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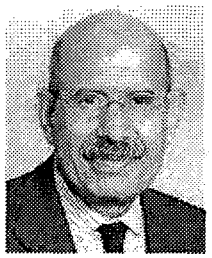

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Introduction

Earlier this month, the Millennium Summit of the United Nations identified a number of major challenges humanity faces as we enter the new millennium. High among them are the efforts of the international community to achieve "freedom from fear" and "freedom from want."

The Agency's three major functions — as a catalyst for the development and transfer of nuclear technology; as a recognized authority on nuclear safety; and as an instrument for the verification of nuclear non-proliferation — are closely linked with these efforts. I will highlight some of our achievements under each of these three pillars, and I will outline some of the challenges that remain — in other words, where we are today and where we want to be.

I. THE AGENCY AS CATALYST FOR THE DEVELOPMENT AND TRANSFER OF NUCLEAR TECHNOLOGY

Nuclear technologies, in both power and non-power applications, provide preferred solutions (and sometimes the only solutions) to many economic and social dilemmas. They hold great promise for the future.

Nuclear Power

Although the nuclear share of electricity is 25% or more in 17 countries, recent developments clearly show there is no current consensus on the future role of nuclear power. While some countries are closing or phasing out nuclear plants, others are engaged in new construction or innovative research and development. In this context, let me mention an important conclusion from a report issued earlier this year by the World Energy Council (*WEC Statement 2000*), which relates to the role of nuclear power in sustainable energy development.

The report concludes that up to 2020, global reliance on fossil fuels and large hydro will remain strong, albeit with special emphasis on natural gas and cleaner fossil fuel systems. However, total reliance on these energy sources to meet the growing electricity demand of the world is not sustainable, especially in the context of two billion more people by 2020. The report concludes that the role of nuclear power must therefore be stabilized with the aim of possible future extensions — and that in parallel, efforts to develop intrinsically safe and affordable nuclear technology need to be encouraged.

Significant progress is being reported with respect to the performance of nuclear power plants in operation. Over the last decade, the *average energy availability factor* for nuclear power plants has increased from 72.5% to 80.5% worldwide — the effective equivalent of commissioning 28 new 1000 megawatt units. And experience has shown that efficiency and safety are closely linked; the most efficient plants are also the safest.

For some new plants, shorter construction periods and reduced operating costs are also reported. Recent units in the Republic of Korea and Japan have been commissioned within four to five years and are designed for up to 60 year lifetimes. The Agency will continue to work closely with Member States to improve nuclear power plant performance, through the collection and distribution of utility experience and best practices, and through analyses of factors affecting performance.

In many countries — including France, the Russian Federation, Japan, and the USA — utilities and regulators are co-operating on regimes for *life extension* of existing nuclear power plants. Low fuel costs and steadily declining operation and maintenance costs can make these plants among the least expensive base load providers. The Agency has been working with Member States to ensure that relevant safety criteria are considered in life extension decisions, and that programmes are in place for periodic safety reviews focused appropriately on ageing issues.

But the future of nuclear energy may depend heavily on success in developing new, innovative reactors and fuel cycle designs that exhibit enhanced safety features, proliferation resistance, and economic competitiveness. Subject to the availability of extrabudgetary resources, the Agency plans to establish a task force next year on innovative reactors and fuel cycles. This task force will assess future energy and technology demands and identify the technical reactor and fuel cycle features that could meet these demands.

In this context, I note with interest the initiative of President Putin at the Millennium Summit, in which he called upon all countries to join an international project under the auspices of the IAEA, to develop new technology that could generate nuclear power without requiring or producing weapons grade material, and in parallel to focus on emerging technology to burn long lived wastes from spent fuel and weapons stockpiles. If requested, the Agency is ready to offer its support in co-ordinating this project.

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Small and medium sized reactors (SMRs) also can be a suitable choice for electricity generation and heating in remote areas or in countries with small electrical grid capacities. A number of innovative small reactors are currently under development. In South Africa, an international consortium is pursuing a project to develop a 110 megawatt pebble bed modular gas cooled reactor. Other innovative SMRs are in design or under development in Argentina, China, Japan, and the Republic of Korea. The Agency will continue to work closely with those and other States to promote information exchange and assist in establishing international norms and safety standards.

The Agency has also continued to assist Member States in their energy assessment planning, with *energy market liberalization* taking place in many developing Member States. The previous emphasis by the Agency on *broad comparative assessments* of energy options has shifted to country specific energy demand and supply analyses. In all our comparative assessment work, our objective is to provide information that is complete, accurate and unbiased.

