

Confidence Building Measures to Support the Sunshine Policy

John Olsen

Cooperative Monitoring Center
Sandia National Laboratories¹
Albuquerque, N.M., U.S.A.

Abstract

One year after the historic North-South summit, progress continues toward reconciliation measures with a slowness that threatens the President Kim Dae-Jung's Sunshine Policy. New measures are needed that could have pragmatic economic and security benefits at low risk. Most threatening to the reconciliation program are yearly disputes in the maritime area - both right-of-passage issues and fisheries. Even without resolving the ultimate settlement of these disputes, technical measures could allow both sides to cooperate for sea-rescue and to control their respective fishing fleets to avoid incidents. Opening of direct trade and travel routes across the DMZ in two corridors also suggests cooperative management processes and cooperative security monitoring. Cooperative development of security sensors and training in aerial observation cooperation offer CBM opportunities at the corridors and in regions adjoining the DMZ. It is also appropriate to consider CBMs that might set the stage for progress toward nuclear nonproliferation goals. Thus, it may be time to revive the 1992 Denuclearization Agreement. Here also, training and planning procedures are near-term CBM activities. In addition, involving the DPRK in the Asia Pacific Nuclear Transparency Project, under the auspices of the Council for Security Cooperation in the Asia Pacific (CSCAP), has the advantage of using a broad regional cooperation to defuse potential North-South sensitivities in the nuclear area.

Introduction

At the one-year anniversary of the historic meeting of President Kim Dae-Jung and Chairman Kim Jung-Il it is appropriate to look at the progress toward North-South reconciliation and tension reduction. Some observers have done so and have made expressions of disappointment at the slow pace. Moreover, Kim Dae-Jung's Sunshine Policy has become increasingly vulnerable in the political process as the North delays scheduling the reciprocal visit of Chairman Kim to Seoul. To be fair to the North, this is partially due to the review of US policy with the new administration in Washington. Now that the review has been successfully concluded, the North and the South might search for confidence building measures to reinvigorate the North-South reconciliation. This paper examines several proposals for CBMs and highlights some that appear to be increasingly timely, given the events of the last year.

This paper reflects the approach to confidence building measures (CBMs) and regional security that has been developed at the Cooperative Monitoring Center (CMC) of Sandia National Laboratories. Over several decades the U.S. Department of Energy (DOE) laboratories, which are now under the National Nuclear Security Administration (NNSA) within the DOE, have developed many technologies to support global and East-West treaties and agreements. Therefore, the CMC looks at security and proliferation problems around the world from a technology viewpoint. Following the end of the Cold War, the CMC has studied the application of these technologies to regional and bilateral problems, such as the situation between the Republic of Korea and the Democratic Peoples' Republic of Korea.

Technology by itself is of no value without political will to solve problems and reduce conflict. The apparent difficulty in developing practical North-South measures over the last year may be an indication that the political side of the problem needs more support from the technical side. That is, the North-South process might be receptive to some pragmatic measures to break the deadlock.

This paper identifies opportunities in three major areas:

- Maritime measures - For the last few years, and again this year, maritime disputes in coastal shipping and fisheries threaten to disrupt the reconciliation prospects. Some technical measures should allow both sides to limit their exposure to accidental conflict, even while deferring negotiations to resolve conflicting claims.
- Border Monitoring and Conventional Forces - The greatest area of progress over the last year has been agreement on re-opening rail and road links across the DMZ. Despite various bi-lateral difficulties, implementation agreements are inching forward; however, some aspects might move more rapidly with the introduction of some technical support.
- Nuclear Nonproliferation - The DPRK record in compliance with the Nuclear Nonproliferation Treaty (NPT) has been a very sensitive topic since 1992. Reviving the South-North Denuclearization Agreement and eventually bringing the North into participation in a Track II, non-governmental nuclear transparency project may provide a useful path toward decreased nuclear concerns.

The measures discussed here represent potential CBMs only. They are not official statements of US or ROK policy-makers, although the author believes that they are consistent with US and ROK policy goals.

