

Reassessing Nuclear Nonproliferation's Key Premises

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Looking beyond Iran and North Korea
for Safeguarding the Foundations of Nuclear Nonproliferation

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"Those who do not remember the past are condemned to repeat it" (George Santanaya²)

International Atomic Energy Agency (IAEA) safeguards are both the principal means of verifying a state's compliance with international nuclear obligations, as well as detecting the potential transgression of these obligations. In the coming years, the IAEA will be asked to safeguard an increasing number of nuclear facilities, including new types of facilities (such as laser enrichment and pyroprocessing plants, floating nuclear power plants and nuclear propelled submarines) and decommissioned ones. It will need additional funds to procure new types and more effective equipment,³ and expertise to carry out these additional responsibilities.⁴

But the real issue does not stem from resource constraints. Even with greater human and financial resources there is nothing more the Agency would have done in fulfilling its verification mandate in Iran and North Korea.

The real constraint was identified by current IAEA Deputy Director General for Safeguards Herman Nackaerts in a July 2011 speech. "Experience has shown," he stated, "that proliferation risk is not *only* associated with the amount of declared nuclear material that a State possesses or the number and type of declared facilities. Indeed, the major proliferation challenges have arisen in States with limited nuclear fuel cycle facilities, and involved

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² George Santayana (1863-1952) was a Spanish American philosopher, essayist, poet, and novelist.

³ For instance improved surveillance systems, seals and containment verification equipment, portable and resident non-destructive assay equipment, and new types of equipment to increase the IAEA capability to detect possible undeclared nuclear-related activities.

⁴ Including well qualified and trained safeguards inspectors with analytical skills, as well as expertise and resources to carry out disarmament verification activities at the request of Member States.

previously exempted or undeclared nuclear material.... [The safeguards] system was manifestly failing in its primary objective, namely, to detect activities that *did* raise potential compliance issues and proliferation concerns – such as those undertaken, for instance, in Iraq, Libya, Syria and Iran.”

There are two main reasons the safeguards system has been “manifestly failing.” First, the Department of Safeguards doesn’t have the legal authority it needs to fulfill its mandate and to provide the assurances the international community is expecting from its verification activities. Second, the Department lacks the necessary cooperation and transparency from Member States of the IAEA. Redressing both deficiencies would significantly strengthen the role of IAEA safeguards in preventing further proliferation.

Limited Legal Authorities

Under the IAEA Statute, safeguards are “designed to ensure that special fissionable and other materials, services, equipment, facilities, and information...under [Agency] supervision or control are not used in such a way as to further any military purpose” (Article III.5). To reach that objective, Article XII.A.6 provides that the Agency will have the right and responsibility “to send into the territory of the recipient State inspectors...who shall have access at all times to all places and data and to any person who by reason of his occupation deals with materials, equipment, or facilities which are required by this Statute to be safeguarded, as necessary...to determine whether there is compliance with the undertaking against use in furtherance of any military purpose.”

This excellent and forward looking mandate was agreed more than half a century ago. Unfortunately, in practice the commitments accepted by Non-Nuclear-Weapon States (NNWSs) under Comprehensive Safeguards Agreements (CSA)⁵ and even the Additional Protocol (AP)⁶ are much more limited.⁷

Under a Comprehensive Safeguards Agreement (with or without an AP), a state has the right to construct a uranium enrichment facility and to produce not only low-enriched uranium (LEU), but also highly-enriched uranium (HEU), or to extract plutonium from spent nuclear fuel, as long as these activities and material are declared and placed under IAEA safeguards. This right holds even if there is no clear economic justification for undertaking these activities. However, in such a case, it seems legitimate for the international community to wonder, in light of Article III.A.5 of the IAEA Statute, whether such “legal” activities are undertaken “in furtherance of any military purpose.”

It is likely that in the future, should they decide to do so, an increasing number of NNWSs will acquire the necessary scientific, technical and industrial capability to manufacture nuclear weapons. To increase the likelihood that those states will be deterred from making such a decision—most likely under maximum secrecy since it would be a clear violation of Article II of the NPT—it is necessary that the international community be informed of any indications

⁵ IAEA Infcirc/153 corrected.

⁶ IAEA Infcirc/540 corrected.

⁷ The main areas of limitation are relating to access to information, to persons, to locations and to data and documents. A detailed analysis of these limitations and the way they should be corrected can be found in: http://www.carnegieendowment.org/files/Goldschmidt_Dealing_Preventively_7-12-08.pdf

of nuclear weapons activities as soon as possible. Maximum IAEA scrutiny in such states should therefore be a priority.

