

## Chapter Three

### Stretching the Envelope?: The IAEA and the '93+2' Programme

James F. Keeley<sup>1</sup>

The International Atomic Energy Agency has been developing its '93+2' programme of enhanced safeguards in response to both resource pressures and the challenge to its comprehensive safeguards posed by the clandestine Iraqi nuclear weapons program.<sup>2</sup> Part 1 of the programme's proposals, which does not require moving beyond current Agency authority, is in the process of implementation. Part 2, which does require additional Agency authority, is still under negotiation. Those aspects of Part 2 which are eventually implemented will likely take the form of a protocol in addition to current safeguards agreements and documents.

The '93+2' programme gives the IAEA an opportunity both to strengthen its existing safeguards system under the NPT – the INFCIRC/153 system – and to move beyond it. Whether in seeking new powers or seeking to exercise more effectively rights it currently has theoretically but which have not been used, it is stretching the envelope not only of its past authority but also of past practices and thinking. For example, the pre-Iraq focus almost exclusively on safeguarding declared activities and nuclear material (which left the Agency vulnerable to a fully clandestine weapons program) may be seen as flowing from the pre-NPT focus, including, in the INFCIRC/66 safeguards, on specific items put forward for safeguarding. This general approach carried over into the INFCIRC/153 system. While the NPT was comprehensive in its obligations, Agency safeguards under it were not comprehensive in their coverage: unless they impinged on safeguarded facilities and flows, the problem of clandestine activities was left to others to handle.

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  2. See IAEA, *GC(39)/117*, 22 August 1995.

While *declared* safeguarded activities and flows remain the main focus of Agency efforts, even under '93+2,' the experience of Iraq has led to stronger interest in dealing more effectively with the threat of *undeclared* activities. There is a resource aspect to this, as well as a verification effectiveness aspect. If the Agency can be reasonably assured that a given state is not engaging in clandestine activities, it may be able to reduce the resources it devotes to safeguarding that state,<sup>3</sup> and to reallocate its constrained means to other states. While the '93+2' programme contains a number of specific resource-saving proposals, this 'trade off' potential is one significant theme and hope in the overall combination of measures in the programme.

The ability of the programme to realize the verification and resource hopes focussed on it will depend on three broad factors: (a) the willingness of the Agency secretariat to push hard for effective and necessary measures; (b) the political and financial toleration and support of states for the implications of the proposals; and (c) the willingness of states themselves to do necessary or desirable things which either the Agency cannot do by itself or it would not be allowed to do by itself. The outcome of '93+2' thus depends not simply on what the Agency ends up obtaining, with the toleration and the support of states, but also on what states themselves do, even outside the bounds of the Agency. In both respects, in particular, the resource trade off potential thus depends on whether states accept the logic which connects this potential to their own behaviours and attitudes. States may simultaneously demand greater effectiveness and cost-effectiveness, and hope for a trade off, yet refuse to grant the Agency the means, or undertake themselves the necessary tasks for the realization of these demands.

### Threats of and Responses to Undeclared Activities

At least three broad categories of 'undeclared activities' must be dealt with by a non-proliferation verification system. First, and the traditional focus of Agency activities, is the misuse of declared, safeguarded facilities and the misuse or diversion of declared, safeguarded nuclear materials. Dealing adequately with this threat will also give substantial leverage against partial clandestine weapons programs – programs drawing at some point on declared flows or facilities rather than being complete in themselves. Second are undeclared activities, using undeclared and unsafeguarded nuclear material flows, which are carried on at the same general site location ('co-location') as declared, safeguarded activities and flows. These currently fall outside of the IAEA's INFCIRC/153 'routine inspections,' though like all undeclared activities they could potentially be vulnerable to initial inspections and special

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3. This assumes, of course, that the resources saved, for example through a reduced inspection burden, are not matched by the cost of effort to gain such an assurance. If those costs are actually paid by someone else, however, the Agency need not worry about this trade-off.

inspections. The third threat is that of undeclared activities, involving undeclared, unsafeguarded flows of nuclear materials, based at undeclared sites.

Handling these threats places different requirements on the Agency, and on its proposals under '93+2,' in part by virtue of their differential placement in the sequence of detection, location, access and inspection. For the first threat, location is already dealt with through declaration; access, however restricted under the routine inspection system, is provided; on-site inspection, also constrained, follows, and it is through the routines and techniques of on-site inspection that misuse and diversion are presumably detected. Off-site information, not developed through or in association with declarations and on-site inspection, could also be a source of pressure on these activities, but this has not been a traditional Agency focus.

