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MOVING TARGET:
KOREA'S NUCLEAR PROLIFERATION
POTENTIAL

by Peter Hayes
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MOVING TARGET—KOREA'S NUCLEAR PROLIFERATION POTENTIAL

Peter Hayes

What we have been discovering is that nuclear weapons are not all that useful even in a place like Korea where the Cold War lives.¹

Bush Administration official in Seoul, October 1991.

In early 1992, the nuclear issue was moving so fast in Korea that it bewildered many analysts accustomed to the 'glacial' pace of North-South Korean politics since 1953. Korea may spawn a new geopolitical axiom: the longer and harder the freeze, the faster the thaw.

This essay seeks to clarify the medium-run trends and possible outcomes that are consistent with this rapidly moving mosaic of events. My purpose is to evaluate the potential for a peaceful resolution of the nuclear dilemma in Korea.

First, I outline the basis of Western concern over North Korea's nuclear activities, and describe the stances taken by the various parties to the Korean conflict on the issue. Next, I analyse the threats emanating from some quarters in Seoul and Washington of attacking North Korea's nuclear sites—and possible North Korean reprisals. Third, I examine the idea of 'challenge inspections' of North Korea's nuclear program—an alternative that is also discounted as unrealistic. Finally, I sketch a range of possible outcomes of the current impasse, starting with the most optimistic and ending with the most pessimistic (arguably the least likely). None of the key variables underlying these scenarios—the dominant world views in Seoul and Washington, the emphasis on military versus economic power, the ability of the two North Korean elites to achieve mutual understanding—are predetermined. These alternative nuclear futures therefore represent stark choices for, and political challenges to, all parties to the Korean conflict.

Some may argue that 'worst case' scenarios are unduly pessimistic given the apparent progress in North-South relations, and the withdrawal of US tactical nuclear weapons from Korea. However, a robust non-proliferation policy for Korea must take account of the whole range of possible outcomes, not just one, preferred future. The players in the nuclear game in Korea remain far from resolving the key issues. Although unwieldy, the scenario method is used in this study to handle the enormous uncertainties surrounding the possible nuclear

futures of the Korean Peninsula. It is better to admit a wide range of possible futures—accepting the cost of the theoretical eclecticism inherent in the scenario method—than to narrow the focus with false analytical bravado.²

Personally, I am far more optimistic about the prospects for a successful resolution of Korea's nuclear dilemmas than ever before. But the two Koreas and the United States are playing out a game of nuclear poker that is far from over. Optimism must be tempered by realism—wild cards may still fall from the deck.

The Nuclear Standoff

Although short run dynamics are difficult to discern, longer run trends are clear. The North has constructed nuclear facilities at Yongbyon about 90 km north of Pyongyang that include at least one and possibly two small home-made research reactors, each of which can make enough plutonium in a year for one nuclear bomb. The North is also alleged to have built a nuclear reprocessing plant that would allow it to extract the plutonium from the spent fuel from the reactors.³

Western allegations that the North is constructing a nuclear weapon are based largely on leaks of official intelligence analysis. 'They can say anything they want', said one unnamed US Defense Department official, 'But as far as I am concerned, if it looks like a duck and it quacks like a duck, there's a pretty good case for it being a duck'.⁴ Official testimony in the US Congress and other statements, commercial remote-sensing photographs of North Korean sites, evaluation of North Korea's strategic imperatives, and speculation parading as hard information have all reinforced what has become conventional wisdom in Washington and allied capitals.⁵

As an independent scholar with no security clearance, all that I can say with assurance from an examination of the SPOT commercial remote-sensing photos of Yongbyon is that North Korea has built a nuclear reactor, a large reservoir, and two clusters of very large buildings across the river near the original nuclear research facility that surrounds a Russian supplied pool-type research reactor.⁶ A reprocessing facility needs a very large, twenty story building to extract plutonium from solvent liquids in tall tubes. This structure is consistent with what can be seen in the 10 metre resolution photos.⁷ But then, virtually every building in North Korea is monumental.

On balance, I believe that the North is deliberately acquiring the technical expertise needed for a nuclear weapons program but has not yet decided to build, test, or deploy a nuclear device. Equally, I am convinced that the North is capable of developing a nuclear weapon if the incentive is great enough. In short, the North has maximised ambiguity as to its ultimate intentions in order to

increase its leverage in a range of bargaining forums with the South and the international community.

What might explain the North's behaviour? US scholars such as William Overholt analysed nuclear proliferation issues in East Asia in the 1970s. But no US analysts then predicted that North Korea might proliferate. Yet Pyongyang's historical experience and its strategic imperatives are consistent with the thesis that it could be highly motivated to obtain its own home grown bomb.

North Korean officials have not forgotten the nuclear threats made during the Korean War and in the decades since the guns fell silent along the DMZ. Four additional factors converged in the mid-1970s that could explain a decision to seek a nuclear option if not the bomb itself.

First, the United States upped the volume of verbal nuclear threats against North Korea following the Vietnam War.

Second, the fact that South Korea was pursuing its own nuclear weapon after 1971 came to light in 1975 (the program was later abandoned under US pressure). The North was also aware of the increasingly 'hands on' role of the South Korean military in US nuclear delivery operations in Korea.

Third, the enormous US mobilisation in reaction to the August 1976 incident on the Demilitarised Zone convinced many North Koreans that the United States was again prepared to risk war with North Korea.

In addition, North Koreans were aware from the early 1970s that the international and peninsular balance of military forces was moving against it quickly. North Koreans recognise that they face rapidly increasing conventional offensive military power in the South in the 1990s—a fact that was often reiterated to me by senior officials during my visit to Pyongyang in October 1991. At the same time, the DPRK's security alliance with the Soviet Union has crumbled; that with China is of dubious reliability. North Koreans have found it convenient, therefore, to match the US 'neither confirm nor deny' policy in the South with a studied ambiguity of their own on the nuclear issue. They consistently assert that they have neither nuclear weapons intentions nor capabilities, while refusing to permit outside observers the intrusive inspections which would confirm these claims.⁸

Nuclear Manoeuvring

In the past the North set many and varying preconditions for implementation of a full-scope IAEA safeguards agreement on its nuclear facilities as required by its accession to the Non Proliferation Treaty. These included confirmed withdrawal of US nuclear weapons from South Korea; a North-South non-aggression pact; a Korean nuclear-free zone; an end to US nuclear threats

against North Korea and to US 'nuclear war' military exercises in South Korea; a written US 'no first use' declaration; and inspection of visiting foreign warships and planes.⁹ Pyongyang claims that it is not building a nuclear bomb, but is being slandered by the United States and its allies.