Work at the Secretariat has continued concerning the evaluation of *nuclear power as a greenhouse gas mitigation option* for combating potential climate change. Negotiations continue under the United Nations Framework Convention on Climate Change to finalize the unresolved issues of the 1997 Kyoto Protocol at the 6th Conference of the Parties in The Hague this November. In response to Member State requests, the Secretariat organized a series of information seminars on this issue, and assisted a number of developing Member States in conducting case studies on nuclear power as a "Clean Development Mechanism" under the Protocol.

Nuclear Fuel Cycle and Waste Management

The Agency has continued its focus on the back end of the fuel cycle in areas such as spent fuel management, repatriation of research reactor fuel, extension of storage capacity and remediation of ageing storage facilities.

Probably no issue is more critical to the future of nuclear energy than the safe disposal of high level radioactive waste. While experts believe geological disposal to be safe, technologically feasible, and environmentally responsible, the public at large remains sceptical, and the volume of high level waste continues to build. Some progress, however, is being made.

A number of countries are engaged in deep disposal studies, and some are developing underground research facilities or publishing draft Environmental Impact Assessments. In this context, I am pleased to report that the Canadian Government has recently informed me of its decision to offer its underground research facility at Lac du Bonnet in Manitoba for co-operative international research and training, under the auspices of the IAEA.

Research and development is active on new technologies that reduce actinide generation and focus on long lived waste transmutation. Research is also ongoing on the feasibility of retrieving wastes from geological repositories after emplacement — in case, for example, a better solution is developed in the future, or concerns arise about the safety of the repository.

The Agency continues to work to maintain international focus on the waste issue, to accelerate progress toward demonstrated solutions, and to bridge the gap in perception between technical experts and the public at large. The recent IAEA Conference in Córdoba, Spain, emphasized that effective national strategies for waste disposal would require the clear definition of a detailed, transparent approach that would enable all parties, including the general public, to participate in the decision making process. This year's Scientific Forum is designed to build on the conclusions of the Córdoba Conference and to advance the discussion further. I also note the growing support for a global forum on nuclear waste with the participation of all concerned parties, including policy makers, civil society and the media, with a view to building an international consensus on this important issue. My intention is to establish such a forum, and I would welcome your views in this regard.

The Preservation of Nuclear Expertise

Regardless of long term strategies for electricity generation in different Member States, qualified, highly trained personnel are essential to maintain safety in all nuclear power related areas (including operation of power plants, radiation protection, waste management and decommissioning). A sizeable pool of qualified nuclear scientists, engineers and technicians must therefore be retained.

A substantial portion of the knowledge base in the nuclear industry, however, is departing with retiring employees and is not being replaced. Most countries with advanced nuclear programmes report a decrease in the number of new graduates in the nuclear field. In the USA, for example, statistics show a decrease of more than 60% from 1979 levels of enrolment in nuclear engineering programmes. This is a serious problem that merits particular attention.

Several countries have initiated actions to address this problem, including: government and industry funding for students and lecturers in universities; and co-operative efforts among nuclear utilities, research centres and universities in carrying out R&D projects, student and personnel training, and personnel exchanges. We intend to continue to focus Member State attention on this issue, and to co-ordinate international co-operation in this area.

Nuclear Science and Applications

A major part of our work in the technology area is in the field of nuclear science and applications. The recently established Standing Advisory Group on Nuclear Applications (SAGNA) emphasized the critical nature of the Agency role as a supplement to the "scientific and technological capacities of

Member States and as a catalyst for social and economic development." Let me highlight some of the recent achievements in this area.

The establishment of the FAO/IAEA Training and Reference Centre for Food and Pesticide Control will help developing Member States to strengthen their analytical capacities for food contaminants affecting trade. This is likely to facilitate trade in food and agricultural commodities from developing Member States.

Under a *human health* Co-ordinated Research Project (CRP), a new palliative treatment for painful skeletal metastases of cancers was successfully introduced. Another CRP successfully achieved advances in applying radio-immunoassays and isotopes to improve the diagnosis of hepatitis, malaria and drug resistant tuberculosis strains.

After the notable success of the Agency supported project in Zanzibar in eradicating the tsetse fly — widely considered to be one of the most difficult barriers to reducing poverty in sub-Saharan Africa — several African Member States were prompted to consider an integrated, area wide approach to tsetse eradication. The newly established Pan African Sterile Insect Technique Forum has developed strategies to begin mobilizing the needed material, financial, and human resources. At the July African Summit in Togo, the heads of African Member States expressed their support, and tasked the OAU Secretary-General with initiating a continent wide campaign, using the Agency as a principal partner.