Maritime Measures

Over the past year maritime confrontations have increased the sense of tension between the North and the South, even while modest progress has been made in other areas. There are several zones of potential conflict stemming from

1. lack of agreement on the maritime boundary to the East and the West of the peninsula²
2. competition over fishing areas that both sides feel a right to control³
3. the North's claim for right of passage through the Jeju channel⁴

Both sides have protested violations and shots have been fired in fishery disputes. Clearly, this is the most volatile aspect of the North-South confrontation.

Since the maritime boundaries are unilaterally-declared vestiges of the Korean War, a long term solution will require a future North-South agreement on rights of passage. Both sides have legitimate concerns that require a fresh approach to compromise.³

Competition over fisheries will continue to be an irritant, even in the case of official agreement over rights, due to the economic pressures fishermen of both sides face. Therefore, cooperation measures regarding the fishing fleets should not wait for long-term negotiations - especially since warning shots in fishery disputes is an annual event during the June crabbing season. For example, the 1999 exchange⁶ resulted in the South sinking a 40-ton patrol boat of the North with consequent loss of at least 30 lives.

A Measure for Coastal Shipping and Fishing Fleets

Dr. Cheon Seongwhun of Korea Institute for National Unification, KINU, has pointed out CBM opportunities in coastal shipping⁷ and the fishing fleets. The tourist cruise ships to Mount Kumgang are escorted by each side's navy in their respective coastal waters. However, in case of an accident at sea, coordination of rescue efforts⁸ could be difficult, especially in a severe storm. Sandia has demonstrated a tracking system⁹ that could help both sides follow the cruise ship and acquire data on various safety-related systems. Using the commercial INMARSAT satellite system, the Hyundai Corporation in Seoul and the Committee for Peaceful Reunification of the Fatherland in Pyongyang could both have access to this information. Cooperation in setting up the sensors, purchasing the computers and training the operators would be useful steps toward confirming economic cooperation agreements and should fit within the scope of the June 2000 North-South communiqué.

Of course, the modern Hyundai cruise ships are not the most likely victims of an accident or storm, but rather the fishing fleets of the R.O.K. and the DPRK. Testing of the tracking and monitoring system on the cruise ship could provide the necessary technical experience to develop a system for the fishing fleets. A benefit beyond safety would be that both sides could control their fleets better, helping to avoid inadvertent intrusion into restricted fishing zones. It is possible that this technical application could have averted some naval skirmishes in the past years.

As commercial ships or fishing vessels are fitted with tracking equipment it would be appropriate for the North and the South to engage in a "sea rescue" exercise. This would involve military-to-military planning, exchange of communication protocols, and training of their respective crews. Even if no rescues were ever necessary, the familiarity with each other might act to restrain naval actions in more dangerous situations.

A North-South "Incidents at Sea" Agreement

Maritime CBMs are under advanced development elsewhere in the world and some useful precedents exist. For example, in 1972 the US/USSR Incidents at Seas Agreement (INCSEA) established "rules of the road", procedures for dealing with accidents, and communication protocols. It is worth noting that the INCSEA¹⁰ did not come into being until actual collisions between destroyers had occurred and aircraft "buzzings" of surface ships became notably dangerous.

Reflecting that boarding attempts, bumping, and warning shots occur annually in the disputed maritime zones, a North-South INCSEA may be worth investigating. The first CBM step might be to invite naval officers from the North and the South to briefings in the US on the INCSEA provisions and negotiating process¹¹. A more neutral environment for such a workshop might be achieved by inviting speakers from South Asia and Southeast Asia to discuss successful agreements in their respective regions. For example, India and Pakistan have a maritime boundary issue¹² not unlike that of the Koreans. Indonesia and Malaysia have a mechanism¹³ for regular rendezvous at sea and joint patrols. Speaking of these precedents could defuse North-South tensions somewhat and avoid the appearance of convening a negotiation session.