For their part, US decision makers are convinced that North Korea is developing a nuclear weapon. To induce the North to abandon this effort, the United States has withdrawn its Korea-based tactical nuclear weapons from Kunsan Air Base and announced that it will allow inspection of US bases in South Korea (after the North implements the IAEA safeguards accord).¹⁰ Concurrently, it has halted the long planned reductions to US troop levels in Korea and is considering selling Patriot anti-missile missiles to South Korea. Initially, the US threatened to mount larger than usual military exercises with South Korea in 1991, but later abandoned the Team Spirit exercise altogether.¹¹ Arguing that reprocessing in the North cannot be innocent, Washington also seeks to have the alleged North Korean reprocessing plant dismantled in addition to the implementation of IAEA safeguards on all North Korean nuclear sites.¹²

The South Korean security elite was implacably opposed to the removal of US nuclear weapons as late as September 1991. After Bush's 28 September 1991 announcement, however, the South Koreans quickly grasped the nuclear nettle.¹³ In November 1991, Seoul declared that (like Japan) it will not manufacture, possess, store, deploy or use nuclear weapons, and (unlike Japan) it foreswore any attempt to acquire nuclear reprocessing capability.¹⁴ The South agreed to negotiate a Korean nuclear-free zone in the mid-December 1991 talks with the North. It also proposed that each side inspect suspect airfields in addition to IAEA safeguarded facilities, a proposal accepted by the North in late December.¹⁵

Headlines about breakthrough notwithstanding, the North and the South are still far apart. Each side still denigrates the other, even in the midst of negotiations.¹⁶ One day, for example, newspaper headlines read 'North, South move closer'; the next day, 'Goodwill turns nasty'.¹⁷

Tough Talk

In late 1991, various US and South Korean officials threatened to attack Yongbyon, and other sites that they think are nuclear weapons-related, if the North refuses to sign the IAEA accord.¹⁸ Such attacks would most likely use US conventionally-armed sea-launched cruise missiles fired from offshore. Strike aircraft supported by powerful electronic countermeasures could also be used and attacks on North Korea's air defences along the attack corridors to the

nuclear sites. However, unlike cruise missiles, this alternative would risk the loss of aircraft and the capture of pilots.

The United States would not launch a unilateral attack without active political support from South Korea, and certainly not without first consulting its junior ally in Seoul (and presumably, although not necessarily, the other allies in UN Command in Korea). In any case, the United States would have to use many jointly staffed intelligence facilities run by Combined Forces Command to mount such an attack, and the South Korean military could not be unaware of these preparations. The South would thus be complicit in North Korean eyes, even if it opposed a US attack. It would therefore probably support its senior ally.

Some US officials have speculated that the United States might seek to create another international military coalition like that used to fight the Gulf War in order to destroy the North's alleged nuclear capabilities. The stakes in Korea, however, are very different to those in Iraq. The United States could not devise such a coalition in Korea. Attempting to do so—especially under the flag of the US-controlled UN Command—would be counterproductive to US goals in Korea. America's allies would be greatly disturbed by such an action. China would certainly veto a Security Council resolution to intervene militarily in Korea. North Korea is also likely to be a far more militarily capable adversary than Iraq, especially in any war on the ground. As the director of the General Staff Committee of the DPRK's Defence Ministry, General Kim Yong Chol, told me, 'If US analysts think that North Korea is some African or Middle Eastern country, then it's a very big miscalculation'.¹⁹

But the United States and South Korea are unlikely to launch a strike by themselves, even after due consultation and coordination. US allies such as Japan (and in the future, Russia) would strongly oppose such an attack.

Moreover, such an attack would only retard the pace and scale of a nuclear weapons program in North Korea, not stop it. There are too many caverns dug deep into granite in North Korea for bombing of known nuclear sites to shut down a determined clandestine nuclear bomb program.

In any case, the risk of North Korean reprisal and escalation to war is greater than the costs of living with a North Korean nuclear option, device, or deliverable bomb. This issue is so crucial to the future of the nuclear issue in Korea that it is analysed in depth in the next two sections of this essay.

Timing

If an attack on the North were launched in spite of all these constraints, when might it occur? At the earliest, not until the alleged plutonium reprocessing

plant at Yongbyon begins operations, estimated by US intelligence agencies as sometime (possibly mid-year) in 1992.

The United States would know when the plant started operating because it has aircraft with sensors that can measure the downwind concentration of the radioactive isotope Krypton 85.²⁰ This technique was used by US planes flying out of Japan in the 1950s to estimate Soviet plutonium production rates. Radioactive Krypton gas is released from a reprocessing plant smokestack in large amounts when irradiated reactor fuel rods are chopped up and dissolved in acid baths to extract the plutonium.²¹

Some analysts have argued that the risk that Kim Il Sung might actually use the bomb justifies a preemptive strike. Others recognise the obvious: the North would only ever use a nuclear bomb if attacked first by the South. But such an attack is even less likely than a North Korean invasion against the South. Even North Korean defensive first-use of a nuclear weapon in a war on the peninsula is unlikely.²² Nothing could undermine North Korea's claim to represent the true spirit of Korean nationalism more thoroughly than using nuclear weapons against fellow nationals.

North Korean Reprisal

The bombing option cannot be written off altogether, however. It remains a possibility should the more hopeful medium and optimistic scenarios sketched below prove unrealistic. Reprisal against the South could be achieved by Pyongyang firing some of its estimated fifteen Scud missiles at the same time against one reactor or military base. The North would have to fire many missiles because they are inaccurate. It would have to fire them all at once because missile launch sites would be identified and destroyed by Southern forces immediately the North fires any missiles at the South.

Bennett Ramberg has analysed the impact of military attack on South Korea's reactors, which are vulnerable to both sabotage and aerial attack. Ramberg identified at least seven reactor failure modes that could lead to nuclear materials being released. In the worst case, up to 10,000 km² and thousands of persons could be contaminated. In the best case (intense rain, recent fuel loading, high altitude plume, offshore winds), damage could be minimal.²³

Such acts of reprisal by the North could, of course, trigger an all-out war between North and South.

IAEA Challenge Inspections

In late 1991, the very high potential costs of using military force to retard North Korea's nuclear program was recognised in Seoul and Washington. Some officials then raised the possibility of mounting an IAEA 'challenge' inspection as in Iraq, albeit an exceptional case.²⁴

That IAEA team challenge inspectors could enter North Korea to pry open nuclear sites on the Iraq model was always a ludicrous idea. To North Koreans, an IAEA-led challenge inspection in North Korea backed by the threat of US-led military force would have appeared to be a US-led challenge inspection. Such a 'challenge' would have impelled the North Koreans to immediately cancel the IAEA's ongoing access to the Soviet supplied research reactor for inspections under the 1977 agreement between the IAEA and the North—a major, and precedent-setting blow to the global non-proliferation regime. Also, the North would reject outright 'challenge' inspections and end further negotiations on signing the safeguards agreement on the new facilities at Yongbyon. Indeed, according to South Korean media, a high ranking North Korean foreign ministry official has already declared flatly that there is no reason for his country to comply with a special IAEA inspection.²⁵ If pressed, North Korea would likely put its military forces on high alert and any nuclear weapons program into high gear.

Hybrid Inspections

Unsurprisingly, therefore, a more subtle approach was adopted in US and South Korean negotiations with the North. This approach was based on the fact that the IAEA will likely receive authority from its Governing Board in early 1992 to implement the 'special inspections' clause of all existing safeguards agreements.²⁶ The special inspections clause allows the IAEA to inspect suspect sites beyond designated nuclear fuel cycle sites.²⁷ Now that the North has signed its safeguards agreement, this clause applies to North and South Korea.

But due to the discriminatory nature of the NPT regime, a nuclear safeguards accord would not apply to sites in the South which might contain US nuclear weapons. Thus, the North had a legitimate demand that on-site, on-demand inspections be conducted in the South.²⁸ Otherwise, Pyongyang cannot be confident that nuclear weapons have not been reintroduced, transferred to, or shared with the South Korean military.