The second threat, of undeclared but generally co-located activities involving separate, undeclared nuclear flows, is subject to a potentially similar sequence, given that access to and inspection rights at the general site are already granted to the IAEA. Broadening access and inspection rights on the general site may put pressure on such co-located activities, complicating and constraining the ability to conduct them without being detected, and perhaps pushing them off-site entirely. In addition, off-site information could give leverage, by allowing for detection and location independent of access to the site. Access and inspection then becomes a means of confirmation or disconfirmation of suspicions, rather than for detection and location in this 'macro' sense.

In the case of the third threat, however, 'macro' detection and location must precede access and inspection, by definition: the activities, the site and the nuclear flows are all undeclared. Access to the site and inspection can only confirm or disconfirm suspicions about that site once it is known and located. Whereas on-site techniques are primary for the first threat and off-site information at best secondary in practice, and whereas on- and off-site techniques and information could be more balanced for the second threat, off-site information is primary for the third, with on-site techniques reduced to a confirmation role.

**Table 1: Proliferation Threats and Detection, Location, Access and Inspection Sequences**

	<b>On-Site Techniques</b> (Access and Inspection primary)	<b>Off-Site Techniques</b> (Detection and Location primary)
Misuse and Diversion	Primary	Secondary
Undeclared, Co-located	Possibly Balanced	Possibly Balanced
Undeclared, Separate Site	Dis/Confirmation Only	Primary

### The IAEA, '93+2' and the Three Threats

The enhanced role sought by the IAEA under '93+2,' whether in Part 1 or Part 2 measures, addresses all three threats, but some more directly than others.<sup>4</sup> Measures in both Parts, especially those related to site access and the use of techniques in on-site inspection, could greatly increase IAEA leverage on both the misuse-diversion and the co-location threats. Given sufficient leverage, the potential for successfully hidden collocated, undeclared activities could become so limited and questionable that such activities could be pushed onto undeclared sites. The extra expense and difficulty of developing and hiding these could then serve as an indirect deterrent even to a fully separate, clandestine nuclear weapon program.

Additional IAEA activities relevant to both of the first two threats could include some measures concerning the conduct of inspection, which would strengthen the practice of these by a clearer specification of routines, rights and duties.<sup>5</sup> These could smooth the inspection routine, reduce possibilities for procedural misunderstandings, hindrances and delays, and contribute to a crisp and businesslike inspection routine. Some of these possibilities could perhaps be dealt with by the Agency itself under its existing authority, though some might require, or be more expeditiously implemented through, the additional protocol foreseen for Part 2 measures. Another set of possibilities could touch on inspector training, both in general and in observational or specific technical skills. One presumes that such training issues fall within the Agency's current authority.

The leverage against co-located activities would be even greater under Part 2, with its extended access provisions and the broader potential for the application of new techniques, such as environmental sampling.

With respect to the third threat (and as an additional line of response to the second) the IAEA's response is found in its Part 1 measures above all, rather than being located primarily, as one might initially expect, in Part 2. This set of responses focuses on the enhancement of the Agency's ability to gather and analyze information. It already claims rights to obtain information from a variety of sources, and to draw conclusions from that. Part 1 measures would include exploiting more fully its information rights under existing authority, drawing more general and more systematically on various sources (in-house and outside, routine and non-routine), and drawing conclusions from this.<sup>6</sup>

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4. Other elements of the proposals are particularly directed to cost considerations, and thus to cost-effectiveness of verification rather than to effective verification as such. These would include many of the measures discussed under the heading of optimization of the current safeguards system.

5. See especially: *Stretching the Envelope?* pp. 80–87; and Kenneth E. Apt et al., *Applicability of CWC Verification Provisions for Strengthening the NPT Regime*, LA-UR-94-3494 (Los Alamos, NM: Los Alamos National Laboratory, May 1995).

6. See, for example, Mark H. Killinger, 'Improving IAEA Safeguards Through Enhanced

Part 2 information measures sought by the Agency would expand the information it could obtain from safeguarded states, about nuclear activities, plans or intentions more broadly, about other activities on sites with safeguarded activities, and about mining, manufacturing, importing and exporting, activities.

The measures relevant to the third threat in particular marks a departure from the Agency's previous focus on materials accounting and attendant measures, and on quantitative analysis. This is inevitable, given that the threat here requires detection and location initially, with access and on-site activities as necessary or desirable but second-order activities. Instead, without eschewing quantitative analysis altogether, the broader emphasis is on the consistency of the information received, and its comparison with a 'critical path' analysis of proliferation. With respect to the first, reports received from a safeguarded state may be analyzed for both their internal consistency and their consistency with other, third-party or Agency-generated, information. The ability to obtain information from sources other than the safeguarded state is thus crucial, though being able to demand more information from the safeguarded state could also at least complicate its ability to create a consistent facade of 'normal appearances.' With respect to the second, reports received can be placed in a context of proliferation pathways and evaluated accordingly. Questions arising from the information analysis could then be raised for clarification with the safeguarded state.

