Nonproliferation and Nuclear Security Cooperation in Northeast Asia

By Carl Baker and David Santoro

A Conference Report of the
Quadrilateral US-ROK-Japan-China
Nonproliferation and Nuclear Security Cooperation Dialogue

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Based in Honolulu, the Pacific Forum CSIS (www.pacforum.org) operates as the autonomous Asia-Pacific arm of the Center for Strategic and International Studies in Washington, DC. The Forum's programs encompass current and emerging political, security, economic, business, and oceans policy issues through analysis and dialogue undertaken with the region's leaders in the academic, government, and corporate areas. Founded in 1975, it collaborates with a broad network of research institutes from around the Pacific Rim, drawing on Asian perspectives and disseminating project findings and recommendations to opinion leaders, governments, and members of the public throughout the region.

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Key Findings and Next Steps

The Pacific Forum CSIS, with support from the US Department of Energy's National Nuclear Security Administration (DOE/NNSA), held a quadrilateral US-ROK-Japan-China nonproliferation and nuclear security cooperation dialogue in Seoul, Republic of Korea on August 5-7, 2015. Some 28 US, ROK, Japanese, and Chinese experts, officials, military officers, and observers attended, all in their private capacity. The off-the-record discussions covered the four countries' perspectives and priorities on nonproliferation and nuclear security, the Nuclear Security Summit process, the nuclear security centers of excellence, the prevention and management of a nuclear accident or incident, strategic trade controls, and onward proliferation from North Korea. Key findings from this meeting are outlined below.

The best opportunities for quadrilateral cooperation in Northeast Asia are in nuclear security. While there are also opportunities for nonproliferation cooperation, particularly to address the North Korean problem, important political obstacles usually stand in the way. A key to success in both areas is promoting policy coordination and alignment, which requires sustained interactions among regional states.

All four states see North Korea as the most serious regional threat. There are significant concerns about Pyongyang's increasing nuclear capabilities and its efforts to proliferate sensitive technologies (and maybe even nuclear materials) to third parties. Another worry is the possibility of a nuclear accident or incident in North Korea, namely during a regime collapse scenario. Further engagement among regional states is needed to address these problems.

The Republic of Korea, Japan, and China have advanced civil nuclear programs and have taken important steps to strengthen nuclear material security. To go further, one participant suggested that the three countries jointly improve security at existing plutonium and reprocessing sites, conclude a renewable five-year moratorium on commercial reprocessing, and cooperate on spent fuel storage disposal and research. Other suggestions included an ROK-Japan agreement on a bilateral highly enriched uranium-free zone, a Chinese commitment to disclose and downblend civil HEU holdings, a tripartite effort to convert HEU overseas, and a tripartite commitment to support the development of alternatives to high-risk radioactive sources.

The Republic of Korea, Japan, and China should, given their advanced nuclear programs and performance to strengthen nuclear security, build on growing momentum and push for a nuclear security convention to take over the nuclear security agenda after the Nuclear Security Summit process concludes its activities in 2016. The Northeast Asian Peace and Security Initiative, which currently focuses on cooperation in nuclear safety, should be expand in scope so it can contribute to a nuclear security convention.

Nuclear security cooperation in human capacity-building assistance for the Asia Pacific should also be enhanced through greater cooperation among the ROK, Japanese, and Chinese centers of excellence, all of which are at different development stages.

Cooperation has already started but should be strengthened. Some participants stressed that it should focus on the development of standardized curricula, courses, and certification, the exchange of good practices, and transportation security. This will help build a nuclear security culture in the region and supplement the work of the International Atomic Energy Agency.

There are some difficulties to greater cooperation among the Northeast Asian nuclear security centers of excellence, however. One is that these centers are often in competition in Southeast Asia. Still, better coordination of activity might help them focus on their respective strengths and efficient cooperation for the countries in the region.

Greater regional cooperation, including through tabletop exercises, is needed to prevent and manage nuclear accidents and incidents. The nuclear accident at the Japanese Fukushima plant in March 2011 has shown that regional states are poorly prepared to deal with this problem. A nuclear accident or incident in North Korea would be much more difficult to solve. Contingency plans need to be discussed.

