Park Chung Hee, the CIA, and the Bomb

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Park Chung Hee, the CIA, and the Bomb

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An abbreviated version of this report was originally published by Global Asia and is available here. Below is the complete report, with full references and links to cited primary documents.

Links to key supporting material referenced in the report:

South Korea: Nuclear Developments and Strategic Decisionmaking

Secure Telephone Conversation with Secretary Harold Brown on Wednesday, January 26, 1977

A. Beilenson, letter to Cyrus Vance, August 20, 1979

The Implications of Withdrawing Nuclear Weapons From Korea

Nautilus invites your contributions to this forum, including any responses to this report.

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I. Introduction Peter Hayes and Chung-in Moon analyze Park Chung Hee's failed 1972-1978 proliferation strategy aimed at obtaining the missile, dual use technology, and fissile material needed to develop a nuclear bomb and establish a South Korean nuclear weapons program. The authors review the declassified document, *South Korea: Nuclear Developments and Strategic Decisionmaking*, issued in June 1978 by the CIA's National Foreign Assessment Center. In addition to providing useful historical insights into Park's actions and intentions, the 1978 report bears directly on current debates on how to respond to the North Korean nuclear breakout, and whether South Korea should respond in kind.

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II. Report by Peter Hayes and Chung-in Moon

- "Park Chung Hee, the CIA, and the Bomb"

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In plain sight

Declassified US Embassy Seoul cables related to nuclear proliferation during the Park Chung Hee era show that, far from making South Korea more secure, Park's toying with the nuclear option made him an unpredictable and even dangerous client who needed restraint in the eyes of US policymakers. [1]

A recently declassified set of documents posted by the US Central Intelligence Agency (hereafter, the CIA) provide important new information on Park's efforts, and on the US response to his continuing program. These documents form the basis of an important study published in 2011 by

Sung Gul Hong on Park's attempts to obtain missile, dual use technology, and fissile material needed to make a nuclear weapon. The ROK's nuclear ambitions, especially in the post-1975 period, resulted in the United States threatening to rupture the security alliance if the ROK did not stop its nuclear intransigence. [2]

Of these declassified documents, the most important is *South Korea: Nuclear Developments and Strategic Decisionmaking*, issued in June 1978 by the CIA's National Foreign Assessment Center and released in 2005 under the CIA's routine 25 year declassification program. [3] Other than use in a Princeton graduate curriculum, [4] the document has languished unnoticed on the web since it was released. In this essay, we review the new insights provided by the CIA's report, supplementing as necessary with reference to other primary and secondary sources.

Given the public debate in Seoul about reintroducing American nuclear weapons or trying again to go-it-alone with nuclear weapons, we believe that there are lessons to be learned from Park Chung Hee's failed proliferation strategy in the 1972-1978 period, especially now that the North has obtained nuclear arms and the Soviet nuclear threat has evaporated. What mattered then, and what matters today at the Demilitarized Zone is the ability of South Korea and its allies, in particular the United States, to respond to North Korean military aggression. Whether the allied retaliation for a North Korean attack would be nuclear or conventional is a choice. Either way, the North Koreans know that they will lose; and today, the South's superior conventional forces backed by American forces almost certainly suffice to deter North Korean attack, whether nuclear or conventional.

Nothing could justify North Korea's nuclear weapons more than South Korea reactivating its nuclear weapons program. Park sought nuclear weapons mostly for political and symbolic reasons, not military gains, and South Korea paid a high price for his failed programs. We see no reason to repeat this history and follow North Korea down a dead end that promises mutual probable destruction rather than a stable, non-nuclear future for South Korea.

What the CIA document says

According to the report, in late 1974, Park Chung Hee authorized a program to develop nuclear weapons technology with a view to developing a long-term nuclear option, but, in January 1976, to avoid friction in its alliance with the United States, he ended negotiations with France to obtain reprocessing technology, [5] and in December 1976, under immense US pressure, he suspended the whole nuclear weapons program (this much was well known at the time and has been documented by many scholars). What is less well known is that this proliferation activity continued after 1976, partly in response to the withdrawal of US nuclear weapons along with the 2nd Infantry Division. The CIA documents, combined with Hong's review of the embassy cable traffic, largely fill the gap in our understanding of this period.

Hong attributes Park's interest in nuclear weapons to his concern that Nixon's Guam Doctrine would lead the United States to abandon South Korea in spite of its contribution to the Vietnam war effort, especially after the United States withdrew in disarray from Vietnam—at which time the ROK's leverage from sending troops to Vietnam evaporated. [6]

Historians ascribe Park Chung Hee's drive for a defense less dependent on the United States to a combination of historical trends and events. The first and most potent was North Korean aggression which included escalating incursions and incidents on the Demilitarized Zone (DMZ) in 1968, culminating in a commando raid on the Blue House in January 1968, followed three days later on January 23 by the North Korean seizure of the USS *Pueblo*, leading to a year-long negotiation for the release of its crew. These events began to generate the impression that the United States was weak-kneed in dealing with North Korean aggression. The second was the promulgation of the Nixon

Doctrine in 1969. Nixon and Kissinger's direct dealings with China without prior consultation with South Korea left Park wondering if they would also open dialogue with the North behind the South's back. The North Korean attack on a US EC-121 spy-plane in international airspace occurred against the backdrop of these trends, leading Nixon to make preparations to attack North Korea with massive retaliation, including nuclear attack. But ultimately, he took no actual military action. [7]

The third factor for Park was the unilateral withdrawal of the 7th Infantry Division in 1971, and on-going discussions in Washington and political pressure from Congress for further withdrawals. Another consideration was the discovery of North Korean infiltration tunnels under the DMZ in 1974-75. Park also witnessed the murder of his wife by a pro-North Korean assassin in 1974. Even as Saigon fell in April 1975, American politicians and journalists increased their criticism of Park's regime after his Yushin constitutional amendment in 1972 that institutionalized his authoritarian rule. Park literally ruled by declaring a state of emergency under which the human rights of his opponents were systematically violated. His sense of abandonment by the United States at a time of heightened vulnerability to North Korean political and military offensives combined with his isolation from American civil society led Park to seek ways to become more independent (or *Jaju Gukbang*, self-reliant national defense) from the American military. [8]

Thus, the CIA analysts noted in their *Strategic Decisionmaking* report that South Korea's confidence in the US commitment to defend it with nuclear weapons had declined—a fear reinforced by President Jimmy Carter's order on January 26, 1977 to withdraw nuclear weapons from the ROK along with the 2nd infantry division. Although they ultimately acquiesced to US pressure not to work on items related directly to nuclear weapons capability, South Korean nuclear researchers believed that "even while bowing to US preferences on the line of work they pursue, certain activities can and should be undertaken to keep Seoul's nuclear option open" [9]—including high explosives and surface-to-surface missile technology. The missile program was undertaken to acquire a weapon that could threaten Pyongyang in the same way that the North could threaten Seoul with artillery and FROG missiles while long-term nuclear fuel cycle technology was sought to keep the bomb option open.