Border Monitoring and Conventional Forces

The joint communiqué of the June 13-15 summit¹⁴ specifically called for "balanced national development through economic cooperation." Subsequently, the North and South have agreed to open a rail and highway link on the western end of the DMZ. Re-opening the Munsan to Changdan rail link and adding a roadway in the same right-of-way requires removing land mines and breaching defensive barriers on both sides.¹⁵ The economic benefits are potentially quite high. For example, for freight going to Europe the South could realize reduction of transport costs to by up to 30%¹⁶ using the Trans-Siberian railroad.

Hyundai Corporation may also open a road link on the eastern end of the DMZ to facilitate tourist travel to Mt. Kumgang. If this link were developed both buses and heavy trucks would be in daily transit to keep the leading project of President Kim's Sunshine Policy operating. Hyundai, hard-pressed by economic troubles¹⁷, is counting on the new route to drastically cut the tourist venture's operating costs.

A Measure for DMZ Security Assurance

Opening passages through the DMZ runs counter to the traditional military postures of both the North and the South. Nevertheless, an agreement sets forward a process for checkpoints on either side of the Military Demarcation Line (MDL) and for a hot line between military authorities.¹⁸

Prior to the possibility of rail and road links, the CMC and the Korea Institute of Defense Analyses (KIDA) studied the potential cooperative application of sensors to monitor the

DMZ.¹⁹ That study focused on early warning of a major intrusion from either side, in which motion, magnetic and intrusion sensors could trigger video cameras. Images and sensor data would go automatically to guard stations on both sides of the DMZ. Such a monitoring system might allow both sides to avoid confrontations by means of reducing the need for foot patrols inside the DMZ.

Application of this cooperative monitoring concept to the rail and road passageway would be very practical. Having removed the land mines in the in the corridor, sensors could be placed up to the MDL itself, rather than only 2 km back at the outer boundaries of the DMZ, as in the previous proposal.

The near-term confidence building measure would be to set up a test of appropriate sensors in a fully operational system at a neutral location. Military technicians from both sides could join in designing, installing and testing the system, thereby gaining the experience to negotiate a similar application in the DMZ corridors. The CMC has proposed such a neutral test facility in Albuquerque. A unique feature of that test site will be that its initial focus may be on simulating the India-Pakistan border and thereby provide a truly neutral environment for joint North-South training.

North Korean visitors to the CMC have been quite interested in the technology; however, South-North discussions would be necessary to ensure that they understand the cooperative aspect of the suggested application.

A critical point is that a test of equipment in a neutral location like the CMC does not commit the DPRK or ROK to rely on technical measures. A test is just a way to gain operational experience that would allow both sides to explore ways that technical measures might supplement human presence at the MDL and reduce potential for accidental conflict.

A Measure for Border Customs

Simply connecting rail lines does not mean that shipments travel smoothly across the border. The border transit zones could become jammed with customs-delayed railcars, much to the frustration and financial loss of shippers. The U.S. has experimented with electronic customs forms over the Internet as a means for speeding shipments over the U.S./Mexico border. Although the U.S. and Mexico are on friendly terms, the presence of heavy trade in illegal drugs does make border crossing an ordeal for some shipments. An additional incentive for expediting cross-border shipping is the intense buildup of manufacturing units that straddle the U.S./Mexico border. As North and South Korea engage in cooperative economic construction, these motives could be equally important for the Korean peninsula. Conceivably, this facilitation could be essential in transporting food items in the Hyundai passageway to Mt. Kumgang.

In the conceptual U.S./Mexico system²⁰, customs inspectors would seal shipments at the factory of origin, placing an electronic seal on a container or a railcar. Then they would send the customs form to the border via an encrypted and authenticated Internet link.

When the shipment arrives at the border the documentation would be already on hand, the electronic seal could validate that the shipment had not been tampered with, and the inspector could pass the container or railcar without actually opening it.

Cooperation between North and the South Korea might involve adapting this computer-based system to Korean conditions. North-South teams of software specialists and customs officials might work together at the CMC to perform the necessary adaptation. This could be a useful way to confirm the intent to increase trade and also set the stage for other cooperation.