The extent of onward proliferation from North Korea is unknown. Experts speculate that there could be less demand from states for North Korean technologies given recent developments, in particular the conclusion of an international nuclear agreement with Iran. To some, this suggests that Pyongyang may be forced to turn to non-state actors if they want to continue to turn a profit.

Many US participants insisted that greater Chinese cooperation is needed to counter Pyongyang's proliferation activities. Chinese participants, for their part, argued that Beijing takes nonproliferation extremely seriously and is doing everything that could be reasonably expected. The Karl Lee affair is a thorny issue that poisons US-Chinese nonproliferation cooperation.

Northeast Asian have high-standard strategic trade controls, but could become victims of proliferation networks. Information sharing regarding the detection of violations and the enforcement of controls is needed to enhance effectiveness. Toward this end, all three Northeast Asian countries should make strategic trade controls cooperation a focus of their activities and establish strategic trade controls working groups to permit, at a minimum, better information-sharing and good practices exchanges.

Conference Report

By Carl Baker and David Santoro

Northeast Asia faces serious nonproliferation and nuclear security problems. North Korea's nuclear progress continues unhindered and its proliferation activities have not been stopped. Regional countries also have advanced economies that could be exploited by proliferators, and with their expanding nuclear power programs come numerous nuclear safety and security issues. These are problems best addressed through greater regional cooperation. Yet, while it has increased in recent years, such cooperation remains much too limited.

To help reverse this trend, the Pacific Forum CSIS, with support from the US Department of Energy's National Nuclear Security Administration (DOE/NNSA), held a quadrilateral US-ROK-Japan-China nonproliferation and nuclear security cooperation dialogue in Seoul, Republic of Korea on August 5-7, 2015. Some 28 US, ROK, Japanese, and Chinese experts, officials, military officers, and observers attended, all in their private capacity. The off-the-record discussions covered the four countries' perspectives and priorities on nonproliferation and nuclear security, the Nuclear Security Summit process, the nuclear security centers of excellence, the prevention and management of a nuclear accident or incident, strategic trade controls, and onward proliferation from North Korea. The following report reflects the views of the authors alone and not necessarily those of DOE/NNSA or any other US government agency.

Comparing and contrasting perspectives and priorities on nonproliferation and nuclear security

From a US perspective, nuclear concerns in Northeast Asia are threefold: strategic stability and extended deterrence, nonproliferation, and nuclear safety and security. Washington continues to regard nuclear weapons as critical to maintain stability in the region. North Korea's increasingly sophisticated arsenal and China's growing assertive role is unnerving Japan and South Korea, making US extended deterrence, including the nuclear component, more important than ever. Without a strong US nuclear deterrent, there are risks that US allies might be tempted to develop nuclear weapons of their own. Therefore, as the United States reduces its arsenal of nuclear weapons and their role in its military strategy, it remains committed to maintaining a strong nuclear deterrent to address these problems.

Washington is also interested in preventing and countering the spread of sensitive goods and technology. Proliferation often occurs in developed economies, making Japan, South Korea, and others possible targets of proliferators, hence the importance of implementing strict enforcement of strategic trade controls. Onward proliferation from North Korea is also of deep concern to Washington. Combating Pyongyang's proliferation activities requires strict enforcement of United Nations sanctions by all UN member states and a high level of regional cooperation. While cooperation has improved considerably in recent years, there are still areas where it needs to be improved, especially in missile technology and dual-use goods.

Another area of concern to Washington is nuclear safety and security. In this area, Washington is looking for Northeast Asian leadership to follow Seoul's hosting of the 2012 Nuclear Security Summit. While the United States regards South Korea's Northeast Asia Peace and Cooperation Initiative (NAPCI) as a possible mechanism to drive progress, it also places much faith in the nascent nuclear security centers of excellence to build a strong nuclear safety and security culture in the region.

China regards North Korea as a major problem for regional security. While Chinese assess the risk of onward proliferation from Pyongyang to be low, they believe that the North Korean leadership is now prepared to use nuclear weapons as more than mere political tools. Pyongyang may soon want to integrate them in a strategic or operational planning, which is of concern to Beijing. The route to re-engagement of Pyongyang may not be completely blocked, however, and the recently-concluded international agreement with Iran may have some resonance in Pyongyang.

