

A GROUP OF SCIENTIFIC EXPERTS FOR NUCLEAR DISARMAMENT VERIFICATION

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Introduction

1. I want to thank the Permanent Mission of Norway for their kind invitation to participate today as well as Ambassador Stener for agreeing to chair today.
2. Now, earlier on this panel, you heard Tim Caughley outline the need to understand what's out there concerning nuclear disarmament verification. You also heard Svein Mykkeltveit describe the Group of Scientific Experts devoted to the CTBT.
3. The work of the CTBT Group of Scientific Experts *cannot be understated*. As you heard, it got its mandate from the Conference on Disarmament; it was open to participation from all CD states and observers, and it operated uninterrupted to the day negotiations on the CTBT had been completed. This group focused on solving real practical problems. They sought solutions, and found them, at a time when there was no political will to negotiate the test ban itself.
4. There is, in my mind, an urgent need for like-minded states to brush off this idea, and to get seriously involved in the details of disarmament verification. The draft resolution on '*Nuclear Disarmament Verification*' submitted by Norway constitutes a good first step in this direction.
5. Once this work is underway, I am proposing that states, also, consider supplementing this group with a Group of Scientific Experts devoted to Nuclear Disarmament Verification.

Why should scientists be involved in this effort?

6. More than a decade ago, I took part at the beginning of the UK-Norway Initiative. Many of you would have heard of this effort in the past. The initiative came about after a relatively long series of preparatory meetings, often facilitated by VERTIC.
7. *What made it so special?* It was the first time a nuclear weapon state, a non-nuclear weapon state and a non-governmental organisation had collaborated on something as sensitive as nuclear disarmament verification. What I just said is well known. In fact, it has been stated many times. However, that is only part of the answer.
8. What made it special was the individuals that were involved in the work. The vast majority of us were scientists: nuclear engineers, physicists, chemists, and metallurgists. The others had a keen interest in science and technology.

9. It is easy to forget that scientists brought nuclear weapons into being. Remarkable, intelligent men and women. Their pursuit was driven not only by the desire to win an incredibly cruel war, but also by an inherent need to understand the nature of our universe, to master the splitting of the atom, and all that comes with it. These were not men of war. They were people of science and learning, curious minds.
10. Engineers made fission theory real. Politicians and military men decided to unleash the power of the atom on humankind.
11. In my mind, science and engineering will have as much role in the abolition of the bomb, as it had in its creation.
12. Scientists and engineers will make sure that weapons slated for dismantlement are destroyed safely. The combination of fissile, radioactive materials and high explosives in a confined space means that they cannot just be crushed or burned, like an assault rifle or a tank. They cannot just be incinerated, like chemical weapons. They cannot be blown up, like mines or conventional explosives.
13. Scientists and engineers will make sure that the fissile material is removed safely, and destroyed in an irreversible way. Uranium and plutonium cannot just be dumped in a landfill. It cannot just be buried and forgotten. These metals will need to be stored in ways that are safe for future generations.
14. Scientists and engineers will oversee the decommissioning of factories and other installations devoted to the production and processing of these materials. Moreover, scientists and engineers will design the equipment we need to ensure that all of this is done in a verifiable and as transparent way.
15. These are not easy problems. You cannot just wish them away. You cannot just say, the weapons are banned; let's get on with it. However, scientists and engineers will be able to guide us towards solutions that work in the real world: durable, robust solutions.
16. I participated in the UK-Norway Initiative for almost four years and learnt many valuable lessons along the way.
17. *First*, if you can do away with the paymasters' rhetoric, it is easy to get scientific minds to converge on a problem and work together to solve it. What I just said should not be surprising to you. After all, science knows no borders.
18. *Second*, for a scientific endeavour to be successful, you will have to focus your area of study. You will have to set very clear objectives, as well as boundaries, for your work.
19. *Third*, while it is easy to run a group like this, setting it up in the first place, and making sure that it is adequately funded is tough.

Why is there a need for scientific and technological expertise in future endeavours?

20. *Can you discuss* verifiable and irreversible disarmament without a clear plan of how to do it? Is it enough to point at one-off experiences such as the International Atomic Energy Agency's mission in South Africa and say: we know how to do it?
21. *Are we prepared*, technically or methodologically, to embark on the dismantlement of some 15,000 nuclear explosive devices? Something on this scale has never been attempted before.
22. *Do we know* how to dispose of the nuclear material lodged in these weapons in a verifiable way? Do we know how to manage the production legacy of large weapons programmes? Can we ever get confidence that all nuclear weapons have been dismantled, and that all nuclear material is in peaceful use?
23. I do not think it is intellectually honest to claim that humankind has the answers to all these problems. So if we do not have the answers, are we ready to embark on earnest disarmament ventures?

The application of science and technology

24. We can only answer many of these questions by supporting scientific and technical investigations into the challenges associated with nuclear disarmament; verification is one of many issues that needs to be solved. Disposition is another. Preventing the re-emergence of nuclear weapons is the ultimate objective.
25. Many of these needs could be explored by groups such as the Group of Governmental Experts, as proposed by Norway and others in their draft resolution, as well as a Group of Scientific Experts devoted to Nuclear Disarmament Verification
26. *Some will object*, saying that it is *not necessary* because nuclear weapons exist, plays a prevalent role in the defence planning of many nations and that the preconditions to nuclear abolition are not here. I would want those people to recall the work of the CTBT-GSE. Back then, as Svein Mykkjelveit explained, there was no political appetite for a test ban.
27. *Some will object*, saying that these efforts *detract* from a ban treaty. I believe this to be a straw-man argument. It does not detract from a ban more than a prohibition diverts from examinations into verifiability. After all, the issues are complementary to each other.
28. *Some will say* that there is *no appetite* amongst the nine weapons states to do this work. I cannot speak for the DPRK, but I know that all other NWS have active programmes in disarmament verification. Having these efforts join up would be a benefit to all. Just see what rewards collaborations such as the UK-Norway Initiative, the US-UK collaboration, and future collaborations of this kind have given and will continue to provide.
29. *Some will say* that it may be *costly*. Perhaps. However, the CTBT-GSE was funded through national governments that wanted to see action. Spearheaded by Scandinavian nations, that had never tested a

device at any time. Supported by the UN, quite modestly, with a P-5 member of staff that helped coordinate it all. The costs are small compared to the rewards that a scientific and technical collaboration could bring.

30. The one criticism that is *easily dismissed* is a shortage of time. Even if there are successful negotiations on a ban treaty next year, nuclear weapons themselves are unlikely to go away in the next few decades. The threat they pose is real, and this should install a sense of urgency. However, a long time scale to nuclear abolition also needs time to prepare; time that should not be wasted.

In closing

31. Imagine where we would be 20 years from now if we allow a group of scientists and engineers from around the world to come up with real and workable solutions. Would that not remove a very real practical obstacle to abolition?
32. Would not such work remove a very easy argument; namely that disarmament is technically challenging and difficult to verify?
33. Would that not reduce arguments for the possession of nuclear weapons to its core?
34. So again, I am proposing that states consider a Group of Scientific Experts devoted to Nuclear Disarmament Verification. Science and engineering brought the bomb to being; science and engineering will be crucial in their abolition.
35. So I see no reason why this work should not start soon. The Group of Governmental Experts, proposed by Norway and many other states at this General Assembly, could well be a very useful first step.
36. I thank you for your kind attention.