Over one billion people do not have access to clean water, and experts predict that, without intervention, about two-thirds of the global community will face shortages of clean water by 2025. Through Agency programmes, more than twenty Member States have been involved in assessing the potential of nuclear desalination technology for potable water production. Since 1999, reviews have been completed on the latest relevant technologies and the status of planned or ongoing nuclear desalination demonstration projects (with several Member States currently considering the implementation of such projects).

An increasing number of Agency programmes are concerned with the use of nuclear techniques to improve environmental management practices. An Agency project in Chile, "Contamination of Water Resources in Semi-Arid Zones," used isotopic techniques to evaluate the effects of mining pollution on groundwater and surface water sources. The results allowed Chilean officials to work with respective industries on mitigation and management strategies.

The use of ionizing radiation to clean flue gases from coal fired power plants, a technology catalysed by the Agency, is now under demonstration in four power plants in Bulgaria, China, Japan, and Poland. The use of radiation to treat contaminated drinking water and industrial effluents has been established in a CRP. Industrial scale studies are expected to be launched by the Republic of Korea.

Anti-personnel land mines, the ugly remnants of conflicts, continue to maim civilians, including children. The Agency has taken the initiative, through a CRP, to encourage the development of nuclear techniques for land mine detection. Requests from Member States in the European region have resulted in formulating a regional technical co-operation project as a follow up to this CRP.

Laboratory and Research Activities

The Agency's *Seibersdorf Laboratories* have continued to provide essential contributions to the Agency programme through experimental support activities and the training of more than 100 scientists from developing countries in the past year.

The *Marine Environment Laboratory at Monaco* (MEL) has successfully tested a new approach to monitoring the radioactive contamination of seawater, using a stationary buoy with an array of instruments that transmit data via satellite. The buoy is currently operating in the Irish Sea.

The Marine Environment Laboratory works closely with Seibersdorf to deliver a coherent programme focused on protecting the marine and terrestrial environment. Their parallel activities in providing quality assurance products and services make a critical contribution to Member State laboratories around the world, helping to provide reliable information for decision and policy makers.

The *Abdus Salam International Centre for Theoretical Physics* (ICTP) in Trieste, Italy, which operates under the aegis of IAEA/UNESCO, is also becoming more active in the implementation of Agency programme activities in the research and training fields.

Future Challenges in Nuclear Technology

Let me conclude my review of the technology pillar by identifying six challenges that are vital to the future of both nuclear power and non-power applications: first, developing innovative reactor and fuel cycle technologies that are inherently safe, proliferation resistant and economically competitive, including small and medium sized reactors that could meet the needs of developing countries; second, developing a consensus strategy for the management of high level waste, including the construction and operation of disposal facilities; third, preserving nuclear expertise, both for safety reasons and in order to keep the nuclear option open; fourth, ensuring a full and fair hearing for nuclear power in the sustainable energy development debate; fifth, using comparative assessments to determine where nuclear applications present the best solution; and sixth, being responsive to Member State needs as a catalyst for the development and transfer of new technology applications.

II. THE AGENCY AS A RECOGNIZED AUTHORITY ON NUCLEAR SAFETY

Nuclear safety will continue to be vital to the future of nuclear technology. This is our second pillar — the Agency's role as a recognized, objective authority on nuclear, radiation, and waste safety.

I reported to you last year on the positive outcome of the Agency's conference on the safety of nuclear installations in Eastern Europe. I am pleased to report that safety upgrades at these nuclear power plants and fuel cycle facilities are continuing to achieve positive results.

As you will recall, however, during last year's General Conference a serious criticality accident regrettably occurred at Tokaimura in Japan, in which two workers died. Since the accident, the Japanese Government has set measures in place to improve both operational safety and regulatory oversight of the entire fuel cycle.

There are three major components of the international safety regime: international conventions, a body of internationally agreed safety standards, and mechanisms for the application of these standards.

International Conventions

The *Early Notification* and *Assistance Conventions* are long established. The Agency receives a few requests each year under the Assistance Convention, which clearly continues to offer an invaluable mechanism for helping Member States in times of urgent need. Most of these requests relate to radiological emergencies involving *medical or industrial radiation sources*.

In the past year, assistance has been provided to Georgia, Ghana and Thailand. Regrettably, five people have died in the past year as the result of accidents involving radiation sources in Egypt and Thailand. These accidents emphasize the need for decisive national and international action. The Agency's Action Plan for the Safety of Radiation Sources and the Security of Radioactive Materials is making progress on multiple fronts, including agreement on a categorization of radiation sources; strengthened Agency and Member State abilities to respond to emergencies; better information exchange among regulators, users, and manufacturers; and intensified education and training. An important part of implementing the Action Plan is the Agency's technical assistance to 52 Member States in establishing an adequate radiation and waste safety infrastructure. Good progress is being achieved.

