Statements of the Deputy Directors General

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Opening Remarks at the Regional Training Course on State Systems of Accounting for and Control of Nuclear Material

by Mr. Pierre Goldschmidt
IAEA Deputy Director General, Head of the Department of Safeguards

Mr. Deputy Director General, Ladies and gentlemen,

At the start of this regional training course I would like to take this opportunity to express my sincere appreciation on behalf of the International Atomic Agency to the Government of South Africa for hosting this training event here in Pretoria. This training course is a follow up to the successful regional seminar for the African States on Non-proliferation of Nuclear Weapons held in Johannesburg in June 2002. Before I highlight the objectives of this training course I would like to give a brief perspective of major challenges currently facing the international nuclear non-proliferation regime.

Major Challenges Currently Facing the International Nuclear Non-proliferation Regime

Nearly fifty years after its founding, the International Atomic Energy Agency (IAEA) continues to serve as the focal point within the United Nations system for the impartial verification of nuclear non-proliferation commitments, as well as for co-operation in the beneficial uses of nuclear technology. Effective IAEA verification remains the cornerstone of the regime established under the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) to stem the further spread of nuclear weapons and to verify nuclear disarmament.

Today, while the IAEA safeguards regime is more robust than ever before, we also face a broad array of challenges. In the past few years in particular, the international community has been confronted with a number of nuclear non-proliferation compliance issues - while at the same time, over the past six years, the IAEA has been strengthening its safeguards system. I will briefly outline for you our perspective on some of the challenges we face.

Strengthening the Agency's Safeguards System

As you will recall, 'traditional' safeguards are based on the concept of nuclear material accountancy and verification, complemented by containment and surveillance measures - with the tacit assumption that the State has provided complete information covering *all* of its nuclear material that should be subject to safeguards. Under comprehensive safeguards agreements, inspector access is normally limited to specific

locations in a nuclear facility, which correspondingly limits the Agency's ability to detect undeclared nuclear activity or material.

In May 1997, the IAEA Board of Governors approved the Model Additional Protocol to Safeguards Agreements — an integral part of the strengthened safeguards system — which requires States to provide an expanded declaration of their nuclear activities, grants the Agency broader rights of access, and enables the use of more advanced verification technologies. Each State's nuclear programme involves a set of interrelated activities that require specific types of equipment and infrastructure, involves a predictable use of nuclear material, and leaves measurable telltale traces in the environment. Strengthened safeguards take advantage of this broad perspective, employing both quantitative and qualitative indicators to assess the correctness and completeness of a State's declarations, and also the possibility of undeclared nuclear activities in the State.

A key aspect of strengthened IAEA safeguards is the shift in focus from safeguards implementation at the facility level to the State as a whole. Agency safeguards conclusions derive from an evaluation process that takes into account a given State's overall nuclear fuel cycle characteristics — including planned activities — and obtains information from a variety of sources: from States themselves; from on-site inspections and other verification activities; from open sources such as the media, professional journals, and commercial satellite imagery; and from any other safeguards relevant source accessible to the Agency.

System Wide Challenges: Legal, Technological and Financial

Full implementation of this strengthened safeguards system requires that we overcome a number of legal, technological and financial challenges.

The Needed Authority

On the legal — or some might say 'political' — front, the challenge for the IAEA verification regime is relatively simple to understand: strengthened safeguards can only be fully implemented in States that have in force both a comprehensive safeguards agreement and an additional protocol. In other words, the system is only effective to the degree that States follow through on their political commitments; the Agency can only provide the required credible assurances if it is given the necessary authority. Although the Model Additional Protocol has been in place for 6 years, to date the results are disappointing: out of 189 States party to the NPT, additional protocols have been approved by the Board of Governors for 81 States, and are in force for only 37 States. The need for the additional protocol to become universal in application thus remains of paramount importance.

Rapid Advances in Technology

From a technological perspective, verification challenges are constantly evolving. To illustrate, consider that in Iraq's clandestine development of a uranium enrichment programme, it explored six different techniques: electromagnetic isotope separation, gaseous centrifuge, gaseous diffusion, molecular and atomic vapour laser isotope separation, ion exchange and chemical processes. In addition, the commercial knowledge and technologies necessary to conduct a covert nuclear weapons programme

have become more accessible and the means to implement procurement, deception and concealment strategies have become increasingly sophisticated. The fact that potential proliferators constantly seek access to new technologies requires that the Agency constantly update its knowledge and detection capabilities.

A particular technological challenge involves assured use of state-of-the-art laboratories for sample analysis. As part of their nuclear material verification activities, inspectors may use both non-destructive and destructive assay techniques to verify that there has been no diversion of a safeguards significant quantity of material. Environmental samples collected at or near a nuclear site can reveal indicators of past and current activities in locations handling nuclear materials; for example, swipe samples can be used to detect either the presence of undeclared uranium enrichment activities or the enrichment of uranium above declared levels.

In 2002, the Agency used its Safeguards Analytical Laboratory in Seibersdorf and certified laboratories from the Network of Analytical Laboratories to analyze 736 samples of nuclear materials and 12 samples of heavy water, and reported 1593 analytical results for material accountancy verification of facility operators' declarations. The capabilities of the Seibersdorf laboratory strengthen the Agency's analytical independence and quality assurance. However, for some sophisticated types of analyses, only a few countries have analytical laboratories with the necessary capabilities.

