

Nuclear North Korea: Old Worries, New Challenges

Wade L. Huntley

*Director
Simons Centre for Disarmament and
Non-Proliferation Research
Liu Institute for Global Issues*

*Presentation to the Science and Technology
Committee
NATO Parliamentary Assembly
Quebec City*



THE UNIVERSITY OF
BRITISH COLUMBIA

6476 NW MARINE DRIVE
VANCOUVER BC
CANADA V6T 1Z2

www.ligi.ubc.ca

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The Nuclear Test

North Korea's nuclear program

North Korea's nuclear aspirations have been problematic since it first joined the NPT in 1985.

North Korea has been accumulating plutonium since 1986, principally utilizing its 5 megawatt-electric reactor at the Yongbyon nuclear site, and its nearby plutonium separation plant.

North Korea is thought to have separated up to 10 kilograms of plutonium prior to 1992, most of which would have been produced in the 5 MWe reactor and discharged from it in a seventy-day period in 1989.

The country is known to have discharged the reactor's core in 1994, as this was witnessed by the International Atomic Energy Agency (IAEA). The almost 8,000 irradiated fuel rods contained an estimated 27-29 kg of plutonium.

This action helped escalate confrontation over the inability of the IAEA to reconcile evidence of past North Korean activities with its NPT obligations. This crisis culminated in the 1994 US-North Korea Agreed Framework. Under this agreement, North Korea shut down the Yongbyon nuclear and its nearby plutonium separation plant, and stored the fuel rods in sealed canisters monitored by the IAEA.

The Agreed Framework did successfully freeze North Korea's plutonium-based nuclear program, but it never succeeded in resolving discrepancies of past North Korean activities or in removing known spent fuel from the country as ultimately intended. Hence, North Korea was able to restart this program when, in October 2002, charges that the country was undertaking a second, uranium-based nuclear effort led to the collapse of the Agreed Framework and to North Korea's withdrawal from the NPT and ejection of the IAEA.

In 2003 North Korea restarted the Yongbyon reactor and began reprocessing the plutonium stored at the Yongbyon site. North Korea is now believed to have reprocessed most of the 8,000 fuel rods, yielding between 20 and 28 kg of weapons-usable plutonium.

In April 2005 North Korea again shut down the Yongbyon reactor to collect a new supply of spent fuel; by mid-2006, North Korea could have finished reprocessing all this fuel, providing up to 15 kilograms more of weapons-usable plutonium.

The number of nuclear weapons this stock could produce depends on the amount used for each device, which depends on the desired yield of the explosion and the technological competence to use the material efficiently.

If North Korea is assumed to have only low technological capability, equivalent to the US at the creation of its first nuclear weapons, and further assumed to be developing a relatively larger number of lower-yield devices, its current stock of separated plutonium is enough for about 4 to 13 weapons.

Plutonium Reprocessing

Plutonium Produced		Plutonium Reprocessed	
When	Amount (kg)	When	Amount (kg)
Before 1990	1-10	1989-1992	0-10
1994	27-29	2003-2004	20-28
Spring 2005	0-15	2005-2006	0-15
Now in 5 MWe reactor	5-7	---	---
Total	43-61		20-53

Nuclear Devices (low tech requirements)

Desired Yield (kilotons)	1	5	10	20
Required Plutonium (kilograms)	3	4	5	6
Maximum NK Nuclear Devices	5-17	4-13	3-10	2-8

Parameters of the 9 October 2006 Nuclear Test

On 9 October 2006, when North Korea tested its first nuclear device, it gave China about 20 minutes warning of the test, and reportedly indicated the yield would be about four kilotons. While this is small by historical “first test” standards, it is consistent with estimates of the likely size of the devices North Korea would fashion.

But preliminary estimates of the explosion's actual yield from seismic monitoring ranged from 0.5 to 0.8 kilotons, suggesting that the test was not entirely successful – a fizzle. Speculation that it was not a nuclear test at all was never well grounded – why simulate a failure? Subsequently, air samples collected a few days later detected radioactive debris, confirming the explosion was nuclear.

A more likely explanation for the low yield is that North Korean technicians did not achieve the precise timing needed for triggering the implosion-type design required for plutonium detonation.

More alarmingly, though, it is possible North Korea successfully tested a refined low-yield missile warhead.

