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Opaque nuclear strategy

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THESIS

OPAQUE NUCLEAR STRATEGY

by

Soonwoo Choi

December 2017

Thesis Advisor: Wade Huntley
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Since World War II, countries have pursued nuclear weapons because of their destructive power and influence as well as their deterrence value. At the same time, the great powers tried to prevent nuclear weapons proliferation. In this situation, the nuclear weapons development programs of South Africa and Israel still succeeded, but these countries did not publicize their nuclear capabilities. Why did these not disclose their nuclear weapons capabilities even if disclosure could strengthen deterrence of threats against them? This thesis examines three possible variables—security, norms, and domestic politics—to find the answer. All these factors impacted those countries' ambiguous nuclear weapons strategies, but the United States' role was most influential in how Israel and South Africa shaped those strategies. This research may contribute to better understanding possible policies of potential nuclear weapons armed states, especially in Northeast Asia.

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OPAQUE NUCLEAR STRATEGY

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ABSTRACT

Since World War II, countries have pursued nuclear weapons because of their destructive power and influence as well as their deterrence value. At the same time, the great powers tried to prevent nuclear weapons proliferation. In this situation, the nuclear weapons development programs of South Africa and Israel still succeeded, but these countries did not publicize their nuclear capabilities. Why did these not disclose their nuclear weapons capabilities even if disclosure could strengthen deterrence of threats against them? This thesis examines three possible variables—security, norms, and domestic politics—to find the answer. All these factors impacted those countries' ambiguous nuclear weapons strategies, but the United States' role was most influential in how Israel and South Africa shaped those strategies. This research may contribute to better understanding possible policies of potential nuclear weapons armed states, especially in Northeast Asia.

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I. INTRODUCTION

A. MAJOR RESEARCH QUESTION

What factor(s) shape the reluctance of states possessing nuclear weapons to publicize their nuclear weapons policies, including acknowledgment of nuclear weapons possession?

This thesis covers the nuclear strategies of "second generation" nuclear states. Because of nuclear weapons' destructive power and influence, some countries have strived to develop or obtain nuclear weapons. At the same time, also because of nuclear weapons' destructive power and influence, established nuclear states (also referred to as the "nuclear club") have made efforts to prevent the proliferation of nuclear weapons. Under international pressure to prevent nuclear proliferation, some countries have taken vague positions on the nuclear issue, disguising their activities and in some cases even concealing successful development of nuclear weapons, despite deterrence logic that suggests demonstrating these capabilities. This thesis develops a stronger understanding of the factors behind states concealing their nuclear weapons capabilities, in order to better anticipate the behavior of potential new nuclear weapons states.

B. SIGNIFICANCE OF THE RESEARCH QUESTION

The emergence of nuclear weapons has fundamentally changed the defensive strategies of all countries. Because the power of nuclear weapons defies the imagination, the great powers of 20th century focused on developing nuclear weapons, and between 1945 and 1964 the United States, Soviet Union, Great Britain, France, and China became nuclear weapons states. Paradoxically, this competition raised the possibility of a nuclear war, creating an unstable international situation. By the 1970s, nuclear-armed states took measures to prevent further nuclear proliferation. Nonetheless, because nuclear weapons have their own security effects, the development of nuclear weapons remained an attractive option for other countries that did not have a definite advantage with conventional weapons. Thus, numerous second-generation nuclear nations have made considerable efforts to develop nuclear weapons despite international sanctions. In this process, some countries

abandoned the development of nuclear weapons because of pressure from the international community, and some countries eventually developed and deployed them. A new generation of nuclear states thus emerged.

The second-generation nuclear states are Israel, South Africa, India, Pakistan, and North Korea. Among these countries, Israel and South Africa did not publicly declare their development and deployment of nuclear weapons. In contrast, India, Pakistan, and North Korea publicly conducted nuclear tests, declared the deployment of nuclear weapons, and published operational strategies. In the case of Israel, there is no official statement about the possession of and strategy for nuclear weapons, but it is widely seen in the international community as a nuclear-armed state.[1] South Africa is a more peculiar case. Until South Africa announced its nuclear dismantlement plan, the international community was not convinced of the nuclear weapons status of South Africa, or even whether it should be considered as a potential nuclear weapon state.

Despite their different levels of openness, Israel and South Africa adopted opaque nuclear strategies. In general, nuclear weapons can offer military deterrence against enemy countries. However, if an enemy does not recognize the existence of nuclear weapons, the effectiveness of an ambiguous nuclear strategy is questionable because a deterrent threat cannot be demonstrated. Therefore, this thesis analyzes what factors induce countries to have an opaque nuclear strategy, which will inevitably provide answers about the effects of an ambiguous nuclear strategy.

The nuclear strategy and development process of countries that have publicly acknowledged nuclear-armed procedures are relatively well known. Yet in Israel and South Africa, the process and strategy from the development decision to weaponization are unclear. For this reason, these countries have succeeded in developing nuclear weapons while deflecting direct sanctions or criticism from the international community. An ambiguous nuclear strategy, therefore, has important implications in two phases. First, there is ambiguity around the decision to possess or acquire nuclear weapons. Next, there is

[1] Shannon N. Kile, "World Nuclear Forces," Stockholm International Peace Research Institute, accessed June 2, 2017, https://www.sipri.org/yearbook/2011/07.

the decision about whether to maintain ambiguity after the development of nuclear weapons.

An opaque nuclear strategy is one of the most likely strategies to choose in the first phase, from the decision to build nuclear weapons to the completion of nuclear weapons development. In the presence of real security threats, there is an incentive to counter the threats with the possession of nuclear weapons, but considering the international environment, it is difficult to openly develop nuclear weapons. Ambiguity enables these countries to take advantage of weaknesses in the Nuclear Non-Proliferation Treaty, which supports the use of nuclear energy for peaceful purposes and so tolerates some dual-purpose nuclear development unless a state demonstrates nuclear weapons ambitions.

Maintaining ambiguity after developing nuclear weapons is a very different matter. In general, an ambiguity strategy can be an intermediate step toward an open nuclear state or a nuclear abandoned state. Nevertheless, if a state can effectively deter despite ambiguity, there is a high incentive for and possibility of maintaining this stance. In other words, the maintenance of an ambiguous nuclear strategy may be the most likely choice that a nuclear-armed state will take under certain conditions. This thesis researches countries that have adopted a vague nuclear strategy to identify the important factors driving them in selecting and maintaining ambiguity. This research contributes to better understanding the nuclear strategy choices facing future potential nuclear-armed states.

C. LITERATURE REVIEW

There is much research about opaque nuclear proliferation but limited research about an opaque nuclear strategy.

1. Definition of an Opaque Nuclear Strategy

To discuss an opaque nuclear strategy, it is necessary to define a nuclear strategy. Lawrence D. Freedman defines nuclear strategy as "the formation of tenets and strategies for producing and using nuclear weapons."[2] With this definition, one can divide an opaque

[2] Lawrence D. Freedman, "Nuclear Strategy," Encyclopedia Britannica, last modified October 5, 2015, https://www.britannica.com/topic/nuclear-strategy.

nuclear strategy according to the ambiguity associated with the development process and the ambiguity related to operation policy. A nuclear development inevitably leads to nuclear proliferations. Therefore, this thesis examines opaque nuclear proliferation and opaque nuclear strategy after acquiring nuclear weapons.

2. Opaque Nuclear Proliferation

According to "Opaque Nuclear Proliferation" by Avner Cohen and Benjamin Frankel, there are two types of nuclear proliferation.[3] The first type is the visible proliferation of the first age nuclear states. Nuclear acquisition by the United States is a well-known type of visible nuclear weapons development process with the public disclosure of nuclear strategies and a clear recognition of the credibility of their nuclear strategy to potential states. The Manhattan Project, the U.S. nuclear development project during World War II, had eight distinct stages of technological progress. The proliferation steps were as follows:

1. The establishment of a basic nuclear infrastructure (reactor, personnel);
2. The development of an infrastructure to produce weapon grade material (a separation plant for the production of plutonium, or uranium enrichment facility);
3. The acquisition of the technology and know-how to design, assemble, and manufacture the bomb;
4. A full-scale nuclear test followed by political declarations;
5. The development of the means to deliver nuclear weapons;
6. The promulgation of a nuclear doctrine that would provide guidelines and procedures to govern nuclear weapons within the country's overall national security posture;
7. The building of a substantial nuclear arsenal to support the doctrine;

[3] Avner Cohen and Benjamin Frankel, "Opaque Nuclear Proliferation," *Journal of Strategic Studies* 13, no. 3 (1990): 14, https://doi.org/ 10.1080/01402399008437417.

8. Deployment: the establishment of operational procedures to handle the weapons, especially in crisis.[4]

The second type is an opaque nuclear proliferation. The fourth stage of the Manhattan Project was the conduct of a full-scale nuclear test and political declarations. Countries seeking nuclear weapons have an opaque nuclear proliferation strategy by pausing at or omitting this stage. Full-scale nuclear testing is the most decisive step in determining an ambiguous nuclear development strategy as full-scale testing provides clear evidence of nuclear development.[5]

Countries that have opaque nuclear proliferation policies have the following general characteristics.

- They do not conduct nuclear tests.
- They deny possession of nuclear weapons.
- They do not have a direct nuclear threat to other countries.
- They do not have military doctrine for nuclear weapons.
- They do not deploy nuclear weapons.
- There is no open debate on nuclear policy.
- The nuclear program is disconnected from other national policies.[6]

Then, why do some countries try to stay opaque at this stage and not go any further? According to Cohen and Frankel's article, developing nuclear weapons openly under the Nuclear Non-Proliferation Treaty is a violation of the international community's norms; thus, nuclear weapons development among second-generation nuclear states is necessarily vague.[7] Such states are under pressure not to proceed in the fourth stage of the model of

[4] Cohen and Frankel, "Opaque Nuclear Proliferation," 14.

[5] Ibid.

[6] Ibid., 21–22.

[7] Cohen and Frankel, 16.

visible nuclear proliferation. Yet, as India, Pakistan and North Korea have conducted open nuclear tests, factors other than strong international norms become necessary to explain opaque nuclear proliferation.

Another reason is the development of science and technology. In the existing theory, the full-scale nuclear test was recognized as an essential step in the development of nuclear weapons, but the development of technology and the increased possibility of securing technical reliability through computer simulation is a factor enabling an ambiguous nuclear strategy. Insofar as the United States can conduct nuclear tests via super computer, it can rely on nuclear test modeling.[8] In the case of the new nuclear armed states, however, there is little data available and scientists still consider nuclear testing to be an essential step in the process of reliable nuclear weapons.[9]

Devin T. Hagerty deals with the reasons for ambiguous nuclear proliferation in *Consequences of Nuclear Proliferation*. The relatively obvious reason to adopt ambiguity at the development stage is to wait until nuclear weapons become more complete and provide a full deterrent. In pursuit of publicly armed nuclear weapons, the enemy could attack before the nuclear capability is completed. This is evident in the process of Iraq's nuclear development, in which Israel conducted a preventive military attack against Iraq while it was attempting to develop nuclear weapons.[10]

Despite some critical comments about the efficiency of deterrence, opaque nuclear proliferation is a clear trend for the second generation nuclear-armed states.[11] The synthesis of the theory of opaque nuclear proliferation is that the benefits of maintaining ambiguity are greater than the benefits of displaying a nuclear arsenal. Once securing

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[8] Sarah J. Diehl and James Clay Moltz, *Nuclear Weapons and Nonproliferation,* 2nd ed. (Santa Barbara, CA: ABC-CLIO, 2008), 60.

[9] Richard L. Garwin, "The Future of Nuclear Weapons without Nuclear Testing," Arms Control Association, accessed June 3, 2017, https://www.armscontrol.org/act/1997_11-12/garwin.

[10] Devin T. Hagerty, *Consequences of Nuclear Proliferation: Lesson from South A*sia (Cambridge, MA: MIT Press, 1998), 43.

[11] Bradley A. Thayer, "The Causes of Nuclear Proliferation and the Utility of the Nuclear Non-Proliferation Regime," *Security Studies* 4, no. 3 (1995): 508–509, http://dx.doi.org/10.1080/09636419509347592.

nuclear capability, these countries stand at the crossroads of choice involving the interests of security through nuclear deterrence and the costs suffered through disclosure.

3. Opaque Nuclear Policy

It is a more difficult problem to explain why a country with completed nuclear weapons capabilities would maintain ambiguity. If a nuclear weapons capability is established, the country can obtain full nuclear deterrence only by publicizing it. However, many countries with nuclear weapons have retained ambiguity for a considerable period. In Pakistan, the Nuclear Non-Proliferation Treaty (NPT), as well as the prohibition of aid under U.S. law, was an important factor driving long-term ambiguity.[12]

Security is also an important factor in maintaining opaque nuclear policy. If the nuclear capability is revealed, an enemy might also pursue nuclear weapons due to security instability. This is paradoxical because disclosure of nuclear capability brings a security dilemma rather than an improvement in deterrence, which is why countries with nuclear capabilities delay their nuclear declaration. In other words, a country might maintain an opaque nuclear policy to avoid highlighting a security dilemma and triggering a nuclear arms race. For example, India's nuclear test led to Pakistan's nuclear test, which has heightened regional tensions.

