

SAFEGUARDS SYMPOSIUM

OVERVIEWS OF THE 2001 IAEA SYMPOSIUM ON INTERNATIONAL SAFEGUARDS: VERIFICATION & NUCLEAR MATERIAL SECURITY

TIMELY, TOPICAL & DYNAMIC

BY THOMAS SHEA

Tradition has it that IAEA Safeguards Symposia are held at four-year intervals; this was the ninth such Symposium. Activities of the Agency's Department of Safeguards are sufficiently coherent that it is practical to gather representatives of the international non-proliferation community to examine the current situation and prospects for the future. They are carried out in cooperation with the Institute of Nuclear Materials Management (INMM) and the European Safeguards Research and Development Association (ESARDA).

Safeguards implementation continues every day, with new requirements arising from developments in peaceful applications of nuclear energy and new safeguards practices arising from technology innovation. Four years ago, the Safeguards Symposium came at a time when the IAEA system was being strengthened by adoption of the Model Additional Protocol (INFCIRC /540/(Corr.)), but no Additional Protocols had been signed. Over the past four years, the full extent of the "Strengthened Safeguards System" began to take shape. Although the rate at which the Protocols are being signed and

are entering into force is not satisfactory, the trends are evident. The impact of zero real growth on the IAEA budget further has served to force compromises in the quality of the safeguards system, and to demand working expectations beyond prudent limits.

Planning for the 2001 Symposium began two years ago. The call for papers identified the full spectrum of nuclear security interests — non-proliferation, nuclear disarmament and nuclear terrorism. The Symposium was advertised through notifications to Member State Missions, the IAEA *WorldAtom* Web Site, announcements in the ESARDA and INMM journals, and brochures provided by IAEA inspectors and distributed at gatherings of experts. The plan was to have the Symposium run for four days, with three parallel sessions to accommodate the diverse interests.

It was decided early on that the Symposium would not be held at the expense of safeguards missions, and hence solicitations were made to a number of States. Contributions were received from Australia, France, Japan, Sweden and the United States. They were mostly used to support participants from developing countries. In addition to contributions

received specifically for this purpose, IAEA Technical Cooperation funds were provided to support the participation of experts from the newly independent States.

The Symposium programme was developed with three basic threads proceeding in parallel: policy and major political considerations; safeguards technology development and experience; and experience in the implementation of IAEA safeguards, including activities carried out by States and those carried out by IAEA inspectors. In addition, for the first time, separate sessions were organized on physical protection and illicit trafficking, and on future Agency verification roles in relation to nuclear disarmament. Also, for the first time, commercial manufacturers of related equipment were invited to exhibit their products.

In all, 179 papers were accepted and presented at the Symposium: 119 oral presentations were given and 60 were presented as posters.

Within days of the terrorist attacks on the World Trade Center in New York and on the Pentagon in Washington, a

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Mr. Shea, who heads the Trilateral Initiative Office in the IAEA Department of Safeguards, served as Scientific Secretary of the Symposium, held during the week ending 2 November 2001.

CHALLENGES & OPPORTUNITIES

BY LAWRENCE SCHEINMAN

The IAEA Symposium on International Safeguards: Verification and Nuclear Material Security was an exceptionally well conceived, organized and implemented conference. The substantive level of the contributed papers and presentations and the “give-and-take” in the Symposium sessions were equally outstanding. No pun intended, instead of reprocessing old ideas participants were treated to an enriching experience.

The Symposium was planned and organized well before the tragic events of September 11 when deliberate terrorist attacks were mounted against the United States. That event, as IAEA Director General ElBaradei, United Nations Under-Secretary-General Dhanapala and many other speakers noted, sounded a wake-up call -- what yesterday was a vicious attack using conventional capabilities could tomorrow be an even more horrific attack using weapons of mass destruction, or in the case of radiological sources, of mass effect

The IAEA has a responsibility with respect to one weapon of mass destruction, nuclear. This is the only so-called weapon of mass destruction that is not hypothetical, but real and demonstrated. Chemical weapons are dangerous and potentially very damaging; biological weapons could be the equivalent of nuclear weapons if those who would contemplate using such agents were successful in weaponizing and delivering them against civilian populations.

Nuclear weapons have been used. We know their ability to devastate, we know their capability. We know from that one experience that this must never happen again and that the scourge of nuclear threat must be removed once and for all. This Agency has a major role to play in that regard. The IAEA and international safeguards (or regional safeguards for that matter) will not end the threat, end the risk. That is a matter of political determination, of the establishment of an international security environment based on collective security in which nuclear weapons have no role, no place, no purpose, and in which the materials that are essential to those weapons are not available or accessible.

