Statement to the 52nd Session of the United Nations General Assembly

1996-1997 - a very productive year for the IAEA

The Annual Report of the International Atomic Energy Agency (IAEA) for 1996 is before the General Assembly (A/52/285). Let me begin by noting that the year since I last reported to this Assembly has brought several significant results. In May, the Agency's Board of Governors approved a Model Protocol additional to safeguards agreements — a Protocol which will give added teeth to the Agency's nuclear inspection system. In recent months, a new convention on the safe management of radioactive wastes and spent nuclear fuel has been adopted and in the area of liability for nuclear accidents, existing conventions and rules have been modernized and the compensation amounts have been vastly increased. This year has thus seen a significant strengthening of the international legal infrastructure for the peaceful use of nuclear energy.

Forty years of growing responsibilities

This year, the IAEA has also been celebrating its fortieth anniversary. Under its mandate, which was built on President Eisenhower's "Atoms for Peace" initiative, the Agency has two main functions: to enlarge the contribution of nuclear energy to peace, health and prosperity throughout the world; and to verify that programmes and facilities declared to be for peaceful purposes are peaceful.

Over the years, this dual mandate of the IAEA has become increasingly important and relevant to the interests of Member States. As the global use of nuclear techniques has spread and grown, the volume of
work of the Agency has grown and new tasks have been laid upon it. Some of these relate to verification. Others deal with safety. Although nuclear power is the most \textit{visible} — and, in many places, controversial — use of nuclear energy, the vast majority of other uses are non-controversial and of great practical importance — as in medicine, agriculture, industry and environment.

\textbf{Practical contributions to sustainable development}

The IAEA currently spends about $50 million annually helping Member States use nuclear technology for their development needs — by providing training, expert services and equipment. In the early years, the focus was on the building of capacity in the area of nuclear science and technology. As such capacity has developed in many recipient States, often with crucial assistance from the IAEA, the emphasis has shifted to employing those national capacities, e.g. to prevent, diagnose and treat cancer, to help increase agricultural production or to provide clean water supplies. The Agency's technical co-operation programme and projects are thus geared to contributing very directly to the implementation of Agenda 21. Let me give only two examples from some 1,000 assistance projects implemented annually by the IAEA:

In Africa, the Agency, together with the FAO, has helped to eliminate Rinderpest, a disease which has claimed the lives of millions of cattle. Out of 18 African countries where cattle had been infested, today only two show signs of the disease. Vital to this good result was the incorporation of nuclear-based diagnostic and monitoring techniques in a Pan-African campaign launched in 1987.

The provision of fresh water resources is an issue of major concern in many parts of the world. The use of nuclear techniques in the study of underground water supplies helps to improve the management of these valuable resources. We are currently collaborating in this area with as
many as forty countries. For example, Agency collaboration with Venezuelan experts has resulted in the mapping of underground waters in the area of Caracas, and a strategy has been developed for the protection and sustainable use of these water resources. In North Africa and elsewhere, vast aquifers lie in arid and semi-arid regions and can be a uniquely valuable resource. However, these aquifers are vulnerable to over-exploitation and pollution and the Agency has provided assistance to use isotopes to determine sustainable levels of use of the waters and to protect them from pollution.

Let me mention further that the IAEA and the World Meteorological Organization have established a “Global Network for Isotopes in Precipitation” (known as GNIP), which has been providing over the last 35 years the basic isotopic data necessary for applications of isotope techniques to the assessment of water resources in Member States. There seems to be a consensus within the scientific community that the operation of this Global Network and the use of its database are essential in studying past and current climate change, including investigations related to the current El-Niño event and the resulting worldwide changes of the weather pattern.

Regrettably, Mr. President, financial resources for development projects are under pressure everywhere. I must, therefore, underline that continued and adequate support from all Member States for the Agency’s technical co-operation programme is indispensable if one is to realize the “Atoms for Peace” vision, namely the dual quest to prevent the spread of a military use of nuclear technology and to facilitate the transfer of nuclear techniques for peaceful purposes.