CIA's key 1978 findings

After a "careful search of all available information," the CIA judged as of June 1978 there to be:

- "No evidence that any nuclear weapons design work is under way at present.
- No evidence that the South Koreans are trying to acquire a uranium enrichment capability.
- No evidence of any current activity related to the acquisition of a reprocessing capability.
- No evidence of stockpiling of fissile material.No evidence of work on weapons fabrication." [10]

But, they concluded, South Koreans faced decisions in the 1978-80 period that could affect the lead time to acquisition if a decision was made later to acquire nuclear weapons. "Among the decisions that are likely to arise are those concerning whether or not to assemble a prototype and then produce in quantity a surface-to-surface missile, and what to do with the substantial investment Korea has in nuclear research personnel." [11]

Overall, they argued, the most important factor in future nuclear decisions will be South Korea's "perception of the reliability of the US security commitment and, conversely, the imminence of the North Korean threat." [12] The US withdrawal from Indochina, a more activist Congress in foreign affairs, and fear that the United States might deal directly with North Korea all undermined

confidence in the US commitment. [13]

It is worth noting that the CIA's relatively relaxed interpretation of Park's nuclear program in 1978 is contrary to the widespread rumor in South Korea that the CIA might have orchestrated his assassination on October 26, 1979, in order to put a halt to his nuclear ambitions. [14]

Park's interest in missiles and nuclear weapons was driven first and foremost by Nixon's shocking overture to China in 1971, undertaken without consultation with South Korea. As of that time, Park began to doubt the sincerity of the American commitment to the South. He also worried that South Korea's interests would be sacrificed by the great powers in the course of the United States and China adjusting to each other's interests in concert against the Soviet Union. [15] At the same time, the South was faced with the North's military buildup in the late sixties and early seventies and the United States was pushing hard for South Korea to arm itself (Park was in his own way simply heeding the advice of Henry Kissinger who told South Korean Foreign Minister Kim Yong-sik in February 1973, that they basically needed build to up their own military and to rely on themselves [16]).

Thus, even as South Koreans began to seriously consider the nuclear weapons option, [17] Park undertook a massive conventional arms modernization program, including the creation of a domestic arms industry, to offset the public perception of North Korea's military superiority. [18] "From the outset," the CIA states, "South Korean thinking about nuclear weapons has focused on a missile-delivery system." [19]

Phase 1, Nuclear and Missile Program

By 1975, a dedicated nuclear weapons program had emerged, with three compartmentalized teams working on missile design, and nuclear and chemical warheads. It was run by the executive vice president of the Agency for Defense Development (ADD), and was code named Project "890." [20] President Park authorized the nuclear weapons design element in December 1974 although a lone physicist helped by an explosives technician had worked on a nuclear weapon design since 1972 at the ADD, part of the Ministry of Defense. [21]

ADD recruited South Korean scientists from abroad and, by mid-1975, had three sub-groups working on warheads, high explosives fabrication, and computer codes. The warheads design effort involved about fifty scientists and technicians, and the group "suffered from internal squabbling and technical incompetence and apparently made little progress." [22] The chemical warhead team was smaller, but, by mid-1976, the missile team numbered more than 250 and covered propellants, mechanics, electronics, testing and evaluation, and computer support. [23]

"This focus on missile systems," which the CIA described as obsessive, "implies an interest in acquiring a number of nuclear devices" although exactly which type was not clear to the CIA. Moreover, "It is clear that Seoul has not addressed the question of physical and chain-of-command control of nuclear weapons." [24]

The missile program (called *Baekgom*, or *White Bear*) was initiated on May 14, 1974 at Park's instruction. [25] By December 1976, ADD completed building the Taejon Machine Tool Center as the site for its research and development of missiles. [26] ADD's missile work focused on modifying the US-produced Nike-Hercules as a surface-to-surface weapon. Without modification, and fired from behind the Demilitarized Zone, it could already hit Pyongyang as well as the port cities Nampo and Wonsan. South Korean modifications aimed to extend its reach to Sinuiju, a logistical center for Chinese imports, and the industrial cities of Hamhung and Anju. The modified missile was intended not only to be able to hit command centers and equipment in the arc of a 350 km range, but also to

hit Pyongyang in either a full-scale war, or in retaliation for a North Korean grab of contested northwestern coastal islands. [27]

Unsurprisingly, the attempts to obtain American missile technology in 1975 and 1976, especially related to propellant, met with strong American opposition. This intervention forced ADD to agree to limit the range of the South Korean missiles to 180 km and the warhead weight to 440 kg. As of May 1976, the ADD had nearly completed the initial design of the improved missile. Of the original Nike Hercules, only the control surfaces and part of the hydraulic system remained. [28] The CIA was able to obtain detailed technical parameters for the ADD's research:

> "The rocket motors, airframe, control system, and onboard guidance system would be dramatically upgraded or entirely redesigned. Using French assistance for both propellant and production technology, ADD succeeded in casting a reduced-scale motor. Static tests of these motors confirmed in mid-1976 Korea's ability to cast a carboxyl terminated polybutadiene-type propellant." [29]

ADD also circumvented US opposition to its acquisition of a Lockheed propellant plant from California by buying the manufacturing technology for the plant from a French company. [30]

The ADD decided not to modify the standard Nike Hercules tracking radar using technology obtained from US firms because ADD thought it would "run too high a risk of exposing the program." [31]

"Seoul," reported the CIA, "therefore, looked to improving the onboard guidance system by making extensive use of solid-state electronics rather than the vacuum tube technology of the standard Nike Hercules." [32] The ADD had not produced a prototype missile when the program was suspended in December 1976, and it remained in suspension until September 1977 when it received a green light to proceed anew. [33]

The fuel cycle linkage

By 1974, South Korea had undertaken a massive nuclear power program and had already moved beyond study and production of radioisotopes to exploration of advanced fuel fabrication and reprocessing facilities that entailed separating enough plutonium for about one weapon per year. [34] South Korea attempted to buy pilot reprocessing plants from Belgium but the United States and Canada, alarmed by India's nuclear explosion on May 18, 1974, pushed the South Korean nuclear agency Korea Atomic Energy Research Institute (hereafter KAERI) to drop its plans for reprocessing and mixed-oxide plants.