A Code of Conduct on the Safety of Radiation Sources and the Security of Radioactive Materials has also been prepared by a group of experts from Member States. I was asked by the Board of Governors last week to circulate the Code to all States and relevant international organizations.

I am pleased to note that only three more instruments of ratification are needed for the *Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management* to enter into force. I hope that will happen soon, with the Preparatory Meeting to follow shortly thereafter.

For the *Convention on Nuclear Safety*, the number of Contracting Parties now stands at 53. This includes all but two of the States with nuclear power reactors. I urge all States that have not already done so to become party to the Convention.

Establishment of International Standards

The second component of the international safety regime is the body of safety standards. To be effective, these standards must be comprehensive, internationally agreed upon and subject to regular peer review. In my view, as in the aviation field under the auspices of the International Civil Aviation Organization (ICAO), these standards once agreed upon must be uniformly applied by all States.

A few years ago, the Secretariat introduced a strengthened process to ensure that the Agency's safety standards represent a consensus of Member States. The Secretariat then began a major effort of updating the standards — about 80 new or revised standards in total.

The updating process has helped to identify and eliminate gaps in coverage and areas of overlap; however, two gaps remain. The first relates to the geological disposal of long lived radioactive waste, an area where international consensus on safety standards seems to have receded in recent years. I hope that with the results of the Córdoba Conference, some progress can be made in this important area.

The other gap relates to safety standards for fuel cycle facilities. A number of important issues for these facilities — the primary one being criticality safety — are not addressed in existing standards. At its last meeting, the Agency's Commission on Safety Standards endorsed a plan to develop a new set of fuel cycle facility safety standards.

Safety Services

Naturally, the desired effect on safety will be achieved only if safety standards are applied in practice. To assist in the application of its standards, the Agency: (1) renders services on the request of Member States; (2) provides technical assistance and co-operation; (3) promotes relevant education and training; (4) fosters information exchange to maximize profit from the experience gained; and (5) co-ordinates research and development to close any remaining gaps in the system.

Perhaps the best known services are those in operational safety — in particular the OSART service, which continues to be in demand. Since its initiation, 107 OSARTs have been performed in 31 States, including all but two States where nuclear power plants are in operation. OSART follow up missions have demonstrated that the rate of resolving operational problems and inadequacies identified has improved over the last five years from 80% to 92%.

Despite these successes, areas of weakness continue to show up, particularly the lack of effective managerial presence in the field and a general vulnerability in plant safety culture during times of

change — such as economic deregulation, increased competition and early shutdown of plants. The Agency's development of a new comprehensive method for self-assessment of a nuclear power plant's entire operations will support utility and regulator efforts to improve in this area.

Recent design safety review missions have included visits to the Pebble Bed Modular Reactor in South Africa and the Korean Next Generation Reactor. International acceptance of these innovative and unique designs hinges on effective solution of design safety issues. Agency reviews provide a technical and objective basis for this assessment.

The Agency also is periodically asked to review the status of upgrades at individual plants. These reviews help both the utility and the regulatory authority in making technical and safety decisions. Five reviews of this kind have been performed by the Agency in Ukraine, Armenia and Bulgaria in the past year.

Demand for the International Regulatory Review Team (IRRT) service also remained strong. Typical IRRT findings relate to the need for more independence of the regulator, for adequate staffing with suitably qualified personnel, and for the financial resources needed to do the job. The need for advice is increasing in the areas of facility ageing, life extension and power plant re-licensing.

More than half of all *research reactors* worldwide are over 35 years old, and two-thirds of this group have been shut down without being decommissioned. Limited regulatory supervision, inadequate maintenance, inadequate fuel storage, and degraded or obsolete equipment are some of the safety issues being encountered. In April of this year, the International Nuclear Safety Advisory Group (INSAG) expressed concern that Member States may not have fully realized the magnitude and urgency of this issue.

The number of requests for the Integrated Safety Assessment of Research Reactors (INSARR) service have increased significantly in recent years. In the past year we have conducted a number of INSARR missions. However, given the global scale of the problem, much more needs to be done to achieve an adequate safety regime for research reactors.

To partly address this situation, I have augmented the Agency resources dealing with research reactor safety. In addition, INSAG has proposed the development of a binding norm that would cover the safety of research reactors. I encourage Member States to consider positively INSAG's proposal.

Early Shutdown of Nuclear Power Plants

Earlier this year, I had the opportunity to discuss with the INSAG Chairman, Professor Baer, some of the safety issues under INSAG review. One concern, which I have come to share during recent visits to some Member States, was the safety implications that may result from decisions for the early closure of a number of reactors of Soviet design.