North Korean officials have accepted in principle that military sites should be inspected on a reciprocal basis, and that the North cannot expect to inspect US sites in the South without opening itself to equivalent inspection.²⁹ North Korea demanded that it be able to inspect the South to ascertain whether US nuclear weapons had been removed as claimed by the South. US nuclear

weapons are not covered by the safeguards agreements between the two Koreas and the IAEA.

To meet this concern, the South (with American concurrence) proposed at the December Prime Ministerial talks that South Korean non-fuel cycle sites could be inspected to ensure that no nuclear weapons have been reintroduced, left behind, or transferred to South Korea. The North stated on 26 November 1991 that it would sign the safeguards accord 'when the United States begins to withdraw its nuclear weapons from Korea'.³⁰ South Korea announced on 19 December 1991 that this condition had been met, opening the door to inspections of US sites and accelerating the pace of North-South negotiations.

On 31 December 1991, the two Koreas announced a draft joint non-nuclear declaration that gave North Korea the right to inspect Kunsan Air Base in South Korea, and South Korea the right to inspect Sunchon Air Base in North Korea. The text bans the possession or development of nuclear weapons, as well as acquisition of uranium enrichment and nuclear reprocessing technology. The South conceded this declaration after the North agreed to sign the IAEA safeguards accord in the near future.³¹ To encourage North Korea to fulfil its pledges on inspection, the United States and the South announced on 7 January 1992 that the Team Spirit exercise would be suspended in 1992.³² On 21 January 1992, the North and South Korean prime ministers signed the final draft text of the non-nuclear declaration which came into force on 18 February.³³ Remarkably, US and North Korean officials began meeting on 23 January in New York for talks on the nuclear issue, where it was anticipated that US officials would confirm that US nuclear weapons have been withdrawn from Korea.³⁴

In the course of these talks, the two Koreas refined their proposals for inspection. They agreed to establish a Joint Nuclear Control Commission (NCC) one month after the non-nuclear declaration is activated. This Commission is responsible for determining which suspect sites may be inspected and how.³⁵ As of March 1992, however, deep differences over the scope and implementation of the NCC have emerged between the two sides. At the first meeting to discuss the Commission on 27 February 1992, the North argued that the Commission should not only deal with nuclear inspections, but 'the overall questions for the implementation of the joint [non-nuclear] declaration'. The North linked this demand to measures to 'jointly frustrate a nuclear threat to the Korean Peninsula from the outside' and an 'appropriate international guarantee of the denuclearisation of the Korean Peninsula'.³⁶

Now that the North has signed the accord, it is unclear by whom and how inspections of US sites would be implemented in the bilateral arrangement.³⁷ A solely Korean inspectorate is likely to be highly sensitive to the vagaries of

North-South politics. Arguably, a Korean inspectorate will need to be supplemented by external, regional great power capabilities to monitor and verify the agreements.

A six power inspectorate could be delegated authority by the IAEA to conduct special inspections and inspections of US sites in South Korea. The inspectorate could be staffed by personnel from the four great powers (the United States, Russia, China and Japan) and North and South Korea. Its members could thereby apply political pressure as well as providing air-, space- and ground-based intelligence systems to ensure that neither Korea is cheating on its non-proliferation commitments. Some such hybrid inspection system (as exists with Euratom and the IAEA in Europe) is inevitable in Korea as the IAEA is patently inadequate to the task of assuring Korean non-proliferation.³⁸

Alternative Nuclear Futures

There is no a priori guide as to how nuclear arms control will be achieved and implemented in the Korean context. Inter-Korean relations are very different to those between European states and the two former superpowers.³⁹ In spite of recent progress, current developments in Korea may lead to very different outcomes. This uncertainty requires that longer run trends on the peninsula be examined carefully.

To this end, the rest of this essay presents a range of alternative nuclear futures for Korea. Each scenario posits an initiating event; domestic political influences on North and South Korean policy; and whether North-South relations are hostile or cooperative. These factors combine to create scenarios ranging from a non-nuclear North (most optimistic), a nuclear-capable North (least pessimistic), to a nuclear-armed North (most pessimistic). Each variant on these themes implies that either the *realpolitik*, or the militant containment policy is dominant in Washington—both have a long lineage in US policy toward Korea. US policy is the fourth variable in the scenarios.⁴⁰ The scenarios span the short-term (< 6 months) to medium-term (2-5 years).

These scenarios contain four basic assumptions. First, North Korea's rulers try to maximise their prospects for political survival. Second, Kim Il Sung (or a Kim Il Sungist regime) will remain in power in the North.⁴¹ Third, future North-South relations will revolve mostly around economic issues. Fourth, the United States will keep its troops in Korea until at least 2000. Naturally, different assumptions would result in different conclusions.

Optimistic Scenarios

We commence with the most optimistic and conclude with the most pessimistic scenarios. This section outlines three variants on the theme of optimism.

Most Optimistic Scenario

Some American analysts hold that North Korea has never had any intention nor capability of acquiring nuclear weapons. Instead, it has conducted a giant and enormously successful bluff against the United States and its allies. If this were so, then one would expect North Korea to try to trade its nuclear 'option' very quickly as its nuclear 'card' will devalue very quickly once inspections commence. Unfortunately, as time passes and the North implements its safeguard agreement, this hypothesis has been rendered nearly moot and irrelevant.

Moreover, intelligence sources and some media reports assert that non-photographic evidence exists that North Korea has sought to obtain uniquely nuclear weapons-related technologies that can be explained only by a nuclear weapons program—something that I am unable to confirm or refute. The media have suggested that North Korea may have circumvented COCOM controls in 1986–87 over imports of US-origin zirconium used in fuel-rod cladding via a German firm; acquired in the 1980s of URENCO uranium melting technology diverted via Switzerland and Pakistan with the help of Leybold AG, a West German firm (although the source warns that this connection is speculative and may be South Korean disinformation against North Korea); and obtained a uranium annealing furnace (also manufactured at Leybold) via re-export from East Germany. Leybold's technicians and officers are also alleged to have visited North Korea in 1989–90.⁴² Of course, a North Korean grand deception could include such activity designed to sow just such an impression, although I doubt that the ponderous North Korean bureaucracy is capable of implementing such a finely nuanced strategy. Ultimately, therefore, there is no way to prove or disprove this thesis, nor to justify its consequential optimism.

More Optimistic Scenario

What if the North as well as the South are flexible toward each other? The North Korean Supreme People's Assembly ratified the IAEA Safeguards Agreement in April 1992 in response to US nuclear withdrawal from Korea and has commenced the implementation process (which includes domestic ratification, submission of lists of sites and materials for IAEA inspection, and completion of inspection procedures).⁴³

Assume further that a candidate steps into Roh Tae Woo's shoes in South Korea's presidential elections who maintains the South's *nordpolitik*. Seoul

responds to the North's acute economic situation by investing heavily itself and promoting foreign and Japanese investment in the North (probably by underwriting Pyongyang's re-entry into the international financial system in the shape of reparations for Japanese colonialism and World War II damages).⁴⁴ The South also sends urgently needed consumer goods and food to the North.⁴⁵

Both Koreas then proceed to implement a Korean nuclear-free zone. The great powers sign protocols to the Korean nuclear-free declaration like those in the South Pacific Nuclear-Free Zone Treaty.⁴⁶ This step is portrayed by North Korea as constituting a regional nuclear-free zone.

The two Koreas thus enter on the path of nuclear arms control, paving the way for political *rapprochement*. These developments make it possible to reduce military tension, and stimulate a virtuous circle of conventional arms control and disarmament in Korea.

