



Meeting Governance Challenges: New Directions for US-ROK Fuel Cycle Cooperation

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Nuclear Energy and Fuel Cycle Activities: From Impasse to Opportunity for US-ROK Cooperation

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Nuclear Governance Challenges

- **What does this mean, anyway?**
 - Rules-based approach?
 - Standards/principles-based approach?
- **Credibility**
 - Non-discriminatory
 - Meets highest international standards (3Ss)
 - Does not undermine international norms, policies

U.S. and ROK challenges

- **U.S.**
 - Devising an effective & credible nuclear cooperation policy
 - Balancing objectives of nonproliferation and trade facilitation
 - Nondiscriminatory
 - Convergence with international norms
 - Placing nuclear cooperation appropriately within overall US-ROK alliance
- **ROK**
 - Balancing foreign policy, national security, export strategies
 - Korean peninsula issues

What do “new directions” require?

1. **Stretching the paradigm (vice incrementalism) for nuclear cooperation, multilateral approaches**
2. **Beyond bilateral to multilateral, governments to industry**
3. **Holistic, integrated thinking about the fuel cycle – tying it all together**
4. **Confront tough issues head-on (nuclear weapons, nuclear waste)**
5. **Consider best investments in light of “What ifs”**

I. Stretching the paradigm

- **Incrementalism is a rampant disease and doesn't necessarily result in best outcomes**
- **Nuclear governance may be at a turning point – clear we need to do more across the board**
- **Is nuclear “leadership” achieving a full fuel cycle?**



II. Beyond bilateral to multilateral, governments to industry

- Enhance bilateral cooperation (which is still necessary) with multilateral efforts (necessary for big-ticket research on fusion, fast reactors, etc.)
- Historical “fondness” of multilateral approaches, so why haven’t we seen more?
- Industry now becoming more engaged on nonproliferation issues

Historical preferences for multilateral approaches for fuel cycle

- **United States**
 - 1976 Symington amendment
 - 1978 Nuclear Nonproliferation Act (Section 104)
- **NSG**
 - Original paragraphs 6 and 7 of NSG guidelines (on enrichment, reprocessing transfers)
- **IAEA**
 - 2005 International Experts Group on Multinational Approaches to the Fuel Cycle

III. Holistic approach

- **History of front-end fuel assurances shows little interest because the market works until it doesn't.**
- **Real incentives lie in the back end (storage, disposal) but huge hurdles**
- **Most countries have indulged in magical thinking about repositories**
- **It's time to connect the dots if nuclear energy is to be sustainable**

IV. Confronting tough issues

- **Nuclear latency, nuclear weapons and sensitive nuclear technology**
 - Can a country's nonproliferation record ease the inevitable doubts about the latency potential of enrichment & reprocessing?
 - Japan, NL, Germany as examples
- **Nuclear waste**
 - Until burner reactors are commercially viable, need to stop suggestive selling of reprocessing as an alternative to disposal

V. “What-ifs”

- **What if the nuclear renaissance fizzles?**
 - Export market confined to handful
 - Worst case – Japan-like scenario
- **What if the DPRK...**
 - Accepts an agreement (meaning nuclear weapons dismantlement and...?)
 - Collapses?
 - Reunifies with ROK?

Some criteria for a new direction

- **US criteria**
 - Solution should support U.S. industry collaboration with ROK, Japan
 - Support international norm of not spreading sensitive nuclear technology
 - Support U.S. policy on stopping accumulation of Pu.
- **ROK criteria**
 - Support (not diminish) ROK's nuclear export potential
 - Contribute to sustainable nuclear energy (including public opinion)
 - Promote ROK nonproliferation credibility

Some new thinking

- **Nuclear “coop” in NE Asia**
 - Mimic the structure set up in cooperative apartment buildings where there is individual ownership and collective ownership and management. Would require a treaty to set out legal roles, responsibilities.
 - Collective ownership/management of sensitive nuclear fuel cycle capabilities. Pool resources for big-ticket items (repository, burner reactor research)
 - Pool resources for safety, security, safeguards research, development & implementation

More specifics

- **Regional fuel cycle cooperation**
 - Participating states: J, ROK, Ch, US (+ R, Taiwan, Mongolia, perhaps SEAsian countries?)
 - Consider multilateral ownership/operation of Japan's fuel cycle facilities (at least Rokkasho)
 - Not all countries will have entire fuel cycle but have comparative advantage in what they provide
 - Back-end storage/repository must be a part of this. Need partners that can help provide solutions
- **Coupled with NWFZ in NEAsia**
 - Such a zone could help in any DPRK future (as long as DPRK was brought along)
 - Provide increased assurances about nw latency.
- **Highest nuclear safety, security, safeguards standards**

BACK-UP SLIDES



Possible application of 1976 Symington Amendment

(Section 101 of Arms Export Control Act)

- No economic, military assistance, military training/education, military credits/guarantees to a country which the President determines ...receives... [nuclear enrichment] equipment, materials, or technology from any other country on or after August 4, 1977, unless before such delivery—
- (1) the supplying country and receiving country have reached agreement to place all such equipment, materials, or technology, upon delivery, under multilateral auspices and management when available; and
- (2) the recipient country has entered into an agreement with the International Atomic Energy Agency to place all such equipment, materials, technology, and all nuclear fuel and facilities in such country under the safeguards system of such Agency.

Mitigating Factors

(b) CERTIFICATION BY PRESIDENT OF NECESSITY OF CONTINUED ASSISTANCE; DISAPPROVAL BY CONGRESS.—

(1) Notwithstanding subsection (a) of this section, the President may furnish assistance which would otherwise be prohibited under such subsection if he determines and certifies in writing to the Speaker of the House of Representatives and the Committee on Foreign Relations of the Senate that—

(A) **the termination of such assistance would have a serious adverse effect on vital United States interests;** and

(B) **he has received reliable assurances that the country in question will not acquire or develop nuclear weapons or assist other nations in doing so.** Such certification shall set forth the reasons supporting such determination in each particular case.

(2)(A) A certification under paragraph (1) of this subsection shall take effect on the date on which the certification is received by the Congress. However, if, within thirty calendar days after receiving this certification, the Congress enacts a joint resolution stating in substance that the Congress disapproves the furnishing of assistance pursuant to the certification, then upon the enactment of that resolution the certification shall cease to be effective and all deliveries of assistance furnished under the authority of that certification shall be suspended immediately.

Glenn Amendment

SEC. 670. NUCLEAR REPROCESSING TRANSFERS AND NUCLEAR DETONATIONS

(a) Except as provided in subsection (b), no funds authorized to be appropriated by this Act or the Arms Export Control Act may be used for the purpose of providing economic assistance, providing military or security supporting assistance or grant military education and training, or extending military credits or making guarantees, to any country which on or after the date of enactment of the International Security Assistance Act of 1977—

“(1) delivers nuclear reprocessing equipment, materials, or technology to any other country or **receives such equipment, materials, or technology from any other country (except for the transfer of reprocessing technology associated with the investigation, under international evaluation programs in which the United States participates, of technologies which are alternatives to pure plutonium reprocessing)** ;

Notwithstanding subsection (a) of this section, the President may furnish assistance which would otherwise be prohibited under such subsection if he determines and certifies in writing to the Speaker of the House of Representatives and the Committee on Foreign Relations of the Senate that **the termination of such assistance would be seriously prejudicial to the achievement of United States nonproliferation objectives or otherwise jeopardize the common defense and security.** The President shall transmit with such certification a statement setting forth the specific reasons therefor.

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