A political situation can be a factor in a state maintaining ambiguity. Jacques E. C. Hymans argues that a military regime is more likely than a civilian regime to complete nuclear weapons without tests. The reason is to pursue strategic surprises, which can shock enemies by using nuclear weapons without warning. This feature suggests that countries with aggressive nuclear policies under a military regime are more likely to appear suddenly.[13] Nevertheless, the military regimes in North Korea and Pakistan behaved differently. Despite their military regimes, they have conducted many nuclear tests and adopted open nuclear policies. Moreover, Israel still maintains an opaque nuclear strategy, despite being the most democratic country in the Middle East, not a military regime.

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[12] Hagerty, *Consequences of Nuclear Proliferation: Lesson from South Asia*, 44.

[13] Jacques E.C. Hymans, "When Does a State Become a "Nuclear Weapon State"?," *Nonproliferation Review* 17, no. 1 (January 2010): 173, https://doi.org/10.1080/10736700903484728.

There are many theories and arguments as to the extent to which countries have nuclear weapons. Professor Scott D. Sagan says that the reasons for countries to have nuclear weapons are security, domestic politics, and norms.[14] The logic of the security model is that countries that need nuclear deterrence to develop nuclear weapons against conventional threats or nuclear threats from the outside are developing nuclear weapons.[15] According to Lewis A. Dunn and Herman Khan's report, though, there are several reasons for possession of various kinds of nuclear weapons; one main driving force is rising power, reputation, and the desire for regional hegemony.[16] The possession of nuclear weapons is a powerful tool to claim a similar level of international influence as the nuclear-armed states permitted by the Nuclear Non-Proliferation Treaty.

Taken together, these analyses suggest that a state facing a military threat from the outside, reluctant to play a superpower or a reputation-seeking role, may develop a nuclear weapon but maintain an ambiguous policy that does not explicitly declare possession of that weapon. But, the preceding research also points to non-security reasons for states to acquire nuclear weapons, and so factors such as norms, domestic politics, and reputation should also be considered to understand maintaining ambiguity after completing development of nuclear weapons.

4. Reason for South African Opaque Nuclear Strategy until Disarmament

Prior literature suggests that the main reason why South Africa maintained its policy of ambiguity was pressure from the international community. South Africa planned a nuclear test to check the credibility of its nuclear weapons. A Soviet reconnaissance satellite discovered a nuclear explosion test signal, and the Soviet Union informed the United States of its suspicion that South Africa had nuclear arms, which also was revealed

[14] Scott D. Sagan, "Why Do States Build Nuclear Weapons?: Three Models in Search of a Bomb," *International Security* 21, no. 3 (Winter, 1996–1997): 57–85, http://links.jstor.org/sici?sici=0162-2889%28199624%2F199724%2921%3A3%3C54%3AWDSBNW%3E2.0.CO%3B2-1.

[15] Sagan, "Why Do States Build Nuclear Weapons?: Three Models in Search of a Bomb," 57–59.

[16] Lewis A. Dunn and Herman Kahn, *Trends in Nuclear Proliferation, 1975–1995 Projections, Problems, and Policy Options,* (New York: Arms Control and Disarmament Agency, 1976): 4, http://www.dtic.mil/get-tr-doc/pdf?AD=ADB011707.

to the international community.[17] The pressure of the Soviet Union and the international community, including the United States, is an important element in maintaining a policy of ambiguity in South Africa, which had been isolated by international sanctions as a result of the apartheid system.

From a security standpoint, the lack of weapon deliverability was a cause to maintain ambiguity. In South Africa, early forms of nuclear weapons were made for political reasons without military strategic considerations. For this reason, the means to project them were not sufficient; the weapons were too big and heavy to deliver. In particular, the Soviet Union, which was the root of South Africa's security threats, would not be deterred by South Africa's publicly avowed possession of nuclear weapons because of their restricted missile range. Rather, the possibility of an attack by the Soviet Union was heightened due to South Africa's disclosure of nuclear weapons possession, which increased South African security anxiety.[18]

Another reason for maintaining ambiguity is that policy makers can have more flexibility in policy decisions, including the abandonment of nuclear weapons, if the threat disappears in the future. South Africa abandoned its nuclear weapons, and because it was not regarded as a nuclear-armed state in the international community, it was able to make easier decisions on nuclear abandonment domestically.[19] It is difficult to think, though, that political consideration was given in the development stage to future nuclear rollback.

5. Reason for Israeli Opaque Nuclear Strategy

Prior literature suggests that Israel has maintained an ambiguous strategy for nuclear weapons to prevent undermining its relationship with the United States, which is concerned about nuclear proliferation.[20] The United States plays the most important role in nuclear non-proliferation, so Israel desired not to change its ambiguous nuclear position in

[17] David Albright, "South Africa and the Affordable Bomb," *Bulletin of the Atomic Scientists* 50, no. 4 (1994): 41, https://doi.org/10.1080/00963402.1994.11456538.

[18] Peter Liberman, "The Rise and Fall of the South African Bomb," *International Security* 26, no. 2 (2001): 61, https://doi.org/10.1162/016228801753191132.

[19] Hagerty, *Consequences of Nuclear Proliferation: Lesson from South Asia*, 45.

[20] Cohen and Frankel, "Opaque Nuclear Proliferation," 26.

order to maintain cooperative relations. Maintaining this relationship was also a good strategy for obtaining U.S. conventional power support.[21]

A security concern was also a factor in maintaining the Israeli opaque nuclear strategy. Israel did not need to disclose its nuclear policy because it prevailed in conventional power over its opponents.[22] If compared to all Arab countries together, Israel does not hold conventional superiority, but a coalition of Arab countries does not seem very likely.[23] On the other hand, if some other countries in the Middle East pursue nuclear weapons, regardless of speed or ambiguity, Israel would likely consider a disclosure of its nuclear capabilities.[24]

The other factor is Israel's domestic political situation. Israel is a democratic country that has a parliamentary system. In general, a democracy is not a good environment for having an ambiguous nuclear strategy. Nuclear arming is an important policy decision of the state, and it is costly to develop and maintain, so citizen participation and monitoring is necessary.[25] Yet Israel can maintain its ambiguity because it considers its nuclear weapons policy to be a secret shared by its people and the leadership.[26]

6. Comparison of the South Africa and Israel Cases

No prior literature systematically compares the ambiguous nuclear strategies of Israel and South Africa after they obtained nuclear weapons. This thesis researches such a comparison in order to identify any general lessons and to better understand why future countries acquiring nuclear weapons might also maintain an ambiguous nuclear policy.

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[21] Yair Evron, "Opaque Proliferation: The Israeli Case," *Journal of Strategic Studies* 13, no. 3 (1990): 53, http://dx.doi.org/10.1080/01402399008437418.

[22] Evron, "Opaque Proliferation: The Israeli Case," 53.

[23] Evron, 53–54.

[24] Ibid., 53.

[25] Cohen and Frankel, "Opaque Nuclear Proliferation," 33.

[26] Ibid., 35.

D. POTENTIAL EXPLANATIONS AND HYPOTHESES

From the existing theory, it is difficult to explain the factors that drive some states to pursue an ambiguous nuclear policy. Certainly, the security situation is an important factor. Since an ambiguous nuclear strategy begins with the decision to possess nuclear weapons, it is also important to analyze the process of nuclear weapons possession understood as opaque proliferation. As discussed earlier, many analysts hold that a country determined to develop nuclear weapons makes a decision to possess nuclear weapons because of external threats. Yet, the security situation can be evaluated differently in the determination stage of nuclear weapons development and in the stage of actual nuclear weapon development success. In other words, the secrecy surrounding the possession of nuclear weapons should be assessed considering the complex impact of security changes over time on ambiguity strategies.

Nevertheless, Cohen's consideration of international norms seems the most powerful factor. The process of nuclear development in the first-age countries was publicized from development decisions to weapon deployment. Because of the processes of the Nuclear Non-Proliferation Treaty in 1960s, the second-generation nuclear-armed states have maintained ambiguity until the nuclear test phase. Though India, Pakistan, and North Korea's public nuclear tests have made it difficult to explain ambiguity as an international norm, it is certainly one of the decisive factors in maintaining ambiguity. However, adding a normative tendency as an analytical element can provide a better explanation of the impact of international norms on countries' decisions to maintain ambiguous nuclear strategies.

Another possible important factor for an opaque nuclear strategy is domestic politics. Decision-making processes, ethnic composition, and regime change based on political systems will have a major impact on whether a state chooses to maintain an opaque nuclear strategy. The domestic political factor may be an independent variable, but it may have an impact in combination with other factors. This thesis evaluates how domestic politics played a decisive role not only in terms of a simple system, situation comparison, but also from a macro perspective.

In addition, the thesis assesses the impact of each country's history, economy, international relations, and nuclear technology on maintaining or abandoning their policies of ambiguity. These other factors may not be decisive factors, but they do have a significant impact on determining the country's nuclear strategy. This thesis derives the results through case studies in which each factor positively or negatively affects the maintenance of ambiguity.

E. RESEARCH DESIGN

The main research methodology explores why Israel and South Africa decided to have opaque nuclear strategies, looking for similarities and differences in the factors behind their strategies. This thesis uses Scott Sagon's analytical model that includes security, norms, and domestic politics as a tool.

Some evidence indicates that South Africa maintained a close relationship with Israel in developing nuclear weapons. The thesis also examines whether this relationship was a factor in their similar nuclear strategies.

In the case of South Africa, the international community had no clear evidence that South Africa possessed nuclear weapons until the country unveiled its decision to abandon nuclear weapons. In South Africa, some of the secrets related to nuclear development and strategy were released after giving up the nuclear weapons. Case studies on South Africa can contribute to an understanding of Israel's undisclosed nuclear strategy.

Israel maintains the most ambiguous nuclear strategy. Nevertheless, the international community regards it as virtually a nuclear state, which provides Israel enough nuclear deterrence without the official announcement or recognition of its nuclear possession.

Comparing these two countries renders quite interesting results. Close co-operation in their nuclear development processes may have had an impact on pursuing similar nuclear strategies. Nonetheless, the differences in the degree of ambiguity and the nuclear strategy could be the result of differences in their security, international and domestic situations, or

any other factors of specific to each country. It would be a very important outcome if this thesis can contribute to finding what factors explain these differences.

Israel still has an opaque nuclear strategy, which makes it difficult to conduct research. Nonetheless, using diplomatic documents or speeches one can understand Israel's strategies. Therefore, this study carries out case studies using the investigation of diplomatic documents, political leaders' addresses, published interviews with senior public officials, interviews of scholars, and newspaper articles.

F. THESIS OVERVIEW

This thesis explores the factors that induce countries to adopt or maintain opaque nuclear strategies. Through case studies of South Africa and Israel, it identifies the common elements of each country, while at the same time analyzing their national characteristics. This contributes to understanding the potential strategies of future nuclear-armed states.

This thesis consists of four chapters. The first chapter is an introductory chapter that reviews the pertinent literature. The second chapter is the case study of South Africa's nuclear strategy. The third chapter is another case study, focusing on the Israeli nuclear strategy. The last chapter concludes the thesis with a comparison of the two cases and considers implications for possible future nuclear-armed states.

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II. SOUTH AFRICA

Ambiguous nuclear strategy is closely linked to nuclear proliferation. If the need for nuclear weapons and the acquisition process are justified, a state is more likely to adopt an open nuclear strategy when it is ready. On the other hand, disclosure is highly unlikely if the policy fails to justify the necessity of development of the nuclear weapons both domestically and internationally, or if it lacks legitimacy. Furthermore, if disclosure is to have a significant impact on the interests of the state or a regime, it should be careful about disclosure. This chapter reviews the South African nuclear program and how security, norms, and domestic politic factors may have affected South Africa's choice of an opaque nuclear strategy. The analysis shows that South Africa's decision to pursue an opaque strategy was the result of all three factors, but both security considerations and international norms, including that country's relationship with the United States, were particularly influential.

A. SOUTH AFRICAN NUCLEAR PROGRAM AND NUCLEAR STRATEGY

South Africa's nuclear strategy is relatively well known. It developed nuclear weapons then later abandoned its nuclear program, which it openly acknowledged to the international community. South Africa decided to develop a nuclear weapon in 1974, completed its first nuclear explosive device in 1979, and eventually had six nuclear devices. In 1990, the South African apartheid regime decided to abandon its nuclear weapons, dismantled its own nuclear weapons, and in 1993 revealed its nuclear weapons program to the international community.[27] According to the South African president's speech to the National Assembly after the nuclear dismantlement, South Africa had developed a nuclear weapon on the grounds of a security threat to South Africa, but announced that the threat had vanished and so the nuclear capability was being abandoned.

[27] Waldo Stumpf, "South Africa's Nuclear Weapons Program: From Deterrence to Dismantlement," *Arms Control Today* (December 1995/January 1996): 3–7, https://www.armscontrol.org/system/files/ACT_South%20Africa_9601.pdf.

