

STRENGTHENING THE NON-PROLIFERATION REGIME

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Abstract

To date the nuclear non-proliferation regime has been highly successful: before the negotiation of the NPT in the 1960s, it had been predicted that by the end of the century there would be some 25 nuclear-armed states. By the early 1990s there were still several prospective nuclear-armed states outside the NPT, and with the fall of the Soviet Union there was the risk of Newly Independent States becoming nuclear-weapon states through inheriting Soviet warheads. By the end of 2002 however it appeared that the non-proliferation regime had never been stronger: the NPT had been extended indefinitely in 1995, and had now become almost universal—with Cuba's announced accession, only India, Israel and Pakistan remained outside.

Appearances however were deceptive. The NPT faces serious challenge—both Iraq and the DPRK have been found to be in non-compliance with their safeguards agreements—and in January 2003 the DPRK announced its withdrawal from the NPT (a move it had also initiated but then “suspended” in 1993). In addition there are suspicions about undeclared nuclear activities in Iran—at the time of writing this paper these were under investigation by the IAEA. This situation raises a vitally important issue: apart from addressing these specific cases, what can and should be done to make the non-proliferation regime more robust?

The non-proliferation regime comprises complex interacting and mutually reinforcing elements. At its centre is the NPT, underpinned by IAEA safeguards. Important complementary elements include restraint in the supply and the acquisition of sensitive technologies, multilateral regimes such as the CTBT and FMCT, various regional and bilateral regimes, the range of security and arms control agreements outside the nuclear area (including other WMD regimes), the development of proliferation-resistant technologies, and—especially important—political incentives and sanctions in support of non-proliferation objectives. This is a very broad subject—the paper outlines some steps that can be taken to strengthen major aspects of the non-proliferation regime.

This paper reflects the views of the authors and does not necessarily represent Australian Government policy.

1. INTRODUCTION

The Nuclear Non-Proliferation Treaty (NPT) is the keystone of the international nuclear non-proliferation regime. Despite current concerns, the NPT has been an outstanding success. In the 1960s, before the NPT was negotiated, it was widely assumed that nuclear proliferation was inevitable and there would be some 25 nuclear armed states by the 1990s. This has not happened. Instead there continue to be five recognised nuclear-weapon states (US, Russia, UK, France, and China), and in addition three “nuclear-capable” states which have remained outside the non-proliferation regime (India, Israel and Pakistan). We can count as major non-proliferation successes that South Africa, a state that developed nuclear weapons, and Ukraine, Belarus and Kazakhstan,

states that had nuclear weapons in their territories after the collapse of the Soviet Union, all foreswore nuclear weapons in order to join the NPT as non-nuclear-weapon states (NNWS).

In spite of the overall success that it has enjoyed so far, today the non-proliferation regime has never been under greater threat. Three states have presented major challenges to the objectives of the NPT: Iraq and the DPRK have been formally found to be in non-compliance with their safeguards agreements, and the DPRK has announced its withdrawal from the NPT. Iran has committed a number of safeguards breaches, and IAEA investigations are continuing. The challenge posed by Iraq has been resolved through regime change—the challenges of the DPRK and Iran are ongoing. In addition, there is a technology challenge—a common factor with all three of these states is the spread of centrifuge enrichment technology and know-how.

2. MAJOR CHALLENGES

Iraq exploited weaknesses inherent in the classical safeguards system to conceal its proliferation efforts prior to the first Gulf War. The response to this has been the development of strengthened safeguards, including the Model Additional Protocol. While the threat from Iraq has now been resolved, many of the weaknesses revealed by Iraq remain for those states that have not concluded Additional Protocols—and this includes all the states of current proliferation concern.

DPRK It seems clear that the DPRK joined the NPT with the expectation that it would be able to continue with its proliferation efforts—there was no underlying commitment to the principles of non-proliferation. In this it appears that the DPRK underestimated the technical capabilities of the IAEA. Now the DPRK has a clandestine enrichment program, has announced withdrawal from the NPT, has admitted to having nuclear weapons, and has threatened to supply fissile material to others.

Iran There is widespread concern about Iran's development of uranium enrichment and heavy water production, with plans for a large heavy water-moderated research reactor. These activities give Iran an incipient nuclear weapon capability. Recently the IAEA has found a number of breaches of Iran's safeguards agreement, and investigations are ongoing. Iran's persistent refusal to conclude an Additional Protocol only reinforces the suspicions about Iran's intentions.

Centrifuge enrichment All three of these states have (or in the case of Iraq, had) centrifuge enrichment programs. A number of other states are suspected of having an interest in clandestine centrifuge enrichment programs. Because of the inherent characteristics of centrifuge enrichment—including relatively small physical size, relative absence of physical indicators—centrifuge enrichment presents major challenges: how to effectively safeguard declared facilities, how to detect undeclared facilities, and how to limit the further spread of this technology.