Parameters of the Test

Attempted Yield (purported)	4 kilotons
Plutonium Utilized (est.)	4 kg (~8-20%)
Actual Yield (est.)	<1 kiloton

Previous First Tests (Plutonium)

<i>Country</i>	<i>Date</i>	<i>Yield (kt)</i>
U.S.	July 16, 1945	21
USSR	Aug. 29, 1949	22
Britain	Oct. 3, 1952	25
France	Feb. 13, 1960	60
India	May 11, 1998	12

Imminent Consequences

The collapse of the Agreed Framework in 2002 was a watershed. Many analysts, whether supporting greater confrontation or greater engagement, fail to recognize that the status quo has shifted fundamentally.

From 1994 to 2002, North Korea's plutonium-based nuclear program was contained. By most public accounts, the suspected uranium-based program was (and remains) not nearly as close to producing usable fissile material.

Since 2003 there have existed no direct restraints on North Korea's nuclear ambitions. *This was the moment the critical threshold was crossed. Since 2003, all of the implications of a nuclear North Korea have been at hand.*

Nuclear Proliferation

A major concern is that North Korea's reinvigorated nuclear program gives it the potential to export fissile materials, nuclear weapons development technologies and expertise, or even completed operational weapons.

This is the consequence of a nuclear North Korea that many in the world take most seriously. The Bush Administration has long emphasized this concern; it is perhaps the administration's most genuine "red line," and a central impetus for its launching the Proliferation Security Initiative (PSI).

Nuclear transfers is a very real concern, especially given North Korea's history of using its military resources & other illicit activities as revenue streams. But lacking an ideological motivation to proliferate, the regime will probably take credible warnings seriously.

Northeast Asian Regional Security

In the Northeast Asia region, a steadily (if slowly) growing arsenal of nuclear weapons in North Korea will aggravate tensions and uncertainties. Most gravely, North Korea's actions could trigger a nuclear acquisition "domino effect."

Some worry particularly that North Korea might spur Japan to obtain nuclear weapons of its own. But Japan may be less prone to soon pursue nuclear weapons than it appears, and is unlikely to make such a decision so long as US security guarantees are credible. The same goes for South Korea & Taiwan. So the North Korean nuclear test is not necessarily going to topple other East Asian proliferation dominos.

More broadly, though, this fear increases regional security tensions and uncertainties. So the implications are high. But, perversely, North Korea's actions bolster support for regional security postures which often have wider purposes. Missile defense cooperation between the United States and Japan is one example. This is why expressions of concern for this dimension from some corners have been a bit ambivalent.

Nuclear Nonproliferation Regime

North Korea is the first state ever to withdraw from the NPT. North Korea has also released itself from the 1992 agreement with South Korea to keep the Korean peninsula nuclear free.

If North Korea remains outside the NPT and suffers no serious consequences, the precedent will erode current NPT compliance norms. But making a "special deal" to gain North Korea's re-accession to the NPT would also set a precedent inducing other NPT parties to bend the rules. Hence, there are no good options to mitigate the impact of North Korea's NPT withdrawal.

The Bush Administration rarely expresses worries over potential impacts of North Korea's NPT withdrawal on the viability of the treaty or the health of the nonproliferation regime more broadly. Instead, it has supported a growing body of critics charging that developments in North Korea and Iran signify the failure of the NPT regime itself.

This is not the case: the NPT regime remains highly effective in most of the world. The NPT did not prevent North Korea (and several other countries) from developing nuclear weapons, but it remains one of our strongest tools to contain these ambitions. Dismissing this vital ongoing role will only make matters worse.

Conclusion

In short, North Korea's nuclear test hasn't created huge new worries. The test has re-emphasized the urgency of the big worries we've already been living with.

North Korean Motivations

To react wisely to these developments, we must understand North Korean motivations as best we can. What are the sources of North Korea's nuclear ambitions? There are no pat answers. I will focus on three particular topics and then describe an approach to managing this problem.

Regime Survival

Virtually all analysts conclude that at some foundational level the Pyongyang regime is motivated by "regime survival." But there's ambiguity in what this means exactly; and this impulse is not alone fully determinative of the regime's postures.

Petulance v. Coercive Diplomacy

What is almost certainly the case is that the nuclear test, just like the July missile test and the long list of other North Korean provocations, is not merely an effort to "get attention" from the United States. Such explanations imply an understanding of Kim Jong-il as a spoiled adolescent in need of a good spanking – an image reinforced by media attention to the Dear Leader's reportedly salacious lifestyle.

In fact, North Korea's provocative actions probably flow from a calculated strategy of coercive diplomacy. This strategy anticipates positive effects beyond the short-term rise in tensions and animosity such actions elicit. This strategy has met with success in the past. The renewed positive negotiating environment with the United States following its 1998 missile test, leading to Secretary of State Madeleine Albright's visit to Pyongyang two years later, is one example.