The first nuclear device South Africa developed in 1979 was a test device that could not be delivered. After that, with the emphasis on quality and credibility of technology, the nuclear device manufactured in 1982 was capable of being dropped by an aircraft.[28] Gun-type nuclear warheads built in 1987 further improved quality and reliability to the point where they could be mounted on Buccaneer bombers. In summary, in 1987, the first nuclear weapons compatible with air bombing became available, and South Africa held four nuclear warheads until the end of its nuclear program.[29]

Communication about the nuclear strategy of South Africa was largely composed of three stages. In the first stage, the government maintained a strategic ambiguity about the possession of nuclear weapons, refusing to deviate from this position unless a military threat to South Africa existed. Stage-two consisted of a secret disclosure strategy. If the Soviets or a Soviet-backed country attacked South Africa, the government would inform Western countries, especially the United States, through unofficial channels that South Africa possessed nuclear weapons. The government might also engage in exercises as a deterrent against enemies, mentioning the possibility of a nuclear test. The last of the three stages was the strategy of explicitly holding nuclear weapons. If the two-stage deterrence failed, South Africa would test or use nuclear weapons on the battlefield.[30]

Reviewing the South African nuclear strategy, the first stage was to keep the secrecy about the nuclear program. If their deterrence effort failed they would then abandon the policy of ambiguity to cope with their security threat. This strategy implies that without a declaration of nuclear strategy or open nuclear testing, nuclear deterrence could not be guaranteed. The reason for developing nuclear weapons was purportedly to respond to security threats, but not disclosing their possession of such weapons was due to South Africa's uncertainty that disclosure would have a positive impact on security. In fact, the public acknowledgment of nuclear weapons possession could not guarantee security. This meant that maintaining an ambiguous nuclear strategy could offer a greater

[28] David Albright, *South Africa's Secret Nuclear Weapons*, Institute for Science and International Security Report, May 1994, 10, http://isis-online.org/publications/southafrica/ir0594.html.

[29] Albright, *South Africa's Secret Nuclear Weapons*, 11.

[30] Frank V. Pabin, "South Africa's Nuclear Weapons Program: Lessons for Nonproliferation Policy," *Nonproliferation Review* 3, no. 1 (1995): 7, http://dx.doi.org/10.1080/10736709508436602.

national benefit for security as well as other variables such as norms and domestic politics. In this situation, security, domestic politics, international norms, influence in the international community, and tactical advantages may have all combined to constitute an opaque nuclear strategy.

B. POSSIBLE VARIABLES

Possible variables driving South Africa's opaque nuclear strategy include security, norms, and domestic politics.

1. Security

According to Sagan's security theory, when nations face security threats from the outside, they develop nuclear weapons to ensure their own security.[31] By possessing nuclear weapons, it is possible to respond to threats and defend sovereignty. However, open nuclear armament does not always help security. Nuclear weapons development takes time; meanwhile, the state could provoke a preventive attack or stimulate an opponent's nuclear arming, which makes security unstable. Therefore, it can be a good strategy to maintain nuclear ability without acknowledging that capability because secrecy broadens the choice of security options.

In the mid-1970s, South Africa was isolated from the Western world because of its policy of apartheid, and in southern Africa there was a struggle for freedom and independence for Africans in reaction to the rule of a few white people. South Africa fought as part of the British Commonwealth Forces during World War II, after which it aligned with the West in the Cold War, causing the Soviet Union to deeply oppose South Africa.[32] In the Angolan civil war, which occurred after the Portuguese Colonial War in 1961, the United States and the Soviet Union intervened due to the Cold War. South Africa participated and was backed by the United States, while Cuba joined, supporting

[31] Sagan, "Why Do States Build Nuclear Weapons?: Three Models in Search of a Bomb," 57.

[32] Michael B. Bishku, "South Africa and the Middle East," *Middle East Policy* 17, no. 3 (2010): 153. DOI: 10.1111/j.1475-4967.2010.00457.x.

the Soviet Union.[33] Mozambique also rebelled against Portuguese colonial rule, resulting in civil war. Consequently, about 50,000 Cuban troops were stationed in Angola, and about 1,000 Cuban soldiers were stationed in Mozambique. The South African government considered this presence a serious existential threat because the communist-allied countries were so deeply opposed to the principles of apartheid.[34]

While security threats increased, South Africa's isolation grew worse. Although most the international sanctions leveled against South Africa were a response to its apartheid policy, South Africa was also warned of the danger of developing nuclear weapons. In particular, the 1963 UN Security Council Resolution 181 against South Africa arose out of suspicion that South Africa was pursuing nuclear weapons development; the resolution had a negative impact on South Africa's military buildup by placing a voluntary arms embargo on South Africa.[35] This trend led to UN Security Council Resolution 282, which prevented military knowledge and technology support for South Africa in 1970, and the isolation that South Africa felt was getting worse.[36] Former South African president F.W. de Klerk said that his country had developed nuclear weapons because of its isolation from the international community and the idea that South Africa should overcome its crisis on its own.[37] Yet, nuclear scientists, engineers, and politicians in South Africa insisted that development of a nuclear weapon was not intended for military purpose but only for political purposes.[38] Considering these testimonies were provided after South African nuclear dismantlement, they are hard to

[33] Prero Gleijeses, "Cuba's Intervention in Africa during the Cold War," Oxford University Press's Academic Insight for the Thinking World (blog), accessed November 5, 2017, https://blog.oup.com/2016/12/cuba-intervention-africa-cold-war/.

[34] Sunguk Jang 성욱 장, 남아프리카 공화국의 핵무기 개발 및 해체 사례연구 [A case study of South African nuclear weapons development and disarmament], *East Asian Studies*, no. 11 (2005): 132, http://kiss.kstudy.com/journal/thesis_name.asp?key=2500561.

[35] UNSCR, Resolution 181, "Question relating to the Policies of Apartheid of the Government of the Republic of South Africa," August 7, 1963, http://unscr.com/en/resolutions/181.

[36] UNSCR, Resolution 282, "The Question of Race Conflict in South Africa resulting from the Policies of Apartheid of the Government of the Republic of South Africa," July 23, 1970, http://unscr.com/en/resolutions/282.

[37] David Albright, John Isaacs, and Linda Rothstein, "South Africa Comes Clean," *Bulletin of the Atomic Scientists* 49, no. 4 (1993): 3, https://doi.org/10.1080/00963402.1993.11456336.

[38] Albright, *South Africa's Secret Nuclear Weapons*, 1.

believe fully. To be specific, South Africa tried to develop more practical weapons for actual use beyond what was necessary, and that seems to have only a political purpose.

Another issue related to security is that South Africa overestimated its threats. In the mid-1970s, South Africa had the largest expenditure on defense in Africa. If one looks at defense spending in 1973, South Africa spent about $ 500 million, the largest amount of money in Africa.[39] Between the 1960s and the 1980s, the size of South Africa's troops exceeded a maximum of 100,000, and it maintained the largest and best-trained troops in Africa.[40] Considering size of the military, level of training, and defense expenditure, it is difficult to assess whether the presence of Cuban troops was a serious enough threat to warrant the development of nuclear weapons. For example, according to Dr. Andre Buys, the South African Air Force advocates that the need for South African security is a fighter, not a nuclear weapon, South Africa's security crisis is overrated.[41]

Furthermore, South Africa did not successfully analyze the nature of the threats it faced. Conflict in southern Africa appeared in the form of guerrillas, non-regular war, and civil war. These enemies were impossible to suppress or overthrow by nuclear weapons intended for mass destruction and killing.[42] It was impossible to respond with limited capabilities and numbers of nuclear weapons in all-out war with the Soviets or Soviet-backed forces. There was no reason to disclose nuclear weapons against threats that would not be addressed by nuclear weapons or threats that could not be addressed by nuclear weapons.

In 1980, South Africa developed a nuclear weapon but did not release it. As their nuclear weapons strategy shows, there was no serious threat that would encourage them

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[39] At 1970 prices and 1970 exchange rate. SIPRI, *1975 World Armaments and Disarmament SIPRI Year Book* (Cambridge, MA: MIT Press, 1975), 134–135.

[40] Ryan Lenore Brown, "Once a Major Continental Force, South Africa's Military at a Crossroads," *Christian Science Monitor*, June 29, 2015, https://www.csmonitor.com/World/Africa/2015/0629/Once-a-major-continental-force-South-Africa-s-military-at-a-crossroads.

[41] Liberman, "The Rise and Fall of the South African Bomb," 66–67.

[42] Helen E. Purkitt and Stephen F. Burgess, "South Africa's Nuclear Strategy: Deterring "Total Onslaught" and "Nuclear Blackmail" in Three Stages," in *Strategy in the Second Nuclear Age: Power, Ambition, and the Ultimate Weapon*, ed. Toshi Yoshihara and James R. Holmes (Washington, DC: Georgetown University Press, 2012), 40–41.

to go beyond the first level of nuclear strategy, which was to maintain ambiguity about program development. If there was no will for military use of nuclear weapons, and in the absence of hostile threats, the disclosure of nuclear weapons could lead to security instability.[43] South Africa felt security threats with the expansion of the Soviet Union and Cuban military troops stationed in the neighboring countries, but South Africa had no willingness to use nuclear weapons. Thus, South Africa's disclosure and experimentation with nuclear weapons would have only reduced the possibility of U.S. involvement and increased the risk of a Soviet preemptive nuclear attack.[44]

In particular, there was no will or method to use nuclear weapons against the Soviet Union. The prototype nuclear weapon was too heavy and big considering South African missile and bomber capability. The lack of nuclear weapons usability was more likely to hamper security by promoting Soviet preventive attacks and neighboring nuclear arsenals than gain security guarantees from the disclosure of nuclear weapons. Obviously, it seemed reasonable to delay the acknowledgment of nuclear capability until more technological progress occurred.

This explanation of South Africa's opaque strategy, based on that country's technical limitations, is persuasive. The first nuclear device made by South Africa in 1979 was for testing, meaning it was not deliverable.[45] This meant that it was difficult to use for military purposes. However, South Africa was obsessed with achieving a nuclear weapon for military use, because lacking nuclear bombs actually available for military purpose would weaken the Western world's willingness to intervene on behalf of South Africa in related military conflicts.[46] Disabled weapons would not serve as a meaningful

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[43] The South African nuclear bomb had been developed for political purposes and was never intended to be used. South African political leadership thought that use of a nuclear bomb would be political suicide. David Albright and Andrea Sticker, *Revisiting South Africa's Nuclear Weapons Program: Its History, Dismantlement, and Lessons for Today* (Washington, DC: Institute for Science and International Security, 2016), 292, http://isis-online.org/uploads/isis-reports/documents/RevisitingSouthAfricasNuclearWeaponsProgram.pdf.

[44] Sagan, "Why Do States Build Nuclear Weapons?: Three Models in Search of a Bomb," 70.

[45] Albright and Sticker, *Revisiting South Africa's Nuclear Weapons Program: Its History, Dismantlement, and Lessons for Today*, 101.

[46] Purkitt and Burgess, "South Africa's Nuclear Strategy: Deterring "Total Onslaught" and "Nuclear Blackmail" in Three Stages," 44–45.

deterrent, but rather were intended to motivate the West to intervene. Thus, South Africa had no reason to reveal it possession of nuclear weapons that had no deterrence value.

In 1987, due to technical advances, the nuclear bomb could be delivered with a bomber.[47] But, South Africa did not have missiles with the ability to carry nuclear weapons of this magnitude; the only way to deliver such a bomb was with a short-range bomber. The Buccaneer was the only believable platform for this purpose because other bombers had too short a combat radius or were limited at night operations.[48] The Buccaneer's combat radius is 580 miles, which could reach Angola, but it would be less with low altitude navigation necessary for secret penetration.[49] Moreover, considering the distance between the Soviet Union and South Africa, it was therefore virtually impossible to exert a nuclear deterrent against the Soviet Union. The size and weight of South Africa's weapons prevented them from being delivered with a bomber. South Africa's technical limitations were clearly a strong factor behind that country's decision to maintain an opaque nuclear strategy. Again, nuclear weapons that do not have deterrence value do not offer any reason for disclosure.

From the point of view of nuclear weapons usability, one can argue that South Africa maintained its policy of ambiguity in order to benefit from tactical advancements. Given the potential for practical use of nuclear weapons, the ambiguous nuclear strategy is beneficial in terms of faster response. It can prevent the delay of the decision-making process due to internal political reaction and thus a nuclear weapon can be used without delay at the time of tactical necessity. In particular, it is difficult to make a quick decision on the use of nuclear weapons if countermeasures, other than nuclear weapons, exist. In the Korean War, for example, the United States considered using nuclear weapons, but eventually did not use them.[50] Similarly, in the Vietnam War, nuclear weapons were an

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[47] Albright and Sticker, *Revisiting South Africa's Nuclear Weapons Program: Its History, Dismantlement, and Lessons for Today*, 102.

[48] "Trends in South Africa's Nuclear Security Policies and Programs," National Intelligence Estimate, accessed June 3, 2017, https://www.cia.gov/library/readingroom/docs/DOC_0000107420.pdf.

[49] Stephen Skinner, "Buccaneers and Phantoms at Brough," in *Hawker Siddeley Aviation and Dynamics: 1960–77* (Ramsbury: The Crowood Press, 2014), Ch. 13.