Park was acutely aware that the United States increased its surveillance of the South Korean (and Taiwanese) nuclear programs. The United States was particularly concerned about KAERI's negotiations to purchase a Canadian NRX heavy water research reactor, the same reactor from which India had diverted plutonium for its nuclear test, which would have created the basis for heavy water power reactors that do not need enriched uranium and provide a less dependent pathway to plutonium. In 1975, KAERI negotiated a loan with Belgium to purchase a small mixed (plutonium-uranium) nuclear fabrication facility that could have separated enough plutonium for one nuclear device per year. As the CIA states, "the Belgian facility would have given Korea the last key of the back end of the nuclear fuel cycle." [35] These plans foundered when Canada suspended its talks about supplying the NRX to South Korea. Both the United States and Canada then used their financing leverage over nuclear power plants on order to force KAERI to drop its plans for both the

reprocessing and mixed oxide research plants. [36]

“Planners at the Blue House,” stated the CIA, “viewed [these facilities] as a necessary component of a covert program within the military to develop a nuclear weapons capability.” [37]

This effort to obtain reprocessing capability and develop the missile program was suspended by Park in December 1976 after strong US diplomatic intervention and after conclaves of top Blue House and cabinet officials heard directly from American counterparts that the program threatened the alliance itself. But in addition to these external pressures, noted the CIA, Park’s “willingness to suspend 890 was strongly conditioned by the poor performance of the ADD to that time and by the lack of any immediate need for nuclear weapons development.” [38] During the startup of Project 890, the Korea Atomic Energy Research Institute had been kept out of sensitive areas of fuel cycle work and was directed to focus on applied technology in support of power reactor programs rather than theoretical physics that could be used for weapons work. Also, at American insistence, the Korean Nuclear Fuel Development Institute (or KNFDI, created in 1976 to take over reprocessing from KAERI) was ordered in 1977 to only do post-irradiation fuel rod testing, but not actual reprocessing of fuel, at its pilot fuel fabrication center. [39] Research henceforth concentrated on uranium and light water reactor fuel fabrication and reactor manufacturing and parts production, pointedly not involved with irradiated fuel containing fissile material. [40]

Park’s willingness to back off from his push for nuclear weapons in 1976 was due primarily to demonstrations of America’s security commitment to South Korea in 1975 and 1976. After making a public statement in June 1975 about using nuclear weapons against North Korea, US Defense Secretary James Schlesinger met with President Park on August 27th 1975. The two men agreed that despite whatever was said publicly about nuclear weapons to reinforce morale, Seoul was more vulnerable to nuclear attack than Pyongyang, and US-ROK forces could “cope with a North Korean attack without the use of nuclear weapons.” Park was also impressed with the revision of the US operational plan that Generals Stillwell and Hollingsworth promulgated in 1975 to go northwards on a “short war” offensive against the North in case of war. [42]

Park also may have been impressed by US resolve to respond massively to the August 18, 1976 attack by North Koreans at Panmunjom, at which time US and ROK troops were put on high alert, an armada of warships was sent off North Korea’s coast, B-52 bombers were sent daily on practice bombing runs so as to register on North Korean radars, and the local US commander General Richard Stillwell was authorized to fire on North Korean barracks north of the DMZ should they interfere with Operation Paul Bunyan, the removal of a poplar tree blocking the northwards view out of the Joint Security Area—the proximate cause of the deadly altercation in which two American soldiers were killed. [43]

This huge show of force, the purpose of which was to “overawe” the North Koreans according to Henry Kissinger, [44] exceeded what Park anticipated. “I have never seen the North Koreans so scared,” Kissinger commented on August 26, 1976. [45] The impact of this event, combined with the US threat to cut off support for South Korea’s nuclear power program delivered directly by the US military in early 1976, [46] prompted Park to end Project 890 in December of that year.

Unguided rockets

The CIA report casts new light on the internal dynamics of Park’s nuclear weapons program. Although cabinet-level discussions of a nuclear weapons program began as early as 1969, the decision to proceed was made solely by Park in late 1974 based on a non-specific briefing. Disturbingly, the CIA noted, policy planning for the nuclear weapons program “was erratic, even haphazard.” [47]

“A written study assessing the pros and cons of developing, deploying, and using nuclear weapons was not, and still has not, been produced,” reported the CIA. Park refused to delegate oversight in the Blue House which “spawned a host of managerial deficiencies.” [48] This failure was compounded by the tendency of South Korean research and development agencies to overreach at that time. Consequently, these agencies were “operating essentially as unguided rockets.” [49] Moreover, ADD itself was split into a group at ADD headquarters in Taejon (headed by Shim Mun-taik) that asserted it was capable of developing long-range missiles, and a Seoul group, which was critical of this view. ADD in particular, they noted, “intentionally exaggerated its own capabilities and depreciated the difficulty of organizing sophisticated programs” in order to maximize its budget allocation. [50] Only when Project 890 was cancelled did Park transfer responsibility for overhauling the nuclear programs to the Blue House Senior Secretary in charge of heavy-chemical and defense industry, O Won-chol. O then attempted to rationalize the nuclear research process by formalizing approval via Cabinet review, much like the technocratic decision-making process used for industrial planning at the time, thereby reducing the independence of the nuclear research institutes. [51] In 1978, the CIA characterized the ADD’s role as having waxed, with its influence peaking in 1975 when Park had authorized it to wed a nuclear warhead to a surface-surface missile, and then waned, as its financial mismanagement and technical shortfalls forced Park to bring it under tighter control and subordinate it to the Ministry of National Defense’s Defense Industry Bureau. [52]

According to the CIA, these institutes were well aware of the political risks that their activities posed to South Korea, but tried to manage these risks by arguing that they were only acquiring a hedge against an uncertain future, that procurement of sensitive technology would be harder and more expensive in the future, and that bench testing short of pilot scale production would be tolerated, for example, in the chemical warheads program. [53] Blue House staffers compared South Korea with Israel, and, noting US military aid flowed in the midst of suspicions that Israel was developing nuclear weapons, they concluded “that the United States—while opposing short-term weapons work in Korea—would eventually recognize and tolerate Korea’s need to have an independent nuclear capability.” [54]

Only in late 1975, the CIA stated, did an informal group of officials who had previously passively accepted the nuclear weapons program emerge as bureaucratic foes—in particular, O Won-chol at the Blue House, the Economic Planning Board, Korea Electric Company, and the Ministry of Foreign Affairs. [55] The clinching argument was that ADD’s work threatened the alliance with the United States.

However, the CIA’s portrayal of an emerging set of opponents may have misinterpreted the actual decision-making structure related to the nuclear program in the Blue House at this time. Others have argued that, rather than resisting Park’s centralized and personal direction of policy, Park, O, and the head of the ADD, Shim Mun-taik, may have constituted an invincible triad protecting the missile and nuclear activities from challenge by other actors.

In contrast, Sung Gul Hong characterizes the Blue House as instigating a division of labor spearheaded by O and Park’s Secretary Kim Kwang-mo, who directed KAERI’s special project team and ADD’s missile program, in the hope of hiding the activity from the United States.

On this score, therefore, the history remains murky and the book open.