Operational safety from the time of the closure decision to the beginning of decommissioning requires specific programmes that compensate for the organizational and technical changes that occur during this period. A decision for early closure can also reduce incentives for making safety upgrades that are currently required at these facilities.

INSAG intends to look further into this issue. In the interim, I am asking the Secretariat to work more closely with the European Commission to ensure that relevant Agency safety experience, information, and services are made available to decision makers and that the technical aspects of safety remain just that — technical.

Decommissioning Issues

One area that requires particular attention is the decommissioning of nuclear power plants, research reactors, and other fuel cycle facilities. To meet the growing needs of Member States, the Agency will need to expand its activities in this area — to ensure that we possess the requisite technical expertise, that we can foster the needed exchange of scientific and technical information, and that we can establish appropriate safety standards and assist in their implementation.

Kursk Submarine Accident

Finally, let me once again express my condolences to the Government of the Russian Federation and the families of those who perished in the tragic accident of the Kursk submarine in the Barents Sea. The Agency's Emergency Response Centre received many requests for information about the potential radiological consequences of this event. We were able to satisfy these requests, thanks to the valuable information received from both the Russian and the Norwegian Governments.

As I mentioned earlier, we have recently begun the use of buoys with satellite data transmission for *in situ* marine radioactivity monitoring. We would be willing to deploy such a buoy near the Kursk accident site if requested.

Future Challenges in Nuclear Safety

As is clear from my review of the safety pillar, a number of challenges still remain.

The first challenge is the completion of and universal adherence to a comprehensive, legally binding safety regime. We also should continue to identify areas where new legal norms are needed, such as in the areas of research reactors and of fuel cycle facilities, and we should work to ensure universal adherence to this regime.

The second challenge is to review and complete an entire set of internationally agreed safety standards that covers all parts of the fuel cycle. Simultaneously, we should focus on exploring ways and means of ensuring the implementation of these standards by all in a uniform and consistent manner.

The third challenge is to continue through the Agency's safety services to assist States in identifying and coping with all their safety requirements and needs, including the emerging issues of decommissioning and life extension now facing the nuclear industry. It is important for all States to avail themselves of these services and to benefit from the associated peer reviews.

III. THE AGENCY AS AN INSTRUMENT FOR THE VERIFICATION OF NUCLEAR NON-PROLIFERATION

The 1999 Safeguards Implementation Report (SIR) points to significant progress in some areas of the Agency's safeguards implementation and a lack of progress in others. For States with safeguards agreements in force, the Safeguards Statement for 1999 concluded that all nuclear material placed under safeguards had remained in peaceful uses or was otherwise adequately accounted for. The 1999 Safeguards Statement also included, for the first time, conclusions about the absence of ***undeclared*** nuclear material and activities in the State "as a whole" for two States with Additional Protocols in force.

Safeguards Agreements and Additional Protocols

The Final Document of the 6th Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) recognized IAEA safeguards as an indispensable component of the non-proliferation regime, and endorsed measures to strengthen these safeguards through the Additional Protocol. The Final Document also noted that 51 States party to the Treaty have not yet brought into force comprehensive safeguards agreements with the Agency. These unfulfilled legal obligations have been a matter of long standing concern. I am therefore encouraged that several States party to the Treaty have recently contacted the Secretariat about concluding the requisite safeguards agreements.

Since last year's General Conference, a further 9 Additional Protocols have been approved by the Board of Governors. Although this is welcome, the total number of Additional Protocols approved is only 54, a number far short of expectations. I would urge you, therefore, to assist the Secretariat in its endeavours to ensure that *all* States that have made a legally binding non-proliferation commitment to fulfil their obligation to conclude the required safeguards agreement; and that universal adherence to the Additional Protocol is attained. As I have repeatedly stated, without the conclusion of the required safeguards agreement, the Agency cannot provide *any* assurance about compliance by States with their non-proliferation obligations. And without the Additional Protocol the Agency can only provide *limited* assurances that do not adequately cover the absence of undeclared material or activities.

The number of States with an Additional Protocol in force has risen from 4 to 16 in the past year. Among them are States with substantial nuclear fuel cycle activities, such as Canada and Japan. Besides setting an excellent example, these developments will be a major asset to the Secretariat in terms of the activities it performs and the experience it gains.

An important measure to both strengthen and maximize the effectiveness of the safeguards system is the current development of new "integrated safeguards." This refers to the optimum combination of all safeguards measures available to the Agency — 'integrating' traditional safeguards measures with the measures of the Additional Protocol to ensure a system that is cost effective while achieving the maximum degree of assurance both of non-diversion of *declared* nuclear material and of the absence of *undeclared* nuclear material and activities.