A Measure for Near-Border Aerial Observation

Due to the forward concentration of military forces on the Korean peninsula, knowledge of conventional force location and readiness is a key to achieving meaningful tension reduction. Recent US policy announcements heighten the relevance of conventional force threat perception and call for pullbacks or force reductions. Verification of tension reduction measures could be a fruitful area for cooperation.

A relatively low intrusion means for mutual threat reduction verification could be to engage in aerial observation cooperation. A useful process towards negotiating such an agreement, as previously proposed by Smithson and Cheon,²¹ might be to adapt the model of the agreement between Hungary and Romania. Thus, a first CBM could be to offer both the North and the South training in aerial observation, based on the Hungary-Romania bilateral agreement. A training CBM would pose minimal risks to either side and would provide a common understanding of the technologies and methodologies that both sides would need to have in order to contemplate meaningful negotiations.

This proposal would offer training in *Open Skies Treaty* methodology through a workshop hosted by Hungary and Romania and with supporting participation by the Defense Threat Reduction Agency (DTRA) and the Cooperative Monitoring Center (CMC) at Sandia National Laboratories²².

The basic concept is that North Korean and South Korean teams could be invited to fly as observers in a Hungary-Romania aerial observation flight. Officers from the ROK and DPRK could develop a shared understanding of how aerial observation missions are negotiated and carried out. This CBM merely provides a common technical and procedural background and does not obligate either party to further actions. However, further exploration of tension reduction measures will be far more likely as a result of a shared understanding of technology and procedures. As an initial military-military measure, this is attractive because it would take place at a neutral location with no security risk. In the long term, development of an aerial observation agreement on the Korean Peninsula could serve as an important component in a regime of North-South CBMs.

There are two advantages to proposing this training through the Hungary-Romania bilateral agreement: First, the two parties are currently engaged in flights with simple

aircraft and photographic systems. As a result, neither cost nor technical complexity should be a concern. Secondly, Hungary and Romania already have a record of extending training to other parties and proudly point to inclusion of aerial observation in the Dayton Accords for Bosnia as a concrete result.

Nuclear Nonproliferation

Perhaps no country has more to lose by instability in the nuclear nonproliferation regime than the R.O.K. With a potential adversary only a few kilometers from Seoul, and with two powerful nuclear neighbors, proliferation would tend to worsen the R.O.K.'s security position.

The R.O.K. has abided rigorously by the principles of nonproliferation. Furthermore, R.O.K. has exceeded the requirements of the *Treaty on the Nonproliferation of Nuclear Weapons (NPT)*²³ by agreeing in 1992 to not engage in enrichment and reprocessing in order to obtain a similar promise from the North²⁴. Whether the North has adhered to this bargain will not be clear for some time - not until delivery of the KEDO nuclear components occasion a renewal of IAEA inspections - but there are benefits in proceeding on the assumption that the North has not substantially violated that agreement. That is, nonproliferation and R.O.K. security are better served by reviving the cooperation provided under the 1992 agreement, rather than by discarding it.

1992 Denuclearization Agreement - A Revival?

The specific denuclearization provisions prohibit weapons themselves and the capability to process weapons material:

"The South and the North shall not test, manufacture, produce, receive, possess, store, deploy or use nuclear weapons."

"The South and the North shall not possess nuclear reprocessing and uranium enrichment facilities."

While the first requirement actually prohibits nuclear weapons, it is the second requirement that provides a more readily verifiable condition: neither side shall have the facilities to produce weapons grade uranium or plutonium. Hence, the Agreement calls for mutual inspections of facilities:

"The South and the North, in order to verify the denuclearization of the Korean peninsula, shall conduct inspection of the objects selected by the other side and agreed upon between the two sides, in accordance with procedures and methods to be determined by the South-North Joint Nuclear Control Commission."

Signed: Jan. 20, 1992

In Force: Feb. 19, 1992

The R.O.K. Prime Minister and the DPRK Premier signed this agreement. Several analysts have suggested that this agreement needs to be reinvigorated by explicit endorsement by the very highest officials, President Kim and Chairman Kim. This may be necessary and should be considered if it would help facilitate the ideas discussed below.