Phase 2: Reactivating elements of project 890

Jimmy Carter’s election confirmed Park’s worst fears that a unilateralist America driven by an activist US congress would precipitate withdrawal of US ground forces and nuclear weapons from South Korea. Indeed, within a week of taking office, President Carter ordered that a plan be

developed immediately to withdraw US nuclear weapons, [57] even before the Presidential Review Memorandum 13 outlining the review of US policy towards South Korea was circulated, including consideration of "ROK nuclear intentions and efforts to acquire advanced missile technology." [58]

Unsurprisingly, a flurry of official and sanctioned speeches began to appear in May 1977 in the South Korean media discussing acquisition of nuclear weapons or a nuclear option. In 1978, the CIA characterized this as a dialogue designed to reassure South Koreans that the Park government was taking all steps needed to ensure security against the North, and also, to pressure the United States to rethink its withdrawal plans using the threat of nuclear proliferation as a lever against Carter's policy. [59] This report concluded that there was no evidence that the ROK government was actually debating acquiring nuclear weapons, nor were there any signs of new research and development to support such a clandestine program. [60]

By August 1977, US officials had serious misgivings about the impact of withdrawing nuclear weapons from South Korea. As the CIA's August 1977 regional and political analysis memorandum *The Implications of Withdrawing Nuclear Weapons From Korea* suggested, although removal of US nuclear weapons from South Korea accorded with the North's strategic goals, its leaders still could not sleep easily at night knowing that the United States could deliver them at any moment during a war or reintroduce them to the Peninsula itself, and could not discount their use against North Korea. "For its part," the analysis stated,

> …the South strongly desires the retention of a US nuclear presence in Korea. More clearly than Pyongyang, Seoul will read the total withdrawal of nuclear weapons as evidence of US intent to forego their use in a future conflict. In an obvious effort to head off complete nuclear withdrawal, the South Korean press has suggested that the Pak government would be justified in developing its own nuclear weapons if the US nuclear shield were withdrawn.[61]

The memo described how a sharp rupture in the US-ROK alliance over the nuclear issue could threaten the credits provided for arms sales from the United States, worsen trade relations, accelerate the rate of US withdrawal, and lead to resumption of Park's nuclear weapons program. "In any event," the memo concluded, "the withdrawal of all US nuclear weapons will clearly strengthen Pak's determination to move toward military self-reliance, a course he has been following since the early 1970's." [62] Irrespective of the nuclear issue, the Carter Administration withdrew 1,000 American troops in September 1977 and another 500 in November 1978, before he reversed the withdrawal policy in 1979. These incremental withdrawals reinforced Park's perceptions that the US security commitment was eroding quickly.

In fact, as of June 1978, by the time that the CIA's *South Korea: Nuclear Developments and Strategic Decisionmaking* report was published, the ADD nuclear weapons designers had been redirected from Project 890 to high explosives work in its Warheads Directorate, and the chemical warfare group was engaged in non-offensive chemical agents research in the ADD Materials Development Directorate. [63] Of course, the line between nuclear and non-nuclear high explosives work remained problematic because "an established high-explosives capability would also be advantageous to Korea if a nuclear weapons program were resumed," as the CIA analysts explained.

For their part, the missile engineers were busy back at work by September 1977 when the ADD was given the go-ahead to resume work on extending the range of the modified Nike Hercules. As of June 1978, the CIA reported that the ADD's missile researchers were distributed across three of the six directorates of its Advanced Weapons Center at Taejon. "One handles propulsion work" wrote

the CIA, “Two, aeroballistics research; and Three, electronics and guidance and control development. A newly established group, whose authority cuts across the boundaries of the six directorates, is responsible for testing and evaluation. It controls, among other facilities, the missile flight test range at Anhung.” [64] Anhung was reportedly given the cover name Anhung Meteorological Observation Center.

The ADD began to test-fire the modified Nike Hercules in April 1978 not to produce or deploy the missile, but, according to the CIA, “to demonstrate—or give the illusion of—its ability to develop a long-range surface-to-surface missile” and thereby win Park’s approval for a 300-500 km range missile to be available in about 1985. [65]

The CIA analysts admitted that they had no specific information on the type of nuclear warhead that ADD might develop for such a missile. As they stated:

> Developing the high-explosives system needed to produce a symmetric, spherical implosion is the most difficult part of nuclear weapons configuration. Refinement in weapons design requires extensive testing of high explosives at a site that consists of a firing pad and bunker, along with elaborate instrumentation, for example, ultra high-speed cameras, flash X-ray systems, and oscilloscopes. Seoul has acquired some of this instrumentation, but we are not certain where the equipment is installed.

Moreover, South Korea had by then purchased laser systems that “suggest the beginning of a limited laser isotope separation (LIS) program” *not* accompanied by any interest in developing gaseous diffusion or gas centrifuge technology for commercial enrichment, and therefore implying that the stand-alone laser isotope technology might have non-fuel cycle, that is, weapons motivation. [66]

However, the CIA inferred that the size and type of nuclear warhead would be strongly influenced by the missile, and that the ROK’s possession of another missile, the US-supplied Honest John rocket, that also carried the same nuclear warhead as the Nike Hercules when it was deployed with US nuclear forces in South Korea, would reinforce this inclination. Thus, they anticipated that a South Korean warhead would be limited by the width of the warhead compartment to a nuclear implosion system of 300-350 kilograms, to which fuzes, power supplies, and casing could add another 100 kilograms. They believed that South Korea could meet the constraints with a “simple conservative design with fissile material—plutonium—in a solid ball surrounded by a uranium tamper” with a yield from a few to up to twenty kilotons. [67]

Keeping the option open

According to the CIA, Park had not decided to actually build bombs in late 1974, only acquire the capacity to do so as a “precautionary measure carrying a tolerable level of risk.” [68] Similarly, in spite of the Carter attempt to withdraw US nuclear weapons from South Korea in 1977-78 as part of the withdrawal of the US 2nd Infantry Division, they found that “in the late 1970s there is no perception of immediate needs or opportunities for acquiring nuclear weapons.” [69]

The CIA recognized that by 1978, South Korea was heavily invested in light water reactors, to the tune of nearly five gigawatts and five billion dollars, largely financed by the US Export-Import Bank. They noted that spent fuel from these reactors was an easier, faster route to obtaining fissile material for any future nuclear weapons program than uranium enrichment. This was because until 1974, US policy encouraged rather than opposed the spread of reprocessing technology, and it was perfectly legal to stockpile reprocessed plutonium, provided it was safeguarded by the International

Atomic Energy Agency. “Then,” they noted, “when conditions warrant the violation of safeguards, it can be used in the final stage of weapon fabrication.” [70]

In 1978, they note, KAERI’s problem was that the only way to get a reprocessing plant was to make one, given that the United States had already blocked supplier nations from providing such plants to the ROK. Also, the American low-enriched and Canadian natural uranium that ended up as spent fuel in South Korea after being fissioned in reactors was subject to US and Canadian vetos against it being reprocessed. Moreover, whether taken from a light water reactor or a heavy water reactor, diverting even a few fuel assemblies ran a high risk of detection. [71] Short of building a plutonium-producing reactor of its own, therefore, this route to obtaining fissile material was blocked to South Korea.