Much preparatory work has been done already, and this work will be enhanced as we gain experience with the new measures under the Additional Protocol. We aim to complete the conceptual framework for integrated safeguards by the end of 2001.

Implementation of United Nations Security Council Resolutions Relating to Iraq

The Agency has not been in a position since December 1998 to implement its mandate in Iraq under UN Security Council Resolution 687 and related resolutions. As a consequence, it is not able at present to provide any assurance that Iraq is in compliance with its obligations under those resolutions. In light of the fact that UN Security Council mandated activities ceased in December 1998, and given the requirements of the IAEA safeguards system, the Agency carried out an inspection in Iraq in January 2000 pursuant to Iraq's NPT safeguards agreement. With the co-operation of the Iraqi authorities, the inspectors were able to verify the presence of the nuclear material subject to safeguards (low enriched, natural and depleted uranium) which is still in Iraq. As I noted at the time, the inspection was not designed to be and could not serve as a substitute for our activities under the resolutions of the Security Council. The Agency must return to Iraq if it is to fulfil the mandate entrusted to it under those resolutions and to provide the enhanced assurances sought by the Council.

Safeguards Agreement with the Democratic People's Republic of Korea

Since the last meeting of the General Conference, technical discussions with the Democratic People's Republic of Korea (DPRK) have enabled us to resolve a number of minor day to day problems. However, there has been no significant change to the assessment made at the last General Conference. The Agency is still unable to verify that the DPRK has, in fact, declared all nuclear material which should be subject to safeguards.

With the construction phase of the Light Water Reactor (LWR) project now under way, we are coming closer to the time at which the "key nuclear components" of the LWRs are due to be delivered. Before

this can happen, the DPRK must, under the "Agreed Framework" between the DPRK and the United States of America, "come into full compliance with its safeguards agreement."

There are many steps that the Secretariat needs to take and activities that it needs to carry out before it will be able to make any meaningful assessment of the correctness and completeness of the DPRK's initial declaration. Our assessment is that the entire verification process may take between 3 and 4 years to complete, depending on the results of our initial findings and on the degree of co-operation that we receive from the DPRK.

We therefore need to start our work now. For that, full co-operation on the part of the DPRK is and will continue to be essential. Given the recent positive developments in the Korean Peninsula, it is my hope, as I have said previously to the Board, that the DPRK will soon be ready to commence active co-operation with the Agency toward that end. Its normalization of relations with the Agency will also help us to provide advice and expertise regarding the important safety aspects of the LWR project.

Application of IAEA Safeguards in the Middle East

In keeping with the General Conference mandate, I have continued my consultations with the States of the Middle East region regarding the application of full scope safeguards to all nuclear activities in the Middle East, and the development of model agreements, that would contribute to the establishment of a nuclear weapon free zone. Regrettably, little progress has been achieved so far. Needless to say, I will continue to use all available venues, within my authority, and with the concurrence of the States concerned, to move that mandate forward. Movement toward an overall settlement in the region will certainly boost my ability to make progress. In that context, and with the concurrence of the parties concerned, I would be ready to arrange a forum in which participants from the Middle East could learn from the experience of other regions with respect to comprehensive verification arrangements and confidence building measures that contribute to the establishment of a nuclear weapons free zone.

Other Verification Activities

The Agency Secretariat continues to make progress, in consultations with the Russian Federation and the United States of America, on the development of modalities for verifying nuclear materials excess to their military programmes. An important objective in these consultations is the ability to assure the international community that the material is irreversibly removed from military programmes. In parallel, the three parties have been engaged in discussions to identify appropriate technical means to ensure both that the Agency will be able to draw independent conclusions, and that no classified information pertaining to nuclear weapon design will be available to Agency inspectors.

In addition to these consultations, I should mention that in September the USA and Russia signed a bilateral Plutonium Management and Disposition Agreement, which commits each Party to the withdrawal of 34 tonnes of weapons grade plutonium from its nuclear weapons programme. The Agreement provides that each party will conclude appropriate agreements with the IAEA, to allow the Agency to implement verification measures. I welcome this new Agreement as a step toward nuclear arms control. Naturally, the Agency will be ready to discuss the modalities for implementing its verification system.

Security of Material

In the area of Security of Material, a comprehensive report has been submitted to the Board and the General Conference on the activities undertaken since last year to strengthen the security of nuclear and other radioactive materials. The fact that the Agency's database on illicit trafficking now contains some 330 confirmed cases, including the seizure in April this year of almost one kilogram of high enriched uranium, shows the urgent need to strengthen the national and international frameworks for the protection of nuclear and radioactive material.

Work is in progress to define a plan of activities to be undertaken in the area of Security of Material, as requested by the last General Conference. The prevention and detection of, as well as response to illicit trafficking of radioactive materials, will remain the core of this programme, with a primary focus on the development of standards and guides and their application in Member States.