Also worrisome to China is the development of latent nuclear capabilities by Japan and South Korea. While they remain latent at the moment – and are likely to remain latent in the foreseeable future – this may change as Chinese capabilities are increasing in quality and quantity. Next on list of Beijing's nuclear concerns is nuclear terrorism, which is envisioned as the sabotage of civilian nuclear facilities or the explosion of dirty bombs.

South Korea's nuclear threats are seen as being threefold. They include North Korea, Japan, and China. To Seoul, the greatest nuclear threat is North Korea, which is developing an increasingly sophisticated nuclear arsenal and seems prepared to use its weapons offensively. Seoul is also concerned with possible nuclear accidents or incidents in North Korea and onward proliferation from this country. Next, Seoul worries that Tokyo might decide to develop nuclear weapons as its relationship with Beijing deteriorates. Because Japan already has the building blocks for nuclear weapons, Prime Minister Shinzo Abe's policies to make Japan a "normal state" may be laying the foundations for Tokyo to go nuclear. Finally, Seoul is concerned with China's lax safety standards over its civilian nuclear power plants, its double-standards vis-à-vis North Korea's actions, and its opposition to the possible deployment of THAAD systems in South Korea.

South Korea is committed to resolving the North Korean nuclear issue peacefully, while strengthening the region's security architecture, including with US extended deterrence. Seoul also remains deeply committed to the nonproliferation and nuclear security regimes, as exemplified by its leadership in the 2012 Nuclear Security Summit, its efforts to promote cooperation between the Northeast Asian nuclear security centers of excellence, and the launch of NAPCI, which includes strengthening nuclear safety cooperation in the region. Meanwhile, South Korea continues to endorse four core principles with regard to the peaceful use of nuclear energy. They include 1) no intention to develop nuclear weapons; 2) transparency on all nuclear activities; 3) adherence to international nonproliferation rules and norms; and 4) an expansion of its nuclear power program, notably through South Korea-US nuclear cooperation.

The Japanese presentation focused exclusively Japan's approach to nuclear security. Per the February 2015 findings of the International Atomic Energy Agency's International Physical Protection Advisory Service (IAEA IPPAS), Japan's endorsement and implementation of nuclear security is "robust, sustainable, and (has) been significantly enhanced in recent years." This is the result of an overall reassessment of standards that Japan conducted in the aftermath of the 2011 Fukushima nuclear accident. The establishment of an independent regulatory agency has been the cornerstone of this effort.

The Nuclear Security Summit Process

The region has several important priorities in the lead-up to the 2016 Nuclear Security Summit. North Korea tops the list because of its growing stocks of fissile material. Pyongyang could decide to transfer these materials to other states or terrorists or they could be targeted by insider North Korean thieves. Maintaining control of North Korea's fissile material stocks would also be a major problem in the event of regime collapse. Next is China's approach to nuclear security, which has improved in recent years but needs to be followed with practical steps. These include signing on to the Strengthening Nuclear Security Implementation Initiative, adopting a national design-basis threat, strengthening personnel reliability, updating regulations (especially on transport security), and more generally improving its nuclear security culture. Meanwhile, even though nuclear security implementation has improved considerably in Japan and South Korea, more leadership at the regional level would help solve many remaining problems.

Another area of concern in the region is plutonium and reprocessing. Current plans in Japan, South Korea, and China threaten to fuel already high regional tensions. At a minimum, security should be improved at existing sites, such as at the pilot plant in China. Regional countries should agree to a renewable five-year moratorium on commercial reprocessing, pending the demonstration of economic, technical, and nonproliferation feasibility of technologies. Finally, they should cooperate in other related areas, including spent fuel storage disposal and research.

Yet another area of concern is highly-enriched uranium (HEU). One participant suggested that, ideally, Japan and South Korea should agree on a bilateral HEU-free zone and China should disclose and downblend all civil HEU holdings. Moreover, South Korean and Chinese efforts at HEU conversion overseas should continue, and Japan should conduct similar efforts. Finally, while China needs to follow good practices and standards for the security of its military materials, all regional states should do more to prevent nuclear sabotage and secure high-risk radioactive sources.