Ultimately, Park and his military leaders recognized the primacy of the US security alliance over the development of a nuclear weapons option, but that shift did not entail completely shutting down the option. As the CIA observed: “Planners at KAERI in the early 1970s recognized the importance of reprocessing to a nuclear weapons program, but they were primarily interested in reprocessing as it related to long-term nuclear power development,” including a research facility to be in operation by 1975, a commercial reprocessing plant by 1982-85, and even breeder reactors using reprocessed plutonium from 1987-1988. [72] Even in 1978, many South Korean planners, especially in ADD, but also at least some in KAERI as well as the military, according to the CIA, believed that not only was South Korea obliged to assume more responsibility for its own defense, but “that such ’self defense‘ may eventually require nuclear weapons development.” [73]

Furthermore, the CIA stated that the on-going dual-use research work on missiles, high explosives, and heavy water routes to power reactor development sustained these incremental attempts to obtain technology, not least due to institutional momentum.

“Given the sophisticated technology requirements set by the type of nuclear weapons system Seoul has considered developing, some planners believe that their country should do more than rely on advances in nuclear technology to shorten the lead time to a bomb. The strongest pressures in this regard arise quite naturally from the nuclear research community. Since late 1976, ADD, KAERI, and KNFDI have been only marginally successful in winning authorization for the lines of research they would like to pursue. Nevertheless, even the restricted work of these research bodies is moving Korea part of the way toward a capability to later initiate a dedicated nuclear weapons program.” [74]

“Although not supported by all important elements of the Korean leadership,” asserted the CIA, “this work is tolerated because it keeps Seoul’s options open without translating into any kind of commitment to nuclear weapons.” [75]

The CIA pointed to a number of decisions that South Korea would face in the early eighties that bore heavily on the nuclear weapons issue. This included development of a long range missile, additional heavy water reactor investment, the disposition of the nuclear research personnel in the agencies involved in Project 890, and the sheer growth of the light water reactor power program that might justify reprocessing on commercial grounds. [76]

The CIA concluded that the most important factors in South Korea’s thinking on nuclear weapons would be the state of the US security commitment, the level of North Korean threat, and the success of South Korea’s conventional arms modernization program. Should President Carter’s ground troop withdrawal be completed, Seoul would evaluate the increased risk of North Korean attack due to withdrawal of these forces, including their nuclear weapons. “Irrespective of the ground troop question, however, South Korea will continue to question whether the United States would employ

nuclear weapons on its behalf."

"Waning confidence in the US nuclear umbrella, particularly if accompanied by a decline of US influence in Seoul, would strengthen the hand of those who want to pursue a nuclear weapons option." [77]

South Korea's desire to become a missile power apparently continued into 1979, after the June 1978 CIA report was produced. On August 29, 1979, Congressman Anthony Beilenson wrote to then US Secretary of State, Cyrus Vance, that the ROK government had obtained from US firms in the Los Angeles area "the specifications, engineering drawings, instructions and designs, blueprints and certain assembly equipment employed in the United States Atlas Centaur program."

"Further," wrote Beilenson, "I am told that nose cone materials, alloys and certain guidance systems have also been acquired…and…the Republic of Korea is now engaged in the procurement of associated computer equipment and software packages that would substantially upgrade and complement their current abilities to continue in this endeavor." [78] What action was taken on this letter is unknown, but it is noteworthy that the missile, while archaic by US standards, had a 8,000 km range—far beyond that aspired to previously by ADD.

In the end, KAERI's nuclear ambitions and ADD's missile aspirations were reined in due to political rather than geopolitical forces at play in the US-ROK alliance and domestic South Korean politics. Once General Chun Doo-hwan seized power by a military coup in 1980, he was desperate to win recognition and support from the Reagan Administration. Chun ensured that KAERI was downsized in 1981, in the course of which it was renamed the Korea Advanced Energy Research Institute and the residual nuclear weapons and missile development programs in inherited from the Park era was scrapped, thereby cementing the alliance and securing a degree of US support for his dictatorship, given his bloody path to presidential power.

Conclusion

The CIA's report is not merely of historical interest. It bears directly on debates related to how to respond to the North Korean nuclear breakout, and whether South Korea should respond in kind. It provides important historical lessons that are applicable to these debates.

First, it shows that even as an authoritarian military dictatorship, it was impossible for South Korea to conduct a clandestine nuclear weapons program without the United States quickly realizing and even anticipating the program. Under conditions of democracy and high levels of openness of trade, migration, and information, a clandestine program is even less possible today than it was in 1978.

Of course, contemporary South Korean proponents of ROK nuclear armament are not only aware of this fact, but welcome disclosure, precisely because the open threat or its actualization would put maximum pressure on the United States to either re-introduce its own nuclear weapons (currently rear-deployed in the continental United States) or to coerce the North to denuclearize and compel China to cut the North loose or otherwise force it to cooperate with South Korea and the international community. This position is an instrumentalist use of the nuclear option, and it arguably mirrors the evolution of Park Chung Hee's position from the early effort to obtain a nuclear option for its putative military and deterrent effects on North Korea to using the effort to lever American policy in ways favorable to South Korea.

Park was a military man, and even before Schlesinger outlined the military disadvantages of an independent nuclear force, he must have realized that, far from overcoming deficits in conventional military capacity to handle the North's military buildup, nuclear weapons increased the South's

vulnerability to Soviet attack, and that the South was more vulnerable to nuclear attack than the North. In essence, Park strove for political-symbolic nuclear status rather than a meaningful nuclear force and the effort backfired in South Korea's face. The same could be said today of proponents of South Korean nuclear weapons. If successful, they would enter the same *cul de sac* as Park—with the additional risk of prompting an inter-Korean nuclear arms race and an unstable nuclear standoff with North Korea constantly tilting towards pre-emption on both sides.

Second, as the CIA report shows, Park's strategy failed in two ways. Not only did South Korea gain little actual nuclear weapons technology; Park's threats also undermined trust and confidence with American officials who quickly realized that his program was fundamentally inconsistent with American global and regional interests, and who were already attempting to reverse Carter's withdrawal policy for fundamental strategic reasons, not in order to stop South Korea from going nuclear.