Nuclear Capability v. Bargaining Chip?

The nuclear test, and the July missile tests, may or may not have been aimed at eliciting renewed negotiation progress. This begs the most basic question regarding Pyongyang's motivations: is the regime prepared to reach an agreement entailing surrender of its nuclear capability, or not?

Engagement advocates tend to answer "yes;" North Korean belligerence is mainly maneuvering for bargaining position.

Confrontation advocates usually answer "no;" North Korean accommodation is merely a tactic to assuage neighbors and buy time.

There have always been several problems with both positions.

- Most fundamentally, the choice is too simple. In fact, it may be the case that North Korea’s leadership has not made up its mind. A lot may depend on not only the terms of the deal, but the contextual situation at the time.
- Moreover, the Pyongyang regime, although highly centralized and monolithic, has its internal factions and divided interests which will bear on Kim Jong Il’s decision-making.
- Finally, there is the problem of uncertainty: given the opacity of the regime, any single assumption about North Korean motivations may be wrong. I’ve sought to meet this problem of uncertainty by instead viewing the regime simultaneously through alternative “profiles.”

North Korean Profiles

To illustrate this approach, I’ve put together three simple profiles. Each profile is an imagined combination of the many factors that may influence North Korean decision-making.

North Korea Profiles

Profile	Key Factors	Expectations
Domestic Factions	<ul style="list-style-type: none"> ■ Economy ■ Regime survival ■ Juche (contested) ■ Military role 	<ul style="list-style-type: none"> ■ Confidence building opaque, harder ■ New deal elusive; internal factors strong
National Unity	<ul style="list-style-type: none"> ■ Leadership ■ History ■ Juche (unity) ■ Regime survival 	<ul style="list-style-type: none"> ■ Confidence building plausible & key ■ New deal feasible but difficult
Regime Power	<ul style="list-style-type: none"> ■ Regime survival ■ International imperatives ■ Economy ■ Leadership 	<ul style="list-style-type: none"> ■ Confidence building is easier ■ New deal more likely; sensitive to international context

Domestic Factions: emphasizes internal characteristics, both economic and political.

National Unity: emphasizes ideational drivers, like ideology and nationalism.

Regime Power: emphasizes power capabilities and external relations.

No single profile is “right.” The point is not to choose among them. There are elements of the actual regime in each profile; reality combines elements of all of them. The point is to try to overcome uncertainty by imagining all of them, and ideally to find points of convergence among their implications.

These profiles can be applied to developing policy responses.

Policy Responses

In considering policy responses North Korea's nuclear test, the principal elements are the reactions of the United States and China, how these converged in the UN Security Council Resolution 1718, and what this episode tells us about the context for policy-making.

US

The US reaction to the test was relatively predictable and probably prepared in advance. While emphasizing the need for a diplomatic solution and calling for a return by North Korea to the Six Party Talks, the Bush Administration also pushed strongly for new tighter sanctions and for creation of an "inspections cordon" to try to seal North Korean exports of nuclear materials and other military resources.

China

China's reaction was a more open question. China shares the goal of a non-nuclear North Korea, for many reasons.

Also, China has invested significant prestige in the Six-Party Talks process and has been visibly perturbed not only by North Korea's actions but by its manner of undertaking them. China termed the test "brazen" – a term usually reserved for adversaries.

But China's interests in Korea are broader than nuclear issue. China experienced a massive refugee influx during North Korea's famine in the mid-1990s and so is particularly sensitive to the wider economic and political stability of the country. From Beijing's perspective, a collapse of governance would mean certain chaos on its border and a host of uncertainties as to outcomes.

In addition, China's broader regional interests induce unwillingness to follow all US policy preferences. Beijing has many reasons not to simply do Washington's bidding, not least of which is that what political leverage it has in Pyongyang would be undermined.

Thus, as much as Pyongyang's provocations push Beijing to a harder line, confrontational reactions from Washington exert an opposite pressure.

UNSC Resolution

UN Security Council Resolution 1718 is perhaps the strongest UN action against North Korea since the outbreak of the Korean War in 1950, but also reflected these US-China differences.

The resolution calls for North Korea to "abandon all nuclear weapons and existing nuclear programmes in a complete, verifiable and irreversible manner." It directs member states to "prevent the direct or indirect supply, sale or transfer" to North Korea of a wide range of military and non-military goods.