The Denuclearization Agreement could be a very useful vehicle for CBMs and has a high potential to further nonproliferation goals. Let us consider some CBMs that the 1992 agreement might suggest.

A Training Measure in Mutual Nuclear Inspections

Training of inspectors was offered in 1993 by the U.S. to facilitate the 1992 Denuclearization Agreement. One class of R.O.K. nuclear engineers trained at Los Alamos National Laboratory (LANL) for inspections, but joint Nuclear Control Commission (JNCC) talks collapsed before inspections actually occurred. Over the intervening years, new approaches to inspection methods have been developed, particularly in response to the needs of the Chemical Weapons Convention (CWC).

Entry into Force of the CWC has necessitated preparations for challenge inspections under conditions of “managed access”. Because the 1992 agreement is concerned with inspections to assess capabilities, a second round of training might emphasize the development of managed access techniques. The goal would be to allow facility capabilities and use to be assessed without losing control of unrelated security or economic information. A computerized training simulation, *ACE-IT*²⁵, developed for the CWC, would be a valuable tool in this process.

In fact, if the R.O.K. and U.S. had more experience with managed access in 1992, the results from the first meetings of the JNCC might have been better. The North offered inspections²⁶ of Yongbyon and demanded permission to search U.S. bases for nuclear weapons. Since the U.S. had removed all nuclear weapons the previous year, perhaps a managed access arrangement could have protected military secrets and kept the Denuclearization Agreement alive. (Perhaps not, as the DPRK was on a collision course with the IAEA in any case.)

The inspections called for in the 1992 Agreement would still need bilateral negotiation through a South-North JNCC. A working group of R.O.K., DPRK, and U.S. experts could be convened at Sandia's CMC or at LANL to define (not negotiate) potential inspection modalities. The working group could be considered as an informal (Track-II) preparatory step for the re-convening of the JNCC.

A Measure for Long-Term Bilateral Verification

Remote monitoring of nuclear facilities affords an effective way to provide South-North transparency with low intrusiveness. These technologies could permit a limited stream of agreed-upon information to flow over secure Internet or telephone lines to provide

assurance of safety and nonproliferation consistent with the 1992 agreement. Simple sensors could verify that a facility remained closed, that operations from a facility were safe, or that spent fuel remained in a storage pond. Motion or radiation detectors could trigger video cameras so that events could be analyzed quickly without personnel actually being on-site.

Testing of remote monitoring technology is being carried out around the world by various engineering laboratories in cooperation with the IAEA.^{27,28} The R.O.K. is participating in these tests in order to understand the technologies and to prepare for their eventual application under the IAEA safeguards program. The R.O.K. Ministry of Science and Technology (MOST) has agreed that the IAEA and Sandia Laboratories will carry out field tests at Younggwang #3 and Wolsung #1 reactors.²⁹

The Korea Atomic Energy Research Institute (KAERI) will provide technical support to the Younggwang/Wolsung tests through their Remote Monitoring Lab at the Technology Center for Nuclear Control (TCNC). Encrypted remote signals will go to IAEA as well as KAERI for evaluation. The goal of the test system will be to track the movement of spent fuel from a CANDU-style reactor to the storage silos on site. This involves identifying each fuel assembly by radiation signature and video image and showing that the same assembly is tracked through various handling facilities.

In the long run, KAERI is also planning to create the capability for the central monitoring station to receive remote monitoring data from all R.O.K. facilities for national safeguards. This broad scope could be expanded to eventual DPRK nuclear facilities. A reciprocal South-North exchange of selected data might satisfy the inspection aspects of the Denuclearization Agreement. Exchange of nuclear personnel to train in remote monitoring technology at a US laboratory would also be a valuable CBM.