The IAEA’s work on nuclear power

During the first two decades of the IAEA, there was great optimism in the world about the future use of nuclear power — particularly because
of its capacity to compete with, and reduce dependence on, oil. However, in the last two decades several factors have led to a stagnation in nuclear power construction in most industrialized countries: overcapacity in electricity generation in some countries; concern about nuclear accidents; concern about the management of nuclear waste; and, lastly, the use of gas in combined cycle which has emerged as an economically attractive option for the generation of heat and electricity in many countries.

The IAEA is not urging any country to turn to nuclear power. The choice of energy sources and energy mix is the sovereign prerogative of each State. However, the Agency does perform work in several sectors which may make nuclear power more attractive and economic for those who opt for it:

- The most time-honoured and traditional method is to help bring about the exchange of experience in the construction and operation of nuclear plants and in the development of new technologies for power generation, fuel production and waste management. This is still done, on a large scale, through meetings and publications. Through exchange of experience, nuclear technologies like other technologies evolve, leading to improved reliability, safety and economy. Globally, nuclear power plants today have reached an availability of nearly 80% — compared to 65% in 1977. Unplanned outages are today on average below 5%, which compares favourably with fossil fuelled plants. The second generation reactors, which are here today, build on the vast global operating experience of the last decades. Some radical innovations in nuclear reactor concepts are also being explored, which could be introduced in the future.

- The Agency is pursuing and encouraging comparisons between the nuclear power option and other methods of generating electricity
— comparisons of cost, and impact on life, health and environment. The other main options examined are fossil fuels, hydro and renewables. Such studies are mostly undertaken in collaboration with other international organizations, but some case studies are also undertaken together with national institutes and energy ministries. The purpose in all these comparisons is to provide governments with material to better assess the energy options available;

- Thirdly, and most importantly, the Agency is promoting nuclear safety — in the operation of nuclear plants as well as in waste management. Although the ultimate responsibility for safety rests with the individual plant operator and the State, what has been termed “an international nuclear safety culture”, has been evolving in the last ten years with the IAEA as an active promoter. After Chernobyl, it was said that “an accident anywhere is an accident everywhere”. That globalized concern has been met by a number of globalized responses, including new rules and extensive services by the IAEA, to provide a basis for safety improvements. The services have included a systematic mapping of the shortcomings of several types of reactors from the Soviet era and the preparation of periodic safety reviews about all reactor types.

For a very long time, the IAEA has been codifying best nuclear safety practices and produced a comprehensive set of safety standards for nuclear power plants and for radioactive waste disposal. Although formally non-binding, these standards have had considerable influence in Member States. Sometimes they have even been directly adopted by Member States. In the wake of the Chernobyl accident, steps have been taken to supplement these standards with binding international rules. Last year a convention on the safety of nuclear installations entered into force and over 40 States are now party to it. Secondly, in September this year a Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management was adopted. It has now
been signed by over twenty States. Both these conventions provide procedures for peer review among parties in order to promote full implementation of the rules. Also in September this year, new binding rules were adopted concerning the liability for nuclear damage. Years of complex negotiations resulted in a revision of the Vienna Convention on Liability and a Convention on Supplementary Compensation.

The potential role of nuclear power in the global energy mix

In his reform proposals, the Secretary-General, noting that there is no UN organization devoted to energy generally, raises the question whether some focal point should be indicated (UN document A/51/950, 1977, para.88). A forum for a dispassionate examination of the issue of energy in sustainable development might, indeed, be needed. The IAEA seems currently to be the only place in the UN system where the benefits of nuclear power as an energy source, economically roughly competitive with coal, but free of CO₂, SO₂ and NOₓ emissions, is explicitly referred to by governments. During the recent session of the IAEA’s General Conference, several Member States and the European Commission pointed to the relevance of CO₂-free nuclear power in the context of the threat of global warming. Only the Agency’s host country explicitly went on record with the opposite view. Let me cite some of the statements:

_The representative of Japan said (29 Sept. 1997):_

"... In our view, nuclear power will play an important role in response to the question of global warming. Provided that its safety is ensured, we look to nuclear power as a realistic energy option as it excels in supply stability and offers low environmental impact free from greenhouse gas emissions".
The representative of the United States, Secretary of Energy, said (29 Sept. 1997):

"...It is essential that we remain capable of ensuring the safety of our nuclear reactors. With populations and standards of living increasing around the globe, nuclear energy could play a potentially significant role — helping the world meet an ever-increasing demand for energy while also helping to reduce emissions of greenhouse gases".