We have not yet arrived at that place and it may still be a long time in coming. Safe travel along the road to that end result — a world free of the threat of nuclear violence at any level but one which enjoys the benefits of the peaceful use of nuclear energy — will require the political will of nation-states, the skills,

capabilities, dedication and commitment of an institution such as the IAEA and the talents and efforts of persons at this Symposium and their successors.

A key instrument in the effort to meet the proliferation challenge, and to in some way facilitate the safe and secure reduction of nuclear weapons and weapon-usable material, is safeguards in one manifestation or another. Their limits must be understood, their weaknesses remedied, their strengths reinforced and built on. On those issues, much was heard during the course of the Symposium, stimulating a keener appreciation of the challenges ahead, a more complete picture of the progress that is being made in sharpening the capabilities of safeguards measures, both old and new, and a more acute awareness of what still remains to be done if safeguards are to make the full contribution we expect from them.

Challenges were a major theme throughout the week:

- the challenge of ensuring correspondence between responsibilities and resources (a most frequently raised point, but addressed perhaps to the wrong audience, since all participants understand this challenge but political leaders may not and need to be the focus of this message);
- the challenge of fulfilling the mandate imposed by the need to verify the completeness and correctness of State declarations and reports of nuclear material;
- the challenge of deriving sensible countermeasures from the threat of sub-national terrorist activity and of preventing terrorism through nuclear violence;
- the challenge of finding ways to balance the traditional demands of sovereignty and the legitimate demands of the international community in ensuring adequate and reliable physical protection of nuclear material;
- the challenge of integrated safeguards;
- the challenge of implementing and universalizing the Additional Protocol;
- the challenge of physical protection of nuclear material against seizure or theft and of nuclear facilities against sabotage;
- the challenge of illicit trafficking of nuclear material and radioactive sources;
- the challenge of implementing the Trilateral Initiative and of making progress on other arms control and disarmament measures, in particular, a fissile material cut-off treaty.

Challenges, yes, but also opportunities — and of these participants also heard a great deal in the Symposium:

- the opportunity for developing new tools and new capabilities, new concepts, and new approaches;
- the opportunity to increase the role of technology in meeting the challenge of an expanding mandate in combination with the continued reality of zero real growth in the IAEA budget;

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decision was made to extend the Symposium to include Friday, November 2nd. A Special Session on "Combating Nuclear Terrorism" was organized for the full day. In the morning, experts from outside the Agency were invited to describe the potential threats arising from the possibility of nuclear terrorism, while the afternoon session would concentrate on activities already under way at the IAEA, and some possible additional activities under consideration. The potential threats considered include the theft of weapon-usable nuclear material for the manufacture of one or more nuclear explosive devices, the theft of hazardous radioactive material for use in a radiation dispersal device, and the sabotage of nuclear installations or transport systems with the intention of causing the release of radioactivity and radioactive materials. Funding for this Session came from the IAEA Office of Physical Protection and Material Security.

All told, 441 registered participants from 63 countries took part in the Symposium, including participants from 43 developing countries. Nine organizations were represented, including INMM, ESARDA, the Peace Research Institute Frankfurt (PRIF), the Verification, Research, Training and Information Centre (VERTIC), and the Stockholm International Peace Research Institute (SIPRI).

The quality of the presentations was very high. The opening plenary session set the right tone, and the presentation of Charles Curtis of the Nuclear Threat Initiative in particular was a stirring call that echoed through the week.

The Monday afternoon session provided a comprehensive and authoritative look at the actions to strengthen the safeguards system. The Thursday afternoon session was well received, addressing the future of nuclear power and the relevance of the IAEA in nuclear security issues.

Lawrence Scheinman provided an excellent summary of the Symposium (*see related article, page 3*), and IAEA Deputy Director for Safeguards Pierre Goldschmidt summed up the major points of the week. (*See closing section of this article.*)

Throughout the week, the Symposium seemed to evolve from a mere presentation of views to an event that many observers considered remarkable in its dynamic and content. The presentations were stimulating and well presented. It was against the backdrop of the September 11th attacks that the subject took on added importance, and no doubt this was the principal reason.

Though the Symposium was planned well before September 11th, coming 48 days later, the sessions proved to be both timely and cooperative in spirit.