In this more optimistic scenario, Pyongyang gives up its nuclear weapon option altogether. Consider the North's goals: it wants a nuclear power reactor for prestige and to supply badly needed baseload electricity.⁴⁷ It also needs foreign investment, especially from Japan. China seeks foreign investment in North Korea that will give it direct access to the Sea of Japan via the Tumen River, a scheme that offers important economic opportunities to North Korea.⁴⁸

A UN Security Council resolution, initiated by the United States for the North to implement its safeguards commitment, ups the stakes and the great powers simultaneously agree to participate in a regional Nuclear-Free Zone that satisfies North Korea's demand for an end to the US 'nuclear umbrella' over the South.

Least Optimistic Scenario

The North refuses various demands made on it by the US with respect to its nuclear program. The US takes the North to the Security Council where China is reluctant to condemn Pyongyang.

North Korea's negotiating style has always been zero-sum and highly competitive in nature. It would be entirely in character for Pyongyang to go to the brink by turning on its alleged reprocessing plant when it judges the time to be politically propitious.

At the same time, it would pace the implementation of the Safeguards Accord to enable it to extract just enough plutonium to make one bomb. After this, Pyongyang would find it hard to cash in its nuclear option for political and economic advantages as this would devalue its ambiguous nuclear option by transforming it into an unambiguous, near-bomb capability.

In this less optimistic scenario, therefore, the North proposes—and the South accepts—a joint fuel cycle research program. This initiative expands on South Korea's proposal in January 1992 to build jointly two nuclear GWe-sized nuclear power plants in the Demilitarised Zone either near Kosung on the east coast or Changdan on the west coast. (South Korea was apparently responding to North Korea's reported call for the South to ease northern power shortages as expressed to the chairman of Daewoo when he visited Pyongyang.)⁴⁹

This development might follow the North's activation of its reprocessing plant. The North could also obtain a nuclear reactor, possibly financed and supplied from Japan as part of its reparations to the North for colonial era damages.

Relatedly, the two Koreas propose a regional nuclear-free zone that ends US extended nuclear deterrence to South Korea and renders irrelevant North Korea's demand that visiting warships and planes be inspected. They assert that their joint reprocessing ('research') plant does not transgress the letter (if not the spirit) of their declared disavowal of (industrial) reprocessing in early 1992 and is consistent with a nuclear weapons-free zone. Thus, they seek to justify reprocessing as contributing to global nuclear non-proliferation. They assert that it is equivalent to Japan's reprocessing program and therefore no more (or less) objectionable. Both Koreas gain from this deal, the North keeping intact its latent nuclear weapons capability, the South fulfilling its own aspirations to obtain reprocessing while being able to keep an eye on North Korean activity. Japan's reprocessing capability is matched also. The joint program is presented domestically as a triumph of Korean nationalism facilitating moderate *rapprochement* in the political and economic spheres. Residual distrust, however, slows the pace of conventional arms control relative to that in the more optimistic scenario.

In this scenario China plays an important role in persuading the North to modify or abandon its demand to inspect visiting warships and planes—one of China's first substantive contributions to the global non-proliferation regime.⁵⁰ Northeast Asia enters a new era of great power cooperation which effectively insulates the Korean Peninsula from great power rivalry and concentrates on managing burgeoning economic interdependence. This outcome is highly compatible with the *realpolitik* policy line in Washington of an incoming Democratic President in the United States whose highest priority is to reinvigorate US economic power. US forces left in Korea are maintained although at reduced levels, with ever increasing South Korean payment of US deployment costs.

Pessimistic Scenarios

This section surveys four pessimistic scenarios across a spectrum of nuclear-capable North Korea embedded in a stable international environment, to a nuclear-armed North Korea embroiled in military confrontation with the South and the United States and even in civil war (the worst case).

Least Pessimistic Scenario

The optimistic scenarios are arguably too optimistic on two counts. First, there is no consensus in Seoul that it is wise to sustain its arch-enemy with massive economic support. This strategy may be objectionable to hawkish factions in the South which seek total political and/or military victory over the North. Conversely, Seoul may bank on Kim Il Sung's regime collapsing without great turbulence so that the North falls into the South's lap.

Second, the North may not be persuaded to abandon its nuclear option even if the South were to furnish the resources to allow it to survive. Rather than embracing each other, therefore, the two Koreas keep a mistrustful distance. Kim Il Sung's regime proves resilient and stable in spite of its economic problems. Trade and aid from the South stay at low, largely symbolic levels.

What might initiate such an 'optimistically pessimistic' outcome? Like its least optimistic counterpart, the least pessimistic scenario could also arise from North Korea's aforementioned plutonium reprocessing plant and the keeping of a US 'nuclear umbrella' over South Korea. Led by the United States, the UN Security Council is powerless to enforce its demand that the North immediately implement the nuclear safeguards accord, while the North is unable to obtain inspection of visiting US warships, nor an end to nuclear alliance.

The North breaks this impasse by turning on its reprocessing plant. A safeguarded plutonium reprocessing plant is perfectly legal for an NPT signatory. As the North Koreans insist on keeping it, then the United States and the South have to live with a North Korean reprocessing plant subject to stringent safeguards, albeit with low confidence of timely warning of diversion. (Alternatively, the North might not allow nuclear safeguards to be implemented on its nuclear activities, including the reprocessing plant, and could simply withdraw from the NPT.) Rather than the joint nuclear research and development program posited in the previous scenario, therefore, the two Koreas take totally separate nuclear paths.

Consequently, the North limits economic integration with the South to minimise political stress associated with reform in the Pyongyang. It also retains a residual (and untested) nuclear option for deterrence purposes in the context of continuing political competition and hostility between the two Koreas.

Thus, an uneasy *rapprochement* is conceivable whereby the North keeps open its nuclear options and obtains limited economic support from the South. Political and military hostility persists in Korea. In this 'medium' case, the South lives with its nuclear-capable (but not armed) northern neighbour knowing that it can afford to wait until the moribund North collapses. The South may expect to inherit eventually whatever nuclear capabilities the North has developed, just as the republics inherited part of the Soviet nuclear arsenal in 1991.

For these reasons, therefore, Seoul ensures that the United States accommodates itself to Pyongyang's nuclear program. In the short run, this outcome is consistent with the election of a 'non-militarist' successor to Roh Tae Woo who, as an incoming 'democratic' president playing the politics of reunification for all its worth, would be loath to bomb the North. In the longer run, the North's nuclear capability would furnish a new rationale for upgrading US forces in Korea and the western Pacific, a posture that is highly agreeable to US military and civilian interests that have long favoured militant containment in Northeast Asia.⁵¹

What follows would depend on how the North Koreans use their nuclear capability, device, or weapon. 'Responsible' North Korean nuclear behaviour could be rewarded by efforts to integrate the North into the status quo. (By responsible, I mean the general 'non use' of nuclear weapons on the Chinese model of nuclear deterrence and defence.) The North would then obtain increased economic support and political recognition—as occurred with Pakistan during the Gulf War.⁵² North Korea would slowly become a great power in its own right in Northeast Asia by virtue of its nuclear capabilities. The United States might even transfer nuclear control technologies to Pyongyang to enhance its central command and control over nuclear weapons.

Conversely, 'irresponsible' North Korean nuclear machinations such as selling nuclear technology, information, and even whole weapons on the nuclear 'grey' market would be condemned widely and could lead to political and even economic sanctions.