The representative of the Republic of Korea said (29 Sept. 1997):

"... Korea firmly believes that nuclear energy will be one of the most sustainable sources of energy in the future, given the current situation in global environment".

The representative of Canada said (1 Oct. 1997):

"...Nuclear energy is a safe, environmentally sound and cost-effective source of energy. Canada is a firm supporter of the nuclear energy option which is an important component of a sustainable energy supply mix for many countries. Among its many advantages, nuclear power significantly reduces emission of greenhouse and other noxious gases that otherwise would have been emitted to the detriment of the environment and of human health".

The representative of France referred to (1 Oct. 1997):

"...the advantages of nuclear power in meeting increasing world demand for energy that does not produce greenhouse gases".
The representative of the European Commission said (1 Oct. 1997):

"...With a view to the forthcoming Kyoto Conference on Climate Change, I should like to emphasize that the role of nuclear energy is important in addressing this serious problem. For Europe as a whole, use of nuclear energy is already avoiding the emission of some 700 million tonnes of CO₂ annually".

These statements reflect a strong commitment to nuclear safety and an understanding that nuclear power has an important potential role to play in providing a significant portion of the world's electricity without environmental damage. They are in line with what was said in the declaration of the G-8 Summit in Moscow on nuclear safety and security in 1996. I quote from the declaration of that summit:

"... we are committed to measures which will enable nuclear power, already a significant contributor to electricity supply in those countries choosing to exploit it, to continue in the next century to play an important role in meeting future world energy demand consistent with the goal of sustainable development agreed at the Rio Conference in 1992".

It is also worth pointing out in this context, as was recently done in a report to the President of the United States, that if the some 430 nuclear power plants in the world were closed today and the electricity they produce "were generated instead by coal, world carbon dioxide emissions from fossil fuel consumption would be almost 10 percent larger than they currently are". (Federal Agency Research and Development for the Challenges of the Twenty-First Century, Report of the Energy Research and Development Panel, 30 September 1997, page 6).
Mr. President, I have cited extensively on the capability of nuclear power to help us avoid CO₂ emissions, because in various fora and secretariats of the UN system — focusing more on environment than on the need for energy — concerns about safety and waste have tended to overshadow these environmentally benign sides in nuclear power. For instance, during the Special Session of the General Assembly last June, I was the only speaker to mention the potential of nuclear power to help restrain CO₂ emissions. My personal conviction is that, with the development of an international nuclear safety culture, the real risks in an expanded use of nuclear power - rather than the widely perceived risks - can be kept very low. And, without belittling the value and potential of energy savings and of an expanded use of solar and wind power and biomass, I am also convinced that in the intensifying search for energy sources which produce little or no greenhouse gases, more governments and broad segments of the general public will rediscover the nuclear power option. An expanded use of nuclear power in technologically advanced countries could offer considerable alleviation in CO₂ emissions.

While this is well understood by many governments — as my quotations show — governments have not yet generally been ready to act on the knowledge. Meanwhile, in my view, it is the duty of the IAEA to seek, together with other international organizations, impartially and objectively to compile and analyse all relevant data on the different energy sources on a comparative basis to enable Member States to make their assessments and to shape their policies in as well informed a manner as possible.

Nuclear Verification

I turn now to the other main function of the IAEA - nuclear verification, safeguards. In the early days of the IAEA, verification was a relatively small scale activity. Today, our Safeguards Department is budgeted at
some $80 million a year and has some 600 staff, of which some 200
are inspectors. For economy and for effectiveness we have perma-
nent regional safeguards offices in Toronto — for North and Central
America — and in Tokyo — for Japan and the Far East region.
Moreover, we have several inspectors stationed on a continuous basis
in Baghdad and in Nyongbyon to perform the inspections requested by
the Security Council. With the growth of nuclear power and the
increased adherence to the NPT, more nuclear material and installa-
tions are verified by the IAEA. At the end of 1996, Agency safeguards
were being applied to more than 154,000 tonnes of nuclear material.
This is some 43% more than five years earlier. Of this material, 74
tonnes were unirradiated plutonium or highly enriched uranium.