The Special Session provided a forum for expanded interest, particularly by the press. Some 40 journalists interviewed the Director General, senior staff, and many key speakers. The reporting was extensive.

The message conveyed was that there is a risk and this new means of attack and the willingness of large numbers of terrorists to base their planning on suicide must be taken into account. Peaceful nuclear installations are more robust and better protected than other possible non-nuclear

installations, but civil facilities are normally not constructed to withstand an attack such as occurred on 11 September. The IAEA is responding to these concerns and further actions are under consideration. (*See related articles in this edition.*) With the authority and resources necessary, the IAEA may prevent such terrorist acts should they arise, or at least limit their destruction.

The Symposium Proceedings have been prepared on compact disc (CD) and distributed by the International Atomic Energy Agency. They were prepared on the basis of the author's contributions, without editing. The Proceedings are 1270 pages long. Distributing them just six weeks after the Symposium could only have been accomplished with the full cooperation of the contributors and the capabilities that electronic mail affords.

CLOSING REMARKS: P. GOLDSCHMIDT

Following are excerpts from the closing remarks of IAEA Deputy Director General for Safeguards Pierre Goldschmidt. (*Also see his article, page 6.*)

"During the first four days of this Symposium on International Safeguards, 18 sessions were devoted to reviewing all aspects of our verification activities and those related to the Security of Nuclear Material. It has been an occasion to highlight the most significant and rapid evolution of IAEA Safeguards, and the challenges we are facing:

■ *first the challenge in improving the effectiveness of "traditional safeguards";*

■ *the challenge in implementing the Additional Protocol in States where it is in force and in trying*

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- the opportunity to bring information analysis to strengthened safeguards and to evaluate the progress that is being made;
- the opportunity to make more effective use of satellite imagery;
- the opportunity to evolve new randomized inspection strategies and for dealing with knotty problems affecting the accounting and control of nuclear material;
- the opportunity to come to grips with the problem of verifying nuclear material even in sensitive, classified forms, for arms control purposes.

With the Damoclean threat of nuclear terrorism lurking in the background, it comes as no surprise that the terrorist theme permeated discussions throughout the Symposium. Nor that a special session on terrorism was added to the agenda. Awareness of that issue, and of the challenges it poses to our conventional way of thinking is not the question. The question is whether we can collectively rise to the occasion, take the necessary steps to address it at the national level, and to invest our international institutions with the authorities and resources necessary to enable them, working with their constituent State members, to confront and defeat the threat of nuclear terrorism before it defeats us.



Photo: In opening the Special Session on Combating Nuclear Terrorism at the Symposium, IAEA Director General Mohamed ElBaradei emphasized actions that the IAEA is taking to assist States and reinforce its international programmes for nuclear security and safety. (Credit: Calma/IAEA)

to expand the number of such States;

■ *the challenge in drawing and maintaining credible safeguards conclusions;*

■ *the challenge in designing and implementing integrated safeguards, including complementary access, managed access and unannounced inspections;*

■ *the challenge in developing, testing, installing and maintaining new, more efficient and more reliable equipment such as surveillance cameras, seals and remote monitoring control;*

■ *the challenge in developing new information and analytical tools including open sources and satellite imagery;*

■ *the major challenge of recruiting and training new inspectors, with extremely broad skills, to replace our most experienced inspectors who are retiring "en masse";*

■ *and last but not least, the challenge of filling the widening gap between what is required and expected from this Agency and the human and regular budget resources available.*

Many speakers indeed have recognized that our Safeguards and Security of Nuclear Material programmes need additional funding from our regular budget. But taking into account the balance between our statutory and promotional activities, this will not be achieved unless there is additional financial support for the Agency's technical cooperation programme that is addressing fundamental needs of many developing countries in such important areas as health protection, including eradication of the tsetse-fly, food sterilization or fresh water supply.

We have also discussed our activities and progress relating to the Trilateral Initiative and our

support to nuclear disarmament efforts. We hope that further progress will be achieved in the near future. And finally, the Agency's present and future activities relating to Physical Protection and Illicit Trafficking have been abundantly reviewed.

This morning (at the Special Session) we have heard some disturbing and controversial views on nuclear terrorism. But altogether it proved to be a stimulating discussion. I don't wish to paraphrase the Director General's opening statement nor Mr. Curtis' excellent summary of today's discussion. All these inputs will help the Secretariat in developing its proposals for action, which will be submitted to the Board of Governors." □

See the Insert in this edition for an update on the report to the IAEA Board and nuclear security issues.