More Pessimistic Scenario

In early 1992, Pyongyang badly misjudges US resolve and South Korea's domestic balance of forces. It responds rigidly to Washington and Seoul's overtures by insisting on its untenable demand to inspect visiting nuclear warships and aircraft in Korea for nuclear weapons. When the United States tables the issue in the UN Security Council, North Korea resurrects its demand for an end to the 'nuclear umbrella' over South Korea and for a regional nuclear-free zone.⁵³ It

also accelerates its nuclear research and development program in spite of its apparent commitments in January 1992 to the contrary.

Pyongyang's intransigence tips the balance in Washington and Seoul in favour of those who favour destroying the North's nuclear facilities by military strikes. This coincides with the re-election of President Bush in the United States and, shortly thereafter, a pro-military president in South Korea.

Ironically, bombing North Korea's nuclear facilities motivates the North to redouble its nuclear efforts with renewed domestic legitimacy derived from a heightened sense of external threat. North Korea accumulates nuclear options and/or manufactures (from materials already removed from bombed sites before the attack) a crude nuclear explosive device or deliverable bomb about 1995.

In response, the United States could either reintroduce its own nuclear weapons into the South (with or without explicit confirmation), or reiterate US retaliatory nuclear threats against North Korea. The South continues to implement its declared non-nuclear principles under a US 'nuclear umbrella'. A new period of North-South hostility erupts, disrupting further democratisation of the South Korean polity and any incipient social and economic integration between the two Koreas.

Consequently, Japan embraces the US-Japan alliance more tightly. This last possibility is achieved either by nuclear-sharing with Japanese forces to avoid independent Japanese nuclear proliferation, or by Japan foregoing the nuclear weapons deployment, but sharing in US nuclear targeting analysis and decision making pertaining to Northeast Asia.⁵⁴ Trilateral military planning matches the tripartite political discussions of nuclear insecurities between senior US, Japanese and South Korean political officials that began in October 1991.⁵⁵

Two possible effects of a North Korean bomb may be discounted, however. Some have suggested that Pyongyang might destabilise the South with 'low intensity' activity launched from behind its 'nuclear shield', like those between 1968-71. This use of the bomb, however, is unlikely. Low level military pressure has not worked in the past for the North, a fact that registered in Pyongyang in the early 1970s. Nor has Pyongyang's periodic violence against the South been activated by its perception of the nuclear threat, or by its own or its allies ability to deter nuclear attack on the North. Having its own bomb would not do so.

It is worth noting that the 'nightmare' scenario for the United States and its allies—a chain reaction of independent nuclear bombs in East Asia and the unravelling of US alliances in the West Pacific—is highly unlikely to occur solely as a result of North Korean proliferation.⁵⁶

In South Korea, the United States will continue to extend nuclear deterrence to the South by virtue of its continuing troop presence and offshore nuclear capabilities. Presumably by this stage, the inspection of US sites in the South would have collapsed. In spite of neo-isolationist calls for US troop withdrawal from Korea, US troops will stay put in the South because it is the cheapest place to keep a lightly-armed infantry force 'in being' and available for US interventionary contingencies in the Asia-Pacific region. South Korea will pay for more of the US cost, and US allies will push the United States to keep its forces in Korea as part of the quadrilateral power relations of the Northeast Asian area that require a US Eastern toehold on the Eurasian continent. The South therefore finds the cheapest way to offset a North Korean nuclear threat is to encourage the United States to remain in Korea rather than developing its own bomb.

Japan's reaction to a nuclear threat from North Korea will be determined primarily by its exposure to potential Chinese or Russian nuclear attack. Developing a Japanese nuclear force to counter the North's nuclear capability would risk drawing fire from, and would certainly pose a threat to, these far more capable potential nuclear adversaries which, short of deployment of a full scale submarine-based second strike nuclear force, Japan cannot hope to counter. Japan will therefore leave it to the United States to handle potential North Korean nuclear threats.⁵⁷ US bombing of North Korea's nuclear sites could have contradictory impacts on the US-Japan alliance. It likely would be unpopular among Japanese voters. Yet this action could also buttress the US-Japan alliance at the elite level so long as the attack neither halted a North Korean bomb (sustaining a North Korean nuclear threat that increases Japanese reliance on the United States) nor ignited a major war in Korea that could embroil Japan.

Most Pessimistic Scenario

A preemptive strike on Yongbyon could pitch the Peninsula into the worst-case situation of a nuclear-armed North Korea with reinvigorated legitimacy for Kim Il Sung's regime for having stood up against North Korea's adversaries. This scenario arises from Washington and Seoul's decision to bomb North Korea's nuclear sites.

This action could result in three distinct outcomes. First, it could prompt North Korea to respond in kind, as explained above, with a strike of its own that escalates into full-scale war. The southern allies would win—but at vast cost.

Second, it could retard a North Korean nuclear bomb program, but not stop it. Ironically, such an attack could reinvigorate Kim Il Sung's legitimacy in the

North if it is demonstrably incapable of stopping a North Korean nuclear weapons program. Consequently, North Korea could redouble its proliferation effort as well as to reactivate an activist campaign of low-level attacks against the South from behind a 'nuclear shield'. It could also instigate a nuclear 'grey' trade in nuclear weapons parts with other 'pariah' states such as Iran, Syria, and Iraq, and commence an open trade in nuclear reprocessing technology with states such as India.

There is a real risk in this scenario that the North implodes due to the combined weight of political and bureaucratic control and economic stagnation. In the chaos (possibly civil war) that follows, the North Korean military could split. If one side was much weaker than the other, then it might open a 'third front' by provoking war with the South. Seoul would find this contingency extraordinarily threatening. It would also find it hard to resist the temptation to enter militarily on the side of a pro-South military faction, even without a northern-provoked confrontation with the South.

The question then becomes: 'Who controls the North Korean nuclear capability?' Pro-South or anti-South military factions? Or both?

Conclusion

Are worst case scenarios like this worth worrying about? Only as relatively unlikely outcomes that follow from the two Koreas proving to be incapable of recognising and realising their common interests in achieving greater inter-Korean interdependence on the long road to reunification. Whatever their probability, these outcomes *are* conceivable. Indeed, it is precisely such possibilities that motivate both sides to maintain large standing forces even as they strive for political and economic accommodation and talk about arms control and disarmament.

Moreover, these outcomes are not exclusive. One scenario could evolve out of, or overlap with, another. In my view, the immediate future will oscillate between the least optimistic and least pessimistic scenarios, that is, between the incremental abandonment of the nuclear option by the North, and an increasingly nuclear-capable (but not armed) North. Obviously, where one believes the pendulum will stop swinging has important policy implications.

If, on the one hand, one holds that a nuclear-capable North Korea is inevitable, then trying to stop its nuclear armament may have counterintuitive and perverse effects (for example, bombing a 'mere' capability might accelerate armament).

But if, on the other hand, one considers that it is still possible to secure a completely non-nuclear North Korea—but only by a combination of extra-

ordinary incentives and lessened sanctions—then policies intended to contain nuclear capability and armament could backfire, convincing the North that the nuclear option is both valuable and impossible to forego (political and economic sanctions could have these effects).

