

Minimisation of Highly Enriched Uranium (HEU) in the Civilian Nuclear Sector,

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HEU Minimisation: If it is a good idea – what should we do next?

Presentation for Session 3, 20 June

Lars van Dassen, SKI

(Personal observations and suggestions)

Outline:

This presentation contains two proposals regarding HEU minimisation:

- *First of all, a code of conduct ought to be established in the framework of the IAEA so that states gradually and steadily can move toward accepting and implementing HEU minimisation.*
- *Secondly, HEU retrieved from civilian uses can be down-blended to LEU and transferred to a multilateral fuel bank operated by the IAEA. After that the fuel bank can lease the LEU for use in modified research reactors and civilian power reactors.*

It is suggested that this scheme offers a balance between NWS and NNWS obligations (with respect to civilian nuclear materials that are weapons-useable) and provides a net non-proliferation improvement.

The presentations and discussions from these four days have provided a diversified look into a very complicated field. Nevertheless, I think it is impossible for all of us to draw a water-tight and common conclusion that HEU minimisation is necessary and that alternative LEU fuels can provide the same results for scientific research as can be achieved with HEU. Eventually much depends on taste and perspective but many presentations and Professor Goldemberg conclusions summarised that very much can be achieved and gained when shifting from HEU to LEU.

My perspective is that the less HEU there is in use and circulation the more will we be relieved from the threats arising from the risks of HEU misuse. There are effects on the neutron fluxes by moving to LEU. And as reactors and scientific objectives are different, there will also be different opinions on whether security gains are larger than the damages

from reduced neutron fluxes. It is eventually a political calculation whether security is more important than fluxes.

Let me use an analogy in order to specify what this is all about when it comes to making the political choice: Most men – and many women - would love to own a sports car and be able to drive as fast as they can. But for the sake of the common good and a larger degree of safety for all citizens there are traffic rules and speed limits. We tend to agree that this a good societal measure. In spite of speed limits and traffic rules many drivers will still want to own a fast car – because there might be cases where it is necessary or possible to drive fast. This also points out that the sports car is most of all a status symbol. In the nuclear field it is maybe also important to think of the common good first and thus consider common standards for behaviour. And here it is relevant to make sure that we do not have HEU and HEU research just because we can and because it is a status symbol.

For those of us who believe that HEU minimisation is a way forward for creating a world with smaller proliferation risks and fewer nuclear terror scenarios – the question is what we can do when it comes to actual and concrete work once this conference is over. My suggestion is rooted in multilateral policies in the nuclear disarmament and non-proliferation field. We have to work and view things in such a manner, that we bring nuclear disarmament forward and proliferation downward – in a balanced manner. In line with this, I will suggest two steps: The first one is concrete and maybe straightforward. The second one is more complicated but nevertheless one that is important as it ties HEU minimisation to the larger non-proliferation objectives of the non-proliferation regime.

Proposal 1: An IAEA operated code of conduct.

I would first and foremost suggest that an ”international code of conduct against the production, trade and use of civilian HEU” is established. It would have to be a code that is established by the appropriate mechanisms for this by the General Conference and/or the Board of Govenors of the IAEA. The Code would be an active mechanism for information exchange, and the development of mandatory standards. However, I think it is important to make the code a loose framework in order to make it a strong tool in the long run. It should contain four objectives regarding:

- The non-production of HEU for civilian purposes
- The non-trade of HEU for civilian purposes

- The non-uses of HEU for civilian purposes
- The elimination of HEU for civilian uses

Initially, a state could adhere to all four objectives, or one, two or three of them. This would allow for some flexibility and adjustment to worldly realities where HEU fuel cannot or cannot immediately be replaced with LEU. A state that would adhere to one or two of the objectives would nevertheless state that it recognises that HEU minimisation is a noble cause. Such a state would be part of the process even if it cannot live up to all principles from the outset. Part of the code of conduct would also have to be a reporting scheme to the IAEA on how the code is being implemented at the national level.

You may have different opinions on whether such a code of conduct is a good idea; whether IAEA member states will endorse it; and whether states will join it. But let me stress that other codes of conduct have proven to be efficient tools for creating common standards and norms. The EU has, in 1998, established a Code of Conduct with respect to exports of conventional weapons. At first this was treated with scorn and scepticism. Now, it is considered a major success for the European Union that its member states observe more and more common principles for which weapons to export to whom.

Proposal 2. Down-blended HEU fuels for a multilateral fuel bank.

Secondly, it needs to be considered how we can avoid that the injustices that exist today in the non-proliferation regime are not reproduced when it comes to HEU minimisation. The non-proliferation regime suffers bitterly from the unwillingness of nuclear weapon states to achieve more in the field of nuclear disarmament. At the same time, a debate currently rages concerning which states should be allowed to operate uranium enrichment. It is important that any steps in HEU minimisation do not re-create the injustice already infecting the regime. This means as a base line that it is very important that a dedication towards HEU minimisation is shared by both NWS and NNWS. Presentations at this conference show that we may expect something substantial from certain nuclear weapon states.

Recently, it has been discussed to establish international fuel banks to make sure that nuclear fuel can be assured for countries who want to develop nuclear energy. This would be offered in order to make it unnecessary for further NNWS to develop enrichment activities. My suggestion is that we should also think of this "fuel bank" proposal in the HEU minimisation context. A fuel bank related to the IAEA – could also incorporate down-blended civilian HEU. If HEU is taken out of the civilian sector then it could be down-blended to LEU

for the use in converted LEU reactors - - as well as in power reactors in countries that want to use nuclear energy. The benefit from this would be that nuclear materials for non-proliferation reasons are withdrawn from both NWS and NNWS and sold or leased to NNWS for non-proliferation purposes. Thus *there would be non-proliferation gains at both ends* when (1) the amounts of civilian HEU are reduced and when (2) the fuel supplies to a given state can be based on this former HEU fuel – in return for that state abstaining from operating its own enrichment activities.

3. Final reflections.

Central in both issues mentioned above is the role of the IAEA. This is not a coincidence. Things are better taken care of when it is done by an organisation we all can belong to if we so choose. When it comes to the suggested code of conduct, the Agency has the experience and knowledge that the issue demands, and moreover, the IAEA has an efficient communication system with the member states. When it comes to a fuel bank then it merits attention that the Statute of the IAEA already foresees the Agency to have the role as a fuel bank. In his famous "Atoms for Peace" speech more than 50 years ago, US President Eisenhower suggested that nuclear materials from nuclear weapons would have to be "siphoned off" and put into an international bank for such materials. From there they would be leased to other states for civilian purposes. The IAEA Statute bears the imprints of Eisenhower's ideas. The difference between Eisenhower's original ideas and today's situation is that Eisenhower had military nuclear materials in mind – while we discuss civilian HEU. But if we do things well then steps in the field of HEU minimisation may lead to other issues where materials from disarmed nuclear weapons can also be put into a bank. I think – for the sake of non-proliferation, disarmament and the peaceful uses of nuclear energy – that we owe this to Eisenhower's vision and legacy.

Thank you for your attention.