UNIDIR RESOURCES

Universalization of Comprehensive Safeguards—Next Steps

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Introduction

On 28 May 2010, the NPT Review Conference was able to adopt by consensus a final document. The most important part of the document contains a list of 63 actions to which the parties have committed themselves. The next Review Conference will examine whether and to what extent these actions have been implemented. The actions cover a wide range of tasks from the three pillars of the NPT—namely nuclear disarmament, nuclear non-proliferation and the peaceful uses of nuclear energy. The old problem of perceived injustice because of inherent discrimination in the NPT will be re-examined by accounting for the implementation of the three sets of actions. It is therefore important to achieve successes in all three pillars. This paper deals mainly with Action 29 which appears under the headline of non-proliferation:

> Action 29: The Conference encourages IAEA to further facilitate and assist the States parties in the conclusion and entry into force of comprehensive safeguards agreements and additional protocols. The Conference calls on States parties to consider specific measures that would promote the universalization of the comprehensive safeguards agreements.

Although assigned to the non-proliferation set, universalization of comprehensive safeguards would also strengthen the nuclear disarmament component. Universal safeguards and steps that facilitate their implementation have many advantages and only one disadvantage, namely higher costs and more funding for the IAEA. But these costs are marginal in comparison to what some states spend for their security.

In the following, I want to discuss the advantages of universal safeguards, the commitments that have been made so far, and the steps that are necessary to achieve this goal.

Benefits of Universal Comprehensive Safeguards

Delegates from nuclear-weapon states claim that it would be a waste of effort to invest in comprehensive safeguards in nuclear-weapon states, who are allowed to use fissile material for any purpose, including nuclear weapons. But the universalization of comprehensive safeguards would have several benefits.

Firstly, there is a benefit for non-proliferation and the reduction of nuclear terrorism risks. By far the largest quantities of weapons-usable materials are in the possession of the nuclear-weapon states, and large parts are considered or declared excess. Therefore, these materials need to be stored, transferred into civilian use or disposed of. These materials must not only be adequately secured in order to avoid any illegal diversion, they must also be accounted for. Material accountancy is precise and well developed in non-nuclear-weapon states, because it is a prerequisite for IAEA safeguards, in that it verifies their accuracy. In nuclear-weapon states, such methods are less developed. In the early stages of the development of nuclear weapons, the priority was to develop a functioning bomb, but the need for high precision in material accountancy was only little appreciated because domestic physical protection was deemed sufficient. Furthermore, transfers of material to uses other than nuclear weapons were not intended, and so physical protection was in the hands of the military. So, there are wide variations in differing, non-transparent standards for accountancy.

International safeguards not only demand precise material accountancy, they also change attitudes. In nuclear-weapon states, fissile materials—irrespective of whether they are military or civilian—are considered as a "national matter of no concern to the international community". In contrast, for non-nuclear-weapon states, fissile materials are a matter of international responsibility, and reporting obligations are self-evident and uncontested, neither by decision makers nor the public or the industry. Should international safeguards be introduced in a nuclear-weapon state, similar attitudes would develop. This would give accountancy and transparency a much higher priority. Precise accountancy is an important indicator that allows early warning in case nuclear material has been illegally diverted. Also, the nuclear-weapon states have a responsibility towards the international community to prevent nuclear terrorism.

Secondly, universal safeguards will appease the perception of injustice. The two different categories that the NPT lays down are at the heart of many disagreements on the NPT. The nuclear industry in the non-nuclear-weapon states sometimes claims that it perceives a disadvantage in comparison to their competitors in the nuclear-weapon states because safeguards inevitably create additional circumstances and delays. Similar duties for the competitors in nuclear-weapon states would be perceived as more just.

Beyond the level of just complaints by the industry, states may also principally resent the different attitudes illustrated above. Why is the one category of states obliged to serve the interests of the international community to avoid nuclear proliferation and terrorism, while the states in the other category still claim to have "national interests of no concern to the international community", although it is evident that the fissile materials sought by nuclear terrorists are mainly in their possession? Should they not equally be called to account for their achievements with regard to preventing nuclear security dangers, and doing so with similar precision as non-nuclear-weapon states?

Thirdly, universal safeguards prepare the ground for further disarmament. The Global Zero vision that US President Barack Obama invoked at his speech in Prague in 2009 would only be possible if thorough, global full-scope safeguards would be implemented in order to detect as early as possible any attempt of a break out. This would require also the tools that the Additional Protocol offers. How else can we move towards the goal of a nuclear-weapon-free world if we do not start with the necessary preparations?

Comprehensive IAEA safeguards in nuclear-weapon states therefore would be appreciated as an important step towards implementation of article VI, and one likely to promote the success of the NPT and future Review Conferences.