A delicately nuanced policy of military restraint by the US and the South complemented by massive economic support for the North could impel it to abandon its nuclear program and create a truly non-nuclear Korean peninsula, one of the more optimistic conceivable outcomes. The least pessimistic scenario, in contrast, implies that the world learns to live with a nuclear-capable (or even nuclear-armed) North Korea, and North Korea learns to live with the rest of the world.

As decision-makers ponder the risks inherent in the situation, no doubt some of them will reflexively incline towards the punitive, blunt instruments of coercive diplomacy—military threats, political and economic sanctions, diplomatic isolation and even military strikes. But eventually, they must recognise that the North is relatively immune to such pressure. They will likely conclude that South Korea and Japan should provide the economic support sought by, and needed, to keep the North Korean elite in power, especially that needed to launch the Tumen River scheme.⁵⁸

By contrast, developing an independent nuclear bomb option would do little to help the North Korean elite to save its own neck. Indeed, the extra economic burden imposed by a nuclear weapon program may worsen the already deteriorating political-economic situation of the North instead of improving it as would a deal with the South. Ironically, therefore, the South holds the trump card that largely determines whether the North will follow its Burmese counterparts on the road to Rangoon of political-economic decline and increased repression rather than the road to Seoul of political-economic interdependence. If the South unlocks the door to economic relations between the North, then the rest of the world—especially Japan—will have little choice but to follow its lead.

Gradual economic integration between the two Koreas might cost the South a few billion dollars a year until the North's economy recovers. The price of political stability in the North and a non-violent resolution of the nuclear dilemma in Korea is small compared with the potential costs of nuclear proliferation and the related arms racing and enhanced risk of war in the Peninsula, with all the attendant social and economic costs of the continued division of Korea.

However they are achieved, the stringent inspection arrangements to underpin a nuclear-free zone will also support a range of conventional arms control measures now under consideration in Korea, including controls on dual-

capable delivery systems such as ballistic missiles. A regional nuclear-free zone for Northeast Asia may also prove to be an essential ingredient of a nuclear settlement in Korea and deserves urgent attention by peace researchers. Effective inspections combined with the tacit economic deal sought by Pyongyang are the other two essential elements of a resolution of the nuclear dilemma in Korea. The solution will be stamped 'Made in Korea' and will not resemble solutions found elsewhere.

Appendix 1

Excerpts on Special Inspections from the IAEA model NPT safeguards agreement INFCIRC/153⁵⁹

'73. The agreement should provide that the Agency may make special inspections subject to the procedures laid down in paragraph 77 below; (a) In order to verify the information contained in the special reports; or (b) If the Agency considers that information from the State and information obtained from routine inspections is not adequate for the Agency to fulfil its responsibilities under the Agreement. An inspection shall be deemed to be special when it is either additional to the routine inspection effort provided for in paragraph 78-82 ... or involves access to information or locations in addition to the access specified in paragraph 76 for ad hoc and routine inspections, or both ... 77. The Agreement should provide that in circumstances which may lead to special inspections for the purposes specified in paragraph 73 above the State and the Agency shall consult forthwith. As a result of such consultations the Agency may make inspections in addition to the routine inspection effort provided for in paragraphs 78-82 ... and may obtain access in agreement with the State to information or locations in addition to the access specified in paragraph 76 above for ad hoc and routine inspections. Any disagreement concerning the need for additional access shall be resolved in accordance with paragraphs 21 [giving the accused State the right to participate in an IAEA Board of Governor's discussion on its alleged non-compliance] and 22 [providing for arbitration of unsettled disputes by an agreed tribunal or the International Court of Justice]; in case action by the State is essential and urgent, paragraph 18 above shall apply.' Paragraph 18: 'The Agreement should provide that if the Board, upon report of the Director General, decides that an action by the State is essential and urgent in order to ensure that *nuclear material* subject to safeguards under the Agreement is not diverted to nuclear weapons or other nuclear explosive devices the Board shall be able to call upon the State to take the required action without delay, irrespective of whether the procedures for the settlement of a dispute have been invoked'.

In short, if the IAEA Board agrees with the Agency that it needs additional access denied by the State, then the Board can overrule the State. In practice, however, no State would be removed from the IAEA because of failure to respond to the Agency (doing so would reduce leverage over the recalcitrant state) and there is little that the Board can do to enforce its views over the objections of a state to special inspections.

October 91-March 92

October 91-March 92

US tacitly withdrawal

N-SK non aggression pact/non nuclear declaration

Suspension Team Spirit, Mutual Inspections

US-NK direct talks

Japanese reparations, SK investment talk

Most Optimistic <	Opt-1	Opt-2	Opt-3	Time	Press-1	Press-2	> Most Pessimistic
Opt-1 "Bluff" N o N W capability nor intention, Sign SGA M u t u a l inspections Implement SGA Cash in N ace card Outcome Fast Non-Nuclear Nirvana	U S → U N Security Council NK transit & regional NFZ issues NFZ agreed drop transit Dismantles Pu plant N / S K political/ economic rapproch- ment Conventional arms control disarmament Outcome Slow Non Nuclear Korea	Turns on Pu plant Regional NFZ agreed, NK drops transit Joint N-SK Pu plant Implement SGA M u t u a l inspections Moderate rapproch- ement Outcome Non Nuclear Korea with N o p t i o n retained	Oct Nov Dec 1993 Jan Feb March late 94/95	Turns on Pu plant Don't bomb Regional NFZ agreed Separate NK Pu program IAEA SGA implemented or NK pulls out of NPT New N-SK hostility Conventional arms race Outcome Live with N capable NK	Turn on Pu plant Bomb NK N sites NK riposte Retard but NK redoubles NK effort NW tests NW US redeploys NWs into SK Renewed N- SK hostility Conventional arms race NK NW used offensively defensively Outcome Live with N armed & stable NK	Turns on Pu plant, bomb NK N sites, 1. All out war (US/SK win by early 93) 2. NK WDS from NPT; Retard NK NW for 2 years, NK N test, gray N exports/open N trade -Risk of NK collapse, civil war, S K intervention Outcome Live with N armed & unstable NK	

