "Speed Bump on the Road to Global Zero:," 321.

communicated. Creating a Staff Group for future South Korea-U.S. EDSCG meetings would be more fruitful.

Key functions of the EDSCG process should include sharing nuclear information and jointly establishing operations, as in the case of the NATO NPG. The U.S. extended deterrence strategy for the Korean Peninsula has been strengthened step by step as North Korea has conducted six nuclear tests so far. Although many aspects of joint security planning are discussed in various ROK-U.S. consultative bodies, no specific consultation has been made on nuclear operations.[189] The U.S. use of nuclear weapons on the Korean Peninsula is not something the United States should simply decide alone, as the fate of all South Koreans is at stake. Therefore, the United States can expect stronger support from South Korea if the United States shares nuclear information in the EDSCG on how, at least, the U.S. plans to use its nuclear power to counter North Korea. If the perspectives of South Korea, which is an expert on the Korean Peninsula, are reflected in the U.S. operational plan through continuous consultation at the EDSCG meeting, this will also ensure that both South Korea and the United States conduct military operations more efficiently.

If there is an operation plan, TTXs and practical maneuvering training are needed to verify it. To implement a stable and consistent nuclear operation plan in South Korea, it is necessary to regularize TTX and ensure South Korea's participation in the U.S. nuclear strategic asset deployment training. In addition to the regularization of TTX, South Korea's contribution to the nuclear mission exercise would bolster the credibility of U.S. extended deterrence as well as South Korea's assurance. Through such practical training, South Korea and the United States can improve their ability to carry out combined operations and enhance the interoperability of the F-35A jointly operated by the two countries.[190]

In summary, changing conditions since the end of the Cold War, most importantly North Korea's progress in developing a strong nuclear arsenal that threatens both South Korea and the United States, has created new challenges not only to U.S. extended

[189] Park, Ki-Chul, "The Korea-US Extended Deterrence Strategy and Consultation Group."

[190] Dongodongrak, "KRUS Korean Air Force Conducts F-35A Combined Exercise For The First Time."

deterrence in Korea, but also assuring South Korea that U.S. security commitments remain strong. The analysis of this chapter has shown that the model of NATO's NPG can provide a more viable means of creating that assurance than redeploying NSNWs in Korea. Strengthening the EDSCG by regularizing its meetings, raising the level of its participants, deepening the level of nuclear issues it engages, and supplementing that dialogue through expanded ROK-U.S. exercises involving nuclear missions, can provide sufficient assurance to South Korea even as the security environment in East Asia continues to evolve in the future.

IV. CONCLUSION

Since the end of the Cold War, the United States has reduced the overall role of nuclear weapons in its security posture. Meanwhile, North Korea has been developing nuclear weapons capabilities to develop a stronger security posture against the United States. As a result, South Korea, which is protected by the U.S. nuclear umbrella, has become more skeptical of the credibility of the U.S. extended deterrence commitment for South Korea, leading some to call for a return of U.S. tactical nuclear weapons deployment in South Korea.

Given the infeasibility of U.S. redeployment of nuclear weapons in Korea, this study has examined a more practical way to increase South Korea's assurance of the credibility of U.S. extended deterrence. Using NATO's Nuclear Planning Group (NPG) as a model for the ROK-U.S. nuclear policy coordination, the thesis has found that a "South Korean NPG" can answer the need to improve South Korea's assurance in U.S. extended deterrence commitments and further strengthen the two countries' alliance relationship.

A. SUMMARY OF THESIS CONCLUSIONS

Research for this thesis involved a careful examination of the role of the NPG to support assurance of U.S. allies in Europe, and an exploration of how this model could be applied to the ROK-U.S. relationship.

1. The NPG in Europe

The United States strengthened its ties to its European and Asian allies following World War II in response to challenges from the Soviet Union by extending a deterrent commitment based on conventional and nuclear-armed assets. During the Cold War, the United States stationed NSNWs and U.S. military troops throughout Europe and East Asia to enhance the credibility of its extended deterrence commitment. The objective of this strategy was to discourage both nuclear and conventional attacks by creating a physical presence on the battlefield. After the demise of the Soviet Union in 1991, the United States disposed of its NSNWs in East Asia and left them solely on the territory of a few European

allies. In addition, the altered strategic environment created the Second Nuclear Age, in which the possibility for small-scale nuclear attacks has increased. In particular, and North Korea has developed more lethal nuclear weapons, whereas the United States continues to reduce the overall role of nuclear weapons.