In a moment, I shall explain how nuclear disarmament measures
may call for IAEA verification. At this point, it may be noted that the
further nuclear disarmament proceeds, the stronger the interest will be
in verifying that non-proliferation commitments are respected.

The importance of IAEA safeguards has been noted by the Security
Council. In 1992, after meeting at the level of heads of State or heads
of government, the President of the Council made a statement as
follows:

"...The proliferation of all weapons of mass destruction constitutes
a threat to international peace and security. The members of
the Council commit themselves to working to prevent the spread
of technology related to the research for or production of such
weapons and to take appropriate action to that end.

"...On nuclear proliferation, they note the importance of the
decision of many countries to adhere to the Non-Proliferation
Treaty and emphasize the integral role in the implementation
of that Treaty of fully effective IAEA safeguards, as well as the
importance of effective export controls. The members of the Council will take appropriate measures in the case of any violations notified to them by the IAEA.”

For several years now, the Director General of the IAEA has annually briefed the Security Council on the IAEA's verification work.

**Strengthening of the safeguards system**

As I said in my introduction, major steps are being taken to increase the capability of the IAEA safeguards system to detect any undeclared nuclear installations and material. The discovery, during the IAEA's inspections in Iraq in 1991, that Iraq — a party to the NPT and to a comprehensive safeguards agreement with the IAEA - had been able, undetected, to pursue a secret programme for the enrichment of uranium and weaponization, shocked the world. It convinced IAEA Member States that the safeguards system would have to be strengthened. Considerable efforts to this end have been made by the IAEA, drawing on the inspection experiences made in Iraq, in the Democratic Peoples Republic of Korea as well as in South Africa where the Agency was asked by the Government to verify the dismantling of its nuclear weapons.

New safeguards measures have been worked out which fall into four categories: first, access to more nuclear-related information; second, much greater access for inspectors to relevant sites; third, the use of new detection techniques, such as environmental sampling; and fourth, introduction of measures to facilitate operations and reduce costs.

Many of the new measures have already been introduced, as authority for them could be found in existing safeguards agreements. Those measures which required new authority have been incorporated in a Model Protocol additional to existing safeguards agreements. I am
pleased to report to the General Assembly that, in May of this year, the Model Protocol was adopted by consensus by the Agency's Board of Governors and a number of States have already signed it. The sooner the Protocol is broadly accepted, the sooner the benefits of more effective verification and more cost-efficient verification methods will be felt.

There is no doubt that a higher degree of assurance about the absence of undeclared nuclear material and installations can be given for States which accept the additional protocol and the new safeguards measures. States which are anxious to have the best possible non-proliferation credentials should therefore see in the acceptance of the Model Protocol a means to further this aim. However, I must at the same time caution against any expectation that assurance of detection could ever get to 100%. It may well be desirable in the future to devise an even more fine-meshed verification system than the one now emerging. Technical innovations, growing familiarity with inspection and acceptance of extensive verification by all States - including the declared nuclear-weapon States - may make this possible in the future. At this juncture, such a system would be more intrusive and expensive than would be acceptable to States.

Lastly, it is important for governments, media and the public to be aware that no inspection system can give what is called "a clean bill of health". The inspecting authority — like a medical doctor — performs an examination and may report that there is "no indication of ill health". To prove the total absences in a State of any "unhealthy" elements is beyond the ability of any inspectorate. It is thus necessary for governments to judge, in the light of the thoroughness of the inspections undertaken and all other relevant circumstances, whether they will take a report that no indication has been found of any undeclared nuclear activity to mean that there is none.
Iraq