Future Challenges in Verification

To sum up my review of the verification pillar, let me emphasize that the first challenge facing the Agency in that area is to secure the conclusion of all the required safeguards agreements and attain universal adherence to the Additional Protocol, which would enable the Agency to provide comprehensive assurance regarding compliance by States with their non-proliferation commitments. A second important challenge is the completion of the conceptual framework for the new integrated safeguards system and its implementation to ensure the maximum effectiveness and efficiency of safeguards. A third challenge is to be able to provide the assurances required by the international community in both Iraq and the DPRK. And a fourth challenge is to prepare for the potential application of Agency verification to new nuclear arms control agreements, through the development of the required verification measures.

IV. TECHNICAL CO-OPERATION PROGRAMME

1999 was a productive year in the delivery of the Technical Co-operation Programme — a programme that is supported by all Agency pillars. The Agency purchased more than $30 million worth of equipment for projects, delivered 162 training courses and fielded 2650 experts. Technical co-operation programmes resulted in training more than 1000 fellows and 2300 participants of specialized courses. But more important are the outcomes actually achieved. Each recipient country has its successes to report. I have already referred to a number of examples and the Technical Co-operation Annual Report

highlights many other similar achievements.

1999 was also a productive year for the formulation of the next cycle of TC programming. This General Conference offers an opportunity for recipient Member States to finalize with the Secretariat the Agency's 2001–2002 Technical Co-operation Programme in their countries and regions, before the programme is presented to the December Board of Governors for review and approval. The mix of prospective projects shows some interesting trends. On one hand, requests have increased in regulatory areas such as radiation protection. But with greater decision making involvement by central authorities, requests have also increased in areas where nuclear techniques will have wider developmental impact — such as water resources management, communicable diseases, and insect control through SIT.

Extensive discussions over the past two years have helped to focus programming on achieving tangible socio-economic impact in areas of Member State priority. These discussions have been guided by the following lessons: first, technology transfer has greater impact when a strong partnership exists with the end user — frequently a water authority, health ministry, or livestock or plant protection service; second, to be effective, Agency technology must be combined, in the recipient country, with political will, committed resources, and sustained effort; and third, these partnerships, resource commitments, and avenues of support are more likely to occur when Agency projects are linked to national development programmes.

One of the efforts the Agency has made in the new cycle of programming is to stress the desirability of fewer but better projects. Experience has shown that a few solid projects with well defined results clearly linked to the development priorities of a recipient country can be more effective than a series of individual projects that may stem from a single institute or researcher.

Positive results like these have been the aim of the Technical Co-operation Strategy that was adopted several years ago. This strategy helped to pioneer a demand driven, results based approach within the Agency. Next year we will review our performance under this strategy, and apply the resulting insights to the next phase.

The financing of Technical Co-operation has been a subject of considerable discussion by the Board of Governors in the past 6 months. I am pleased that, thanks to the creative and untiring efforts of the Chairman of the Board, an agreement has been reached on this important issue for your approval. The new agreement would establish a mechanism designed to increase the resources available to the Technical Co-operation Fund. I very much hope that all will honour this agreement.

In 1999, only 40 Member States pledged and paid their full target share of the Technical Co-operation Fund. Fully 65 Member States paid nothing at all. If the Agency is to continue responding to demands for technical assistance from an increasing membership, it is essential that all Member States pledge and pay in full and on time their target share.

For the payment of assessed programme costs (APCs) — a legal obligation — the recent past is less than encouraging. In 1998 we received almost $3 million in APC payments. Last year that total decreased to slightly over $2 million. To date in 2000, we have received just over $1.8 million. At present a total of approximately $8 million in payments remain outstanding.

With the submission of the 2001–2002 TC Programme pending, I have asked the Secretariat, as requested by the Board, to take "due account," during the formulation of the new programme, of Member States' performance in contributing to the Technical Co-operation Fund and in paying Assessed Programme Costs.

V. MANAGING THE AGENCY FOR MAXIMUM EFFICIENCY AND EFFECTIVENESS, AND THE NEW OUTREACH POLICY

We have continued throughout the year to re-engineer our management outlook on the basis of a "one house" concept to ensure better co-ordination, better alignment of our programmes, a more streamlined Secretariat structure and a more effective outreach policy. And the increasing application of results based principles has helped to ensure better targeted and more efficient management.