Meanwhile, it is important to note that while today's global nuclear security architecture has improved, it remains incomplete. It is composed of treaties and United Nations resolutions, such as United Nations Security Council Resolution 1540, ad hoc mechanisms, such as the Global Initiative to Combat Nuclear Terrorism, and IAEA recommendations and guidelines. To ensure that efforts to combat nuclear terrorism are

sustained, it is essential to have an internationally accepted definition of nuclear security, a clear vision of nuclear security goals and principles, and full participation of all states. It is also critical that states recognize the central role and power of the IAEA, agree to find a balance between state sovereignty and shared responsibility, and report good and bad practices on a regular basis.

It was proposed that, ideally, an international convention on nuclear security should be established to supplement current efforts and fill the gaps. This convention would be a framework instrument that would leave most decisions about the regime to the Conference of Parties. In effect, the COP would succeed to the Nuclear Security Summit process by providing a forum for examining and incrementally improving the nuclear security regime. It was suggested that NAPCI, which includes nuclear safety as one of its areas of focus, should expand in scope so it can contribute to the establishment of a nuclear security convention.

The Nuclear Security Centers of Excellence

South Korea's nuclear security center of excellence, the International Nuclear Security Academy (INSA), operates under the control of the Korea Institute of Nuclear Nonproliferation and Control. Since it opened in 2014, INSA's vision has been to contribute to world peace by providing advanced nuclear nonproliferation and nuclear security education and training to Korean officials, international scholars, and the public at large. INSA has also been involved in sharing good practices, providing technical support to relevant domestic and international organizations, and conducting a range of research and development activities. Significantly, INSA has sought to coordinate its work with other regional centers to avoid duplication and, if possible, engage in cooperative projects. INSA has also sought to specialize in specific issue areas, notably cyber security.

The decision to establish China's nuclear security center of excellence dates back to the 2010 Nuclear Security Summit, where former Chinese President Hu Jintao reached an agreement with US President Barack Obama on the need for such a center. Since the two leaders concluded a memorandum of understanding in 2011, the center has been under construction and is scheduled to open in early 2016. It will be located at Changyang Science Park, outside Beijing, and will be an important platform for work on nuclear material security, the physical protection of nuclear materials and facilities, personnel training in nuclear exports/imports, and technical exchanges and international cooperation on these issues. It will house several facilities including a technology demonstration facility, an analysis laboratory, an environmental testing laboratory, a training and exercise facility for response forces, and a physical protection testing field.

Japan's Integrated Support Center for Nuclear Nonproliferation and Nuclear Security (ISCN) was established at the end of 2010 to contribute to 1) strengthening nuclear security in Asia and beyond, and 2) developing technology related to the measurement and detection of nuclear material and nuclear forensics. ISCN has already conducted numerous activities to reach these goals, both independently and in

collaboration with international and regional organizations and initiatives, including the other nuclear security centers of excellence. Cooperation between Northeast Asia's three nuclear security centers of excellence, in fact, is already well underway. It includes information sharing about current and future work activities, good practices exchanges, as well as expert exchanges.

From a US perspective, the three centers should prioritize cooperation, as encouraged by the IAEA's Asia Regional Network. While some competition among the centers is unavoidable, (and already exists in separate efforts to provide capacity in Southeast Asia) greater cooperation should be promoted. To add to the current level of cooperation, the centers should standardize nuclear security curricula and courses, provide certifications, and engage in regular good practice exchanges. More specifically, areas where the centers should engage in the near term include transportation security; emergency response and response preparedness in the event of an incident, theft, or sabotage; and capacity building for nuclear newcomers. It is also important for the centers to carve out work in specific areas that play to their strengths. This includes engaging countries with which they have "special" relationships or, at the technical level, leveraging their unique advantages. For instance, while the Chinese center, once operational, will have large facilities to provide hands-on training in many areas, the South Korean center seems better equipped to provide courses on strategic trade controls, while Japan has focused largely on physical security.

Preventing/Managing a Nuclear Accident/Incident

With nuclear power development comes three concerns: the safety of nuclear activities, nonproliferation and nuclear security issues, and environmental worries (because of spent fuel storage). Fortunately, there are many ways to prevent nuclear accidents or incidents. They include ensuring all nuclear power plants are built using the highest design standards, preparing for human errors, reducing the likelihood of insider threats, securing reactor cooling and power supply capabilities, minimizing radioactive release in case of problem, and developing a strong emergency response plan. Regional coordination and cooperation is especially important when planning responses to a nuclear accident or incident..