Dealing with proliferators The greatest single challenge currently facing the international community is how to deal with determined proliferators? In particular, how do we deal with proliferators (a) with undeclared centrifuge enrichment; or (b) with declared enrichment facilities operated under safeguards, but which provide the capability for rapid break-out from non-proliferation commitments?

3. CRITICISMS OF IAEA SAFEGUARDS

These situations have led some to argue that, since the IAEA safeguards system failed to detect illicit nuclear activities in these three states, safeguards are really only effective in the case of states committed to non-proliferation, and cannot be relied on to meet contemporary proliferation challenges.

Such arguments fail to distinguish between a number of key factors:

- the IAEA’s competence—its technical capabilities—as distinct from its authority—what the IAEA is permitted to do under different safeguards agreements;
- the essential role of national intelligence, relative to safeguards, in the search for undeclared nuclear activities;
- most importantly, the difference between verification—a technical function—and compliance—which is very much a political responsibility.

It should be noted these three cases—Iraq, DPRK and Iran—occurred under the safeguards system developed in the 1970s (in the case of the DPRK, essentially the IAEA was limited to monitoring under the US/DPRK Agreed Framework). Now the safeguards system has been substantially improved—rather than focusing on failings in old safeguards, it is more constructive to exert pressure on those states that have not yet accepted current, strengthened safeguards.

These arguments have emerged as part of a wider debate about the relative contribution of multilateral and national actions in countering nuclear proliferation. Actually, effective action against proliferation cannot be wholly multilateral, nor wholly national—what is needed is a collaborative relationship between the two. There is no substitute for the disciplined, ongoing and impartial verification activity which the IAEA safeguards system provides. However, national action is also essential—for example, addressing the motivations for proliferation, and ensuring effective coordination and application of nuclear supply policies. Ultimately, the effectiveness of measures against proliferation depends on the preparedness of governments—particularly the P5—to take enforcement action in support of compliance.

4. ADDRESSING THE CRITICS

The argument that IAEA safeguards serve only to confirm the commitment of non-proliferation adherents is too dismissive—the fact that the number of nuclear-armed states remains small demonstrates the value of the NPT and the safeguards system that underpins it. Even if safeguards only reinforce non-proliferation commitments, this is no mean achievement. In fact, IAEA safeguards have also been important in containing the “uncommitted”—and a more effective alternative has yet to emerge.

In considering these issues, it is essential to have a realistic appreciation of what safeguards can, and cannot, deliver:

- A government’s decision whether to proliferate will be based on complex political grounds—national security, strategic intentions, national prestige, and so on. The first line of support for non-proliferation objectives must be effective incentives and sanctions operating at the political level—promoting non-proliferation and setting an unacceptably high cost for proliferation.
- Safeguards cannot prevent proliferation, only deter proliferation through the risk of detection—and giving warning of proliferation, providing opportunity for intervention. Safeguards cannot be blamed for failings in the underlying political incentives and sanctions. The criticisms of the safeguards system would seem more fairly directed at the political level—the difficulty of obtaining Security Council approval for enforcement measures.
- The IAEA’s detection capability depends on the tools—legal and technical—at its disposal. The Agency’s technical capabilities have been substantially improved, but the most effective use of these capabilities depends on states concluding Additional Protocols extending the access and information available to the Agency.

Ultimately, national intelligence has a vital role in the detection of undeclared nuclear activities. The IAEA cannot be blamed for failures of national intelligence. We must learn

from past mistakes—good results will very much depend on intelligence activities being well-targeted, and working in partnership with the IAEA.

5. STRENGTHENING THE SAFEGUARDS SYSTEM—THE ADDITIONAL PROTOCOL

The limitations on the IAEA's inspection rights under basic NPT safeguards agreements were clear to all after the first Gulf War. Since then, considerable effort by the IAEA and Member States has gone into strengthening the safeguards system, through improved technical measures and through the development of the Additional Protocol, a legal instrument supplementary to basic safeguards agreements, which substantially increases the IAEA's rights to access and information.

Of course, the Additional Protocol is not a panacea, but it does represent a very substantial advance in the IAEA's capabilities—no doubt realisation of this is reflected in the fact that so far none of the states of proliferation concern has concluded a Protocol. This latter point is germane to the criticism that safeguards apply mainly to the “committed”.

The Additional Protocol cannot be considered optional. NNWS Party to the NPT have accepted “the Agency's safeguards system”. This means, the safeguards system as it exists from time to time—safeguards are not a menu, it is not acceptable for states to pick and chose to suit themselves. Now, with the signatures of over 70% of NNWS NPT Parties with significant nuclear activities, the Additional Protocol is clearly established as the contemporary NPT safeguards standard.