Unlike in the aftermath of North Korea's July missile tests, China acceded to invocation of Chapter VII of the UN Charter, denoting North Korea's actions as a threat to global peace. However, China insisted that this invocation refer to Article 41, not Article 42, thereby specifically ruling out the use of armed force.

Moreover, immediately following the passage of the resolution, the statement by China's UN Ambassador Wang Guangya qualified China's acceptance of the inspections cordon.

There are indications of Chinese tightening of its treatment of North Korea, including reports that Chinese authorities have begun to inspect truck cargo over the Yalu River to and from North Korea. But how long this lasts will depend not only on North Korea's reactions, but on the evolution of US policy.

Policy Context: Past US Approaches

Despite the escalation of the nuclear crisis, most debate about North Korea policy remains defined by the same dichotomy mentioned earlier: *engagement* versus *confrontation*.

However, since the early 1990s, North Korea has shown that it neither dependably reciprocates accommodation, as engagement advocates hope, nor routinely cowers to intimidation, as confrontation advocates expect.

Rather, North Korea's most consistent behavior has been to exercise coercive diplomacy to provoke action.

Thus, policy success has actually been more a function of prioritizing *interaction* over *neglect*.

The distinction between engagement and interaction in this context is important.

- Engagement means adopting certain assumptions about Pyongyang's willingness to reach deals and work to solve its internal crises through reform.
- Interaction means that Korean peninsula issues stay at the forefront of attention and lines of communication remain open even during periods of heightened tension.

This factor was a driving dynamic in the ebb and flow of post-1994 US-North Korean relations, often undermining the Clinton administration's overarching engagement intentions.

Crises quickly increased interaction, and gradually engagement; but when the crisis abated, policy would slip toward neglect and ambivalence, due to Republican pressure and competing priorities.

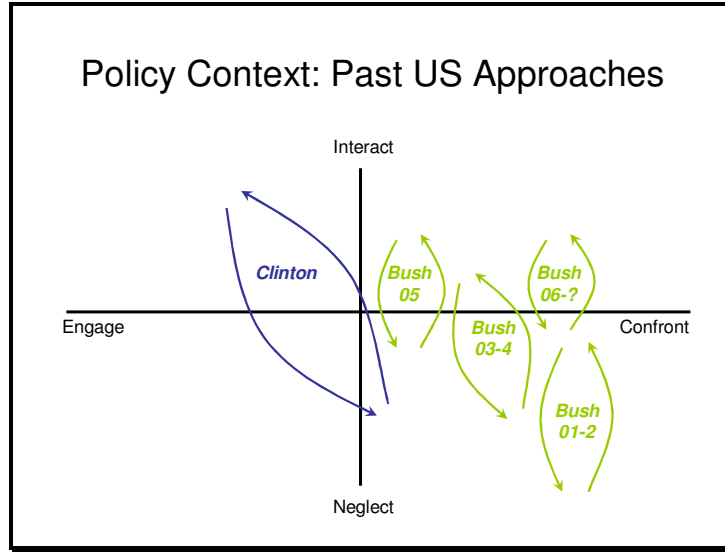
In its first two years, the Bush administration was markedly more confrontational, but also more neglectful –precipitating Pyongyang's subsequent provocations.

Following the collapse of the Agreed Framework, the Bush Administration became marginally both more interactive and more engaged. However, this movement was fitful and tactical, bedeviled by internal divisions and overshadowed by the war in Iraq.

Personnel changes at the beginning of President Bush's second term elicited more genuine engagement. Confrontational rhetoric notably abated, and real progress at the Six Party Talks was sought. The result was the September 2005 Statement of Principles.

However, when the Statement of Principles fell apart within hours, the administration's hardline factions reasserted control of North Korea policy. The administration has remained seized of the issue, pressing North Korea to remain in multilateral negotiations. But its orientation has become again more confrontational, seeking to marshal a "united front" among the other negotiating participants and looking mainly to contain the problem in the hope that the Pyongyang regime will collapse sooner rather than later.

These policy trajectories can be mapped onto the two-dimensional space created by the two axes of *engagement v. confrontation* and *interaction v. neglect* to show how US policy has evolved over this time period.



Policy Context: North Korean Profiles

The North Korea profiles offer a more nuanced approach than static assumptions for making choices along these two policy dimensions.

In the **Domestic Factions** profile, engaged interaction is commended, but not strongly. This is the profile in which North Korea is least responsive to outside forces, and in which too heavy a hand could create problems of its own.