These shifting security contexts raise doubts as to whether South Korea and Japan can be protected by U.S. nuclear capabilities. For example, according to a public opinion survey conducted in 2022, "70.2% of South Koreans (respondents) supported developing indigenous nuclear weapons" and "59% of South Koreans supported the redeployment of U.S. tactical nuclear weapons in South Korea. 38.3% opposed."[191] However, in 2012, the U.S. administration announced that it has no plans to redeploy NSNWs in South Korea. This, in addition to the costs associated with placing nuclear weapons in South Korea, suggests that the rationale for transferring nuclear weapons to South Korea (or enabling South Korea to develop nuclear weapons on its own) is implausible.[192] While some see assurance as requiring direct deployment of U.S. NSNWs or South Korea's development of non-nuclear or nuclear weaponry, this thesis finds that assurance may be enhanced by focusing on the formation of a powerful consultative body, such as the NATO NPG, which offers a more realistic option for credible extended deterrence. Therefore, the most practical approach to bolstering U.S. extended deterrence is to expand the roles and responsibilities of South Korea's EDSCG comparable to the NATO NPG.

In accordance with the U.S. commitment to extended deterrence in Europe, the United States conceived of the use of nuclear weapons in partnership with allies, a doctrine that is known as "nuclear sharing" in Europe.[193] The NPG is a consultative group whose mission is to involve European members more directly in the formulation of NATO's nuclear policy.[194] The NPG serves as the highest allied organization on nuclear topics and addresses specific nuclear forces policy concerns. It discusses a large variety of nuclear

[191] Kim, Kang, and Ham, "South Korean Public Opinion on ROK-U.S. Bilateral Ties," 28–32.

[192] Huntley, "Speed Bump on the Road to Global Zero:," 321.

[193] Nichols et al., *Tactical Nuclear Weapons and NATO*, 259.

[194] Legge, *Theater Nuclear Weapons and the NATO Strategy of Flexible Response*, 1.

policy problems, including the overall efficacy of "NATO's nuclear deterrent, the safety, security, and survivability of nuclear weapons," and communications and technology information.[195] As part of NATO's war preparations in the 1950s, the United States gave its allies very limited knowledge of nuclear weapons. Gradually, the United States realized that the lack of information supplied to allies about the U.S. nuclear weapons and intent to use them was the source of the most significant problems among NATO member states.[196] Therefore, U.S. Secretary of Defense Robert McNamara formed a formal alliance consultation mechanism. He understood that maintaining nuclear cooperation with allies was essential to the cohesiveness and credibility of the alliance.

NATO has NPG meetings annually and prepares for its yearly nuclear weapons exercises.[197] NATO conducts annual nuclear mission exercises via the NPG to test its nuclear strategy and execution. "Steadfast Noon" is an annual NATO nuclear deterrence drill involving NATO allies' soldiers and aircraft. Allies assist with this mission by providing infrastructure and other capabilities, including DCA. In addition, supporting contributions by the "SNOWCAT" mission allow more non-nuclear partners to join nuclear burden-sharing arrangements.[198] According to NATO, these drills assist in maintaining the safety, security, and efficacy of the alliance's nuclear deterrent.[199] These exercises also supplement NPG meetings in deepening non-nuclear allies' assurance in U.S. nuclear extended deterrence commitments.

To examine this observation more closely, this thesis has focused on the case of Greece. In 2001, Greece withdrew the American NSNWs from its territory after having previously hosted them. Greece's position is analogous to that of South Korea after the end of the Cold War, when U.S. nuclear weapons were removed. In addition, Greece resembles

[195] NATO, "Nuclear Planning Group (NPG)."

[196] Sayle, "A Nuclear Education," 921.

[197] Outlook Web Desk, "NATO Holds Key Nuclear Group Meeting, Calls Use Of Nukes By Putin A 'Very Important Line.'"

[198] NATO, "NATO Nuclear Policy in a Post-INF World - Speech by NATO Deputy Secretary General Rose Gottemoeller at the University of Oslo."

[199] NATO, "NATO Launches Annual Deterrence Exercise."

South Korea in terms of geographical closeness to the threat and alliance ties with the United States.