A Measure in Regional Nuclear Transparency

Delivery of two, 1000 MWe (megawatt electric) light water reactors to North Korea under the 1994 Agreed Framework is intended to defuse the concern about proliferation in the North. Because the light water reactors change out fuel rods less frequently, and much more obviously, than do the originally planned, graphite-moderated reactors, this agreement greatly reduces proliferation concerns regarding the DPRK.

The reactors being built at Sinpo will be under IAEA safeguards. Compliance with IAEA safeguards is the most important nonproliferation guarantee. Nevertheless, many observers would be more comfortable if the activities in the North were more transparent. Outside observers would like to be able to make independent assessments of nonproliferation and safety, supplemental to IAEA safeguards.

R.O.K. nuclear activities are increasingly transparent. Public tours are available at the Korea Electric Power (KEPCO) reactors and KEPCO maintains a large public information web-site, where data on daily operations and safety are available.³⁰ The Korea Institute for Nuclear Safety (KINS) maintains a nationwide radiation monitoring

system, known as *IERNet*, as part of their responsibility to help organize response to any nuclear emergency. KINS provides this data, updated hourly on their web-site, along with other public information.³¹

Korean interests in nonproliferation and safety would both be advanced if the DPRK could be encouraged to emulate the R.O.K. transparency. A regional project in nuclear transparency under the non-governmental Council for Security Cooperation in the Asia Pacific (CSCAP) may be a good way to approach this goal.³² CSCAP functions through the combined efforts of 17 member committees, meeting in five topical working groups. The DPRK also participates in CSCAP, as do both China and Taiwan³³.

Under CSCAP auspices a working group of nuclear experts have directed the CMC at Sandia National Laboratories to build a transparency web-site.³⁴ The web-site has descriptions of the nuclear industries of the Asia Pacific and information on technologies that might be useful for nuclear transparency.

The most important feature is that the web-site is beginning to provide a convenient, "one-stop shopping" access point to safety and operating data from the whole region. For example, with permission of the MOST the website links to data posted by KINS. KINS has also provided the site with descriptions of their safety program in Hangul and English. KINS and the Korea Atomic Energy Research Institute (KAERI) have been regular participants in the CSCAP working group directing this work.

In the future, every step in deepening and broadening R.O.K. and regional participation in the CSCAP web-site will help establish a tradition of transparency as a norm for the industry in the Asia Pacific. A possible measure in this direction would be for the ROK to accept a greater role in the CSCAP transparency effort, including

- taking ownership of the web-site, currently at http://www.cmc.sandia.gov/Nuc_Trans
- institutionalizing the regional cooperation

Unofficial discussions are beginning now with MOST and KAERI to explore Korean interest in taking over the part of the web-site involving the sharing of real-time airborne radiation data. Data is available from Korea, Japan, Taiwan and the US, making the web-site a regional source of valuable information. When the reactors in North Korea come on-line it would be natural for the North to join this cooperation.

Eventually, it may be desirable to consider institutionalizing regional nuclear transparency to deepen, formalize and render permanent the safety and nonproliferation gains. The Korea Institute for Defense Analysis (KIDA) has suggested an ENTNEA³⁵ institution (Enhancing Nuclear Transparency in Northeast Asia) as a formal body to assume responsibility for measures like those initiated by CSCAP. KIDA suggests that transparency that could significantly improve the nonproliferation situation will require more official management and cooperation in developing agreements.

Conclusions

A number of confidence building measures are available to re-invigorate North-South reconciliation and strengthen public confidence in President Kim Dae-Jung's Sunshine Policy. Perhaps the highest priority is to avoid further damaging tensions in maritime areas. Cooperation in sea rescue training exercises, tracking of coastal shipping and control of the respective fishing fleets could help avoid volatile confrontations. Basic maritime tracking and communications technology would suffice. Training sessions for both sides on "Incidents at Seas" precedents would be an excellent initial CBM.

One of the most successful results from the June 2000 summit was the decision to reopen a North South rail and road link. Preparing for cooperative border crossing management that preserves security, while maximizing economic benefits, will be essential to success here. Actual force reduction or arms control measures would require a summit agreement in the future. In the near term training in aerial observation cooperation and border monitoring technologies could provide both sides with common foundations as they proceed with detailed implementation of these agreements.

