

## NUCLEAR-RELATED TOPICS

There are several areas that could be explored from a technical point of view that may, in turn, help the U.S. Government in its own diplomatic efforts. These have been organized into four topical areas:

- 1) Assessment of their nuclear weapons program. DPRK claims it has a nuclear “deterrent.” If they want the U.S. to believe that, one could discuss how they can make a convincing case without testing a nuclear device.
  - We would like to know whether they really do have nuclear weapons without provoking them to testing. If so, how many? What state of readiness? How much of the proof are they willing to share? What about the safety and security of their weapons (concerns they should have themselves).
  - We would like to know how much nuclear material they have and what state it is in? They, most likely, won't tell us anything, but we could explore what they could tell us that would be convincing to us without giving away the secrets they want to guard. For example, they could try to make a convincing case for the amount of nuclear material they have actually processed (this could be done through reactor operations details or some key measurements of the fuel rods).
  - The North Koreans have privately and publicly made a point of saying that they have completed reprocessing the spent fuel rods. We need a better sense of how far they have gone, and if not all the way, why not.
- 2) *Discussion of “nuclear transfer.”* We have already impressed upon them that this issue is of great concern to the U.S. Government. They have made statements that they have not transferred any nuclear weapons or materials. We could discuss verification issues and assurances that could be developed to back up their claims. We are concerned about the transfer (intentionally or by diversion) of nuclear weapons, nuclear materials, and nuclear technology. Is there technical information they could share or future technical measures that could be developed that would give the U.S. greater confidence in the DPRK claims?
- 3) *Program expansion.* Again, the message that the U.S. is greatly concerned about the potential of DPRK expanding its nuclear weapons program has been delivered. We are concerned about the following:

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- Expanding the program to HEU weapons.
- Restarting the work on their additional two reactors (The 50-Mwe gas-graphite reactor in Yongbyon, which may only be a couple of years away from completion. The 200 Mwe gas-graphite reactor in Taechon, which is still in its early stages of construction).
- Potential clandestine sites (this is probably off limits for discussion. However, it is of great concern to the U.S.).
- At this point, the HEU enrichment situation is crucial from a U.S. point of view. It would be very helpful to engage them in a discussion on this issue. From what we can tell, we really don't know exactly how far along they are. We may be able to discuss technical measures that could be developed to make the case one way or another (it is not clear to me whether they want us to think they have or don't have this capability).

*Two specific suggestions have been made:*

- a) One such step is to make available (perhaps sell to us) the components we think (with some level of confidence) that they have acquired. This does not mean going after everything because if we get key components that the North cannot make, it doesn't matter how many other components they might have. Indeed, if we offered to buy the components, they might be willing to sell us more than we would need to cripple a program. Seems to me to be worth exploring.
  - b) Another approach would involve monitoring/controls on the supply of electric power. The North clearly needs power and, we think, we are ready to address that need in some way. Seems reasonable to build into the deal monitoring mechanisms that would make it very difficult to run centrifuges without detection.
- 4) Program freeze or dismantlement. The DPRK has indicated they would be willing to freeze and/or dismantle its nuclear weapons program depending on U.S. actions. We could try to put the diplomatic issues aside for the moment, and discuss what would be required technically to verify a freeze or the dismantlement. One reason for doing so is that it would be beneficial to have developed various options of what is doable technically before the diplomatic decisions are finalized. (We have recently been told (by Japanese diplomats) that the US has "essentially" completed its verification plans and have briefed it to the ROK, Japan and China. This will be investigated prior to trip.)
- This area has many technical issues and questions - from the weapons, to the materials, to the facilities (reactors, reprocessing, testing, etc.). We would also want to discuss both the plutonium reactor route and the HEU enrichment route.

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- We mentioned measures that could be taken to freeze or reverse the HEU enrichment program above. The plutonium program is even more complex because they have already clearly separated some plutonium.

- We could also explore what role technical experts from other countries, such as China, could play in the verification arena.