Greece has participated in the NPG's regular consultative body and activities related to the organization and development of policies on nuclear weapons safety and security, control, and non-proliferation. Since 2001, when U.S. nuclear weapons were removed from Greek territory, Greece's engagement has not changed much. Greece was not demoted to a secondary role in NATO's nuclear preparations even after all U.S. nuclear weapons were removed from Greek territory.[200] Greece also contributes to NATO's nuclear mission by taking part in periodic military drills, including nuclear mission drills using conventional aircraft techniques to support nuclear missions. In addition, Greece plays a significant role by deploying DCA reserves to nuclear mission military exercises. Despite the closure of nuclear weapons storage in Greece, this role has remained intact.

Generally, the case of Greece indicates that involvement in nuclear policymaking and nuclear military exercises is essential for assuring allies of the U.S. policy of extended deterrence,[201] regardless of who hosts U.S. NSNWs on ally territory. Moreover, the interaction between Greece and the United States to strengthen defense cooperation, such as through strategic dialogues and the revision of the MDCA after the nuclear withdrawal, creates a foundation for Greece's faith in the U.S. security guarantee.

However, the study has found that it is uncertain whether Greece has the same or better assurance of U.S. commitment to extended deterrence after the 2001 withdrawal of U.S. NSNWs from Greek territory. This is because neither the Greek nor American governments have formally declared the departure of U.S. NSNWs from Greek soil.[202] Nevertheless, indirect evidence from the positive statements of major Greek leaders, Greek public opinion, and the strategic decisions of the Greek government demonstrates that

[200] Beach, "The End of Nuclear Sharing?," 50; Kristensen, "U.S. Nuclear Weapons in Europe," April 2005, 54–56.

[201] Kristensen, "U.S. Nuclear Weapons in Europe," April 2005, 54–56; Beach, "The End of Nuclear Sharing?," 50.

[202] Kristensen, "U.S. Nuclear Weapons in Europe," April 2005, 56.

Greece remains sufficiently assured of the commitment of U.S. extended deterrence despite the removal of U.S. NSNWs on its territory.

The Greek case, and the role of the NPG in NATO overall, show that it is vital to divide the duties of NPG consultations and NSNWs in assurance. Although the deployment of non-nuclear strategic nuclear weapons in Europe was regarded critical for deterrence, interaction with allies appears more important for their assurance.

2. An NPG for South Korea

In Asia, South Korea desired a more credible deterrent strategy to bolster the credibility of the U.S. extended deterrence policy[203] after North Korea's first nuclear test in 2006. After North Korea developed nuclear weapons, the United States repeatedly committed to providing South Korea with a nuclear umbrella, resulting in the founding of the EDSCG.

However, the EDSCG—the sole consultative body that can discuss extended nuclear deterrence between South Korea and the United States—is unstable because its significance swings depending on South Korean politics.[204] Since North Korea's first nuclear test in 2006, presidents of conservative parties have primarily sought to strengthen the U.S. extended deterrence to discourage the development of North Korea's nuclear weapons based on a strong alliance with the United States. On the other hand, presidents of liberal parties want to initiate discussions with North Korea about the denuclearization of the Korean Peninsula by offering large sums of money. In particular, as a consequence of the emergence of a cordial climate between the two Koreas and the United States in 2018, the Moon Jae-in government focused on negotiations with North Korea rather than conversations with the United States on boosting extended deterrence. As a result, the EDSCG was for a time inactive.

[203] Park and Choo, "NATO's Nuclear Sharing Strategy and Its Implications for the Establishing a New Strategy for Strengthening Extended Deterrence on the Korean Peninsula," 9.

[204] Park and Choo, "NATO's Nuclear Sharing Strategy and Its Implications for the Establishing a New Strategy for Strengthening Extended Deterrence on the Korean Peninsula."

Beneath this wavering ROK government commitment, South Korea and the United States have not shared vital nuclear knowledge via the extended deterrent consultative body structure. Unlike NATO, South Korea and the United States did not conduct combined nuclear operation military exercises. The operational practice of the tactics of extended deterrence is limited to TTXs as opposed to actual field training. Meanwhile, North Korea has greatly increased its nuclear capabilities via several nuclear tests despite the efforts of South Korea and the United States to reinforce the credibility of extended deterrence. The increasing nuclear capabilities of North Korea and the limited scope of EDSCG discussions so far suggest that the EDSCG is inadequate to assuage worries over the U.S. capacity to deter aggression against the Korean Peninsula. Now that North Korea poses a nuclear danger to the U.S. mainland, South Korean anxiety has increased dramatically.