For this third line of response, one problem, independent of state-imposed limitations on the Agency (to be discussed below), is simply the volume and range of information which might be sought. In some cases, at least, the Agency might have no intention of verifying it. In some cases, it probably could not verify the information by its own efforts anyway. Would there then be any real value in its collection, save for the possibility of archiving it and the threat of – some day – going through it for a consistency analysis? In others, the additional information could actually increase ambiguity, especially concerning dual-use materials and equipment. Regardless of the limits of state toleration for Agency information demands, the Agency may for its own purposes need to consider its priorities in its information needs. Information from safeguarded states which is verifiable, in particular, should presumably have priority over information which can only be examined for its internal consistency. It is possible that the additional location information sought under Part 2 could be more valuable than some of the production capability, import and export information in this regard. Particularly when combined with the broadened access rights sought under Part 2, this expanded list of sites would place more sites, and thus possible undeclared activities at those sites, at risk of inspection and detection. The pressure to remove unde-

clared activities to fully clandestine sites would be increased, with attendant costs and difficulties as the benefits of co-location were lost.

A second problem, directly connected to state support and toleration, is the ability of the Agency to push for clarifications once questions were identified through this analysis. By their nature, such questions would not be restricted to detailed quantitative analyses based on materials accounting, but would have a larger qualitative and, inevitably, 'subjective' component. 'Qualitative' and 'subjective' need not imply 'undisciplined speculation,' but states may, at times justifiably, become touchy on the point. An Agency more willing to ask questions on a qualitative basis must, inevitably, be an Agency that seeks clarification more often. While one might anticipate that most matters requiring clarification will be resolved satisfactorily, how likely are states to support such requests, when they are directed at others, and to accept them when they are directed at themselves? One could quickly find the Agency very reluctant to push.

### **States, '93+2' and the Three Threats**

While the Agency might propose, states dispose. Even rights theoretically already possessed by the IAEA may be hobbled in practice by state resistance to the Agency, by lack of political support for the Agency, and by the withholding of adequate resources. In the case of a protocol to implement Part 2 measures, the problem is even more obvious. Efforts particularly to cope with the co-location threat could be adversely affected, whether in Part 1 or Part 2, but handling the third threat as well could be jeopardized even under Part 1.

With respect to a protocol, the IAEA must therefore be clear, at least to itself, about what it must get in such a protocol to make the exercise meaningful, what would be desirable but could be bargained away without great loss, and what is mere bargaining-chips. Other problems which could arise include efforts by states to water down not only the general terms of a model protocol but also the specific terms of actual agreements. Scheinman and Kratzer have noted that, in bargaining with individual states, the IAEA may well be the weaker party. States may be more sensitive in bilateral dealings with the IAEA to their rights and duties as inspected parties, to costs and to intrusions on their sovereignty, than they are, as members of the broader international community, to the general interest in a strong verification system. Secrecy about agreements, along the lines of the negotiation of current Subsidiary Arrangements and Facility Attachments, may better enable them to protect themselves as safeguarded parties by limiting Agency activities. Thus, they suggest that rights and obligations in such a protocol should be both more detailed and subject to the scrutiny of the IAEA Board of Governors. While this may reduce the Agency's flexibility, they argue, it will also reduce its ability to give things away.<sup>7</sup>

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7. Lawrence-Scheinman and Myron Kratzer, *INF and IAEA: A Comparative Analysis of*

Even if the Agency gains much of what it seeks, a major limitation will be in the states members themselves — not for what they are prepared to let the Agency do in its programme, but for what they are prepared to do themselves. The Agency itself could collect considerable information from safeguarded states under Part 1, and expand this under Part 2, but this would be of reduced use if it could not be effectively cross-checked against independent information. This information and its analysis give the Agency a role of 'off-site' techniques, which could be applied to all three threats. However, such techniques are of particular importance for the third — undeclared sites — threat. Here especially, the ability to collect, much less analyze, information gained independently of site access and inspection is crucial. Here in particular states as such assume a direct importance in the safeguards system, if we presume that they will be largely unwilling, or the IAEA will be largely financially unable, to permit the Agency direct use of comparable information-gathering means.