[50] T. V. Paul, *The Tradition of Non-Use of Nuclear Weapons* (Redwood, CA: Stanford University Press, 2009), 45–50.

option, but they were not selected because it was not easy to persuade every member in chain of command to use nuclear weapons.[51]

In order to maintain an ambiguous nuclear strategy, a small number of people are likely to be involved in a nuclear program. This secrecy may result in insufficient training and preparedness when the need to use nuclear weapons arises. And, if there were such a problem, it would likely not be detected until actual use, and that could result in lower reliability. In other words, while secrecy has a positive effect of preventing delay in decision-making processes, secrecy also has a negative effect of lowering operational reliability at the same time. The tactical use of nuclear weapons was a neutral factor for South Africa in establishing its ambiguous nuclear strategy.

Given the situation in South Africa, it is difficult to claim the legitimacy of developing and retaining nuclear weapons because of security concerns, and the South African regime seemed to have same idea. Threats such as Cuban military stationed in Angola were overestimated and nuclear weapons were inadequate to respond to those threats. South Africa had a conventional military advantage over its neighboring states, but military tensions and isolation gave South Africa incentive to have nuclear weapons. Considering conventional military powers in southern Africa, even if the number of Cuban military stationed there was relatively big, there was no reason for South Africa to reveal its possession nuclear weapons that had no reason to be developed.

The key to justifiably possessing nuclear weapons due to security concerns is to escape security crises by threatening to use nuclear weapons. If there is no security threat, there is no reason to hold a nuclear weapon. Furthermore, even if one does hold such a weapon, there is no need to disclose that fact for security reasons. The only reason to disclose possession of nuclear weapons in the face of a critical security threat is when the threat can be countered by nuclear weapons. Security certainly contributed to the South African nuclear strategy, but factors beyond security may also explain the establishment of an ambiguous nuclear strategy by South Africa.

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[51] Paul, *The Tradition of Non-Use of Nuclear Weapons*, 72–78.

2. Norms

The pressure of the international community is generally a negative factor in the development of nuclear weapons. Many countries, including South Korea, Brazil, and Argentina, have pursued nuclear armed forces and abandoned their nuclear weapons development program as a response to pressure from the international community.[52] Likewise, the disclosure of nuclear weapons is not an easy strategy to select because it alters suspicions to convictions about nuclear development and deepens international sanctions.

According to the normative model, international norms can encourage states to refrain from developing nuclear weapons in relation to nuclear proliferation. Further, this model asserts that states are developing and possessing nuclear weapons because of their symbolic value, for a country's status as a nuclear power, and for its own self-esteem, rather than being based on a cold evaluation of national security or interest.[53] At the same time, the norms of nuclear nonproliferation are settled, increasing the burden of nuclear possession. In the case of France, some consider that nuclear weapons were pursued as a representation of a powerful country rather than a deterrent against external security threats. The denuclearization of Ukraine was concluded as soon as Ukraine became afraid of being regarded as a problem nation that ignored international norms.[54]

The normative model is based on the assumption that the actions and decisions of nations are affected by appropriateness. According to this, countries do not make any action or decision only for security benefit or domestic political interest, but also because these actions or decisions are deemed appropriate by the international community.[55] Responses to nuclear weapons development in the attitudes of the international community have varied over time, but have been largely negative since the 1950s.

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[52] David A. Graham, "Nations That Gave up on Nuclear Bombs," *Newsweek*, last modified August 27, 2009, accessed October 26, 2017, http://www.newsweek.com/nations-gave-nuclear-bombs-78661.

[53] Sagan, "Why Do States Build Nuclear Weapons?: Three Models in Search of A Bomb," 73.

[54] Ibid., 76–82.

[55] Intaek Han 인택 한, 핵폐기 사례연구: 남아프리카공화국 사례의 함의와 한계 [Nuclear rolback: Implications and limitations of the South Africa case], *Korean and World Politics* 27, no. 1 (Spring 2011): 91–92, http://kiss.kstudy.com/journal/thesis_name.asp?key=2903219.

The memory of Hiroshima has prompted discussions about the taboo of using nuclear weapons, and the perception that nuclear weapons cannot be used has begun to take root.[56] In the United States and Soviet Union there has long been concern about the increase of nuclear weapons both domestically and between the countries, and that concern led them to suggest the Nuclear Non-Proliferation Treaty to prevent the spread of such weapons internationally. As a result, in 1968, the United Nations General Assembly began discussions on the non-proliferation of nuclear weapons in order to prevent the production and use of nuclear weapons indiscriminately, and in 1970, the Nuclear Non-Proliferation Treaty entered into force.[57]

Although there was a growing sense of resistance to nuclear weapons, not everyone agreed to this trend. The Nuclear Non-Proliferation Treaty distinguishes between nuclear and non-nuclear states. In addition, France and China refused to sign the treaty until 1992 because it was an extension of the nuclear negotiations between the United States and the Soviet Union. India, Pakistan, Israel, and Cuba, which the International Atomic Energy Agency suspected was developing nuclear weapons, did not participate in the treaty, and South Africa did not join the treaty until it abandoned its nuclear weapons. In 1979, the Soviet invasion of Afghanistan further adversely affected the nuclear proliferation trend. As the conflict between the United States and the Soviet Union strengthened, there was no progress in discussing nuclear arms control.[58]

However, improving U.S.-Soviet relations in the late 1980s established a disarmament atmosphere, as reflected in the Strategic Arms Reduction Treaty. This arms control process generated an agreement in 1991 to limit the number of U.S. and Soviet nuclear warheads.[59] Despite the limitations of the Nuclear Non-Proliferation Treaty, the U.S. and Soviet-led trend of nuclear non–proliferation exerted pressure on potential

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[56] Nina Tannenwald, *The Nuclear Taboo: The United States and the Non-Use of Nuclear Weapons Since 1945* (New York: Cambridge University Press, 2007), 73–114.

[57] "Treaty on the Non-Proliferation of Nuclear Weapons (NPT)," United Nations Office for Disarmament Affairs, accessed October 26, 2017, https://www.un.org/disarmament/wmd/nuclear/npt/.

[58] "U.S.-Soviet/Russian Nuclear Arms Control," Arms Control Association SALT II, accessed October 26, 2017, https://www.armscontrol.org/act/2002_06/factfilejune02.

[59] "U.S.-Soviet/Russian Nuclear Arms Control," Arms Control Association SALT II.

nuclear-armed states. In other words, while the international norms for nuclear proliferation varied depending on the relationship between the United States and the Soviet Union, the United States maintained its non-nuclear proliferation posture consistently.

Along with the trend toward the non-proliferation of nuclear weapons, the growing awareness of international law and human rights had also become an international norm preventing nuclear proliferation. The International Humanitarian Law of 1949 in Geneva, by itself, does not contain a ban on nuclear weapons, but it limits the use of weapons of mass destruction. In particular, it prohibited use of inhumane weapons on civilians, and it also prohibited nuclear weapons from being used because such weapons fail to distinguish between combatants and civilians.[60]

Comparing the international trends with the South African nuclear weapons development program, there was spreading international consensus of nuclear non-proliferation from 1963 to 1990, when South Africa decided to develop nuclear weapons and gave up them, but there were also cases that weakened this trend. For example, in 1974, India's peaceful nuclear experiment weakened this trend.[61] At a similar time, South Africa's decision to develop nuclear weapons was not a strange decision considering the atmosphere of the international community. Concerns about nuclear proliferation and the growing awareness of international human rights had begun to embody the norms of non-proliferation, but they had not been an effective deterrent factor for states desiring nuclear-armed status.

On the other hand, the link between South Africa's nuclear program and international norms highlights the role of South Africa's apartheid policy. The United Nations had imposed sanctions on states suspected of owning nuclear weapons, but South Africa had already been subject to a variety of sanctions by the international community

[60] John Borrie et al., *A Prohibition on Nuclear Weapons a Guide to the Issues*, (ILPI/UNIDR, 2016), 16, http://unidir.org/files/publications/pdfs/a-prohibition-on-nuclear-weapons-a-guide-to-the-issues-en-647.pdf.

[61] Charles Stuart Kennedy, "The NPT and the Aftermath of India's Nuclear Test — May 1974," Moments in U.S. Diplomatic History, Association for Diplomatic Studies and Training, accessed November 7, 2017, http://adst.org/2015/05/the-npt-and-the-aftermath-of-indias-nuclear-test-may-1974/#.Wg9xZlXiapo.

due to its racial discrimination policy. This situation had added to the complexity of South Africa's choice of nuclear weapons strategy. Even if the South African government disclosed its nuclear weapons, it could imagine that sanctions imposed by the United Nations would not impose significant additional pain. However, the sanctions imposed by individual nations and corporations were seriously affecting South Africa's economy. In particular, the spread of negative public opinion about South Africa in the United States because of racial discrimination caused the withdrawal of investment by the private sectors, and it seriously shocked the South African economy.[62] Nuclear weapons development itself had become difficult to justify, and given the South African apartheid policy, the public acknowledgement of nuclear weapons likely would have resulted in South Africa's complete international isolation.

Rather than international norms, the U.S. attitude toward South Africa had a more serious impact on South African nuclear policy. South Africa had a high level of nuclear technology based on abundant uranium reserves. In the 1960s, the relationship between the United States and South Africa was very close, including working together to prevent the spread of communism in Africa, but the relationship between the two countries began to diverge over emerging suspicions about South Africa's nuclear weapons development and its racism policy. Consequently, in 1970, the United States terminated its nuclear cooperation with South Africa, and in the 1980s, the U.S. private sector withdrew investment due to the negative views of South Africa in the United States. For instance, by 1982, more than 30 universities and colleges retracted their investment from South Africa.[63]

The United States' military intervention was a key factor for South Africa's nuclear strategy. The success of the nuclear strategy depended on whether or not the United States became involved. South Africa was fearful of U.S. abandonment. Since the United States was consistently opposed to the proliferation of nuclear weapons, South Africa's disclosure of nuclear weapons possession might not lead to intervention by the

[62] Jennifer Davis, "Squeezing Apartheid," *Bulletin of the Atomic Scientists* 49, no. 9 (1993): 17–18.

[63] Davis, "Squeezing Apartheid," 18.

United States but to its abandonment. Thus, maintaining secrecy about its nuclear weapons was an essential choice as long as there was a threat to South Africa's survival.

In South Africa, the norms were not a single independent variable that determined that country's nuclear strategy, but rather an intervening variable for linking to the United States. For the practical functioning of the South African nuclear strategy, it was essential to have U.S. military aid, and to prevent the United States from abandoning South Africa, so it could not violate the U.S. nuclear nonproliferation order. In the atmosphere of the Nuclear Non-Proliferation Treaty, nuclear weapons disclosure was meaningful only as a last resort; in peacetime, South Africa never tested this premise of its nuclear strategy. In addition, racial discrimination had made South Africa more reluctant to disclose its nuclear weapons capability. South Africa, which had already experienced considerable criticism and international isolation, was forced to maintain a vague nuclear strategy to avoid further sanctions and criticism. Consequentially international norms were a powerful factor in ensuring that South Africa maintained a vague nuclear strategy.

3. Domestic Politics

According to the domestic political model of nuclear proliferation, the development of nuclear weapons is used as a way to promote the private interests of specific individuals or groups rather than to respond to security threats. The military, nuclear scientists, engineers, bureaucrats, and politicians push for the development of nuclear weapons for their own political benefit.[64] In South Africa, the coalition of South African Atomic Energy Board scientists and engineers, and the ruling Cabinet Prime Minister Vorster, and the Minister of Defense, who were in favor of the development of nuclear weapons, promoted the development of nuclear weapons. In particular, Minister of Defense Botha had a great desire to develop such weapons.[65]

Since the development of nuclear weapons in South Africa was a secret decision, fewer people were involved in the nuclear development program. Nuclear weapons

[64] Sagan, "Why Do States Build Nuclear Weapons?: Three Models in Search of a Bomb," 63–64.

[65] Sunguk Jang 성욱 장,남아프리카 공화국의 핵무기 개발 및 해체 사례연구 [A case study of South African nuclear weapons development and disarmament], 129.

programs, of course, cannot help but reflect a major politician's will. Defense Minister Botha played a key role in establishing a nuclear strategy, strongly supporting the development of nuclear weapons, but he opposed disclosure because he was worried about the response from the black population.[66] In particular, some nuclear engineers suggested joining the nuclear club, but argued that it was necessary to wait until they were ready.[67] It can be said that the opinion of the key leaders of the regime played an important role in ensuring the ambiguous nuclear strategy.

In a domestic politics model, South Africa's dismantling of nuclear weapons could be described as driven by the impending change of government rather than a reduction of security threats. A new regime can more easily change its nuclear policy, which can highlight the political failure of the former regime.[68] In other words, if development of nuclear weapons is expected to fail to gain public support, that is, if it is evaluated as a failed policy, leaders may delay explanations or hide the policies for their own political gain. This is because the disclosure of failed policies is likely to weaken the political standing of the ruling class. To avoid loss of political influence, they could decide to keep a nuclear weapons program secret.