This thesis finds that the NPG model, which provides strong assurance to European allies, is suitable for South Korea. A form of this model can help to overcome the limitations of the EDSCG and increase South Korea's assurance in the U.S. commitment to extended deterrence. Consultative processes are vital to reassuring allies because they give a platform for these stakeholders to directly interact with American authorities on several defense-related matters and voice their opinions on how the United States may collaborate with them to secure their protection.[205]

Since NATO's ministerial cabinets (mostly defense ministers) engage in yearly NPG meetings and perform in-depth nuclear planning, the existing irregular EDSCG at the level of vice ministers of Foreign Affairs and Defense has far less authority and capacity. In addition, given the significance of topics covered via the EDSCG, the formalization of the EDSCG can be of considerable assistance in bolstering the effectiveness of U.S. extended deterrence, especially because nuclear policies must continue to change in response to evolving security situations. In addition to having regular EDSCG meetings, increasing the number of consultative participants may make the EDSCG a forum where the alliance's nuclear policies become more coherent and well-communicated.

205 Anderson, Larsen, and Holdorf, *Extended Deterrence and Allied Assurance*, 19.

In conclusion, transforming the EDSCG into an institutionalized consultative body that addresses all aspects of extended nuclear deterrence on the Korean Peninsula, using the NATO NPG as a model and yardstick, can enable U.S. extended deterrence in Asia to not only better deter North Korea but also to alleviate anxiety in South Korea. Doing so would significantly enhance the credibility of extended deterrence without returning deployed nuclear weapons to South Korea.

B. POLICY IMPLICATIONS FOR SOUTH KOREA AND THE UNITED STATES

In the joint statement at the third EDSCG meeting in September 2022, South Korea and the United States resolved for the first time to convene the high-level EDSCG annually.[206] Considering earlier instances in which the extended deterrence consultative body was convened and suspended based on the political leanings of South Korean presidents, this would be favorable for the EDSCG's stability. However, given the significance of topics covered via the EDSCG, formalization of the EDSCG in the image of the NPG could be of tremendous importance in bolstering the effectiveness of U.S. extended deterrence.

This thesis demonstrates that the advanced EDSCG adopting the NPG model, which provides European allies with a strong assurance that the United States would surely defend them from external threats, will help South Korea's assurance in U.S. extended deterrence to increase greatly. Therefore, this thesis also offers a great guidance for comprehending the present evolution of the extended deterrence strategy of the South Korean government of Yoon Suk-yeol against North Korea's most dangerous nuclear threats.

Key to the operation of the NPG is the formation and maintenance of a unique permanent support organization for the NPG discussion. In parallel, it would be productive to create a Staff Group for future South Korea-U.S. EDSCG sessions. In light of the

[206] Ministry of National Defense, "Joint Statement on the Extended Deterrence Strategy and Consultation Group Meeting."

significance and lethality of nuclear information, the EDSCG must also establish this group of policymakers and nuclear specialists.

As with the NATO NPG, one of the primary tasks of the EDSCG meeting should be the exchange of nuclear expertise and the establishment of cooperative activities. As North Korea has conducted six nuclear tests so far, the U.S. policy for extended deterrence on the Korean Peninsula has been gradually enhanced. Various consultative bodies, such as the ROK-U.S. NCMA, SCM, MCM, and the South Korea-U.S. Integrated Defense Dialogue and the EDSCG, were established during this process. However, no specific consultations on nuclear operations have occurred. The fate of all South Koreans is in danger if, in the event of a crisis, the United States employs nuclear weapons on the Korean Peninsula. Consequently, similar to the NATO NPG, the United States may ensure a coordinated reaction from South Korea if it conveys information about how it intends to use its nuclear might to confront North Korea in the EDSCG. If South Korea's expertise on the Korean Peninsula is represented in the U.S. operational plan via ongoing consultation at the EDSCG meeting, both South Korea and the United States will execute military operations more efficiently.