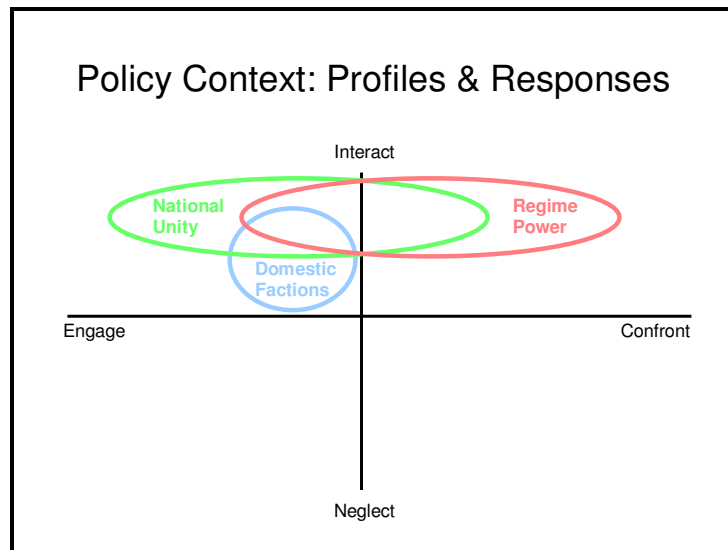
In the **National Unity** profile, interaction is highly commended, and would best include a mix of engagement and confrontation. This is the profile under which US hostility most serves to positively reinforce the regime. Thus, a relative emphasis on engagement is both less costly and more effective from the US point of view.

In the **Regime Power** profile, interaction is highly commended, and again would best include a mix of engagement and confrontation. But a balance tilting more toward confrontation is probably advisable: this is the profile under which the regime is playing hardball diplomacy, and is probably most sensitive to credible threats.

	Engagement v. Confrontation	Interaction v. Neglect
Domestic Factions	←	↑
National Unity	←→	↑
Regime Power	←→	↑

Policy Context: Profiles and Responses

The policy implications of these profiles can be mapped onto the policy axes (of *engagement v. confrontation* and *interaction v. neglect*) to show the areas of most likely policy success.



Several *overarching policy implications* emerge:

First, we notice the space where all three policy profiles overlap. This is probably the orientation which, over the long-run, will be most successful.

Second, we notice that a combination of engagement and confrontation – “carrots and sticks” – is appropriate; but also that sustained interaction is imperative.

Finally, though, because factors fluctuate in influence on Pyongyang’s decision-making, policy must embody flexibility in this consistency. At any given time, the most effective policy could be anywhere in these three spaces.

Looking at the *profiles individually*, a few other observations emerge.

First, prospects for “good” outcomes not correlated with regime solidarity. The Regime Power profile offers the best prospects, but here the regime is only moderately stable, at the midpoint between the other two profiles.

Second, ironically, the profile under which “good” outcomes are most imaginable – Regime Power – is also the profile under which a tilt toward confrontation is advised.

The implication here is that the US should be more accommodating when North Korea appears to be least responsive to it, but firmer when North Korea seems more ready to reach an accord.

This is a very counterintuitive observation – almost the opposite of tit-for-tat!

But there is an underlying logic: one should be cautious in the face of volatility, but once at the negotiating table one bargains hard.

This in fact somewhat reflects the North Korean diplomatic approach of the past decade.

Long-term Prospects

Restraint v. Rollback

As observed earlier, the collapse of the Agreed Framework at the end of 2002 marked the critical threshold past which North Korea was decidedly on the road to becoming nuclear armed. The regime's subsequent declaration that it *has* nuclear weapons, its declaration that it *requires* nuclear weapons for its security, and now its nuclear test all evince how far it has now moved down that road.

Achieving a non-nuclear Korean peninsula now requires rolling back an existing capacity; many prior strategies to curtail North Korea's nuclear weapons development are not up to this qualitatively greater challenge. Use of force is less feasible than ever. But 1990s-style engagement is also no longer sufficient.

Although North Korea still has very far to go before it is a full-fledged nuclear power, no country has ever given up a publicly demonstrated nuclear weapons capability. The only two cases of nuclear rollback – South Africa and the former Soviet republics – involved governments that had not embraced nuclear weapons in their security policies. And, both rollbacks were triggered by dramatic regime change.

The Imperative of Regional Cooperative Security

The goal of rolling back North Korea's nuclear weapons acquisition should not be surrendered. But, given the daunting obstacles, the international community should also be taking measures to prevent a nuclear North Korea from fuelling nuclear proliferation elsewhere so far as possible.