While nonproliferation goals have receded to the background, pending construction of two, proliferation-resistant reactors in the North, the eventual need to re-start the IAEA safeguards inspections will bring this issue to the forefront in a few years. The intervening years might be used to exploit measures that could revive the 1992 North-South Denuclearization Agreement. Training for North-South bilateral nuclear inspections in the near-term could help the DPRK avoid a major standoff with the IAEA in the long-term. Also, involving the DPRK in the CSCAP nuclear transparency project has the advantage of using a broad regional cooperation to defuse potential North-South sensitivities in the nuclear area.

¹ Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States Department of Energy under Contract DE-AC04-94AL85000. The Cooperative Monitoring Center helps political and technical experts from around the world acquire the technology-based tools they need to participate in arms control, nonproliferation and other security measures.

² "Another NK Freighter Crosses NLL," Chosun Ilbo, June 15, 2001 and "N.K. Ship Violates Maritime Border Again," Korea Herald, June 14, 2001.

³ "NKorea: SKorea Ships Violated Waters," Associated Press, Nov. 14, 2000, and "Navy Fires Warning Shots at Intruding N.K. Fishing Boat," Korea Herald, June 25, 2001.

⁴ "N.K. Ship Violates Maritime Border Again," Korea Herald, June 14, 2001.

⁵ Mark Valencia and Jenny Miller Garmendia, "Yellow Sea Clash: North Korea Has a Point," Northeast Asia Peace and Security Network - Special Report, Nautilus Institute, December 23, 1999.

⁶ "North Korea Halts Contact with South After Sea battle," New York Times, June 17, 1999.

⁷ Seongwhun Cheon, "Cooperatively Enhancing Military Transparency on the Korean Peninsula: A Comprehensive Approach," CMC Occasional Paper, Sandia National Laboratories SAND 98-0505/10, April 1999. Also available electronically at <http://www.cmc.sandia.gov/issues/papers/index.html>.

⁸ "ROK Navy to Maneuver inside DPRK's Area," Joongang Ilbo, October 26, 1998.

⁹ J. Lee Schoeneman and Eric Fox, "Authenticated Tracking and Monitoring System (ATMS)," Sandia National Laboratories, VST-071, February 1996.

¹⁰ David F. Winkler, "US-Soviet Maritime Confidence-Building Measures, in *Maritime Confidence Building in Regions of Tension*, Jill R. Junnola, ed., The Henry L. Stimson Center, Report No. 21, May 1996.