Similarly today, South Korea proliferating nuclear weapons (or attempting to keep North Korean nuclear weapons should it collapse) would lead to alliance stress and possible rupture with the United States, international sanctions, diplomatic setbacks, trade losses, possible follow-on effects on Japan's non-nuclear commitments, extraordinarily dangerous nuclear threat exchanges with North Korea, and possible targeting of South Korean cities by China and Russia, none of which are presumably what nuclear advocates hope to realize by going nuclear, or threatening to do so. Rather, this rhetoric appears to the international community to be irresponsible posturing and demeaning to South Korea's dignity as a proud non-nuclear weapons state that will host the Global Nuclear Summit in March 2012. It certainly undermines South Korea's efforts to renew and amend the US-ROK nuclear cooperation agreement in 2014.

In the mid-seventies, as the CIA pointed out, the United States not only had military leverage over the South due its troop presence and arms sales, but also was the main financier of South Korea's reactor program. In the same way today, commercial realities are intertwined with strategic concerns because South Korean proliferation would lead to loss of uranium supplies to its nuclear reactors from countries such as Australia, Canada, and from enrichment suppliers such as the United States and others in the Nuclear Suppliers Group. [79]

Third, the outcome of the military crisis of August 1976, in the midst of an active American debate about withdrawal of troops and nuclear weapons from South Korea, suggests that the massive mobilization of conventional force is what mattered when push came to shove with the North, not the relatively incredible threat of nuclear attack.

The same lesson applies now that the North has obtained nuclear arms. What matters at the DMZ is the ability of South Korea and the allies, in particular the United States, to respond to North Korean military aggression. Whether the retaliation for a North Korean attack is nuclear or conventional from the allies, the North Koreans know that they will lose. Today, the South's superior conventional forces backed by American forces almost certainly suffice to deter North Korean attack, whether nuclear or conventional. In short, conventional deterrence is what mattered then, and what matters today, not nuclear weapons, which are simply not needed to do the job of deterring or defending against North Korean attack.

A related lesson is one on the state of the US-ROK alliance. An important factor in Park backing off his proliferation program was the creation of the ROK-US Combined Forces Command in 1978, of which the commander had both wartime and peacetime operational control over South Korea forces. Such an arrangement ensured that the US military would become automatically involved in a war in Korea at the outset. The trip wire mechanism was a reassuring fact for Park. Likewise, after Reagan reasserted the US security commitment to South Korea upon his election, Park's successor President

Chun Doo-hwan downsized KAERI by incorporating it into the Korea Advanced Energy Research Institute, and scrapping the missile development program in 1981. [80] Institutional integration and relationships matter in the alliance, and nuclear weapons tend to create stress rather than alliance convergence. This is as true today as it was when the CIA wrote its report.

Fourth, the CIA report concludes that unilateral withdrawal could lead to the resumption of South Korea's nuclear weapons program. In fact, the withdrawal at the time was reversed, and the eventual unilateral withdrawal in 1991-92 that left US conventional forces in place and augmented them with increasing lethal non-nuclear technologies, did not lead to war, nor to South Korean proliferation. Indeed, it arguably prepared the way for engagement of the North in a way that slowed their proliferation by a decade, and led to its utter isolation in its current nuclear-armed posture.

Another parallel to the mid-seventies can be drawn today. Then, the CIA was likely not the only intelligence network on the ground in South Korea that was monitoring the nuclear weapons activity under Park Chung Hee. The North Koreans were assuredly also intensely aware of the South's drive, and this knowledge likely accelerated the North's own early program. [81] South Korean proliferation today would make it far more difficult to negotiate the denuclearization of North Korea—already a task that will likely take many years to achieve. An inter-Korean nuclear arms race arising from South Korean nuclear armament could be permanent, if it didn't end in a nuclear war first. It would be, as one scholar termed it in 1982, an unstable relationship tending always towards mutual probable destruction. [82] Nothing could justify the North's program more than a South Korean breakout, and it would almost certainly lead to a new Cold War in the region not only with the North, but with China, thereby increasing South Korean and Japanese insecurity.

The continuing perception of nuclear threat by the North when nuclear weapons have been removed from the Peninsula and the region for nearly two decades indicates the depth of North Korean distrust and fear of the United States and the degree to which American statements of intent are taken seriously in the North—as when Presidents Obama and Lee restated in 2009 that US nuclear deterrence is extended to the South. This fact suggests that the mere threat of nuclear retaliation by the United States, even with its weapons recessed a great distance from the Peninsula, suffices for purposes of communicating American intention to the North Koreans.

Finally, the CIA's report shows that the threat of nuclear proliferation and nuclear war in Korea has deep roots, and cannot be overcome unilaterally on either side. Great powers have restrained both Koreas at different times, the United States blocking the South during the seventies, the former Soviet Union inducing the North to join the Nuclear Non-Proliferation Treaty in the eighties, and China, the United States, and Russia all slowing the North's breakout from 1991 until today. To us, it is remarkable that during periods of inter-Korean and US-DPRK improved relations, dialogue and engagement have led to progress in the attempts to stop the North from gaining more nuclear weapons capacities.

The opposite is also true—the North accelerated its proliferation activity during the height of the Cold War when Reagan confronted the former Soviet Union in this region, and again, when President George W. Bush downgraded and degraded relations with Pyongyang.

The lesson for politicians and strategists today is obvious.

III. References

[1] *Ibid*, p. 510.

[2] S.G. Hong, “The Search for Deterrence: Park’s Nuclear Option,” in B.K. Kim and E. Vogel, ed, *The Park Chung Hee Era, The Transformation of South Korea*, Harvard University Press, 2011, pp. 483-510.

[3] National Foreign Assessment Center, *South Korea: Nuclear Developments and Strategic Decisionmaking* US Central Intelligence Agency, June 1978, declassified for release, October 2005, p. I, at: http://nautilus.org/wp-content/uploads/2011/09/CIA_ROK_Nuclear_DecisionMaking.pdf

[4] Woodrow Wilson School of Public and International Affairs, “Preventing Proliferation Chain Reactions” Policy Workshop, August 15, 2007, at: http://wws.princeton.edu/grad/courses/syllabi_f07/wws591f.pdf

[5] Hong outlines these reprocessing related activities in detail; *op cit*, pp. 488-491.

[6] Hong, *op cit*, pp. 484-485.

[7] Nixon canvassed a wide range of possible military options after this attack, including dropping scores of nuclear weapons onto North Korean airfields, factories, and cities, but ultimately chose to rely instead of political and diplomatic pressure. See R. Wampler, “How Do You Solve A Problem Like Korea? New Archive Document Collection Sheds Light on Nixon's Frustrating Search for Military Options,” National Security Archive Electronic Briefing Book No. 322, June 23, 2010, at: http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB322/index.htm

[8] Jungryom Kim, *Hanguk Gyongje Jungchaek 30 nyonsa: Kim Jungryom Hoigorok (30 Years History of Economic Policy in South Korea: : A Kim Jungryom Memoir)*, Joongang Ilbosa, Seoul,1990, pp.314-370; Chung-in Moon, “South Korea: Between Security and Vulnerability,” in James P. Katz (ed.), *The Implications of Third World Defense Industrialization: The Sowing Serpent’s Teeth*, Lexington Press, 1986.