Such information could cover, for example, exports and applications for export licences (not just granted or just refused applications). Some arrangements for comparing and sharing information of this sort already exist within the Nuclear Suppliers Group. It could possibly be pooled prior to transmission to the IAEA,<sup>8</sup> or the IAEA itself could collate reports and perhaps even share the results among the exporting states. This alone would help to reduce the advantages which a clandestine proliferator might enjoy as a single buyer confronting multiple, somewhat uncoordinated suppliers. Even if the result was merely to drive such a state toward domestic production, or to acquisition at further removes from a nuclear weapons production stream, it could be an indirect deterrent to proliferation. In this regard, it would seem especially important that exports of dual-use materials and equipment for declared non-nuclear use be followed up effectively. If the costs of such a follow-up fell on the IAEA, this would have to offset any savings generated from increased assurances about the absence of a clandestine program. If the costs fell on the exporting state, then of course the IAEA would not have to offset it.

The importance of states as sources for the IAEA is heightened if we accept the argument that the best sources to reveal and locate undeclared sites are likely to be satellite information and human intelligence, unavailable to the IAEA through its own efforts.<sup>9</sup> A number of problems are posed by Agency reliance on such 'off-site' sources and techniques. First, from the Iraqi case,

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*Verification Strategy*, LA-12350 (Los Alamos, NM: Los Alamos National Laboratory, July 1992), pp. 5–6, 11–12, 45.

8. This could be similar to Kokoski's suggestion of a pooling of intelligence data. Richard Kokoski, *Technology and the Proliferation of Nuclear Weapons* (Oxford: Oxford University Press, 1995), pp. 109, 123.

9. Kathleen C. Bailey, *Strengthening Nuclear Nonproliferation* (Boulder, CO: Westview Press, 1993), pp. 72–73.

such methods are fallible. Second, reliance on such information presents clear issues of bias and credibility, as well as of selective or sporadic supply. Third, the Agency itself may present difficulties for national agencies. Its confidentiality rules inhibit its ability to share information with others: it is a better sink than a source. At the same time, its character as an international organization largely verifying activities of its own members could jeopardize any sensitive information regarding sources and methods which were supplied to it. Pooling or summarizing data could perhaps mitigate this difficulty but evidence that could not be publicly-presented is likely to be less persuasive to those not privileged to receive it.

There are some advantages as well, however, to reliance on state-supplied information. Again, this could mean that the costs of collection and at least some of the analyses fall upon such states, whether individually or as a group, rather than on the IAEA. Again, this is likely to make the hoped-for trade off between the costs of increased assurances of the absence of clandestine activities and the savings of reduced inspections more attractive to the Agency and to inspected states: some of the cost is shifted to information-providers. Second, and following from the IAEA's international nature, such reliance could protect a helpful uncertainty in the minds of possible proliferators about the limits and capabilities of such information-gathering techniques.

## Conclusion

The strengthening of Agency rights, techniques and resources proposed under the '93+2' programme will be useful against all three classes of threats from undeclared activities, whether through increasing the direct risk of detection or through increasing the costs and difficulties of avoiding detection. The measures sought under Part 2 would generally give additional leverage over those falling within Part 1, but this is particularly true for the co-location threat. The improvement in Agency rights of access and inspection techniques within declared sites will particularly strengthen its leverage on the first two classes of threats. For the threat from undeclared, separate sites, however, the willingness and ability of states to gather and supply information may be the determining factor, rather than simply additions to the Agency's legal powers and its repertoire of on-site techniques.

Particularly with respect to hopes for a trade off between improved assurances of the absence of clandestine activities and reduced resource allocations, this presents certain possibilities and certain problems. The ability to provide such assurances, and thus to reap the potential trade off benefit, depends on handling all three classes of threats, not simply the first two. Depending on the level of assurance necessary to permit such a trade off, it may simply be impossible. Depending on who pays the real costs of obtaining the information on which such assurances might be based, it may be more or less feasible from the perspectives of simply the Agency and the individual safeguarded states. Depending on the willingness of states either to grant the



IAEA the means to gather such information itself, or to provide it in some reliable and usable fashion themselves, it may be politically impossible. Therefore, indirectly through their willingness to meet the IAEA's requirements as stated in the '93+2' programme, and directly through their willingness to take steps themselves, it is the states themselves, not the Agency, who will determine whether or not '93+2' can achieve its objectives, in respect to nuclear verification as a whole, in respect to undeclared nuclear activities, and in respect to the hopes of a resource trade off. If the Agency falls short of their hopes and requirements, to a substantial degree the fault will thus lie with the states themselves – 'why, man, they did make love to this employ.'