As we look towards the future, we hope to use advances in nuclear technology to our best advantage. A number of international groups (including the Agency's INPRO project) are working to develop innovative nuclear reactor and fuel cycle technologies, and are focused on making proliferation resistance an inherent feature of these advanced technologies. These innovations can help to ensure that future nuclear energy systems, constructed for peaceful uses, will by design be unattractive as a means of acquiring materials for a nuclear weapons programme. Such designs can ensure, in turn, that providing States legitimate access to nuclear technologies, as guaranteed under the NPT, will not result in a lack of trust over how those technologies are to be used.

Multinational approaches should also be considered for the management and disposal of spent nuclear fuel — taking into account the potential economic benefits as well as the security and non-proliferation advantages that could result from international co-operation on the construction and operation of international spent fuel storage facilities and possibly waste repositories.

Adequate Funding

To respond adequately to our growing responsibilities, the Agency must naturally be provided with the necessary financial and human resources. Even with the new budget increase approved by the IAEA General Conference last month, the safeguards programme will continue to be hard pressed in some areas to maintain the high standards expected by its Member States. It will continue to rely on extrabudgetary resources and Member States Support Programmes.

Specific Challenges

In addition to the overall legal, technological and financial challenges, the Agency as you know has recently been faced with a number of verification issues related to the nuclear programmes of specific countries.

- In December 2002, the Agency's inspectors were expelled from the Democratic People's Republic of Korea (DPRK), and there have been no IAEA verification activities carried out in the DPRK since that time. Thus, the Agency is not in a position to provide any assurances about the non-diversion of safeguarded nuclear material pursuant to the DPRK's NPT safeguards agreement.

- In March 2003, Agency inspectors were asked to leave Iraq, in view of an imminent military attack, after less than four months of work to fulfill the mandate given the IAEA by the United Nations Security Council, to verify the absence of prohibited nuclear activities in Iraq.

- And in recent months, the Islamic Republic of Iran has been at the centre of attention for having failed to meet some of its obligations under its NPT safeguards agreement with respect to the reporting of nuclear material and related activities. Nearly two weeks ago, on 12 September, the IAEA Board of Governors adopted a resolution calling on Iran, inter alia, to undertake certain essential and urgent measures to ensure IAEA verification of compliance with Iran's NPT safeguards agreement, and to provide full transparency and effective co-operation to bring all outstanding issues — particularly those involving high enriched uranium — to closure as soon as possible.

I do not intend to elaborate on these issues beyond what has already been said in the public record. However, these three cases, together with the Agency's on-going safeguards activities in more than 130 States, vividly illustrate the complex challenges faced by the non-proliferation regime — and the critical importance that effective, impartial international verification plays in ensuring that nuclear non-proliferation obligations are being upheld. Given the widespread dissemination of nuclear technology and knowledge, as well as the increasing global concerns related to security and combating terrorism, it is clear that the IAEA must ensure that its safeguards system is not only effective and efficient, but also *adaptable*, in order to continue to be able to address emerging challenges in a timely fashion.

Conclusion

Progress is therefore needed in all the areas I have mentioned: the Agency must be given adequate financial resources, must be provided the requisite legal authority by all States, and must have available the required technological means to enable it to provide the international community with credible and impartial conclusions related to the application of safeguards.

Facing these challenges and achieving further progress in both nuclear non-proliferation and disarmament will require considerable co-operation and support of all those involved, at all levels, in both the scientific and political spheres: Agency staff, national policy-makers, and facility operators. It will require that we take stock of lessons learned – and resolve to take whatever actions are required to

ensure that nuclear energy remains a source of hope and prosperity for humanity, and not a tool for self-destruction.

Good cooperation between the Agency, State authorities and facility operators is essential for the effective and efficient implementation of safeguards. Since joining the Non Proliferation Treaty in 1991, South Africa has repeatedly demonstrated a strong commitment to the principles of non-proliferation. It has shown the world that it is possible for a nation to give up its nuclear weapons and adapt technologies into successful commercial enterprises.

As the design of the pebble bed modular reactor (PBMR) is being finalized, I am pleased with the cooperation of the South African authorities including their early provision of design information, which has allowed the Agency to begin development of a safeguards approach for this type of facility. I am confident that an effective safeguards approach can be developed with further cooperation, including the newly-formed South African Support Programme.

South Africa has demonstrated leadership in non-proliferation by concluding and implementing an additional protocol, hosting the Regional Seminar for African States on Non-proliferation of Nuclear Weapons in 2002, and hosting this Regional Training Course on State Systems of Accounting for and Control of Nuclear Material. We hope it will serve as an inspiration to other African states.

Technical level training courses such as this one help strengthen the cooperation between the Agency, State authorities and facility operators. This course will discuss practical nuclear material control issues from the perspectives of both the Agency and the States, emphasizing the concrete cooperation that is needed to achieve the ultimate objective of effective and efficient safeguards. Throughout this course the participants will be provided with a great deal of information on the technical and procedural aspects of safeguards, and the use of various instruments and systems utilized in safeguards approaches and activities.

The participants selected for this course were invited from African countries having significant nuclear activities and from countries expected to have reporting needs pursuant to additional protocols in the near future. Participants will be provided with basic understanding of the IAEA safeguards activities and concepts and development of the strengthened safeguards system. The course will also assist the Member States who have a small but developing nuclear programme to soundly establish their State systems of accounting for and control of nuclear material and to make them adaptable and responsive to future developments.

I would like to thank all of the organizers for the arrangements they have made for, and support they have given to, this training course. Particularly I would like to thank the officials from the Department of Minerals and Energy of South Africa and the Nuclear Energy Corporation of South Africa who are hosting this event.

I wish you all a very interesting and fruitful training course.