From a Chinese perspective, the possibility of nuclear accidents and incidents is on the rise in Northeast Asia as a result of growing nuclear power development by regional states. Addressing these problems begins with engagement of North Korea because the status and future development of its nuclear activities is unknown. Another area ripe for cooperation is the emergence of nuclear security centers of excellence in China, South Korea, and Japan. These centers should coordinate their activities to increase their ability to prevent nuclear accidents or incidents.

Greater regional cooperation, including through tabletop exercises, is needed to prevent and manage nuclear accidents and incidents. The Fukushima nuclear accident has shown that regional states are poorly prepared to deal with this problem. A nuclear

accident or incident in North Korea would be much more difficult to solve. Contingency plans need to be discussed.

Strategic trade controls

After focusing on nuclear security, the discussion turned to nonproliferation. Strategic trade controls (STC) are "nonproliferation in practice." Cooperation in this area is critical to success. While there are some bilateral exchanges, cooperative programs, and policy alignment on STC between regional states, multilateral cooperation remains limited. One reason is that regional states have different STC legacies and experiences. Also problematic is that they have different security threat perceptions and approach STC in fundamentally different ways. Moreover, regional states have different institutional structures to manage STC (particularly in the nuclear area), which further complicates cooperation. Finally, in some cases, they direct STC at one another.

There are, however, many ways to enhance STC cooperation in Northeast Asia. Regional states should leverage common international and national forums, such as the Nuclear Suppliers Group or the World Customs Organization. They should also establish working groups dedicated to discuss cooperation, possibly under the auspices of the nuclear security centers of excellence. One easy way to begin cooperation would be to seek greater system alignment on control lists and encourage coordination between their respective customs organizations.

Northeast Asian cooperation in the area of transit and transshipment occurs between government organizations, such as STC authorities, policy agencies, customs, coast guards, and the private sector, including shipping companies, forwarders and logistics companies, and other nongovernmental organizations. This involves information-sharing on the cargo, shipper, and shipping companies and forwarders, as well as joint actions against illegal activities. Cooperation on detection and enforcement is also essential. This includes reporting the cases of license application rejection and illicit transit/transshipment, as well as reporting enforcement cases.

To strengthen STC cooperation in these areas, communication among relevant Northeast Asian authorities needs to be enhanced, periodic meetings need to be held, an information-sharing scheme needs to be established, and staff exchange programs need to be institutionalized. In particular, information-sharing about end-users, sensitive technology transfers, and license application rejections need to be enhanced.

Onward Proliferation from North Korea

The international community has failed to prevent Pyongyang from acquiring nuclear technology and producing fissile materials for nuclear weapons, as well as from acquiring ballistic missile technology. Similarly, efforts to stop North Korea's proliferation of such technology to third parties have only worked partially. At present, given that the potential state customer base for such technology is eroding, there are risks that North Korea may decide to approach non-state actors. Although the North Korean

leadership is likely aware of the consequences it would face if caught proliferating, it is not clear that officials have internalized the problem.

Stopping North Korean proliferation activities is a tough challenge because, as one participant put it, "they are damn good at it." North Korean officials have a long history of smuggling, which dates back to the period before the Korean War. They improved this capability within the intelligence and internal security services after the war, and have continued to develop it since.

Cracking illicit North Korea proliferation activities requires a high level of international cooperation, good intelligence sharing, and dedicated efforts to reach into and manipulate North Korean networks. It requires, above all, a long-term political commitment and, given their special relationship with the North, strong cooperation from Chinese authorities. To many US participants, Chinese cooperation is lacking. Chinese participants, for their part, argued that Beijing takes nonproliferation extremely seriously and is doing everything that could be reasonably expected. The Karl Lee affair is a thorny issue that poisons US-Chinese nonproliferation cooperation.

General Observations, conclusions, and next steps

A key takeaway from this dialogue was that the best opportunities for quadrilateral cooperation in Northeast Asia are in the area of nuclear security. While there are also opportunities for nonproliferation cooperation, particularly to address the North Korean problem, important political obstacles usually stand in the way. The key to success in both areas is promoting policy coordination and alignment, which requires sustained interactions among regional states.

Significantly, all four states see North Korea as the most serious regional threat. There are important concerns about Pyongyang's increasing nuclear capabilities and its efforts to proliferate sensitive technologies (and maybe even nuclear materials) to third parties. Another worry is the possibility of a nuclear accident or incident in North Korea, namely during a regime collapse scenario. Further engagement among regional states is needed to address these problems.