ENDNOTES

- 1 Quoted in D. Sanger, 'Seoul to Permit Nuclear Inspections', *New York Times*, 12 December 1991; Sanger states that the official was accompanying the US Defense Secretary on his visit to Seoul at the time.
- 2 On scenario method, see M. Godet, *Scenarios and Strategic Management*, Butterworth Scientific, Sydney, 1987; and World Futures Studies Federation et al., *Reclaiming the Future*, Tycooly International, London, 1986, pp. 81-116.
- 3 These developments were first publicised in my 'American Nuclear Dilemmas in Korea', US-Korean Security Studies Council, *US-Korean Security Relation: New Challenges and Opportunities*, Proceedings of the 3rd Annual Conference, Seoul, Korea, 2 December 1987, p. 199; and more recently, in my 'Kim's Elusive Bomb', *Far Eastern Economic Review*, 7 November 1991, pp. 10-11; the first journalists to wake up were J. McBeth et al., 'Nuclear Jitters, Pyongyang could be trying to build the bomb', *Far Eastern Economic Review*, 2 February 1989, p. 15; the first non-proliferation analysts to react were L. Spector and J. Smith, 'North Korea: The next nuclear nightmare?' *Arms Control Today*, March 1991, pp. 8-13; and the first academic, A. Mack, 'North Korea and the Bomb', *Foreign Policy*, Summer 1991, pp. 87-104; followed by a virtual snowstorm of studies of the nuclear issue in Korea in late 1991. Many of these are written blind as if the nuclear issue in Korea has no history. For essential historical background, see Ha Young Sun, *Nuclear Proliferation, World Order and Korea*, Seoul National University Press, Seoul, 1983; Nam Joo-Hong, *America's Military Commitment to South Korea*, Cambridge University Press, New York, 1986, pp. 87-106; and P. Hayes, *Pacific Powderkeg, American Nuclear Dilemmas in Korea*, Free Press, New York, 1990; Han-ul Press, Seoul, 1991.
- 4 Cited in J. Mann, 'U.S. Weighing Deal to End A-Arms in South Korea', *Los Angeles Times*, 9 June 1991.
- 5 Examples of types of information listed in the same order as in the text: official testimony of Richard Solomon, Assistant Secretary of State, 6 March 1991; SPOT *The Daily Yomiuri*, 'First Picture Shows North Korea N-Plant', 9 February 1990; A. Mack, 'It's Time to Cut a Nuclear Deal with North Korea', *International Herald Tribune*, 14 August 1991; J. Bermudez, 'North Korea's Nuclear Programme', *Jane's Intelligence Review*, September 1991, pp. 404-11.
- 6 Kim Chol Ki, Director of the Science and Technology Bureau of the DPRK Ministry of Atomic Energy Industry, told me on 4 October 1991 in Pyongyang that numerous facilities are operated at Yongbyon including recently established institutes for nuclear physics, radioactive chemistry, nuclear electronics, and fundamental physics. Also at Yongbyon, according to Ki, are a plant for making instruments for scientific experiments and companies that design equipment and supply materials to the institutes among many other fundamental and applied nuclear research activities conducted at the site. He also mentioned a pilot uranium U₃O₈ plant at Yongbyon which is consistent with a large reservoir.
- 7 See Nuclear Assurance Corporation, *Nuclear Materials and Fuel Cycle Services, Sources, Inventories and Stockpiles*, vol. 2, report to US Arms Control and Disarmament Agency, AC9NC105, September 1979, p. V-34. The SPOT photos were supplied by Toshibaumi Sakata at the Tokai University Research and Information Center. TRIC's staff kindly analysed on-screen the digital data for me in October 1991, providing the basis for my conclusions given in the text.
- 8 As admitted by Pak Jae Son, head of the Institute of World Politics and Peace of the Institute of International Affairs, 1 October 1991, Pyongyang in an interview with the author; and argued by Song Young Sun, 'The Korean Nuclear Issue', *Working Paper* 1991/10, Department of International Relations, Australian National University, Canberra, November 1991, p. 5.

One reviewer has suggested that a fifth and the most single important reason for the North Korean state to have set out to obtain nuclear weapons was to increase its domestic

legitimacy via the great power status associated with nuclear capability. However, the importance (and even existence) of public opinion remains contentious among DPRK-watchers. In my view, it is currently only a secondary consideration because the elite in Pyongyang are quite confident about its ability to remain in control in the short to medium term. But the domestic legitimacy factor could increasingly motivate North Korean efforts to obtain the bomb in the future.

- 9 'Yon's speech on denuclearisation of Korean Peninsula', *Korea Herald*, 24 October 1991; in mid-December, the North reiterated that it would implement the safeguards accord only after it gets firm assurance that US nuclear weapons have been withdrawn by inspections. S. Weisman, 'North Korea Chief Denies Atom Plans, Confers on Arms Issue With Solarz, Who is Skeptical', *New York Times*, 20 December 1991; in late December, this changed to acceptance of safeguards and agreement to forego reprocessing and enrichment despite the lack of prior inspection of US nuclear weapons sites in the South. 'N Korea promises to scrap nuclear reprocessing facilities', *The Age* (Melbourne), 27 December 1991, p. 7.
- 10 Announced in Bush's global withdrawal policy; A. Rosenthal, 'U.S. to Give Up Short-Range Nuclear Arms, Bush Seeks Soviet Cuts and Further Talks', *New York Times*, 28 September 1991, p. 1; prefigured in August US-South Korean talks, see D. Oberdorfer, 'U.S., Seoul Seek to Update Policy Toward North Korea', *Washington Post*, 8 August 1991. The Bush speech was ambiguous as to whether nuclear gravity bombs would be withdrawn as well as artillery shells and any Lance warheads that were in Korea. The policy of complete withdrawal from Korea was not settled until 12 October 1991. After the Bush statement, the Administration in Washington waited for signals as to how Seoul responded to the US' hints in the weeks before the Bush speech that the US might withdraw all its nuclear weapons from Korea. The early private and public signs were positive in Seoul. Pro-nuclear forces in Washington tried to derail the policy by leaking to the media that not all nuclear weapons would be withdrawn—headline news in Seoul. D. Oberdorfer, 'Airborne U.S. A-Arms To Stay in South Korea, Ground-Launched Weapons to Be Removed', *Washington Post*, 12 October 1991, p. A.20. Six days later, the policy of complete withdrawal was locked in and leaked promptly to Oberdorfer who retracted (without so admitting) his earlier story in 'U.S. Decides to Withdraw A-Weapons From S. Korea', *Washington Post*, 19 October 1991 pp. 1, A.19.
- 11 D. Sanger, 'Cheney, in Korea, Orders Halt to U.S. Pullout', *New York Times*, 22 November 1991, p. A7.
- 12 L. Niksch, *North Korea's Nuclear Weapons Program*, Congressional Research Service Issue Brief IB91141, 18 November 1991, Washington DC, p. 1.
- 13 J. Mann, 'U.S. Weighing Deal to End A-Arms in South Korea', *Los Angeles Times*, 9 June 1991.
- 14 'Roh declares nuclear-free South Korea', *Korea Herald*, 9 November 1991, p. 1.
- 15 Shim Jae Hoon, 'Peace Fever: Nuclear issue shelved in first North-South reconciliation pact', *Far Eastern Economic Review*, 26 December 1991, p. 8.
- 16 From the vitriolic North: 'The Roh group [South Korea] ... is none other than a servant drawing the United States nuclear war chariot [and] is not entitled to talk about "nuclear negotiations" with the north'. KCNA, 'Pyongyang Denounces Roh's Nuke-Free Declaration', *The People's Korea* (Tokyo), 16 November 1991, p. 1. From the more measured South: 'Your side must discontinue nuclear weapons development and unconditionally accept international nuclear inspections. I make it clear that until then, none of your proposals can be accepted at their face value'. 'S,N agree to adopt single pact on nonaggression, exchanges', *Korea Herald*, 24 October 1991.
- 17 'North, South move closer', *Honolulu Advertiser*, 19 February 1992, p. D1; 'Goodwill turns nasty', *Honolulu Advertiser*, 20 February 1992, p. D1.
- 18 South Korea's Defence Minister Lee Jong-koo was first to raise the possibility of military attack on the North's nuclear sites on 12 April 1991; *Australian Financial Review*, 17 April 1991. The Minister reiterated his sentiments on 27 September 1991, just before the Bush speech announcing withdrawal.