Some possible indicators that would raise suspicion about a military nuclear program include:

- The state has denied or unjustifiably delayed access to locations by IAEA inspectors and/or is not fully cooperating with the Agency;
- There is a domestic enrichment or reprocessing facility in a state that has no AP in force;
- The state is producing and stockpiling uranium enriched beyond 5% U-235;
- The state's military establishment is directly or indirectly involved in "peaceful" nuclear-related activities (including procurement);
- The state has previously been found in breach or in noncompliance with its safeguards agreement;
- There has been a nuclear weapons program in the past;
- The state has publicly threatened to withdraw from the NPT;
- There are serious indications that the state is acquiring or developing the non-nuclear components of a nuclear device⁸;
- The state is developing or otherwise acquiring ballistic missiles or other means of delivering nuclear warheads;
- And there is evidence that national scientists are undertaking research on nuclear explosions or related disciplines suitable to nuclear weapons development.

Each of these individual activities may not be illegal,⁹ but a combination of many of them in the same state should be a matter of concern and a reason for the IAEA to increase its verification activities in and scrutiny of that state. If the Agency is unable to do so because the state is not fully cooperating, the Secretariat should explicitly report these findings to the IAEA Board of Governors, at least in the publicly available background statement of the annual Safeguards Implementation Report (SIR).

Improving Cooperation and Transparency

All states that have been called-out by the IAEA Secretariat for failing to report nuclear material and activities in accordance with their safeguards obligations were implementing a State System of Accounting for and Control of nuclear material (SSAC), which was not fully independent of nuclear operators and state authorities, and did not provide unrestricted access and cooperation to IAEA inspectors. This has been the case in Iraq, North Korea, Iran, Libya, the Republic of Korea, Egypt and Syria. It is therefore not surprising to note that under "Areas of Difficulty in Safeguards Implementation," the SIR for the year 2010 reports that:

⁸ As long as no nuclear material is used, a state is entitled, without having to report to the Agency:

- to study and test the effect of shock waves on non-nuclear materials;
- to develop high explosives for high-precision applications such as shaped charges;
- to undertake theoretical studies of the effect of nuclear explosions; or
- to develop or procure neutron sources (e.g. for applications such as oil well logging) which can also be used as initiators in nuclear weapons.

The NPT prohibits manufacture by NNWS of nuclear explosive devices. It seems generally accepted that this includes the production of components which would only have relevance to a nuclear explosive device.

⁹ except the first one.

The performance of State and regional authorities and the effectiveness of SSACs and RSACs [Regional Systems of Accounting and Control] have a significant impact upon the effectiveness and efficiency of safeguards implementation. In 2010, in some States SSACs still did not exist. Moreover, not all existing State and regional authorities have the necessary authority, independence from operators, resources and technical capabilities to administer the requirements of safeguards agreements and additional protocols. In particular, some States do not impose and verify proper nuclear material accountancy and control systems at nuclear facilities and LOFs [locations outside facilities] to ensure the required accuracy and precision of the data transmitted to the Agency¹⁰.

The 2008 SIR, for instance, stated:

The Agency was informed in 2004 by Egypt's SSAC, the Atomic Energy Authority (AEA), that it did not have the authority necessary for it to exercise effective control of all nuclear material and activities in the State. A Presidential Decree was issued in May 2006 to redefine the AEA's authority. Ministerial Decrees were issued in October 2006 for the practical implementation of the Presidential Decree. The AEA then undertook a State-wide investigation of its nuclear material holdings, during which additional, previously unreported, nuclear material was identified, including several depleted uranium items for which Egypt subsequently provided accounting reports¹¹.

The Egyptian Atomic Energy Agency's incomplete authority is an explanation but not an excuse for the lack of effective control of all nuclear material and activities in the State.

This example demonstrates once more the necessity for the IAEA Board of Governors to request the Secretariat to provide an evaluation of the effectiveness and necessary independence of SSACs, starting with those states that have previously been found to be in breach of their safeguards obligations.¹² It is as important to guarantee this independence and effectiveness (in particular in States with no Additional Protocol in force) as it is to assess those of national safety authorities.¹³

In this regard, one wonders whether an objective evaluation of the Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials (ABACC) would conclude that this organization is sufficiently independent from the operators of nuclear facilities and from the Brazilian and Argentinean authorities, and whether it fully and satisfactorily cooperates with the Agency. This last question is particularly relevant given that the 2010 SIR notes that short notice random inspections, which are critical to verifying material flows in conversion and

¹⁰ <http://www.iaea.org/OurWork/SV/Safeguards/es/es2010.html> paragraph 43.

¹¹ <http://www.iaea.org/OurWork/SV/Safeguards/es/es2008.html> paragraph 45.

¹² <http://www.carnegieendowment.org/2009/04/05/concrete-steps-to-improve-nonproliferation-regime/4mp>

¹³ In 2007 the IAEA undertook an Integrated Regulatory Review Service of the Japanese Nuclear and Industrial Safety Agency (NISA). Among the 10 main recommendations made by the IAEA, almost four years before the Fukushima accident, were: "*NISA should more clearly define its expectations with respect to reporting of minor inspection findings and events, in order to screen them for early identification before they become a problem*"; and another one which also sounds particularly familiar to safeguards inspectors "*NISA should ensure that its inspectors have the authority to carry out inspections at the site at any time, on a continual basis. This would ensure that inspectors have unfettered access to the site, to interview people, and to request the review of documents at any time rather than just at prescribed inspection times as in the law. This applies to both the construction and the operational inspection programmes.*"

<http://www.nisa.meti.go.jp/genshiryoku/files/report.pdf>

fuel fabrication plans, are still under discussion and not yet being implemented in Argentina and Brazil¹⁴.

