

# A Verified End of Fissile Material Production on the Korean Peninsula

UNIDIR [online presentation](#) of the report

Pavel Podvig, ["Freeze and Verify: Ending Fissile Material Production on the Korean Peninsula"](#)

16 September 2020

## Answers to questions asked during the event

**Q:** It will not be possible to do a full accounting of the Pu programme as the wastes from the initial campaigns pre-1992 no longer exist (though the DPRK gave a Pu report to the Bush administration, which shared a copy with the IAEA). In your view then how can we get a credible accounting of the Pu programme and how to sequence the dismantling of nuclear facilities and sanctions relief?

**Pavel Podvig:** Of course, credible and accurate accounting for past plutonium production would be quite difficult. The question, however, is, what would be considered credible and accurate? Regarding the accuracy, the wastes from plutonium production are still there, even if it may be difficult to access them. Nuclear forensic would help with getting better understanding of the production history. All methods have limits, of course, but it should be possible to reduce the inventory difference to an acceptable value (again, keeping in mind that the DPRK already has a plutonium stock). As for credibility, it would come primarily from the record of DPRK cooperation with the inspecting organization. This is how it was done in South Africa, for example. In any event, it would have to be a political decision. There are states with a broader conclusion that have not accounted for every gram (or even kilogram) of their plutonium.

Regarding sanctions relief, I am sure that with the multiple sanctions imposed by the UN as well as by individual states it is possible to design a package that would be adjusted to specific denuclearization steps. There are political normalization measures as well that could provide additional options.

**Q:** Would it be a plausible scenario for the DPRK to have maintained complete separation of nuclear materials between its declared and clandestine facilities? If there is a complete clandestine fuel cycle operating in parallel with the declared fuel cycle it would be challenging to spot from material balances.

**A:** Two considerations should be taken into account. One is that the freeze assumes that all production activity would stop. In this environment, maintaining an operating clandestine fuel cycle, which would have to be rather large to be militarily significant, would be quite difficult. Also, the existence of a fuel cycle that is completely disengaged from the known/declared one is extremely unlikely. It would have to be built with the specific purpose of defeating a very specific verification arrangement and rely on a very strict separation between the two maintained at all times. The option of challenge inspections to verify the absence of production facilities would provide an additional safeguard.

**Q:** Speaking about incentives - economic normalization is important, but it seems that state survival is more important for the DPRK. So, the declaration of 'military fizmat' amounts should be offered to be done in exchange for some security guarantees, because even without disclosure of all the infrastructure, such data will make the life easier for 'enforced denuclearization' strike planning. Is there a room for such guarantees - also 'verifiable', probably even with some reciprocal or symmetrical measures?

**A:** I don't think that a declaration of production facilities would make an 'enforced denuclearization' strike more practical since the declaration would not include the locations of the facilities that would be the most relevant for a disarming strike – weapons and weapon-related activities. As for the amount of fissile material, the declaration could provide some additional information about the weapon arsenal, but significant uncertainties would still remain. Since the amount of material that is used in the DPRK's weapons is unknown (and would not be disclosed), it would be impossible to know how many weapons the DPRK has actually produced.

Regarding security guarantees, there are, of course, limits of what can be done. It might be possible to reach an agreement that would include a pledge not to resort to force, but that would be a political commitment. It should be possible to design practical steps to support that commitment, such as suspension of military exercises or withdrawal some troops from the region, but in the end, it is a matter of a political compromise.

**Q:** What do you think of concerns that North Korea would exploit the step-by-step approach by taking minimal denuclearization measures to gain maximum return, for example lifting of sanctions, while retaining core nuclear facilities? Wouldn't your suggestion allow North Korea to do just that?

**A:** Any arrangement short of full dismantlement of the nuclear program could be considered "minimal denuclearization measures." It is true that the shutdown of production facilities can be reversed (although the declaration, once made, cannot be recalled). This means that the arrangement should be structured in a way that would not exchange minimal measures for "maximum return." Should the DPRK be ready to go further and, say, irreversibly dismantle its facilities, such a step could be reciprocated accordingly. In the end, it is a matter of a political decision. The freeze arrangement cannot replace the political process, but it could create a framework that would support that process by providing a mechanism to verify the shutdown and subsequent dismantlement of the nuclear program.

**Q:** In the case the DPRK would allow on-site inspections, do you envision a role for the IAEA in doing the verification? In that case, a CSA would obviously not be feasible, so would you suggest facility-specific (INFCIRC/66-type) agreements, or perhaps something similar to the JCPOA-type (extra-budgetary) approach without demanding the DPRK to return to NPT and its verification requirements?

**A:** If the IAEA is involved, the agreement would probably have to be a tailored agreement that is closer to a CSA or, indeed, to a CSA with an additional protocol, than to INFCIRC/66. Indeed, the key obligation under CSA is to apply safeguards "on all

source or special fissionable material in all peaceful nuclear activities.” Technically, material in non-peaceful uses could be treated in a manner similar to that described in Article 14 of the CSA, which allows for non-application of safeguards to some nuclear material. The important difference, of course, is that Article 14 prohibits the use of material in nuclear weapons, so this would have to be modified. Other elements of a CSA agreement would have to be modified as well, for example to reflect the focus on detection of production facilities and to modify some safeguards objectives and procedures. Some elements of an additional protocol would have to be incorporated as well, such as the requirement to provide information about uranium mines and concentration plants. With time, the safeguards agreement would “evolve” to become a full CSA plus an additional protocol-type of agreement, maybe with some extra elements of the JCPOA type. Designing such an agreement would be a challenge, but all elements are already there, so there is no fundamental reason it cannot be done.

**Q:** Could the participation of the IAEA play a constructive role, given the DPRK’s deep mistrust of the Agency.

**A:** Indeed, it is quite possible that the DPRK would resist giving the IAEA a role in the inspection activities. This, however, should not be an obstacle to implementing the freeze arrangement, as it could create a dedicated verifying organization. In fact, there are advantages of doing so as it would allow participating parties to be directly involved in the verification activities without the IAEA acting as an intermediary. It is important to note that the verifying organization could include representatives of non-nuclear weapon states and that it would be able to use the tools and methods developed by the IAEA.