That being said, the rate of acceptance of the Additional Protocol remains disappointing: to date just over a third of NNWS NPT Parties with significant nuclear activities—22 out of 63—have ratified an Additional Protocol. A further 23 such states have signed Protocols or had them approved by the IAEA Board of Governors—as just noted, when these are ratified a substantial majority of NNWS NPT Parties with significant nuclear activities will have Protocols in place. However, there remain 18 NNWS NPT Parties with significant nuclear activities that have yet to sign, let alone ratify, a Protocol—and included in these are a number of states of proliferation concern.

The greatest single step in strengthening the IAEA safeguards system will be to achieve acceptance of the Additional Protocol by all states subject to comprehensive safeguards. The figures above refer to NNWS with significant nuclear activities—looking at the totality of NNWS, 72 (out of 182) have signed, and of these 34 have ratified. While those NNWS *without* significant nuclear activities may feel their participation is not important, the existence of a number of states outside the Protocol provides cover for those who actively seek to avoid concluding a Protocol. It is a vital task for all supporters of the non-proliferation regime to encourage, persuade and if necessary pressure those without Additional Protocols to conclude these without further delay.

6. FURTHER SAFEGUARDS STRENGTHENING STEPS

Some ideas for further strengthening the safeguards regime are outlined as follows.

Enhancing the IAEA's technical capabilities

The particular challenge of detecting clandestine centrifuge enrichment operations has been mentioned already. More generally, the detection of undeclared nuclear activities presents a considerable challenge. It is important for all states in a position to do so to assist the IAEA in developing the necessary capabilities and skills.

Special inspections

While complementary access (CA) pursuant to the Additional Protocol redresses a major weakness in INFCIRC/153—the limitations on the IAEA's access rights—of course CA applies only in those

states that have a Protocol in place. In respect of those states yet to conclude a Protocol, a fresh look at the special inspection mechanism is warranted.

Special inspections have been largely overlooked since the IAEA Board suggested in 1992 that they should be “rare”—but much has happened since then. The general recognition of the need for access to resolve safeguards questions—leading to the development of the CA concept and the Additional Protocol—the unprecedented challenges now facing the non-proliferation regime, and concerns about the motives of at least some of those remaining outside the Protocol, all indicate the potential value of special inspections. While special inspections will never become “routine”, nor should they be “rare”. It is time to remove the mystique and the accusatory overtones—special inspections are an important safeguards tool that the IAEA cannot afford to neglect.

Increased sharing of information:

National information The preparedness of states to share information with the IAEA is essential to an effective safeguards system. There are limits to what can be realistically expected of the IAEA, without the assistance of states, in the detection of undeclared nuclear activities. States need to contribute through the sharing of unclassified information and analyses, the sharing (under appropriate protection) of information from national intelligence sources, and assisting the IAEA in developing necessary information collection and analysis skills. Much has been done in these areas, but there is plenty of opportunity to do more.

Information-sharing with other verification agencies and secretariats Information-sharing can be improved, both within nuclear-related areas, such as the NSG (Nuclear Suppliers Group), the Zangger Committee, and the CTBT (Comprehensive Test-Ban Treaty), and also with other WMD areas, such as the CWC (Chemical Weapons Convention) and the MTCR (Missile Technology Control Regime).

The NSG is a particularly important area to look at. Patterns of acquisition of dual-use items would serve as a useful indicator of possible proliferation efforts. Yet currently there is little or no sharing between NSG members of information on exports of dual-use items (apart from denial notifications), and there is no arrangement for the sharing of such information with the IAEA. In the case of items specially designed/prepared for nuclear use, the Additional Protocol requires the reporting of transfers to the IAEA—here, it might be asked whether there is scope for suppliers to voluntarily bring this into general application ahead of Additional Protocol ratifications.

As to the relevance of other WMD regimes, experience shows that a state pursuing one form of WMD is likely to be interested in others, as well as in suitable delivery systems. Often these states have used the same research institutions and front companies across different WMD areas. Thus knowledge of procurement efforts in other areas may be very useful for the IAEA, and *vice versa*.

Reviewing the IAEA’s confidentiality requirements It is a long-established practice, reflecting the wishes of Member States, for information provided by states to the IAEA in the course of the Agency’s verification activities to remain confidential. This practice contrasts with a more modern treaty, the CWC (concluded in 1993), under which any Party is entitled to access to national declarations submitted by other Parties.