One of the most important changes to which we have been responding during the past twelve months is the new emphasis on reaching out to our many constituencies, in line with our new policy which aims at engaging both traditional and non-traditional partners. An encouraging illustration of the value of the new approach was provided by the large number of non-governmental participants in the Scientific Forum held during last year's General Conference. Since then there have also been two very useful meetings, one with senior managers from nuclear research centres and the other with representatives from the nuclear industry. The meetings provided an opportunity for these groups to exchange views with the Secretariat on a wide range of issues of mutual interest. The Agency also arranged four regional public information seminars in the past year that attracted wide attendance, as a forum for dialogue on nuclear issues among technical experts, the media, and civil society.

Results Based Programming

The Secretariat is already engaged on the preparation of the draft programme and budget for 2002–2003, using the new results based programming and budgeting approach, which focuses more on what is to be accomplished by the activities being funded — and on the changes they will bring about in Member States — than on the inputs (in terms of financial and staffing resources) and outputs (in terms of meetings arranged, missions carried out, etc.). The results based approach will enable the Secretariat to better assess and address Member State needs and priorities and will provide greater transparency.

The Secretariat continued also with the evaluation of the relevance, efficiency and effectiveness of its activities under the Programme Performance Assessment System. This year, external review groups evaluated the Major Programmes on Nuclear Power and Fuel Cycle, and Nuclear Sciences and Applications, and the results were shared with Member States.

Biennial Budgeting

The proposed introduction of biennial budgeting represents an important adjunct to results based biennial programming. It is expected to streamline the process of budget preparation, facilitate improved programme implementation and create opportunities for better programme evaluation. Five Member States have already accepted the amendment to Article XIV.A of the Statute. I would urge other Member States to take the necessary steps to enable this amendment to enter into force as early as possible and thus to clear the way for the adoption of full biennial programming and budgeting.

The Agency's Programme and Budget for 2001

In keeping with the practice of recent years, the Agency's programme and budget estimates for the year 2001, submitted to the General Conference by the Board of Governors, reflect the policy of zero real growth. This policy, which has now been in place for well over a decade, has forced the Agency into an increasing and excessive reliance on extrabudgetary resources. That reliance — in the amount of over $20 million — means, in effect, that the regular budget of the Agency is underfunded in the same magnitude. This situation has a number of negative consequences: strategic planning is made difficult and less efficient; and the ability of the Secretariat to use its human resources in an efficient and effective manner is restricted. It is imperative therefore that corrective action be initiated before long, in relation to the inadequate level of regular budget funding, to ensure that our programmes can continue to be implemented with the expected effectiveness and efficiency.

Cash Flow Issues

Finally, I must express my concern — as I did at the Board of Governors last week — that the Agency has in recent months been experiencing unusually serious cash flow problems as a result of late payment or non-payment of contributions by Member States. With more than one major contributor unexpectedly departing from its previous payment pattern, the Agency's cash balances declined rapidly and by the end of July the Working Capital Fund of $18 million was fully depleted. We barely managed to meet our financial obligations in July and August and were able to do so only by making a special appeal to Member States for urgent payment of their contributions.

Obviously, this situation is very unsatisfactory. The Secretariat has for some time suggested an increase in the Working Capital Fund from the current four weeks of average expenditure to six weeks (other United Nations organizations have working capital funds ranging from five to six weeks). Although this measure would not by itself solve the problem, it would provide the Secretariat with a safety margin and more time to react to cash flow problems. I intend to submit a proposal to that effect to the next Programme and Budget Committee.

Future Management and Outreach Challenges

As demonstrated by the foregoing discussion, future challenges in the areas of management and outreach include the need to: first, ensure full funding through the regular budget for core Agency activities that have been requested by Member States; second, complete the transition to full biennial results based programme budgeting; third, continue the search for further gains in efficiency and effectiveness; and fourth, expand outreach to our constituencies in the nuclear, arms control and development areas.

VI. CONCLUSION

This review of achievements and challenges illustrates the important role the Agency plays in achieving the global objectives of "freedom from fear" and "freedom from want." In that context, it is heartening to note the explicit vote of confidence in the Agency expressed in the Final Document of the NPT review conference. It reaffirmed several principles central to our mission, including the following:

1. Important benefits for achieving sustainable development and for improving the quality of life can derive from the peaceful application of nuclear energy and nuclear techniques. The Agency therefore has a fundamental role in assisting developing countries to improve their scientific, technological and regulatory capabilities.

2. Agency safeguards form a fundamental pillar of the non-proliferation regime and create an environment conducive to nuclear disarmament and nuclear co-operation.

3. Both national measures and international co-operation are essential for nuclear, radiation, and waste safety, and the Agency has an indispensable role in the promotion of a global safety culture.

Clearly, much has been achieved, but more remains to be done. I am confident that, with your commitment and support, the Agency will continue to make an important contribution in the effort to make our world safer and more humane.

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