On the other hand, the ethnic composition of South Africa might have played an important role in maintaining a vague nuclear strategy. In South Africa, the white ruling class can be viewed as a political group, with a few white rulers maintaining a vague nuclear strategy to maintain their power or avoid fueling conflict with the black majority. In other words, the leaders might have adhered to an opaque nuclear strategy for their domestic political interests. According to census data, the percentage of white people declined from more than 20 percent in the early 1900s to about 16 percent in 1980, and the number was continually decreasing.[69] Nonetheless, white people accounted for major

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[66] Albright and Sticker, *Revisiting South Africa's Nuclear Weapons Program: Its History, Dismantlement, and Lessons for Today*, 84.

[67] Ibid., 131.

[68] Sagan, "Why Do States Build Nuclear Weapons?: Three Models in Search of a Bomb," 69.

[69] William H. Worger and Rita M. Byrnes, "History of South Africa (Part 2: The Republic of South Africa: 1961–present)," One World Nations Online, accessed October 26, 2017, http://www.nationsonline.org/oneworld/History/South-Africa-history2.htm.

parts of the South African economy, and deprived blacks of the right to vote, so the conflicts between these racial groups were severe.

With this demography, a possible explanation for nuclear proliferation is that the white rulers developed nuclear weapons to solidify their dominance. In 1904, South Africa first enforced its racial discrimination policies, such as forced migration of colored people from the city center.[70] In 1948, when the apartheid policy was enacted, racial conflict became even more severe. In South Africa, where racial conflicts were so intense, it is obvious that white government policies and strategies were hardly supported by blacks. This political notion may have led politicians to keep the nuclear policy covert.

In addition, the nuclear strategy of any state is very sensitive, and there has been much controversy about the disclosure of nuclear capability, which is the last stage of the three-phase nuclear strategy. No one commented on the use of nuclear weapons in South Africa or the use of nuclear weapons against South Africans, but the use of nuclear weapons against rebel forces who opposed the white regime was always suspected. According to documents released after the nuclear dismantlement, at the time of regime change, African National Congress members stated fears that the white regime could use nuclear weapons against them.[71] In the evaluation based on information released at the time of the regime change, it was not possible to give faith among political groups white and black, and if the white government released its nuclear strategy, it likely would have received a considerable level of political backlash within South Africa.

Given the political tensions of the times, it is difficult to be completely sure whether the African National Congress members genuinely believed the fears they stated. Nonetheless, in light of the ethnic conflicts in Africa, the government may have seen no political incentive to disclose the nuclear strategy. This is because the South African white regime, which suffered from serious racial conflicts, had already witnessed the

[70] Hurst and Ryan, "Soweto, South Africa (1904-)," The Online Reference Guide to African American History, accessed October 26, 2017, http://www.blackpast.org/gah/soweto-south-africa-1904.

[71] Purkitt and Burgess, "South Africa's Nuclear Strategy: Deterring "Total Onslaught" and "Nuclear Blackmail" in Three Stages," 80.

collapse of the white regime in Angola in 1975.[72] Thus, it would have been reluctant to publicize possession regardless of its use of nuclear weapons. Even in the first-generation of nuclear states, there were various opinions and clashes on disclosure of their nuclear weapons programs, and South Africa, which had a high degree of racial conflict, would have been more cautious in disclosing its nuclear strategy.

C. CONCLUSION

In the 1980s, South Africa had developed a rudimentary but stable and reliable nuclear weapon. There was a tactical operability, and it was also credible as a weapon. However, the number of these weapons was limited to six, and the weapon itself was not sufficiently advanced to serve as an effective nuclear deterrent against the Soviet Union. The war with Angola and the intervention of the Cuban army jeopardized security, but using nuclear weapons against the guerrillas was hardly conceivable. From a security standpoint, it seemed far more rational to adopt an ambiguous nuclear strategy.

Due to the political complexities within and outside South Africa, it is hard to say whether South Africa's nuclear program was terminated on security grounds. South Africa had caused many conflicts both domestically and internationally with its racial discrimination policies. Domestically, discrimination and repression against the blacks and colored South Africans made it difficult for the apartheid government to be supported by the international community as well as a majority of its own population. Under these circumstances, the development of nuclear weapons was deemed to be for the political interests of the white ruling class, and the disclosure of nuclear weapons possession could have created even greater opposition, so it was better to keep their existence secret. Domestic political factors were not decisive for maintaining a policy of ambiguity, but never played as negative factor for its opaque policy.

The international situation was also an obstacle to the acknowledgment of nuclear weapons possession. With the entry into force of the Nuclear Non-Proliferation Treaty in

[72] "Angola Becomes Independent of Portuguese Colonial Rule," South African History Online, accessed October 15, 2017, http://www.sahistory.org.za/dated-event/angola-becomes-independent-portuguese-colonial-rule.

1970, international nonproliferation movements appeared. It was hard to find the legitimacy for the development of nuclear weapons because it was a period of increasing resistance to the use of nuclear weapons. Given the high economic and political dependence of South Africa on the United States and its nuclear strategy to ensnare U.S. involvement in a crisis, the U.S. nuclear non-proliferation effort was crucial in influencing South Africa to maintain an ambiguous nuclear strategy.

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III. ISRAEL

Israel is a small country with a population of about 8.3 million people and a territory of about 20,770 square kilometers. Geographically, Israel is surrounded by Arab countries that have threatened its survival. Historically, Israel has waged seven wars with Arab states since its founding, and it is still in dispute with the Palestinians.[73] Although victorious in the war with the Arab countries, the Arab states are still threatening Israeli security.

A. ISRAEL'S NUCLEAR STRATEGY

Israel does not confirm the existence of nuclear weapons at the national level, but many analysts in the international community recognize it as a nuclear-armed state.[74] Suspicion of Israel's nuclear armed forces had existed since the 1950s, but after the release of the 1987 Israeli nuclear engineer, Dr. Mordechai Vanunu, Israel's nuclear capability became an open secret.[75] Even today, Israel has an ambiguous nuclear strategy that does not disclose its nuclear capabilities, as did South Africa when it held nuclear weapons, but the current Israeli nuclear strategy shows much more transparency.

Israel is sometimes thought to have three options for its nuclear strategy. First is to maintain a "nuclear option"—that is, no completed and deployed military nuclear weapon, but a nuclear capability at a level that is readily available for military use. The second is a "bomb-in-the-basement"—a fully assembled nuclear weapon, but not disclosed to the public. The third option would be to declare the possession of nuclear weapons and to make the nuclear strategy public to establish overt deterrence.[76] The

[73] CIA, "The World Factbook, Israel," accessed November 17, 2017, https://www.cia.gov/library/publications/the-world-factbook/geos/is.html.

[74] Mark Fitzpatrick, "Nuclear Capabilities in the Middle East," in *WMD Arms Control in the Middle East: Prospects, Obstacles and Options*, ed. Harold Muller and Daniel Muller (Burlington, VT: Ashgate Publishing, 2015), 107.

[75] "The Vanunu Story," The U.S. Campaign to Free Mordechai Vanunu, accessed October 28, 2017, http://www.vanunu.com/uscampaign/morestory.html.

[76] Shai Feldman, *Israeli Nuclear Deterrence A Strategy for the 1980s* (New York: Columbia University Press, 1982), 7.

common feature of the "nuclear option" and the "bomb-in-the-basement" strategies is that the nuclear possession remains secret.[77]

Reviewing Israel's nuclear weapons development, one can see that it has made efforts to acquire nuclear weapons from the 1950s. Through its nuclear cooperation with France in the mid-1950s, it had built basic nuclear technology, and their military cooperation greatly strengthened through the Suez Crisis.[78] In the late 1950s, France provided nuclear material and nuclear technology to Israel, including uranium. Since France was not a member of the nuclear club until 1960, there was no impediment on its part to provide nuclear technology to Israel.[79] According to Vanunu's exposure and an open CIA report, Israel virtually possessed its nuclear weapons by 1970.

Even though Israel has maintained an opaque nuclear strategy, it might reap more benefits in terms of security from an open nuclear strategy. One can argue that Israel succeeded with its opaque nuclear strategy because it faced no total war after independence. Yet, the Yom Kippur War was certainly critical for its survival. Considering that Israeli Defense Minister Moshe Dayan proposed the nuclear option to the prime minister at that time,[80] the war itself might be evidence that the opaque nuclear strategy had failed. If one state is armed with nuclear weapons to deal with threats from neighboring countries, but uses less effective strategies for security—for example, having nuclear weapons for deterrence but not disclosing possession of them—one should consider other factors besides security as the driving force behind the state's nuclear strategy. This chapter analyzes how security, domestic politics, and international norms may have affected Israel's choice to maintain an ambiguous nuclear strategy.

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77 Feldman, *Israeli Nuclear Deterrence A Strategy for the 1980s*, 8.

78 "The French-Israeli Relationship," CIA, 1961, 1, https://www.cia.gov/library/readingroom/docs/DOC_0000271219.pdf.

79 "The French-Israeli Relationship," 4–5.

80 Avner Cohen, "The Last Nuclear Moment," *The New York Times*, October 6, 2003, http://www.nytimes.com/2003/10/06/opinion/the-last-nuclear-moment.html.

B. POSSIBLE VARIABLES

Possible drivers of Israel's opaque nuclear strategy also include security, norms, and domestic politics.

1. Security

Military threats from neighboring countries to Israel have sparked Israel's nuclear arming. The country had undergone a number of wars with the Arab countries since the 1948 Arab-Israeli War. Clearly, in comparison to the territorial and population size, as well as geographical characteristics, Israel was at a disadvantage to Arab countries. With the memory of the Holocaust still fresh, former Prime Minister David Ben Gurion believed that the only way to break through the threat was to have a powerful force.[81] Nuclear weapons could be seen as the perfect means to counterbalance these adversarial forces at once.[82] This perception is evident in the leaders' public comments, which demonstrate the primacy of Israel's security.

Israel, which in 1948 declared its independence in the Middle East, has had conflicts with Arab countries from the beginning. Not only that, the great powers showed a cynical attitude toward Israel in pursuit of its interests. For example, in the Suez Crisis, the United States criticized the British-French-Israeli allied forces, while the Soviet Union provided arms to Egypt.[83] International security and regional security conditions were not favorable to Israel, which led Israel to have a firm belief in building a strong military power. The way to have such power was to pursue its own strengths that did not rely on alliances or defense treaties.[84] In particular, prior to the 1973 Yom Kippur War, great powers were lukewarm about the Arab blockade of Israel, and Israel was not

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[81] Vipiin Narang, *Nuclear Strategy in the Modern Era: Regional Powers and International Conflict* (Princeton, NJ: Princeton University Press, 2014), 181–182.

[82] Kenneth Waltz, "The Spread of Nuclear Weapons: More May Better," The Adelphi Papers 201, no. 171 (1981), https://doi.org/10.1080/05679328108457394.

[83] "Suez Crisis," History.com, accessed November 25, 2017, http://www.history.com/topics/cold-war/suez-crisis.

[84] J. Bowyer Bell, "Israel's Nuclear Option," *Middle East Journal* 26, no. 4 (Autumn 1972): 384, http://www.jstor.org/stable/4324984.

promised official security or military alliances from the great powers.[85] This provided an ideological basis for the formation of Israel's self-reliant defense policy.

Israel's ambiguous nuclear strategy did not effectively deter the enemy's aggression. In 1967, the Arabs cooperated and attempted to block Israel, and in 1973, the allied forces of Egypt and Syria launched a surprise attack on Israel. According to a study published after the October 1973 attack, Israel had not convinced Arab countries of its possession of nuclear weapons. Egyptian President Sadat said that he believed there was no nuclear weapon, even if Israel had nuclear technology, and in 1976, Egyptian Foreign Minister Ismayil Fahmy also reiterated President Sadat's assessment.[86] It shows that the ambiguity of Israeli nuclear weapons and the misinterpretation of its enemies could have contributed to the failure in deterrence, showing the weakness of an opaque nuclear strategy.

Why, then would Israel maintain that opaque strategy? The policy of ambiguity in the early days of Israel's nuclear development was necessary due to its limited ability. If states decide to develop nuclear weapons for security and succeed, then it is more rational to publicize their nuclear weapons because their disclosure increases deterrence. Nevertheless, the reason Israel did not disclose its possession of such was that such a move would have negatively impacted Israeli security. With the exception of rudimentary nuclear weapons, explosion tests are essential to establish weapons credibility, and Israel had not yet conducted these tests.[87] Since a nuclear test is clear evidence of nuclear weapon development, many have feared such a demonstration would bring nuclear proliferation in the Middle East.[88] Arab states' nuclear arming has been a critical threat to Israel's security, so its nuclear tests or open declaration of nuclear weapons possession was not an option for Israel. In addition to worries about nuclear proliferation, concerns

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[85] Mitchell Reiss, *Without the Bomb: The Politics of Nuclear Nonproliferation* (New York: Columbia University Press, 1988), 23.

[86] Feldman, *Israeli Nuclear Deterrence A Strategy for the 1980s*, 10–15.

[87] Leonard S. Spector, *The Undeclared Bomb* (New York: Ballinger Publishing Company, 1988), 8.