Considering the fundamental importance of transparency to confidence-building, the question can be asked, does confidentiality work against confidence? States have a legitimate interest in knowing the information held by the IAEA on other states, partly as a way of building confidence in the operation of safeguards, partly to identify gaps in the IAEA’s data base where they may be able to assist. Of course, there will be some information—e.g. commercial matters, physical protection

arrangements, national intelligence-sourced information—that must remain confidential—but there is an extensive range of other information where there would be benefit in greater openness.

Constraints on the spread of proliferation-sensitive technology

The proliferation of nuclear weapons is in no-one's interest. Governments must be persuaded that the short-term commercial advantage of assisting nuclear programs in states of proliferation concern are more than offset by the long-term risks to themselves as well as others.

There is a need not only to ensure that NSG members' export controls are as effective as possible, but to try to secure the cooperation of states outside the NSG to apply similar controls. Iraq had been able to obtain centrifuge components and other sensitive nuclear items through illegal supply from European sources. Since then European export controls have been substantially improved, and tougher laws introduced against complicity in WMD programs. A worrying development is, according to media reports, an apparent Pakistan link in the centrifuge programs of the DPRK and Iran. Now, there must be concerns about whether Iran's enrichment technology will spread, illegally or otherwise—and the DPRK has indicated a willingness to trade in fissile material. This has prompted the Proliferation Security Initiative—a number of governments have decided to cooperate to counter WMD-related transfers.

The conclusion of an Additional Protocol should be seen as a basic condition for nuclear supply. But this in itself is not sufficient—Australia for one urges constraint in supply and acquisition of sensitive technology in regions of tension. The confidence that safeguards are intended to provide will be undermined if there is concern that states, in the guise of safeguarded “civil” programs, are developing “virtual” nuclear weapons capabilities.

One aspect that needs to be addressed is the assertion that the NPT gives states an unlimited right to pursue any nuclear technology. It must be recognised that all “rights” carry corresponding duties—the “inalienable right .. to use nuclear energy” referred to in NPT Article IV.1 is not absolute. It is subject to the overriding non-proliferation commitments of the Treaty—it does not imply the right to pursue any technology regardless of the implications for the objectives of the Treaty.

Given the particular problems posed by centrifuge enrichment technology—increasing availability, ease of concealment (including through clandestine replication of safeguarded facilities)—the time has come for a careful look at a program of action in support of non-proliferation. This could encompass not only enhanced export controls and enhanced verification/detection capabilities, but also development of political responses—such as assurance of supply as a means of diminishing the incentive to develop indigenous enrichment capabilities, and the establishment of multi-nation enrichment arrangements.

Flexibility in safeguards implementation—matching safeguards effort to need

The need to move away from the current uniformity in safeguards implementation, to flexibility based on effective use of information and expert judgment, is discussed in our parallel paper, “Back to Basics—Re-thinking Safeguards Principles”¹. This is not simply an issue of efficiency, but also effectiveness—the concept of flexibility involves establishing conditions under which safeguards intensity can be adjusted upwards, as well as downwards, depending on state-specific factors.

Promotion of proliferation-resistant fuel cycle technologies

This is forward-looking—there are obvious advantages if it is possible to develop technologies that minimize opportunities for production or separation of weapons-usable materials. Such concepts have been discussed in detail elsewhere, e.g. our paper “Towards a Proliferation-Resistant Nuclear Fuel Cycle”².

Complementary regimes

For a discussion of how other regimes—such as the CTBT, the proposed FMCT, regional and bilateral regimes, arrangements covering nuclear weapons dismantlement and irreversibility—see our paper “Nuclear Non-Proliferation: the Role of Complementary Regimes”³.

7. CONCLUSIONS

This paper identifies a number of challenges to the non-proliferation regime, and discusses a number of steps that can be taken to strengthen the regime and its verification mechanism, IAEA safeguards. While some of these steps are improvements that can be made at a technical level, others require political support.

Ultimately the success of the non-proliferation regime comes down to a question of political will—the strength of states’ commitment to non-proliferation objectives, and their preparedness to act in support of these objectives—including, where necessary, taking action to enforce compliance.

The spread of nuclear weapons to further states should not be tolerated. In 1992 the Security Council declared that

‘The proliferation of all weapons of mass destruction constitutes a threat to international peace and security’. It pledged, furthermore, that

‘the members of the Council will take appropriate measures in the case of any violations notified to them by the IAEA.’⁴

Without a strong political commitment by the international community there is a limit to what safeguards can achieve. It is vital that the Security Council, and especially the Permanent Members, are prepared to uphold this declaration and take the necessary action when cases of proliferation arise.

1. Presented at INMM 2003 Annual Meeting.

2. Presented at INMM 2000 Annual Meeting

3. *Journal of Nuclear Materials Management*, Summer 2002.

4. Statement by President of the Security Council, 31 January 1992, UNSC document S/23500.