Although it is not public, it is rumored that the 2010 SIR also mentions that three states restricted Agency access, two states did not report material that should have been reported, and three states did not permit environmental sampling. These are very important shortcomings and for the sake of transparency, as well as effectiveness, the Secretariat should name these states.

Strengthening Foundations of Nonproliferation

The objective of IAEA safeguards is to help prevent proliferation by deterring states from seeking nuclear weapons due to the risk of early discovery of a nuclear weapons program. For deterrence to be effective, states must be convinced that any deliberate noncompliance has a high probability of being detected early and that a noncompliant state that does not cooperate fully and proactively with the IAEA to resolve the problems will inevitably face serious consequences.

Further, the Agency should be seen as exercising its *existing* legal authority to the full. In particular, whenever justified by the circumstances, it should promptly make use of its right to conduct special inspections at suspicious undeclared locations when states are otherwise denying access.¹⁵

Recently, the obligation of states to provide early design information about new facilities and the Agency's right to verify it have been challenged by Iran's refusal to comply with its safeguards obligations. The IAEA Director General should make it clear in a document to the Board of Governors that, when and where such refusals occur, they will be recognized for what they are: noncompliance. The Agency should not be complacent toward states that are violating their obligations.

However, the weakest link in the nonproliferation regime today is not the performance of the IAEA Department of Safeguards, but that of the international community in responding to noncompliance.

Before the next crisis occurs, generic procedures for responding to noncompliance should be discussed and agreed upon. With a "veil of ignorance" about which states might be involved in the future, such discussions should be easier and less acrimonious than in the heat of a specific crisis. Moreover, agreement upon a set of standard responses to be applied even-handedly to any state found in noncompliance—regardless of who its allies might be—would significantly enhance the credibility of the nonproliferation regime.

Against this background, a necessary first step is for the IAEA to acknowledge where it has acted inconsistently in the past. In particular, the Board of Governors should adopt a resolution recognizing that failures and breaches committed by South Korea and Egypt in 2004 and 2005 respectively, constituted cases of noncompliance with their safeguards agreements. This resolution, without seeking any punitive measure against either state, would

¹⁴ <http://www.iaea.org/OurWork/SV/Safeguards/es/es2010.html> paragraph 46.

¹⁵ Delaying for months or even years a request for special inspection would, in most cases, be self-defeating because the state concerned would have plenty of time to remove any incriminating evidence.

correct damaging precedents by reasserting the impartiality and universality of procedures for reporting noncompliance as envisioned in the IAEA Statute.

For its part, the Security Council should adopt legally-binding generic resolutions that would set out a “roadmap” for responding to noncompliance. Experience demonstrates that in investigating safeguards violations in a state not fully and proactively cooperating with the Agency, the IAEA needs, for some limited period of time, enhanced legally binding authority to conduct effective inspections in that state. Such authority extending beyond that provided by the AP, can only be granted by a Chapter VII UN Security Council resolution.¹⁶

Furthermore, considering the precedent of North Korea’s 2003 withdrawal from the NPT, it would be wise to plan for the possibility of another state withdrawing. As a deterrent, it is essential that the Security Council adopts a Chapter VII resolution deciding that the withdrawal of a *noncompliant state* from the NPT is a threat to international peace and security.

In order to secure the irreversibility of safeguards on nuclear material and sensitive fuel-cycle facilities even if a state withdraws from the NPT, the Board of Governors should urge all states with enrichment or reprocessing facilities to conclude “back-up” safeguards agreements that would not terminate in case of NPT withdrawal.¹⁷ Such a *facility-specific* safeguards agreement would be subsumed to the state’s Comprehensive Safeguards Agreement without any additional cost to either the state or the IAEA. Countries like Germany, The Netherlands, Japan, Brazil and Argentina should lead by example.

The current difficulties in resolving the problems the IAEA is facing in Iran, North Korea and Syria demonstrate the necessity to act now to make sure that when the Agency confronts the next proliferation crisis, it has the tools, authority, and political support to avoid repeating history.

If adopted, concrete measures such as those recommended above would significantly strengthen the nonproliferation regime and make a real difference in protecting against nuclear proliferation. It depends now on the political will of key governments to make this a reality before the next crisis occurs.

¹⁶ A draft of such a resolution and the precise description of the necessary additional IAEA verification rights can be found in Annex I of <http://www.carnegieendowment.org/2009/04/05/concrete-steps-to-improve-nonproliferation-regime/4mp>

¹⁷ A facility-specific IAEA Infcirc/66-type safeguards agreement, contrary to a Comprehensive Safeguards Agreement, does not lapse when a NNWS withdraws from the NPT.