Fourthly, IAEA safeguards would also be in harmony with a future Fissile Material (Cut-off) Treaty (FM(C)T) that at minimum will ban the future production of fissile materials for nuclear weapons.[1] In order to ensure *credibility*, verification of an FM(C)T must not only cover non-production but also non-diversion. This is the same as what is already being verified in non-nuclear-weapon states under full-scope safeguards. The difference is the "black box" of non-safeguarded fissile materials produced prior to entry into force that the nuclear-weapon states will eventually be allowed. An FM(C)T therefore would require verification measures in all member states that are rather similar to full-scope safeguards as applied today in non-nuclear-weapon states, including measures legitimized by the Additional Protocol. So far, the safeguards that the IAEA may apply at facilities in nuclear-weapon states according to an INFCIRC/66-type agreement remain voluntary. This means that the state may withdraw nuclear materials or facilities from safeguarding as it pleases. A first step should be the irreversibility of safeguards—once applied they may not be withdrawn.

Declarations of Intent

Action 29 is an official commitment that so far is the closest to confirm the common goal of global full-scope safeguards. It calls for specific measures that would bring us closer to that goal. Some of the possible specific measures have already been called for internationally. In the following I want to present some of these calls.

One specific measure is international safeguards on the disposition of fissile materials no longer needed for defence purposes, which were the topic of the previous UNIDIR event. Declarations of intent on safeguards for excess nuclear materials have been made on several occasions. The first important event was the G-8 summit in Moscow, 1996:[2]

> We pledge our support for efforts to ensure that all sensitive nuclear material (separated plutonium and highly enriched uranium) designated as not intended for use for meeting defence requirements is safely stored, protected and placed under IAEA safeguards as soon as is practicable to do so.

This was repeated in the Guidelines for the Management of Plutonium, which were agreed between the most important plutonium-using states in 1997:[3]

> These guidelines apply to the management of all plutonium in all peaceful nuclear activities, and to other plutonium after it has been designated by the Government concerned as no longer required for defence purposes.

1 Annette Schaper, *A Treaty on Fissile Material: Just Cutoff or More?*, PRIF Report no. 109, 2011, <http://hsfk.de/fileadmin/downloads/prif109_01.pdf>.

2 Moscow Nuclear Safety and Security Summit Declaration, 20 April 1996, para. 25.

3 IAEA, *Communication Received from Certain Member States Concerning Their Policies Regarding the Management of Plutonium*, document INFCIRC/549, 16 March 1998.

Transparency in excess fissile material was also promised by the nuclear-weapon states at the NPT Review Conference in May 2000:[4]

> We are committed to placing as soon as practicable fissile materials designated by each of us as no longer required for defence purposes under the International Atomic Energy Agency (IAEA) or other relevant international verification.

The same has been asked by the EU Council at the NPT Review Conference.[5] The call has also been repeated in several General Assembly resolutions. Not surprisingly, the NPT 2010 Action Plan includes a call for IAEA safeguards on excess fissile materials:

> Action 16: The nuclear-weapon States are encouraged to commit to declare, as appropriate, to the International Atomic Energy Agency (IAEA) all fissile material designated by each of them as no longer required for military purposes and to place such material as soon as practicable under IAEA or other relevant international verification and arrangements for the disposition of such material for peaceful purposes, to ensure that such material remains permanently outside military programmes.

Between the first public commitment in 1996 and the latest in 2010, much time has passed but the wording is still quite the same. These commitments are a step in the right direction, as elaborated recently by Pavel Podvig in a paper in the same UNIDIR publication series as this paper.[6] However, the pace of action is slow. This is understandable with regard to the technical disposition and processing of excess materials, which are complicated and costly, but it is not with regard to international transparency and safeguards. A key phrase is the notion of "as soon as practicable". Unfortunately, the term "practicable" is not defined and can be interpreted by any delegation at its pleasure. Phrases like this have the potential to delay success indefinitely. And indeed, an indefinite delay seems to be the case, seeing the repetitions of ever the same wording every other year without substantial actions to follow.

Related to all this is Action 30:

> The Conference calls for the wider application of safeguards to peaceful nuclear facilities in the nuclear-weapon States, under the relevant voluntary offer safeguards agreements, in the most economic and practical way possible, taking into account the availability of IAEA resources, and stresses that comprehensive safeguards and additional protocols should be universally applied once the complete elimination of nuclear weapons has been achieved.

While this call points in the right direction, it still refers to only the voluntary offer safeguards agreements that are reversible. Unfortunately, it does not call for irreversibility of safeguards, but it is a regulation on irreversibility that is overdue—a facility or nuclear

4 *Letter dated 1 May 2000 from the representatives of France, the People's Republic of China, the Russian Federation, the United Kingdom of Great Britain and Northern Ireland and the United States of America addressed to the President of the 2000 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons*, document NPT/CONF.2000/21, 1 May 2000.

5 *Council Common Position of 13 April 2000 relating to the 2000 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons*, EU document 2000/297/CFSP, 13 April 2000, art. 2.2(i).

6 Pavel Podvig, *Disposition of Excess Military Nuclear Material*, UNIDIR, 2012.

material that is once subjected to safeguards must never be withdrawn. This rule is a measure easy to comply with. Secondly, the call in Action 30 emphasizes the caveat of costs and refers to available IAEA resources. It would be more helpful to also call for an increase in these resources, otherwise any expansion of safeguards would remain an illusion. Thirdly, it cites a sequence of events, namely the complete elimination of nuclear weapons as a first step and, only after that, universally applied safeguards as a second step. In fact, the sequence should be the other way round. It is much easier to implement safeguards on the entire civilian fuel cycle of a country while still some nuclear weapons are not yet dismantled and some fissile material for nuclear weapons needs is still exempted than to disarm and only apply safeguards after that. In fact, all civilian nuclear installations and materials in the United Kingdom and in France are subject to Euratom safeguards, which are at least as intrusive as IAEA safeguards. There is no reason why similar safeguards should not be possible in other nuclear-weapon states.