[88] Hirofumi Tosaki, "Nuclear Weapons Issues in the Middle East," *Nuclear Disarmament in the Twenty-first Century*, ed. Wade L. Huntly, Kazumi Mizumoto, and Mitsuru Kurosawa (Hiroshima: Hiroshima Peace Institute, 2004), 186–187.

about Arab countries' preventive attacks were also a factor in Israel maintaining its policy of ambiguity. Indeed, Egyptian President Gamal Abdel Nasser said that if Israel pursued a nuclear arsenal, the Arabs' only answer was a preventive war.[89]

The policy of ambiguity, though, must become weaker in order to strengthen deterrence. According to published data, Israel succeeded in manufacturing nuclear weapons in the late 1960s. Nevertheless, Israel maintained a relatively high level of ambiguity until its invasion by Egypt and Syria in 1973. The United States did not acknowledge Israeli nuclear weapons in 1970 even though the United States had confirmed evidence of Israel's nuclear weapons development. In 1976, the CIA reportedly informed influential citizens that Israel had about 20 nuclear weapons.[90] The decisive exposure of the country's nuclear-armed status came from the disclosure of Israel's nuclear engineer, Mordechai Vanunu. Vanunu took photographs of Israeli nuclear weapons facilities and leaked them to the British newspapers. As a result, Israel's nuclear weapons became an open secret.[91]

Furthermore, the development of technology has increased the reliability of weapons without nuclear explosion tests, which has shifted Israel's level of ambiguity from forced to deliberate. In the modern world, it is possible to make a gun type nuclear weapon without detonations[92] and enhance its power using computer simulations based on data from actual tests.[93] The technical cooperation between Israel and France also helped Israel's nuclear arming without actual testing, as there were suspicions that France gave nuclear test data to Israel in 1960.[94] In addition, holding nuclear weapons delivery systems such as fighters and missiles, Israel could view the disclosure of nuclear weapons as an acceptable option. Without reliable delivery systems, nuclear weapons are

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[89] Bell, "Israel's Nuclear Option," 380.

[90] Peter Vincent Pry, *Israel's Nuclear Arsenal* (Boulder, CO: Westview Press, 1984), 40–41.

[91] "The Vanunu Story."

[92] Spector, *The Undeclared Bomb,* 8.

[93] Ann Kellan, "Computer Simulations Can Substitute for Nuclear Tests," CNN Interactive, May 14, 1998, http://www.cnn.com/TECH/computing/9805/14/india.nuke.computers/index.html.

[94] Spector, *The Undeclared Bomb,* 169.

considered as experimental devices, not weapons that can offer deterrence. Today, Israel has enough nuclear weapons delivery systems, including Jericho missiles that can reach 11,500 km, and F-4E fighters that can carry nuclear weapons.[95] It is not clear how many nuclear warheads Israel has, but it likely has a fair number of nuclear weapons.[96] In spite of having reliable delivery systems and enough nuclear weapons, though, Israel remains ambiguous, likely a deliberate strategy.

It is difficult to say that Israel's nuclear attitude changed at some point, but according to Professor Vipin Narang, Israel has changed its ambiguous attitude on nuclear retaliation since 1991. Narang offers some reasons for this shift; one of them is Israel had to have countermeasures based on weapons of mass destruction against possible attacks. The collapse of the Soviet Union and the growing evidence of Israel's nuclear power could be other reasons.[97] However, its nuclear policy has changed and consolidated with its growth in nuclear capabilities, its increase of conventional military power, and in mounting evidence of its nuclear weapons development rather than one specific event.

In terms of security, Israel has three reasons for its deliberately opaque nuclear policy. First, nuclear armament was no longer a prerequisite for Israeli survival because of its strengthened conventional military power. Second, after the peace treaty with Egypt, security circumstances surrounding Israel changed. Most threats were linked to small military organizations, rather than from total war. In this situation, nuclear options did not represent an applicable solution. Lastly, even without official confirmation by the state, Israel's possession of nuclear weapons was no longer secret in international society; this created a similar deterrence effect to its enemies even without formal disclosure.

The Yom Kippur War gave a great shock to Israel but, at the same time, gave it confidence in its military capabilities. Because the war took place during Ramadan, the

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[95] Jericho III, Intercontinental Ballistic Missile," Military Today, accessed November 10, 2017, http://www.military-today.com/missiles/jericho_3.htm.

[96] Spector, *The Undeclared Bomb*, 180–183.

[97] Narang, *Nuclear Strategy in the Modern Era: Regional Powers and International Conflict,* 181.

defensive posture was not perfect so the Israeli army was struggling at the beginning.[98] Before long, however, they got military superiority in the battlefield. Modernized weapons and well-trained troops liberated Israel from the crisis. In particular, Israel took full control of air superiority, and it showed operational excellence in its joint operation, which gave the military confidence that conventional weapons adequately addressed Arab countries.[99] The division and demographic structure of the Arab countries also reinforced the relative superiority of the Israeli army in possible future wars.[100] Israel's conventional power dominance made nuclear weapons were not the only solution for its survival and that dominance reduced the need for openly declaring its possession of nuclear weapons to enhance deterrence.

After the 1973 war, Egypt believed it difficult to succeed militarily against Israel. Since 1973, Egypt's military influence has been extremely limited, a result of U.S. support for Israel and the Soviet withdrawal of support for Egypt.[101] As a result, with the United Nations intervention, Egypt and Israel signed a peace treaty in 1979. Since Egypt played a pivotal role in the Arab world and was at the center of a military conflict against Israel, Israel was able to strengthen its security by neutralizing the country, Egypt, that most threatened it.[102] It was hard to believe that its absolute security was guaranteed because of the dispute with the Palestinians, but the security environment around Israel was much improved compared to the past when its survival was threatened.

Actually, Israel's largest direct military conflicts since the 1973 Middle East War have been small battles that come from conflict with the Palestinians. Conflicts with these military organizations were no longer issues of Israel's survival, and Israel could easily

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98 "Israeli Defense Forces: 17 Miraculous Israeli Military Victories," Jewish Virtual Library, accessed November 17, 2017, http://www.jewishvirtuallibrary.org/17-miraculous-israeli-military-victories.

99 Yiśra'el Tal , *National Security: The Israeli Experience* (Westport, CT: Greenwood Publishing Group, 2000), 187–188.

100 Bell, "Israel's Nuclear Option," 385.

101 M. Cherif Bassiouni, "An Analysis of Egyptian Peace Policy toward Israel: From Resolution 242 (1967) to the 1979 Peace Treaty," *Case Western Reserve Journal of International Law* 12, no. 1 (1980): 7, http://scholarlycommons.law.case.edu/jil/vol12/iss1/2.

102 Fawaz A. Gerges, "Egyptian-Israeli Relations Turn Sour," *Foreign Affairs* 74, no. 3 (May-June 1995): 72, http://www.jstor.org/stable/20047124.

enough counter the Palestinians' small military organizations with its overwhelming conventional firepower. The use of nuclear weapons in disputes with small-scale military groups could not be justified, also making Israel reluctant to disclose its nuclear weapons possession. In sum, from the security perspective, there is no advantage to disclosing nuclear weapons possession in order to deal with small military groups.

Finally, the level of ambiguity of Israel's nuclear strategy has diminished considerably. Regardless of official acknowledgment, the international community has had suspicions about Israel's nuclear weapons development. In 2006, accidentally, Israeli Prime Minister Ehud Olmert said that, in fact, Israel had nuclear weapons.[103] Soon after, the announcement was denied, but the evidence, including this event, increased certainty about Israel's nuclear arsenal in the international community. In this situation, the disclosure of the nuclear strategy will not guarantee any more deterrence of a threat, since it is in fact an open secret. Hence, there is no reason for Israel to disclose its nuclear weapons possession.

Deterrence through nuclear weapons is established by nuclear states' communications, capability, and credibility.[104] In a crisis, it is important to convey the intention to use nuclear weapons through diplomatic dialogue or messages. Israel has consistently delivered its intentions in its defense policies and past wars. Even during a small provocation, adversaries may consider that Israel will defend itself and massively retaliate by any means. Israel's nuclear capability has already been acknowledged to some degree to its enemies, and Vanunu's disclosure of nuclear facilities created less suspicion about its capability. Credibility is the adversaries' belief that the nuclear weapons will actually be used. Israel has addressed its security threats through military action without any compromise. Israel's will to use nuclear weapons against its opponents may be stronger than that of any other country.

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[103] T. V. Paul, *The Tradition of Non-Use of Nuclear Weapons* (Redwood: Stanford University Press, 2009), 125.

[104] Phil Williams, "Nuclear Deterrence," in *Contemporary Strategy Theories and Concepts,* ed. John Baylis, Ken Booth, John Garnett, and Phil Williams (New York: Holmes & Meier Publishers, 1987), 117–121.

On the other hand, according to deterrence theory, maintaining an ambiguous nuclear strategy can reduce adversaries' perception of will. Israel weakened the level of its ambiguity and strengthened its conventional military power to ensure its defense policy could achieve deterrence without publicizing its nuclear strategy. Nevertheless, from a security point of view, the level of deterrence has been compromised because of ambiguity. It implies that there were factors other than security for maintaining Israel's ambiguous nuclear strategy.

2. Norms

In general, the main reason for the reluctance to develop nuclear weapons in the modern world is the norms of nuclear non-proliferation and international checks. Concerns about weapons of mass destruction and a broad consensus on the non-proliferation of nuclear weapons have made it harder for new nuclear states to emerge. In the case of North Korea, international norms are certainly a negative factor in its pursuit of nuclear weapons given the considerable level of economic sanctions, international criticism, and isolation.[105] On the other hand, international norms drive states to have secret or ambiguous attitudes when such states decide to have nuclear weapons.

However, the international norm on nuclear non-proliferation has not been strong since the advent of nuclear weapons. From the mid-1950s to the mid-1970s, when Israel decided to develop nuclear weapons, the pursuit of nuclear weapons development was not entirely forbidden nor was it as strongly resisted internationally. Rather, states believed that the development of nuclear weapons would enhance their international influence and give them prestige.[106] On the other hand, Israel focused on improving its chances for survival and its security environment rather than on increasing its international influence or its status as a nuclear state through nuclear weapons possession. Israel was not interested in nuclear weapons for prestige, and so did not need to publicize its efforts for that reason. When the Israeli security environment improved in the 1990s,

[105] U.S. Department of the Treasury, "North Korea Sanctions," accessed November 16, 2017, https://www.treasury.gov/resource-center/sanctions/Programs/pages/nkorea.aspx.

[106] Sagan, "Why Do States Build Nuclear Weapons?: Three Models in Search of a Bomb," 76.

there was an atmosphere of international nuclear nonproliferation, giving Israel further incentive not to publicize its capabilities.

If one looks at Israel's defense policy, one can better understand Israel's response to international norms. Their defense policy is expressed as "Dahiya," which is based on suppression through mass retaliation.[107] This mass retaliation strategy often makes Israel cross the line with military operations that cause collateral damage, which triggers the international community's concerns. Because of Israel's historical concern with basic survival, it does not pay as much attention to its reputation and norms in military conflicts. This is seen in the examples of Israel's military operations causing civilian casualties. In the 2014 conflict with Palestine, Israel bombarded hospitals and elementary schools, which was regarded as illegal internationally.[108] There were at least seven Israeli missile attacks on schools during fight against the Palestine military group Hamas, in 2014.[109] In contrast, according to a U.S. military publication, fulfillment of collateral damage estimates based on the Law of War and Rules of Engagement is necessary before military operations.[110] This shows that Israel prioritizes security more than international norms or reputation compared to the United States and its ally South Korea.

On the other hand, relations with the United States have had a major impact on Israel's nuclear strategy. During the 1948 Arab-Israel War and Suez Crisis, the United States did not fully support Israel, even though it was the first to recognize Israel as a

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[107] IMEU, "The Dahiya Doctrine and Israel's Use of Disproportionate Force," Institute for Middle East Understanding, accessed November 15, 2017, https://imeu.org/article/the-dahiya-doctrine-and-israels-use-of-disproportionate-force.

[108] Sudarsan Raghavan, William Booth, and Ruth Eglash, "U.N. Says Israel Violated International Law, After Shells Hit School in Gaza.," *Washington Post*, accessed November 9, 2017, https://www.washingtonpost.com/world/israel-presses-attack-16-killed-at-un-school/2014/07/30/4a643588-17a5-11e4-85b6-c1451e622637_story.html?utm_term=.713e8a1dc71b.

[109] "2014 Israeli Shelling of UNRWA Gaza Shelters," Wikipedia, last modified August 23, 2017, https://en.wikipedia.org/wiki/2014_Israeli_shelling_of_UNRWA_Gaza_shelters.

[110] "Joint Targeting Cycle and Collateral Damage Estimation Methodology (CDM)," American Civil Liberties Union, accessed November 24, 2017, https://www.aclu.org/files/dronefoia/DOD/drone_DOD_ACLU_DRONES_JOINT_STAFF_SLIDES_1-47.pdf.

state, because of its relations with the Middle Eastern Arab states.[111] In the military conflict surrounding the Suez Canal, the United States stood on the Egyptian side and compelled Israel to withdraw its military.[112] Nevertheless, later U.S. policy in the Middle East, which emphasized Israel's position in that region, made a very positive impact on Israel's security. In 1966, Israel sealed a deal with the United States to obtain military equipment, including 48 M-4 tanks and 48 Skyhawk Bombers. Immediately after the 1967 Six Day War between the Arabs and the Israelis, the United States agreed to sell to Israel F-4E fighters, the most powerful fighter at that time.[113] With these modernized weapons from United States, Israel had superior military power compared to the surrounding Arab countries.