[9] National Foreign Assessment Center, *South Korea: Nuclear Developments*, op cit, p. i.

[10] National Foreign Assessment Center, *South Korea: Nuclear Developments*, op cit, p. 2.

[11] *Ibid*, p. 2.

[12] *Ibid*, p. 2.

[13] *Ibid*, p. 2.

[14] This speculative theory is based on prior contact between Park’s assassin, then head of the Korean CIA Kim Jae-kyu, and the CIA. Of course, constant contact was entailed by his post and is consistent with any explanation of why Kim assassinated Park. See J.H. Lee, *Hangukui Haekjugwon (ROK's Nuclear Sovereignty)*, Guelmadang, Seoul, 2009, pp.202-205. The orthodox explanation refers to rivalry between Kim and Park’s Chief Bodyguard Cha Ji-chul, compounded by possible factors such as an impulsive murder from rage against Park’s arbitrary power, a desire to end the dictatorship, and an attempted but failed coup.

[15] Indeed, just such thinking predominated in Washington. For example, the Interdepartmental Group for East Asia and the Pacific chaired by Richard Sneider noted unsentimentally in April 1973, that “United States participation in the Korean War and subsequent support for the Republic of Korea have created a special United States-Republic of Korea relationship, but our basic interests in the Korean peninsula are strategic: we do not want the peninsula to become the cause of conflict among the United States, Japan, the Soviet Union, or the People's Republic of China; and we do not

want the peninsula controlled by a government hostile to the United States and Japan." In "Summary and Options From a Study Prepared by the Interdepartmental Group for East Asia and the Pacific, Washington," circa April 3, 1973, in *Foreign Relations of the United States, 1969–1976*, Volume E–12, Documents on East and Southeast Asia, 1973–1976, Document 235, at: http://history.state.gov/historicaldocuments/frus1969-76ve12/d235

[16] In "Memorandum of Conversation, Washington, February 24, 1973, 10:10 a.m ," *Foreign Relations of the United States, 1969–1976*, Volume E–12, Documents on East and Southeast Asia, 1973–1976, Document 232 at: http://history.state.gov/historicaldocuments/frus1969-76ve12/d232

[17] National Foreign Assessment Center, *South Korea: Nuclear Developments*, *op cit*, p. 3.

[18] *Ibid*, p. 3.

[19] Hong notes that the ROK also had F-4D/E fighter bombers that could deliver a 1,800 kg weapon. Hong, op cit, p. 493.

[20] National Foreign Assessment Center, *South Korea: Nuclear Developments*, op cit, p. 6.

[21] *Ibid*, p. 6

[22] *Ibid*, p. 7.

[23] *Ibid*, p. 7.

[24] *Ibid*, p. 4.

[25] Byung-jin Park, "Story on South Korea's Weapons Development- The Case of Baekgom Guided Missile, a Signal Of Military Self-Reliance," *SegyeIlbo*, October 5, 2010, at: http://www.segye.com/Articles/News/Politics/Article.asp?aid=20101005003502&ctg1=07&ctg2=00&subctg1=07&subctg2=00&cid=0101010700000

[26] S.G. Hong, "The Search for Deterrence," *op cit*, p. 494-495.

[27] National Foreign Assessment Center, *South Korea: Nuclear Developments*, *op cit*, p. 4. Hong provides a detailed account of the missile and propellant research and acquisition activities that entailed subterfuge and multiple purchasing strategies to evade US surveillance and controls; *op cit*, pp. 494-495.

[28] National Foreign Assessment Center, *South Korea: Nuclear Developments*, *op cit*, p. 9.

[29] *Ibid*, p, 9. Carboxyl terminated polybutadiene-type propellant or CTPB is a form of synthetic rubber, is used as a binder for composite solid propellants in missiles suited to a wide range of storage and service temperatures. "Cross linking agents and other chemical additives are reacted during mixing and curing (heating after casting) to gain desirable physical and ballistic properties in the propellant grain." G. Sutton, *Rocket Propulsion Elements, An Introduction to the Engineering of Rockets*, John Wiley and Sons, New York, 1986, p. 297.

[30] S.G. Hong, "The Search for Deterrence," *op cit*, p. 495.

[31] National Foreign Assessment Center, *South Korea: Nuclear Developments*, *op cit*, p.9.

[32] *Ibid*, p. 9.

[33] *Ibid*, p. 9.

[34] *Ibid*, p. 6.

[35] *Ibid*, pp. 5-6.

[36] *Ibid*, and see J.H. Lee, *ROK's Nuclear Sovereignty*, *op cit*, pp. 187-193.

[37] National Foreign Assessment Center, *South Korea: Nuclear Developments*, op cit, p. 6.

[38] *Ibid*, p. 7.

[39] *Ibid*, p. 7.

[40] *Ibid*, p. 8.

[41] In "Memorandum of Conversation, Seoul, August 27, 1975," *Foreign Relations of the*

United States, 1969–1976, Volume E–12, Documents on East and Southeast Asia, 1973–1976, Document 272, at: http://history.state.gov/historicaldocuments/frus1969-76ve12/d272 The relatively greater vulnerability of South Korea to Soviet and Chinese nuclear attack, and the relative disutility of potential South Korean nuclear weapons in a variety of war scenarios relative to the use of conventional forces was also analyzed in depth in another US military unclassified research report published five months before the CIA report. See B. Jack et al, *The South Korean Case: A Nuclear Weapons Program Embedded in an Environment of Great Power Concerns*, volume II, *Regional Rivalries and Nuclear Responses*, Panheuristics Final Report to US Defense Nuclear Agency, DNA 001-77-C-0052, February 28, 1978, pp. II-85 to II-95, at: https://nautilus.org/publications/essays/napsnet/reports/Panheuristics_ROK_Regional_Rivalries

[42] See United Nations Command, United States Forces Korea, Eighth United States Army, *Chronology, 1 January-30 June 1975*, p. 23, at: https://nautilus.org/projects/foia/foiachrons/army_chro_1975.pdf The "Forward Defense Concept and Oplan Revision" first appeared in 1975 in USFK's command annual history. See 1975 Annual Historical Report, Headquarters, UNC/USFK/EUSA, Command Historian, p. ii, at: https://nautilus.org/projects/foia/foiachrons/ahr_seventyfive.pdf According to Thomas Barnes, a US National Security official at the time, "The concept of winning the war in 'nine days'…has serious implications. They include no planning for evacuation to the south, almost immediate U.S. air intervention, and possible use of tactical nuclear weapons." In "Memorandum From Thomas J. Barnes of the National Security Council Staff to the President's Deputy Assistant for National Security Affairs (Scowcroft)," Washington, September 29, 1975, *Foreign Relations of the United States, 1969–1976*, Volume E–12, Documents on East and Southeast Asia, 1973–1976, Document 273, at: http://history.state.gov/historicaldocuments/frus1969-76ve12/d273