Steps towards Global Safeguards

There are still many obstacles. In nuclear-weapon states, there is no lobby in favour of international safeguards. Rather, no one wants to give up privileges and competitive advantages. No one wants to spend more money although the additional amounts are only tiny fractions of many other budgets, such as defence budgets. So, progress can only be achieved in small steps. In the following, I want to present some examples of such steps.

- As explained above, the calls to place excess nuclear materials under IAEA safeguards should be followed by action.
- An obstacle to transparency in excess fissile materials is the secrecy that the nuclear-weapon states assign to several of their technical properties. These states should reconsider their secrecy guidelines and implement bureaucratic processes that allow reviews and eventual changes. A reason for secrecy is proliferation risks, but often secrecy is attached for many other reasons.[7]
- The nuclear-weapon states should commit themselves to irreversibility and to not withdrawing installations or materials that they have subjected to IAEA safeguards.
- The nuclear-weapon states should reconsider their needs and commit themselves to declaring more reserves as excess.
- The international community should allocate more funds to the IAEA, for the goal of globalization of safeguards.
- The nuclear-weapon states should provide for more transparency in their fissile materials. In February 1996, following a two-year study, the US Department of Energy published a comprehensive report detailing information about US

7 Annette Schaper, *Looking for a Demarcation between Nuclear Transparency and Nuclear Secrecy*, PRIF Report no. 68, 2004, <http://hsfk.de/fileadmin/downloads/PRIF-68.pdf>.

plutonium production and use from 1944 through 1994.[8] In 2001, the United States published a similar report on HEU.[9] Also, the United Kingdom has published information on its fissile materials.[10] These laudable efforts should motivate the other nuclear-weapon states to engage in similar studies and publications.

- The international community should implement at the United Nations a register of quantities and properties of fissile materials. A fissile material register could be established in stages. In the first stage, fairly general information would suffice. In the second stage, information would be broken down into details of weapons and material holdings. In the third stage, precise data as to location and parameters would be provided.[11] At the NPT PrepCom in 2002, Germany presented a working paper that called for "a reliable inventory of all nuclear weapons and stocks of fissile material usable for military purposes".[12]

- In non-nuclear-weapon states, all nuclear material is accounted for, which is verified by the IAEA. In nuclear-weapon states, such accounting did not have a similarly high priority, at least in the early stages of the respective nuclear weapon programmes. Therefore, it must be acknowledged that precision similar to that of non-nuclear-weapon states will only be achieved after some time. For an adequate intermediate period, non-nuclear-weapon states therefore should refrain from criticizing nuclear-weapon states because of initial larger accounting error margins. Otherwise the nuclear-weapon states are unlikely to go transparent at all.

- All states should engage in common accounting standards for nuclear materials and should collaborate on modern technical methods.

- The nuclear industry should be engaged in international cooperation projects on the implementation of safeguards in the civilian fuel cycles of the nuclear-weapon states. Many nuclear installations in nuclear-weapon states were not designed for safeguards. They need individual studies for subsequent implementation. There are precedents with installations in the United Kingdom that have been subjected to Euratom safeguards long after their first operation. These cases should be studied and lessons should be drawn. Such projects could be organized in conjunction with projects on physical protection, which is also very important for the prevention of nuclear terrorism.

- The nuclear-weapon states' governments should work with stakeholders and lobbyists and strive for consensuses on the need for these steps.

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8 US Department of Energy, *Plutonium: The First 50 Years: United States Plutonium Production, Acquisition, and Utilization from 1944 through 1994*, document DOE/DP-0137, 1996.

9 US Department of Energy, *Highly Enriched Uranium: Striking a Balance—A Historical Report on the United States Highly Enriched Uranium Production, Acquisition, and Utilization Activities from 1945 through September 30, 1996*, 2001.

10 UK Ministry of Defence, *Historical Accounting for UK Defence Highly Enriched Uranium*, 2006. The report does not give figures for HEU enrichment. The United Kingdom does not specify the average enrichment of its HEU, nor specifies how much HEU is devoted to naval fuel (IPFM 2010).

11 Harald Müller and Annette Schaper, *Nuclear Transparency and Registers of Nuclear Weapons and Fissile Materials*, PRIF Report no. 97, 2010, <http://hsfk.de/fileadmin/downloads/prif97.pdf>.

12 German delegation, *Attaining a Nuclear-Weapon-Free World*, 2002 NPT Preparatory Committee, New York, 11 April 2002.

These are just some examples for possible measures that would promote the goal of universal safeguards. Many more are possible, and many are fairly realistic. Whenever such a step is implemented, the non-nuclear-weapon states should never forget to applaud and honour each one.

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