Both these goals point to building better cooperation among key interested parties. Such efforts should be aimed not merely at eliciting unity in responding to Korean actions but also at building an environment of cooperative security throughout the Northeast Asian region.

In this context, the promise at the backdrop of the Six Party Talks – to negotiate a permanent peace regime on the Korean Peninsula – should move to the forefront. The Six Party Talks are occasionally considered a potential precursor to a wider East Asian cooperative security regime. Now, however, the prioritization is reversing. Progress in building broader cooperative mechanisms has become a prerequisite, not merely a hopeful consequence, of peaceful achievement of a non-nuclear Korean peninsula.

Near-term Prospects

At present, none of the parties to the current negotiations, least of all North Korea and the US, appear ready to act decisively to expand the scope and stakes of the process in this manner.

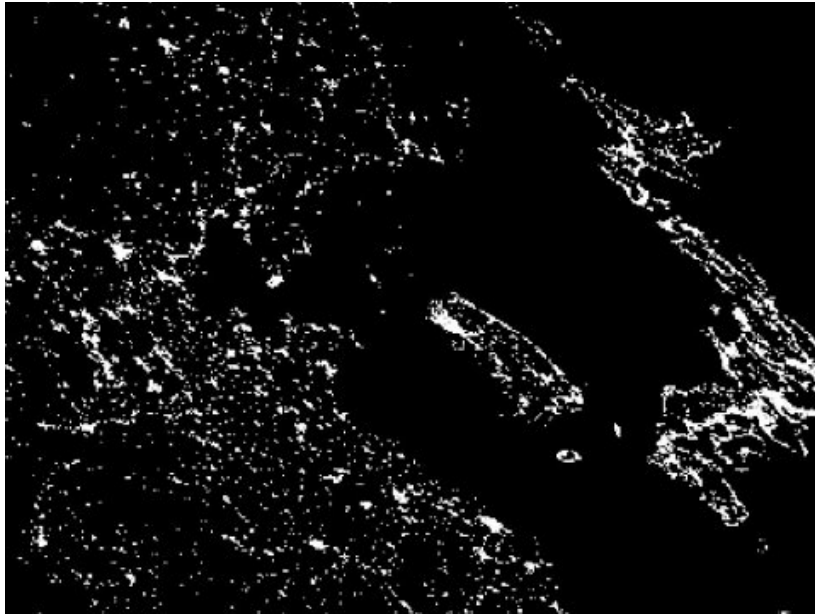
This needn't mean no progress can be made. Other states, such as the NATO members, can play several useful roles:

- Push for better cohesion among the principals, especially between the United States and China, by emphasizing both the impracticality of 'regime change' and the need for an active role for the UN Security Council.
- Help enhance the effectiveness and legitimacy of PSI and other proliferation control measures by seeking to link them more directly to established NPT compliance mechanisms, which could serve to bolster that regime as well.
- Support formal negotiations by utilizing existing diplomatic links to North Korea to sustain "back channels" of informal communication. If carefully managed and coordinated, such

diplomacy could serve to convey unity rather than divergence between the United States and other key interested parties.

- Work to promote the emergence of a viable East Asian regional security framework. European partners in particular can offer models for regional security collaboration resonating traditions of building international society, helping bridge certain Anglo-American and Asian predilections.

Conclusion



The image above is Northeast Asia at night. One readily recognizes the contours of Japan on the right. The mass of lights on the left are the populated eastern coast of China. But the island of lights in the middle is not an island – that is South Korea. Then one notices what’s missing.

This image graphically depicts North Korea’s energy crisis. But the image even more powerfully conveys how North Korea, quite literally, is missing from the world.

Pyongyang’s nuclear ambitions are a dire international security threat. But the desperate conditions of North Korea’s political culture, economy and society constitute as grave a human security crisis as we face anywhere in the world. In the globalizing world of the early twenty-first century, these are challenges for all of us.

The Bush Administration is right to see a link between North Korea’s nuclear ambitions and the character of Pyongyang’s regime. But this linkage does not automatically make seeking (or passively hoping for) regime change a basis for policy. Liberalization within states is rarely achieved through means that widen the divides between states. Neither a peaceful nonproliferation solution in Korea nor peaceful liberalization of the Pyongyang regime can be promoted through confrontation. Progress requires not only sustained “interaction” with North Korea itself, but also engagement of the complex political, economic and social tensions coursing throughout Northeast Asia, and the systemic dynamics of global nuclear proliferation of the post-Cold War world.