[43] See the account of this event in P. Hayes, *Pacific Powderkeg, American Nuclear Dilemmas in Korea*, Lexington Press, 1991, pp. 60-62, at: https://nautilus.org/wp-content/uploads/2011/12/PacificPowderkegbyPeterHayes5.pdf

[44] In "Minutes of Washington Special Actions Group Meeting, Washington, August 19, 1976, 8:12-9:15 a.m." *Foreign Relations of the United States, 1969–1976*, Volume E–12, Documents on East and Southeast Asia, 1973–1976, Document 285, at: http://history.state.gov/historicaldocuments/frus1969-76ve12/d285

[45] In “Minutes of Washington Special Actions Group Meeting, Washington, August 25, 1976, 10:30 a.m.” *Foreign Relations of the United States, 1969–1976*, Volume E–12, Documents on East and Southeast Asia, 1973–1976, Document 286, at: http://history.state.gov/historicaldocuments/frus1969-76ve12/d286

[46] Section 6, “Study Prepared by the Office of International Security Affairs in the Department of Defense, Washington,” circa January 16, 1976, *Foreign Relations of the United States, 1969–1976*, Volume E–12, Documents on East and Southeast Asia, 1973–1976, Document 274, at: http://history.state.gov/historicaldocuments/frus1969-76ve12/d274

[47] National Foreign Assessment Center, South Korea: Nuclear Developments, op cit, p.11.

[48] *Ibid*, p. 11.

[49] *Ibid*, p. 12.

[50] *Ibid*, p. 12.

[51] *Ibid*, p. 12.

[52] National Foreign Assessment Center, *South Korea: The Agency for Defense Development*, Central Intelligence Agency, May 12, 1978, p. 2; at: http://nsarchive.chadwyck.com/nsa/documents/KO/00260/all.pdf

[53] National Foreign Assessment Center, *South Korea: Nuclear Developments*, *op cit*, p. 13.

[54] *Ibid*, p. 13.

[55] *Ibid*, p. 13.

[56] S.G. Hong, *op cit*, pp. 490-491.

[57] “Secure Telephone Conversation with Secretary Harold Brown on Wednesday, January 26, 1977,” p. 1, marked Carter Library, Declassified E.O. 12958, Sec.3.S PER 1/8/98 NSS Hr RE NV-9--156, Jimmy Carter Library, Donated Historical Materials-Zbigniew Brzezinski Collection, Subject Files, "Carter, Jimmy - Sensitive: [1/77 - 9/78]", Box 21. Copy kindly provided by Sung Gul Hong. https://nautilus.org/publications/essays/napsnet/reports/Memo_Brown_conversation The authors authenticated this document directly with Carter Library on September 16, 2011 and determined that the author was Zbigniew Brzezinksi. We are grateful for the prompt assistance provided by Ms. Sara Saunders, Supervisory Archivist at the Jimmy Carter Library and Museum.

[58] Z. Brzezinski, *Presidential Review Memorandum/NSC 13*, National Security Council, January 29, 1977, at: http://www.fas.org/irp/offdocs/prm/prm13.pdf

[59] National Foreign Assessment Center, *East Asia Review*, Central Intelligence Agency, RP EAR 78-003, September 5, 1978, p. 5, at: https://nautilus.org/publications/essays/napsnet/reports/CIA_EastAsiaReview

[60] *Ibid*, p. 7.

[61] Regional and Political Analysis Memo, *The Implications of Withdrawing Nuclear Weapons From Korea*, Central Intelligence Agency, RPM 77-10210 M, August 11, 1977, p. 2 at: https://nautilus.org/publications/essays/napsnet/reports/CIA_Withdrawing_ROK_NWs/

[62] *Ibid*, p. 3.

[63] National Foreign Assessment Center, *South Korea: Nuclear Developments*, *op cit*, p. 8.

[64] *Ibid*, p.8. Like S.G. Hong, "The Search for Deterrence," *op cit*, pp. 495, Byung-jin Park states that in September 1974, ADD set up the guided precision missile research team under the disguised title of the "Daejon Machinery Depot." According to Park, it was renamed as "Anhung Meteorological Observation Center" in January 1975. This is possible and may be a precursor to the organization described in the CIA report on ADD activities at Taejon as of June 1978. However, the CIA report did not refer to the Taejon Machinery Depot in September 1974, nor a name change thereof in January 1975, but does refer to an ADD missile range at Anhung [sic, correct transliteration is Anheung] as of June 1978, which may be the same facility and location—or not. See Byung-jin Park, "Story on South Korea's Weapons Development--The Case of Baekgom Guided Missile, a Signal Of Military Self-Reliance," *SegyeIlbo*, October 5, 2010.

[65] National Foreign Assessment Center, *South Korea: Nuclear Developments, op cit*, p.9.

[66] *Ibid*, p.8. The laser enrichment issue finally exploded publicly in 2004 when the IAEA discovered South Korea's KAERI to be conducting an active and undeclared enrichment research program that had its early roots in this era. See J. Kang et al, "South Korea's Nuclear Surprise," *Bulletin of the Atomic Scientists*, January-February 2005, pp. 40-49.

[67] *Ibid,* p. 10.

[68] National Foreign Assessment Center, *South Korea: Nuclear Developments, op cit,* pp. 16-17.

[69] *Ibid*, p. 16.

[70] *Ibid*, p. 15.

[71] *Ibid*, p. 16.

[72] *Ibid*, p. 15.

[73] *Ibid*, p. 17.

[74] *Ibid*, p. 17.

[75] *Ibid*, p. 17.

[76] *Ibid*, p. 18.

[77] *Ibid*, p. 18.

[78] A. Beilenson, letter to Cyrus Vance, August 20, 1979, released under US Freedom of Information Act request to Nautilus Institute, May 21, 1982, at: https://nautilus.org/publications/essays/napsnet/reports/Cyrus_Vance_letter

[79] See Chung-in Moon, "No Time for Nukes," *The Korea Joongang Daily*, May 10, 2011, at: http://koreajoongangdaily.joinsmsn.com/news/article/article.aspx?aid=2935955

[80] The original name was restored as Korea Atomic Energy Research Institute in 1989; see http://www.kaeri.re.kr:8080/english/sub/sub01_03.jsp

[81] The Panheuristics report cited above makes exactly this point although they hoped that the Chinese and Russians would constrain the DPRK from proliferating. B. Jack et al, *The South Korean Case, op cit,* p. II-42.

[82] J. On-Fat Wong, *Security Requirements In Northeast Asia*, dissertation, University of Wisconsin, 1982, pp. 79-80

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