-
- ¹¹ Canada has been very active in facilitating maritime cooperative agreements and might offer an additional venue. See for example, Peter Jones, "Maritime Confidence Building Measures in the Middle East," in *Maritime Confidence Building in Regions of Tension*, Jill R. Junnola, ed., The Henry L. Stimson Center, Report No. 21, May 1996.
- ¹² Ayesha Siddiq-Agha, "Maritime Cooperation Between India and Pakistan: Building Confidence at Sea," CMC Occasional Paper, Sandia National Laboratories SAND 98-0505/18, November 2000. Also available electronically at <http://www.cmc.sandia.gov/issues/papers/index.html>.
- ¹³ Stanley B. Weeks, "Sea Lines of Communication (SLOC) Security and Access," in *Maritime Shipping in Northeast Asia: Law of the Sea, Sea Lanes, and Security*, ed. Michael Stankiewicz, Institute on Global Conflict and Cooperation, Policy Paper #33, February 1998.
- ¹⁴ "South, North agree to exchange visits of separated families around Aug. 15," unofficial translation in Digital Korea Herald, June 15, 2000.
- ¹⁵ "Highway-Rail Road to Link North by 2001," Digital Chosun, Aug. 24, 2000.
- ¹⁶ "President Emphasizes South-North Railway Link," Chosun Ilbo, June 23, 2000.
- ¹⁷ "Downturn for South Korea - And Reconciliation," STRATFOR.com, Jan. 02, 2001.
- ¹⁸ "Military Meeting Agrees on DMZ Protocol," Chosun Ilbo, Feb. 8, 2001.
- ¹⁹ Michael G. Vannoni, Ruth A. Duggan, Man-Kwon Nam, Kwang-Keun Moon, and Myung-Jin Kim, "Confidence Building on the Korean Peninsula: A Conceptual Development of Limited-Force Deployment Zones," Sandia National Laboratories SAND97-0583, April 1997. Also available electronically at <http://www.cmc.sandia.gov/issues/papers/index.html>.
- ²⁰ J. B. Godfrey, S. K. Parker, S. Y. Goldsmith, J. Espinoza, J. L. Schoeneman, and J. H. Ganter, *Advanced Technologies for International and Intermodal Ports of Entry (ATIPE)*, Sandia National Laboratories, SAND Report in preparation.
- ²¹ Amy Smithson and Seongwhun Cheon, "'Open Skies' over the Korean Peninsula: Breaking the Impasse," *Korea and World Affairs*, Spring 1993, pp57-77.
- ²² DTRA and the US DOE's Cooperative Monitoring Center have collaborated in the past in developing similar proposals. Both of these organizations could participate in implementation of this CBM process.
- ²³ The NPT treaty text is available at the University of Illinois at Chicago archive website: <http://dosfan.lib.uic.edu/acda/np.htm>
- ²⁴ The agreement text is included in Harald Mueller, David Fischer, and Wolfgang Kotter, *Nuclear Non-Proliferation and Global Order*, (Oxford: Oxford University Press, 1994), p. 236.
- ²⁵ "Augmented Computer Exercise for Inspection Training (ACE-IT)," CMC Fact Sheet at <http://cmc.sandia.gov/facts/ace-it/index.html>.
- ²⁶ Seongwhun Cheon, "Countering Proliferation: South Korea's Strategic Choice," in Taewoo Kim and Selig Harrison, *Dealing with the North Korean Nuclear Problem*, Research Institute of Peace Studies, Peace Studies Series No. 1 (Hanul Academy, Seoul, Korea, 1995).
- ²⁷ Lawrence Desonier, "SNL Material Monitoring System: Sensor Configurations and Latest Application," Proceedings of the 41st Annual Meeting of the Institute of Nuclear Materials Management, New Orleans, July 17-21, 2000.
- ²⁸ William O'Connor, "Remote Monitoring in International Safeguards," Proceedings of the 41st Annual Meeting of the Institute of Nuclear Materials Management, New Orleans, July 17-21, 2000.
- ²⁹ Seung-sik Park, Sung-gi Park, Jong-uk Lee, Jae-Sung Lee, and Jong-sook Kim, "Remote Monitoring Experience and Its Perspective in Korea," Proceedings of the 41st Annual Meeting of the Institute of Nuclear Materials Management, New Orleans, July 17-21, 2000.
- ³⁰ The KEPSCO radiation data is at <http://www.kepco.co.kr/nuclear.html>.
- ³¹ The IERNet radiation data is at <http://iernet.kins.re.kr/cgi-bin/iernet>
- ³² CSCAP was established in 1993 by two dozen research institutes from 10 countries. It has now grown to seventeen committees. For a history and current description of CSCAP activities, see the web page maintained by the Research School of Pacific and Asian Studies, Australia National University at <http://www.cscap.org>. Other CSCAP reports are available at http://cmc.sandia.gov/Nuc_Trans/CSCAP/writeup.html.
- ³³ By agreement with CSCAP/China, CSCAP/Taiwan representatives participate in working groups but not the plenary meetings.
- ³⁴ The web-site is available at http://www.cmc.sandia.gov/Nuc_Trans.

³⁵ Man-Kwon Nam and Sung-Tack Shin, "ENTNEA: A Concept for Enhancing Nuclear Transparency for Confidence Building in Northeast Asia," CMC Occasional Paper, Sandia National Laboratories SAND98-0505/12, June 1999. Also available electronically at <http://www.cmc.sandia.gov/issues/papers/index.html>.