U.S. military aid has become a very important factor in Israel's security environment. Israel's cooperation with the United States has been perhaps the most important factor in Israel's security, because nuclear weapons can only be considered as the last resort. U.S. efforts toward nuclear non-proliferation have become a good card for Israel to play to gain American interest to support it. The United States worried about nuclear proliferation for several reasons. One worry centered on the possibility of nuclear war, and those possibilities increase as nuclear weapons proliferate around world. Another concern has been that proliferation might draw the United States into more interventions in local conflicts to prevent a nuclear crisis. Moreover, the United States has feared loss of control. Nuclear weapons give more power to their holders, so nuclear proliferation may harm the United States' influence around the world.[114]

Israel maintained an ambiguous nuclear strategy to capture the United States' support, and the United States accepted Israel's nuclear weapons remaining unpublicized to maintain nuclear non-proliferation efforts. It is clear that Israel's public nuclear

[111] Irene Gendzier, "U.S. Policy in Israel/Palestine, 1948: The Forgotten History," Middle East Policy Council, accessed November 9, 2017, http://www.mepc.org/us-policy-israelpalestine-1948-forgotten-history.

[112] U.S. Department of State, "Suez Crisis, 1956," accessed November 17, 2017, https://2001-2009.state.gov/r/pa/ho/time/lw/97179.htm.

[113] Warren Bass, *Support Any Friend: Kennedy's Middle East and the Making of the U.S.-Israel Alliance* (London: Oxford University Press, 2004), 250.

[114] Feldman, *Israeli Nuclear Deterrence A Strategy for the 1980s*, 193–194.

armament would launch a series of nuclear developments in the Middle East.[115] There are also many suspicions. For example, Avner Cohen says in his book, *The Worst-Kept Secret: Israel's Bargain with the Bomb*, in a 1969 meeting with the U.S. President Dwight D. Eisenhower and the Prime Minister of Israel Golda Meir, there was a kind of agreement about Israel's invisible nuclear strategy. The relations with the United States and Israel mattered for Israel's nuclear strategy.[116]

The correlation between the U.S.-Israel agreement and the Israeli nuclear strategy is quite complex. Depending on the point of view, Israel's nuclear strategy may be regarded as forcing U.S. involvement rather than Israel being forced by U.S. policy. The United States' desire for stability in the Middle East has led it to intervene on Israeli security issues. From a practical point of view, it is more effective for Israel to compel U.S. forces to intervene in a crisis rather than to deter or threaten its enemies using nuclear weapons. Israel is coercing U.S. intervention and its assurances of security in exchange for maintaining ambiguity about its nuclear capabilities. One cannot say for sure whether this is to maintain nuclear ambiguity in order to receive U.S. security support or to force U.S. security support in exchange for maintaining ambiguity, but Israel's relationship with the United States plays a decisive role in its nuclear strategy.

International norms did not make Israel maintain a vague nuclear strategy directly. Rather than being influenced by national policies but by international norms, it established defense policies based on a sobering judgment both of its own and its enemies' military forces. Given the geopolitical impact of the surrounding hostile states and the size of the nation, Israel's military cooperation with the United States is an integral part of security. Israel tried to signal related its nuclear weapons to force the United States to intervene in Israeli military conflict in 1973.[117] The United States did not want break with international norms and order, and in return, the American government provided military support to Israel. Although international norms did not

[115] Tosaki, "Nuclear Weapons Issues in the Middle East," 186–187.

[116] Avner Cohen, *The Worst-Kept Secret: Israel's Bargain with the Bomb* (New York: Columbia University Press, 2010), 26.

[117] Narang, *Nuclear Strategy in the Modern Era: Regional Powers and International Conflict,* 180.

directly affect Israel's nuclear strategy, they invoked military intervention by the United States and, consequently, affected Israel's nuclear strategy indirectly.

3. Domestic Politics

In the nuclear proliferation stage, the domestic politics perspective highlights how the pursuit of interests of political groups leads to nuclear proliferation. In Israel, however, it is hard to say that the interests of certain political groups have promoted its nuclear armed forces because of their inherent high support for nuclear weapons. In such a case, it would be better for these political groups to promote an open nuclear strategy. For example, India was able to succeed in having a nuclear arsenal despite its difficult economic environment due to high public support of nuclear armament.[118] Given Israel's high public support for nuclear armed forces, domestic politics is not a decisive factor in forming Israel's ambiguous nuclear strategy.

Domestic politics still exercised little influence over Israel's ambiguous nuclear strategy even after that state acquired nuclear capability. Israel sought to project a powerful appearance because of threats to its survival. In 1981, an Israeli air strike destroyed the nuclear reactor Iraq intended to use to generate nuclear material.[119] The bombing took place in a surprise attack and sparked criticism in the international community,[120] but it received fervent political support at home.[121] As a result, the leadership that conducted the military operation won the subsequent general election that year by a large margin. Israel had a national consensus that only strong military forces can guarantee its survival and that nuclear weapons are a guaranteed means of ensuring

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[118] C. Raja Mohan, "India and Nuclear Weapons," *International Politics and Society*, (April 1998): 380, http://library.fes.de/pdf-files/ipg/ipg-1998-4/artmohan.pdf.

[119] "Israel's Wars & Operations: Operation Opera - Raid on Iraqi Nuclear Reactor," Jewish Virtual Library, accessed November 29, 2017, http://www.jewishvirtuallibrary.org/operation-opera-raid-on-iraqi-nuclear-reactor#opposition.

[120] Hemda Ben-Yehuda, Shmuel Sandler, *The Arab-Israeli Conflict Transformed: Fifty Years of Interstate and Ethnic Crises*, (New York: SUNY Press, 2012), 56.

[121] Zvi Schuldiner, "Israel's "National Unity,"" *Middle East Research and Information Project*, 129 (1985), http://www.merip.org/mer/mer129/israels-national-unity.

safety. According to a 1976 survey, 77 percent of the people were in favor of a nuclear arsenal and were proud of it.[122]

Even if there is high public support of nuclear arming, it is difficult to say the Israel people support an open nuclear policy. Some called for former Prime Minister Olmert to resign because he almost blew up the Israeli longstanding opaque nuclear strategy.[123] He did not resign because of this nuclear slip, but his public support rate declined. Considering strong support among the Israeli public for nuclear arming, and the punishment of its prime minister's mistake, domestic political factors may influence its nuclear policy by supporting nuclear armament but also supporting it official secrecy.

On the other hand, there is an advantage in keeping nuclear possession secret from a domestic political view. When states keep secret about their nuclear policy, they do not have to pay a political cost for possessing nuclear weapons because there is no discussion at the political level or between scholars and citizens. However, in Israel, because of its low level of ambiguity, there are some disputes about its nuclear weapons. Yet, there is still less social resistance to possession of nuclear arms in Israel as compared to other nuclear states. Israel also has the advantage of not disclosing its nuclear capability, so it helps to avoid defense policy that too heavily relies on only nuclear weapons.[124] This inevitably increases investment in conventional power, which can increase the political influence of the military.

Given the Israeli people's positive assessment of the nuclear arsenal and the friendly attitude toward nuclear weapons-related military operations, the domestic political situation does not seem to have been a barrier to disclosing its nuclear strategy. However, considering the political cost of Prime Minister Olmert's mistake, disclosing nuclear weapons may not result in political benefit. In Israel, domestic politics have influenced whether to maintain its opaque nuclear policy in a complex way.

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[122] Steven J. Rosen, "A Stable System of Mutual Nuclear Deterrence in the Arab-Israeli Conflict," *American Political Science Review* 71, no. 4 (1977): 1368.

[123] Luke Harding and Duncan Campbell, "Calls for Olmert to Resign after Nuclear Gaffe," *Guardian*, December 13, 2006, https://www.theguardian.com/world/2006/dec/13/israel.

[124] Paul, *The Tradition of Non-Use of Nuclear Weapons*, 125.

C. CONCLUSION

Israel has pursued nuclear arms because of its conflicts with neighboring Arab countries. Comparing the size of the nation and considering its religious conflicts with Arab states, possession of nuclear weapons has been essential for its survival. Israel developed nuclear weapons to survive, but it did not choose a strategy to secure deterrence through nuclear weapons. Even though an open nuclear strategy typically has more benefits in terms of deterrence, Israel decided to have an opaque nuclear strategy. It shows that the security environment changed or some other factors need consideration in choosing a policy of ambiguity.

Israel prevailed through a war of independence and in territorial disputes with Arab countries. It thus has strong incentives to build its powerful military capabilities and develop its nuclear weapons. At the nuclear weapons development stage, it maintained secrecy in order to avoid preventive attacks from bellicose enemy countries. Israel did not conduct detonation tests of its nuclear weapons so as not to instigate the Arab countries, which inevitably lowered its weapons credibility and kept the ambiguity of its nuclear strategy. However, after the Yom Kippur War, the Israeli conventional military had become so powerful and adept that it could adequately defend itself from the surrounding Arab states, and the preponderance of its conventional power reduced the need to disclose its nuclear strategy. In the end, Israel maintained and is maintaining an ambiguous nuclear strategy despite conclusive evidence of its nuclear weapons development.

Despite growing concerns about nuclear proliferation in the international community, Israel has not been significantly affected by the perception of the international community. It was not interested in its international reputation at the cost of its most valuable objective, survival. Nonetheless, the United States wanted to uphold the international norm of nuclear non-proliferation that it had been building. In particular, the United States opposed Israel's nuclear weapons, because it was certain that a sequence of nuclear proliferation in the Middle Ease would arise if Israel developed nuclear weapons. In the end, Israel chose to receive security guarantees from the United States while maintaining an ambiguous nuclear strategy. Looking at the flow of its policy decisions, the factor of international norms itself has not decisively influenced Israel's nuclear

policy, but it has provided incentive for support from the United States, and indirectly supports Israel's continued opacity.

The domestic political situation is a neutral factor for Israel in maintaining its ambiguous nuclear policy. Most people are in favor of nuclear armament and are pleased with a mass retaliation defense policy and relative strength in their region. In particular, the Israeli pride in being the only nuclear-armed state in the Middle East was so great that support for the ruling party rose sharply when Israel launched an air strike against Iraq's reactor. However, there was huge political resistance when the Prime Minister mistakenly admitted its nuclear weapons possession. Given these circumstances, domestic political factors are mixed influences on Israel's opaque nuclear strategy.

At present, Israel maintains an opaque nuclear strategy for several reasons. First, it may have enough nuclear deterrence anyway. Although nuclear deterrence may be expected to increase if a state openly possesses nuclear weapons, Israel has decided to maintain ambiguity to avoid promoting nuclear development in neighboring countries and launching an arms race. Second, international norms have not directly affected Israel's nuclear policy. Israel is indifferent to its international reputation in matters related to survival. By contrast, its relationship with the United States has been important and its military cooperation with the United States can help its security. Thus, the U.S. policy of pursuing nuclear nonproliferation has led Israel to maintain an opaque nuclear policy. Finally, Israel's domestic political situation has not played a decisive role in maintaining its ambiguous nuclear policy. High public support of its nuclear weapons possession is independent of political rivalry and independent of whether or not possession is openly declared.

IV. COMPARISON, IMPLICATIONS, AND CONCLUSION

A. COMPARISON OF SOUTH AFRICAN AND ISRAELI NUCLEAR STRATEGIES

Since World War II, when the United States dropped the nuclear bombs on Hiroshima and Nagasaki, states have understood the strong physical power and political influence of nuclear weapons. These attributes have been important motives for the development of nuclear weapons. Among the second generation of nuclear-armed states there was a clear tendency to maintain an ambiguous nuclear policy during their nuclear weapons development process. But both South Africa and Israel maintained an opaque nuclear strategy even after development. South Africa, however, dismantled its weapons and revealed its past possession, while Israel still presumably possesses nuclear weapons and maintains an opaque nuclear strategy. To analyze the ambiguous South African and Israeli nuclear strategies, this thesis used Sagan's nuclear proliferation model, which includes security, norms, and domestic politics, as an analytical framework.

First, security is not only a cause of nuclear proliferation, but also an important factor in maintaining an ambiguous nuclear strategy. In the case of South Africa, there were security instabilities caused by spreading nationalist movements in neighboring countries and security anxiety due to neighbors' civil wars. The Israelis had also security problems arising from religious and territorial disputes with surrounding Arab countries. In these two case studies, a factor of security instability was a definite motive for the development of nuclear weapons, but after the development of those weapons, security instability was rather a negative factor in the disclosure of nuclear weapons.

In the case of South Africa, the actual capabilities of nuclear weapons were important given that the goal of that state's opaque nuclear strategy was to induce the West's intervention. Due to technical limitations, however, the nuclear device was too large and heavy to deliver at the beginning of development, so it was not available for real battlefields. Consequently, these weapons could not deter the threats. Even after the development of deliverable nuclear weapons from technological advancements, South Africa did not deem its nuclear weapons a suitable weapon system to contain its threats.