Verification of an operating plan requires TTXs and real maneuvering training. It is vital to regularize TTX and secure South Korea's participation in the U.S. nuclear strategic asset deployment training based on TTX in order to establish a stable and consistent nuclear operating plan in South Korea. In addition to regularizing TTX, South Korea's participation in the nuclear mission exercise would boost the credibility of U.S. extended deterrence and South Korea's assurance. South Korea and the United States were able to increase their capacity to conduct combined operations and the interoperability of the F-35A aircraft jointly flown by the two nations as a result of this training.[207]

[207] Dongodongrak, "KRUS Korean Air Force Conducts F-35A Combined Exercise For The First Time."

C. LIMITATION OF THE RESEARCH FINDINGS

"Assurance" is a policy aimed at allies that attempts to persuade them of the U.S. commitment to their protection.[208] "Enormous effort was required to make U.S. assurances credible."[209] However, the degree of assurance is a challenge to gauge since it is subjective and impossible to assess directly. In this thesis, indirect evidence such as the words of important Greek leaders, Greek public opinion, and the strategic choice of the Greek government was investigated to discover changes in Greek assurance in the U.S. commitment to extended deterrence. In the same manner, the public opinion of the South Korean people implicitly demonstrates Koreans' assurance in U.S. extended deterrence, although there is a limit to not representing the public opinion exactly as a whole. However, the information linked with the nuclear issue is extremely difficult to obtain because it must be handled with extreme caution, as it involves political, diplomatic, and military strategic interests. Therefore, until the comments of U.S. partners about this matter and the release of material that has been downgraded to the secret level are forthcoming, assurance is bound to rely on indirect evidence.

D. OPPORTUNITIES FOR FUTURE RESEARCH

This thesis investigated the example of Greece to illustrate the assurance of NATO members in the extended deterrence of the United States. Nevertheless, given that there are 30 NATO members, if a few more cases of NATO allies are examined, it is possible to determine with more precision whether the NATO NPG may favorably influence allies' assurance in the extended deterrence commitment. Specifically, in the case of Canada, which is similar to the case in Greece, U.S. NSNWs were deployed on Canadian territory before being evacuated. Thus, the argument about NATO NPG's role in assurance could be bolstered by at least including Canada's case.

In addition, only the EDSCG as a nuclear consultative organization for nuclear conversation between South Korea and the United States was intensively investigated in

[208] Brooks and Rapp-Hooper, "Extended Deterrence, Assurance, and Reassurance in the Pacific during the Second Nuclear Age," 268.

[209] Brooks and Rapp-Hooper, 271.

the thesis. Because there were numerous discussions on U.S. extended deterrence policy in the ROK-U.S. National Command and Military Authorities (NCMA), Security Council Meeting (SCM), and Military Council Meeting (MCM) before and with the EDSCG, the next study can include an analysis of these consultative bodies in order to further investigate efforts to increase the reliability of extended deterrence between South Korea and the United States.

E. CONCLUDING OBSERVATIONS

Alliances must evolve to answer the evolving threats they face. The security circumstances of the ROK-US alliance have evolved significantly since its Cold War origins. While the Soviet Union is gone, and the Korean peninsula is no longer a proxy for global superpower competition, North Korea has emerged as a dangerous and volatile local threat to South Korea's security and survival. Meanwhile, South Korea has evolved from a poor country under military rule in the 1950s into a significant middle power with a world-class economy, an advanced military, and a thriving democratic government. While the U.S nuclear extended deterrence guarantee to South Korea remains vital to both countries' security interests, dramatic changes in both the threat conditions and South Korea's defense capacities requires updating how the alliance relationship sustains that deterrence posture.

The concerns of many South Koreans for the current credibility of U.S. nuclear extended deterrence commitments are real, and are the root of calls for the redeployment of U.S. NSNWs to Korea. It has been beyond the scope of this thesis to examine why such redeployment is impractical, is unlikely to gain U.S. support, and may not enhance extended deterrence credibility anyway, in which case it provides only false assurance to South Koreans. However, this thesis has demonstrated that there is a more practical alternative that can gain U.S. support, would be likely to significantly improve South Korean's assurance in U.S. security commitments, and would also serve to enhance extended deterrence credibility directly. South Korea is ready for a deeper level of engagement and cooperation with the United States on planning and operations supporting nuclear extended deterrence in Korea. Enhancing the EDSCG to provide the practical

mechanisms of such engagement, as detailed in this thesis, would also contribute to strengthening the overall alliance relationship and the vital role that alliance plays in maintaining peace and stability on the Korean Peninsula and in East Asia overall.

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