North Korea's nuclear program can be best understood by observing and assessing decision points made by both the United States and North Korea. In order to do so, events starting from the Hanoi Summit will be examined. What happened in Hanoi, and what didn't? From the outset, both the United States and North Korea had different perspectives, and in the end, both sides walked away. Interestingly, domestically President Trump received support from the left and right sides of the political spectrum, citing that no deal was better than a bad deal. Within this context, it would be compelling to ask whether President Trump made the best decision for the interests of Americans? Was he right to walk away? Was a good decision or a hinge point? A hinge point refers to a decisive point, which usually triggers adverse consequences.

In order to assess whether president Trump was correct walking away from Hanoi, we have to grasp what Hanoi was all about, technically from a nuclear standpoint and politically. To understand the stakes, Hecker tracks the history of North Korea's nuclearization: he suggests to think of nuclear weapons not as a single entity but to consider what it really takes to have a nuclear arsenal, which consists of three things: bomb fuel; design, building & testing; and finally delivery systems.

Following the evolution of the North Korean program from 1992 and looking at diplomatic efforts by the United States and by North Korea, we can notice a relation between different diplomatic approaches and different North Korean responses. When there was diplomacy, they backed off of plutonium production and with no diplomacy North Korea re-established its plutonium capability and became serious about weaponization.

But why is it that now no progress is being made?
President Trump has decided that he would move with North Korea towards non hostile relations yet keep maximum pressure, because it is in American's understanding that military push and sanctions are what can make countries change.
On the other hand, this approach is seen as inconsistent from the North Korean side, which sees a friendly relation with Trump paired with extreme military pressure as incoherent. So they respond with a similar approach, countering maximum pressure with maximum military readiness.
"Friendship or non-hostile relations with maximum pressure begets non hostile relations with maximum military preparedness".

So the issue is who is going to make the next move to get us out of that relationship.
For professor Hecker, the first step to ease the situation would be the dismantlement of Yongbyon.
He also states that the best plan to denuclearize NK implies taking small steps over time and phasing the process in order to build trust.

He cites a speech at the university of Michigan affirming that **“the route to denuclearization is through normalization and peace”**, and he concurs with that.

Hecker emphasizes that it is important to tackle the security issues first, and then there has to be sanction relief because no matter the effort, if NK feels unsafe they won't cooperate.

The recent improvement of relations between the north and the south is encouraging and professor Hecker believes it is the place where the economic development has to take place, in order to draw the north closer to the south through some form of tailored sanction relief.

Q & A

Q1: President Moon said dismantling Yongbyeon would mean denuclearization has entered an irreversible stage. Do you agree? And how significant is Yeongbyon to North Korea’s entire nuclear program?

A: I find it almost inconceivable that the North Koreans would fully eliminate Yongbyon. There’s just too much there. Some facilities would be extremely useful for civilian nuclear power. It’s possible the DPRK will walk back prior talks and focus on removing weapons-connected Yongbyon facilities only. One option would be to kill the 5mw reactor, in such a way that it cannot be revived. But ultimately, nothing is irreversible, not truly. The question is, how long would it take to rebuild? If you have no long range missile testing, no nuclear testing and no Yongbyon, that would dramatically delay a rebuild.

Q2: How do you think we can manage Yongbyon? There are over 300 buildings in the complex, as you are aware. Also, how do we handle the nuclear scientists? Finally, the DPRK needs radioactive isotopes for medical purposes. So if we close the North Koreans 5mw reactor, we may need to supply medical isotopes. Do you think this is feasible?

A: Shutting down Yongbyon would be an enormous undertaking. You have to decontaminate, then dismantle the buildings, and finally engage in environmental remediation. This is at least a 10 year timescale, and will require a huge number of people. So first, a lot of that work can be done by the North Koreans themselves, with the advice of specialists in KAERI and from the US. It will take a lot of time and a lot of money, but it is possible. As for addressing the human resources, the case of Comprehensive Threat reduction (CTR) in Russia is instructive. The single most important lesson we learned from that experience is, if you want to know what to do with the human resources, go ask them directly. So I did, I asked Director Lee Yong Sab in 2007, and he told me, “We want to make nuclear electricity for our country, we want to make medical isotopes.” I think this is fundamentally workable. The factory workers, as well, will require a new

place to put their talents. What is key is good north-south relations to help the North Koreans find productive places to use their people.

Q3: There may soon be a resumption of working level talks with the DPRK, following the breakdown at Hanoi. What would be your agenda for working level negotiations?

A: I can't answer that. That's the job of the negotiators. Real negotiations are hard, and defy early predictions of endpoints. Special Representative Biegun will have to handle that. But it is important to take steps to actually reduce the risks. You have to give something to accomplish that, however, which may upset some people.

Q4: Verification is a key element of CVID. How can South Korea assist and participate in verification activities with international teams such as those working for the IAEA?

A: Verification will remain enormously complicated and difficult. Particularly as one approaches the end- the last few weapons or last few kg of plutonium can be hidden nearly anywhere, it is extremely difficult to be sure. But the best way to speed up verification, engage in "cooperative denuclearization". By working together, Korean agencies and organizations such as KINAC and KAERI, can work with the Americans to utilize their decades of experience and ultimately cooperate with the North Koreans on peaceful applications of nuclear technology. If the North Koreans can be made to understand that they can benefit from this cooperation, it can be done. But if the process is adversarial, it is vastly harder. In terms of division of labor, the North Koreans dislike the IAEA and preferred to work with the American technical teams. Thus, the existing working relationship with the Americans can be used to pull in South Korean partners, then in time the IAEA can play a larger role....