APPENDIX A

Quadrilateral US-ROK-Japan-China
Nonproliferation and Nuclear Security Cooperation Dialogue
Four Points by Sheraton Seoul Namsan,
Seoul, Republic of Korea
August 5-7, 2015

AGENDA

Wednesday, August 5, 2015

18:30	Welcome Reception
19:00	Opening Dinner

Thursday, August 6, 2015

8:30	**Registration**
8:45	**Welcome Remarks**
9:00	**Session 1: Nonproliferation & Nuclear Security – Perspectives & Priorities** This session will compare and contrast US, ROK, Japanese, and Chinese perspectives and priorities on nonproliferation and nuclear security. What is each country's assessment of proliferation and nuclear terrorism threats in Northeast Asia and beyond? What are the most worrying threats and the most pressing issues to address, both in the nonproliferation and nuclear areas? What differences are there among the four countries on how best to address these threats? Why? Erik Quam Tong Zhao Han Yong-Sup Naito Kaoru
10:45	Coffee Break
11:00	**Session 2: The Nuclear Security Summit Process** This session will focus on ways Northeast Asian states can advance the Nuclear Security Summit (NSS) process. What are US, ROK, Japanese, and Chinese perceptions of the most important nuclear security threats in Northeast Asia? How can cooperation be built to meet those threats? What can the four countries do in the lead-up to the 2016 NSS? After 2016? [Discussions about the nuclear security centers of excellence should be withheld to the following session.] Miles Pomper Shin Chang-Hoon
12:30	Lunch

13:30 **Session 3: The Nuclear Security Centers of Excellence**

This session will reflect on ways to build cooperation between the Northeast Asian nuclear security centers of excellence. What are the goals and objectives of each center? What type of cooperation exists between them? How complementary/duplicative is their work? How can they be better utilized to enhance nuclear security in Northeast Asia?

Zhu Xuhui
Lee Na Young
Kobayashi Naoki
Jaime Yassif

15:15 Coffee Break

15:30 **Session 4: Prevention/Management of a Nuclear Accident/Incident**

This session will examine how Northeast Asian states can better prevent and manage a nuclear accident/incident. How might a nuclear accident/incident come about in Northeast Asia? What types of nuclear accidents/incidents should we be concerned about? What can the United States, the Republic of Korea, Japan, and China do together to help prevent nuclear accidents/incidents? What can they do to enhance preparedness to respond to nuclear accidents/incidents if they occur? [Discussions should *not* be limited to building upon the outcomes of the 2011 Fukushima nuclear accident in Japan.]

Park Jiyoung
Han Hua

17:00 **Session Adjourns**

18:30 Dinner

Friday, August 7, 2015

9:00 **Session 5: Strategic Trade Controls**

This session will explore the potential for enhancing cooperation on strategic trade controls in Northeast Asia. What type of cooperation exists between the four countries to deal with transit and transshipment activities? What level of cooperation exists on licensing, detection, and enforcement issues? How can this cooperation be strengthened? What areas demand greater information-sharing?

Jay Nash
Riko Hisashi
Jo Jaeil

10:15 Coffee Break

10:30 **Session 6: Onward Proliferation from North Korea**

This session will look at ways to strengthen cooperation to deal with North Korea's onward proliferation activities. How serious are these activities? What

cooperation exists between the four countries to counter Pyongyang's activities? How can such cooperation be improved to better implement UN sanctions? What other instruments or initiatives can Northeast Asian states utilize?

Joseph Bermudez

Session 7: Wrap-Up and Next Steps

This session will summarize the meeting's key findings and reflect on next steps for future quadrilateral cooperation on nonproliferation and nuclear security. What is the baseline for cooperation? What are the opportunities and challenges to enhance such cooperation? What specific issues should the four countries prioritize in the near- to medium-terms? In the longer term?

Carl Baker and David Santoro

13:00 Lunch

15:00 Meeting Adjourns

APPENDIX B

Quadrilateral US-ROK-Japan-China
Nonproliferation and Nuclear Security Cooperation Dialogue
Four Points by Sheraton Seoul
Namsan, Seoul, Republic of Korea
August 5-7, 2015

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