This was because the nuclear weapons were too powerful to deal with small, armed military organizations that were the real problem for South Africa after the 1980s. At the same time, however, the nuclear weapons were too weak to deal with the Soviet Union, which intervened in the Angolan civil war and threatened South African security. Because the nuclear weapons could not solve the security problems of South Africa, the disclosure of nuclear weapons possession was not a good choice.

In Israel, security issues remain one of the most powerful elements in determining its nuclear strategy. In the early days of Israel's establishment, in the series of wars with Arab countries and in the face of indifference from the great powers, Israel needed to find a way to survive, and nuclear weapons development was one of the most attractive solutions. Nevertheless, Israel did not publicize its nuclear weapons development program, because if Israel's efforts to develop nuclear weapons were fully disclosed, Arab states' were likely to launch preventive attacks against Israel.

Once Israel's conventional military power proved capable of prevailing over attacks by surrounding Arab countries, there was no reason for Israel to disclose the development of nuclear weapons to deter these threats. Rather, the disclosure of nuclear weapons could potentially weaken its security by promoting the development of nuclear weapons in neighboring Arab countries. Thus, Israel continued to maintain its ambiguous nuclear policy as it secured its survival through conventional power, without its nuclear weapons.

Second, norms generally have a negative impact on publicized nuclear development, but there are both positive and negative aspects to the disclosure of nuclear capabilities. The international nuclear non-proliferation movement can be an example of a factor that prohibits the disclosure of nuclear capability. On the other hand, having strong nuclear weapons to expand its international influence can be a motive for a country to disclose its possession of such weapons. In this light, the opaque nuclear strategies of South Africa and Israel are interesting, because these countries' nuclear strategies were influenced by their relationships with the United States, rather than by international norms.

In South Africa, it is hard to say whether norms played a decisive role in its eventual disclosure of nuclear weapons. The international community had criticized South Africa because of its apartheid policy, and South Africa worried that disclosure of its nuclear weapons program could result in more sanctions and isolation. In this regard, India would be a reference for South Africa as India was subjected to sanctions from the international community after it completed a nuclear device test. One can argue that international norms were not crucial to South Africa, though, because it had already been subjected to almost all sanctions except direct military intervention. Rather, the relationship with the United States was important given that the goal of its nuclear strategy was to force the intervention of the West, more specifically the United States, if South Africa faced a critical military conflict. In other words, the norm that emphasized non-proliferation for the United States was a strong cause for South Africa's ambiguous nuclear strategy.

The case of Israel is similar to that of South Africa in regard to norms. In matters of its own survival, Israel does not care how it is perceived by the international community. Sometimes Israel has ignored international laws and taboos, if its actions were connected to its survival. Nonetheless, the global trend of non-use of nuclear weapons has increased, making it more difficult to decide to use nuclear weapons. Given the strong nuclear non-proliferation policy of the United States, especially regarding non-proliferation in the Middle East, U.S. policy would have had an impact on Israel's ambiguous nuclear strategy. However, it also can be inferred that considering Israel's strong will to use nuclear weapons in a military crisis, Israel coerced U.S. security assurance for Israel. In any case, whether the U.S. commitment to nuclear non-proliferation has driven Israel's ambiguous nuclear strategy or Israel has forced the United States to be involved in Israeli security issues, the relationship between Israel and the United States has factored significantly in Israel's opaque nuclear strategy.

Finally, domestic political factors played limited roles in the two countries' choice of nuclear policy. South Africa's domestic situation had at least a neutral or positive influence in the government's decision to maintain an ambiguous nuclear strategy until disarmament. A small group of leaders in South Africa, elites within the ruling white

party, led the nuclear development effort and maintained a relatively high level of ambiguity about the program until just before the dismantling of its nuclear weapons. If the possession of nuclear weapons had been divulged to the public, it likely would have caused controversy, not only in the international community but also in the domestic arena. In South Africa, conflict between the ruling class and the people was already severe due to racial division in that country. The racial discrimination policy of the white regime caused both a high level of domestic repression and severe bloodshed. Despite a lack of evidence to support their claim, according to testimony from African National Congress officials after the nuclear dismantlement, black people suspected that the white regime might use nuclear weapons against them. Perhaps fearing political backlash, the white regime was motivated not to adopt an open nuclear policy because it had little chance of public support for the release of nuclear weapons. In other words, the domestic political factor in South Africa was at least neutral or promoted maintaining an opaque nuclear policy.

Similarly, in Israel, there was a national consensus on nuclear arming with a strong will of the leader, and in fact, the nuclear arming was not a secret to its people. The high level of public support for offensive military operations and for gaining nuclear arms implies that the disclosure of nuclear weapons could be politically beneficial for the ruling party. Yet, when the Israeli prime minister inadvertently disclosed the state's nuclear capabilities, he suffered huge political consequences, indicating public support for ambiguity. It is also debatable whether Israel's ambiguous policy implied more dependence on conventional military power, benefiting their military. Therefore, in the case of Israel, domestic political factors have not been a decisive influence on maintaining an opaque nuclear strategy.

Taken together, security factors have been common and positive influential factors in shaping South Africa's and Israel's ambiguous nuclear strategies. Regarding norms, the relations with the United States have been the strongest factor. Finally, in terms of shaping opaque nuclear strategies, the domestic political factor had at least a neutral or positive effect in South Africa's case, but it has not been a critical factor in the case of Israel.

B. IMPLICATIONS

Studies of ambiguous nuclear strategies can help our understanding and explain the potential for nuclear proliferation in Northeast Asia. North Korea's nuclear weapons detonation tests and missile launches are now a direct threat to South Korea and Japan in Northeast Asia. Applying Sagan's explanations, one can say that South Korea and Japan have enough motivations for developing nuclear weapons because of the security threat. If nuclear proliferation occurs in South Korea and Japan, would they maintain an ambiguous nuclear strategy?

According to Sagan's model, from the security point of view, the incentives for the disclosure of nuclear weapons and the incentives for non-disclosure are both present. If the nuclear development of South Korea and Japan is a decision based on North Korea's nuclear threat, this is an important reason for publicizing their nuclear capabilities. Nevertheless, the disclosure of nuclear capabilities may not contribute to the deterrence of North Korea because such disclosure might create local instability, agitating neighboring countries. More specifically, it could be a negative factor by stimulating an arms race with China and Russia in response to the South Korean and Japanese nuclear weapons development. Therefore, considering security, there is a high possibility that South Korea and Japan would maintain ambiguous postures until a decisive moment in a nuclear-armed situation.

In terms of international norms, the benefits of maintaining ambiguity are much higher. Both South Korea and Japan are sensitive to international reputations and rules. Japan is very sensitive and reluctant to move toward its remilitarization and nuclear arming due to its poor reputation among neighboring countries after World War II. In the case of South Korea, it will be very hard to escape economic shocks if the international community imposes sanctions in response to its development of nuclear weapons. South Korea and Japan have export-oriented economic structures, so open nuclear arming that violates international norms is less likely to be their choice.

Moreover, both South Korea's and Japan's bilateral relationships with the United States represent the most important factor in their security. If South Korea and Japan

develop nuclear weapons, they could only do so under the tacit approval, consent, and support of the United States. Under the monitoring of the non-proliferation treaty and International Atomic Energy Agency that also controls nuclear materials, nuclear weapons development cannot avoid U.S. detection.[125] So, if South Korea and Japan pursue the development of nuclear weapons to counter North Korea's continuing nuclear threat, they would need the passive agreement of the United States. This is the only way for South Korea and Japan to obtain nuclear arms to deal with the North Korean nuclear threat without the United States' losing face with its long-standing allies.

The reason for presuming the tacit agreement of the United States is that the United States strives to prevent nuclear proliferation. The United States has supported nuclear non-proliferation to avoid military interventions and prevent nuclear war. If nuclear weapons spread throughout the world and the United States has no control of them, there are more likely to be nuclear weapons related conflicts.[126] On the other hand, the United States has no reason to refrain from intervening in a conflict in Northeast Asia, specifically the Korean peninsula and Japan. South Korea and Japan maintain a high level of democracy and advanced technologies, so they can put their weapons under their control. Given this situation, it is possible that the United States would tolerate nuclear arming in both South Korea and Japan if the North's nuclear threat becomes serious to them. Though President Donald Trump has revised his announcement, when he was a presidential candidate, he implied a possibility of South Korean and Japanese nuclear weapons development for their security; therefore, it is not impossible to consider American cooperation as long as the United States can influence South Korean and Japanese nuclear policy.[127]

Finally, domestic political factors will be positive for both countries to maintain their nuclear ambiguity. This is true even in South Korea, where high public support for nuclear weapons is likely to have a negative impact on maintaining an opaque nuclear

125 Diehl and Moltz, *Nuclear Weapons and Nonproliferation*, 61.

126 Feldman, *Israeli Nuclear Deterrence A Strategy for the 1980s*, 193–194.

127 Stephanie Condon, "Donald Trump: Japan, South Korea Might Need Nuclear Weapons," CBS NEWS, March 29, 2016, https://www.cbsnews.com/news/donald-trump-japan-south-korea-might-need-nuclear-weapons/.

policy. Yet, it is also doubtful that such high public support, which is largely an emotional response, will continue if serious discussions about nuclear armament begin. Instead, the eruption of political tensions will bring huge political repercussions if nuclear arming and nuclear strategy debates begin. In order to avoid such wasteful debate, it is highly possible that South Korea would not officially confirm nuclear arming but pursue its nuclear weapons development with less ambiguity like Israel.

In Japan, also, domestic political factions would negatively react to the disclosure of nuclear capabilities. Given that it is the only country attacked by nuclear weapons so far, it is unlikely that Japanese public opinion on these weapons will change in a short period. As for North Korea's missile threat, the majority of Japanese prefer defensive postures, such as adopting a missile defense system and economic sanctions through the United Nation or on its own, rather than taking an aggressive response through the development of nuclear weapons.[128] Therefore, if Japan pursues nuclear weapons development, it may do so while maintaining an ambiguous policy.

Overall, North Korea has made nuclear weapons threats and has triggered Northeast Asian security instability, and it has raised concerns about the emergence of a new nuclear-armed state. At the same time, South Korea and Japan have already achieved technologies and economic capabilities that can help them overcome the difficulties of nuclear weapons development. If they pursue nuclear weapons, then security, international norms, and domestic political factors will all lead to them having ambiguous nuclear policies. Among those factors, security will be the most important in nuclear arming decisions, and the relationship of each of those countries with the United States will play a crucial role in their choice of an ambiguous nuclear strategy. Finally, domestic political factors will determine the degree of ambiguity inherent in those strategies.

128 It is controversial in Japan. There are some assertions that it should have offensive weapons such as cruise missiles. However, the mainstream response to North Korea's military threat is defensive. Motoko Rich, "North Korea's Threat Pushes Japan to Reassess Its Might and Rights," *New York Times*, September 15, 2017, https://www.nytimes.com/2017/09/15/world/asia/japan-north-korea-missile-defense.html; "Japan Imposes Additional Sanctions on North Korea," Japan Today, November 7, 2017, https://japantoday.com/category/politics/japan-imposes-additional-sanctions-on-north-korea; Joshua Berlinger and Yoko Wakatsuki, "Japan Imposes Unilateral Sanctions on 8 Foreign Entities over North Korea," CNN, August 28, 2017, http://www.cnn.com/2017/08/25/asia/japan-north-korea-sanctions/index.html.

C. CONCLUSION

With the tremendous power and influence of nuclear weapons, many states have pursued nuclear weapons and will continue to do so. Among them, most second-generation nuclear proliferators were intent on maintaining an opaque nuclear proliferation policy during the nuclear weapons development process. Such states did not carry out nuclear detonation tests or did not publish a declared nuclear policy in order to maximize the period in which they could maintain a policy of ambiguity. This helped nuclear proliferators to prevent a security dilemma, and avoid criticism from and sanctions by the international community.

Unlike most nuclear-armed states, South Africa and Israel kept their nuclear strategies ambiguous even after the completion of nuclear weapons development, done without open nuclear tests or declaration of their policies. To analyze their ambiguous nuclear strategy, this thesis has used Sagan's study, "Why Do States Build Nuclear Weapons? Three Models in Search of a Bomb." In Sagan's work, he argues that security, norms, and domestic political factors are the variables affecting nuclear proliferation. These factors are also variables that affect the establishment of a nuclear strategy. The South Africa and Israel case studies in this thesis show that these three factors all have various degrees of influence in shaping those countries' nuclear strategies.

Reviewing these countries' opaque nuclear strategies is important because it enhances the predictability of potential future nuclear states' nuclear strategies. Particularly in Northeast Asia, South Korea and Japan are facing a North Korean nuclear threat. If these two countries pursue nuclear weapons because of that threat, the analysis of this thesis has shown why could choose an ambiguous nuclear strategy. Such a strategy could be enabled by the United States' tacit agreement or connivance, in view of their relationship with the United States. Considering the international community's concerns about nuclear proliferation and current sanctions against North Korea, which is rapidly developing its nuclear weapons capability, an opaque nuclear strategy could be a wise choice for them. It is important to consider that while the degree of ambiguity may vary in their emerging nuclear policy, depending on their people's support, the official posture of these countries' may remain opaque.

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