- 19 Interview, Pyongyang, 4 October 1991.
- 20 J. Richelson, *American Espionage and the Soviet Target*, Morrow, New York, 1987, p. 120.
- 21 US National Council on Radiation Protection and Measurements, *Krypton 85 in the Atmosphere*, Washington DC, 1975.
- 22 North Korean retaliatory nuclear attack is another matter and deserves more analysis in the context of residual US nuclear threat to North Korea from offshore nuclear capabilities or from possible reintroduction into the South.
- 23 B. Ramberg, *Destruction of Nuclear Energy Facilities in War, the Problem and the Implications*, Lexington Books, Massachusetts, 1980, pp. 30-54, 90-1.
- 24 'NK May Face Int'l Action Unless N-Program Stops, Roh Returns Home', *Korea Times*, 1 October 1991.
- 25 *Yonhap* (Seoul radio), 'DPRK Signing of Safeguards Accord Viewed', 31 January 1992; in FBIS-EAS-92-021, 31 January 1992, p.28.
- 26 I am grateful to Leonard Spector for alerting me to this fact. Personal communication, 13 November 1991.
- 27 Some analysts believe that a state that is party to a safeguards clause must agree to proposed special inspections. However, a legalistic (if not a practical) reading of the relevant articles shows that the Boards of Governors can overrule any objections to IAEA-proposed special inspections by a recalcitrant state. The sections of the IAEA safeguards agreement that pertain to special inspections are excerpted in Appendix 1. In February 1992, the IAEA Board of Governors reiterated the agency's right to conduct special inspections.
- 28 Senior Korean Workers' Party official Kim Yong Sun first proposed this mutual inspection of military sites in an interview with the author on 11 November 1991. See P. Hayes, 'Reciprocal Nuclear Inspections, A Fair Solution?', *Sisa Journal* (Seoul), 21 November 1991, pp. 8-9.
- 29 *Ibid.*
- 30 R. Crabb, 'Pyongyang Offers Nuclear Checks Once US Arms Start to Leave', Reuters wire story, 26 November 1991.
- 31 Shim Jae Hoon, 'Unity of Purpose, Nuclear Deal paves the way to peace', *Far Eastern Economic Review*, 9 January 1992, p. 10.
- 32 Shim Jae Hoon, 'Encourage team spirit, US and Seoul Call off Exercises', *Far Eastern Economic Review*, 16 January 1992, p. 13.
- 33 Agence France Presse, 'Seoul, Pyongyang exchange signed texts of non-nuclear accord', wire story, 21 January 1992.
- 34 Author's telephone conversation with senior DPRK official, Pyongyang, 23 January 1992.
- 35 Evidently more sites than the two airfields named in December will be covered although there is disagreement on this point too, the North claiming it covers all US sites in the South, and the South aiming to delimit the inspections to a few sites.
- 36 'North and South Discuss Form of N-Control Committee', *The People's Korea*, 7 March 1992, p. 7.
- 37 As reported on New Zealand radio on 31 January 1991.
- 38 On Europe and hybrid inspection arrangements with the IAEA, see L. Scheinman and I. Gverdzteli, 'Verifying a Production Cutoff for Nuclear Explosive Material: Strategies for Verification and the Role of the IAEA', in F. Calogero (ed.), *Verification, Monitoring Disarmament*, Westview Press, Boulder, Colorado, 1991, pp. 67-94.
- 39 See Institute for Foreign Affairs and National Security, *Arms Control on the Korean Peninsula, What Lesson Can We Learn From European Experiences?*, Ministry of Foreign Affairs, Seoul, 1990.
- 40 For full accounts of these policy currents in East Asia, see F. Schurmann, *The Logic of World Power*, Pantheon Books, New York, 1974; J. Sanders, *Peddlers of Crisis*, Pluto Press,

- London, 1983; B. Cumings, *Child of Conflict*, University of Washington Press, Seattle, 1983.
- 41 A. Foster Carter, 'Making Sense of North Korea: The Usefulness of Habermas'; J. Cotton, 'Political Culture and Civil Society in the Evolution of North Korea'; Byung Chung Kok, 'Political Succession in North Korea, Problems and Prospects'. All three papers cited were to the 1st International Conference of the Research Institute for National Unification, Seoul, 28 October 1991.
 - 42 On the Zirconium report see 'Commerce Imposes \$800,000 Fine on a West German Firm for Alleged Illegal Re-Exports', *US Department of Commerce News*, Washington DC, 28 March 1990; on the uranium report see M. Hibbs, 'Agencies Trace Some Iraqi URENCO Know-How to Pakistan Re-Export', *Nucleonics Week*, vol. 32, no. 48, 28 November 1991, pp. 1, 7, 8.
 - 43 'Pyongyang to Ratify IAEA's Inspection in April: Official', *The People's Korea*, 7 March 1992, p. 1.
 - 44 'US Talks on Korean Nuclear Arms Issue', *Far Eastern Economic Review*, 30 January 1992, p. 12, reported that Japan is considering such reparations after North Korea signs the nuclear accord, reversing Japan's claim that it owes no damages for World War II damages because Korea was a Japanese colony at the time.
 - 45 South Korean companies are already exporting directly to the North. 'South Korea Exporting to North Using True Country of Origin', *Korea Economic Weekly*, 7 October 1991, p. 2. Observers in Seoul estimate that the South has sent about \$100 million in covert economic aid to the North in the last year.
 - 46 Except that it would require signatories to not fire nuclear weapons *out of* the zone as well as banning them from firing them *into* the zone. The SPNFZ addresses only the latter concern.
 - 47 The Soviet proposal to supply a reactor as a quid pro quo for North Korea's accession to the NPT is now dead. As North Korea will have to pay hard currency for a Russian plant, it will seek the best available international deal when—and if—it orders a nuclear power plant. North Korean Ministry of Atomic Energy Industry Development officials told me on 4 October 1991 that they still intend to build a nuclear power plant. This plant would be built on the eastern coast and should not be confused with the small, graphite-cooled reactor which is the subject of contention at Yongbyon.
 - 48 M. Valencia, 'Economic Cooperation in Northeast Asia: The Proposed Tumen River Scheme', *Pacific Review*, vol. 4, no. 3, 1991, pp. 263-71; L. Kaye, 'Hinterland of Hope, Regional powers have ambitious plans for Tumen delta', *Far Eastern Economic Review*, 16 January 1992, pp. 16-17.
 - 49 'N-S Nuclear Power Plants in DMZ Promoted', 29 January 1992, p. 1; in FBIS-EAS-92-019, *Korea Times* (Seoul), 29 January 1992, p. 40.
 - 50 A report to the US Arms Control and Disarmament Agency recognised that the importance of this positive impact on China of a Korean Nuclear-free Zone as long ago as 1972. See P. Colm et al., *The Reduction of Tension in Korea*, vol. 1, ACDA IR-222, Institute of Defense Analyses, Arlington, Virginia, 1972, p. 114; declassified under a US Freedom of Information Act request.
 - 51 The apparent lack of Congressional support for this position and corrosion of US interests in the western Pacific is reminiscent of the post-1975 period leading into the Carter period. However, the politically popular isolationists collided with deeply entrenched bureaucratic and military interests that first stalled and later overturned the Carter policy in the region. US military power and political paramountcy in the region is far greater today than it was in 1975. For these reasons, it is likely to remain militarily forward deployed for the foreseeable future although it will also redefine its relationship with Japan. The North Korean nuclear threat will be important in this US-Japanese dynamic, a fact that it is relying on in its own diplomacy.
 - 52 I am grateful to Tim Dunk, National Korean Studies Centre, Melbourne, for this point. On Pakistan, see J. Scarlott, 'Nuclear Proliferation after the Cold War', *World Policy Journal*, vol. 8, no. 4, Fall 1991, p. 694.