What I have said about safeguards verification generally is also relevant for the IAEAs work under the Security Council mandate in Iraq, even though the investigations of nuclear activities there are based on exceptionally far-reaching inspection rights and have been going on since 1991. I have recently submitted to the Security Council a comprehensive report providing an overview of the Agency’s activities in Iraq in the past six years (S/1997/779). After extensive work involving inspections, analysis of large volumes of documentation and of information received from Member States and former suppliers of relevant items, the use of new techniques for environmental monitoring, questioning of Iraqi staff and examination of items recovered from excavations, we have been able to construct a technically coherent picture of Iraq’s past nuclear programme and to gain a good understanding of the scope of the achievements of the programme. Assessment of Iraq’s re-issued “Full, Final and Complete Declaration” against this coherent picture has not shown any substantial inconsistencies between the two. However, especially in the face of Iraq’s past practice of concealment, it is not possible to guarantee that the picture is complete nor that there could not still be some concealed components, activities and facilities, which did not form part of the technically coherent picture. As I have reported previously, the Agency has ensured the destruction, removal or rendering harmless of all discovered proscribed items and has placed dual-use items under monitoring.

The Agency has been much concerned about Iraq’s refusal to facilitate the use by IAEA/UNSCOM of fixed wing aircraft to transport personnel and equipment within Iraq. We have been even more concerned about the recent attempt by Iraq to limit the free choice of inspectors. We must be aware that any refusal of access could be caused by an interest to conceal something. Such refusals therefore run counter to Iraq’s efforts to convince the inspectors and the world that nothing is hidden.
While still pursuing a number of questions relating to the past nuclear programme and retaining the right to carry out further inspections if new information on the past programme comes to light, the Agency has been deploying most of its resources to the ongoing monitoring and verification activities, to guard against the possibility that Iraq might use its capabilities to exploit for nuclear weapons purposes any relevant materials or technology to which it may gain access. In this regard, it must be recognized that Iraq retains, in its core of scientists and engineers, nuclear-weapons-related expertise and relevant documentation.

**Democratic People's Republic of Korea (DPRK)**

In the DPRK, the IAEA is asserting its right and duty to perform inspections under the safeguards agreement which remains in force. It needs to do so in order to verify the completeness and correctness of the initial declaration made by the DPRK in 1993. At the same time, the Agency is verifying a freeze of the DPRK's nuclear programme as requested by the Security Council. I regret to report that no progress has been made in technical discussions with the DPRK, notably on the preservation of information related to past nuclear activities and on verifying that there are no movements or operations involving nuclear liquid wastes from the reprocessing plant under the freeze. On the positive side, let me mention that the DPRK has accepted the designation of additional inspectors, which will help to maintain our continuous presence in the Nyongbyon area, and that the canning operation for the irradiated fuel rods from the 5 MWe reactor is almost complete and that the cans are placed under IAEA monitoring. It would seem that it should be in the interest of the DRPK to co-operate fully with the IAEA without further delay, as the Agency must complete verifying the DPRK's compliance with its safeguards obligations before any sensitive components are delivered to the light water reactors now about to be constructed. The DPRK remains in non-compliance with its safeguards obligations.
Nuclear-Weapon-Free Zones

Non-proliferation is strengthened by an increasing number of nuclear-weapon-free zones. Such zones may contain features that respond to particular needs or are of special importance to the group of States constituting a zone. Their composition may also be of importance to provide desired confidence.

The issue of a nuclear-weapon-free zone for the Middle East has been on the agenda of the United Nations for many years. The safeguards aspects have been the subject of considerable attention in the IAEA. As requested by the General Conference of the IAEA, the Director Generals consultations with countries in the region have focussed on the possibility of combining international NPT-type safeguards with regional or bilateral means of verification — a subject that has also been explored, most recently in May this year, at a second IAEA workshop on such verification issues.

Let me turn lastly to some tasks which governments have recently laid upon the Agency, or may place on the Agency in the not very distant future.

Potential new IAEA verification functions

In 1996, during the IAEA General Conference, an arrangement was made among the representatives of the United States of America, the Russian Federation and the IAEA to examine the modalities of possible Agency verification that nuclear material transferred out of the defence sector in the US and Russia, notably material from dismantled nuclear weapons, is stored or used for peaceful purposes. I need not remind anybody that the quantities of Pu and HEU that would come under verification are large. Extensive exploratory discussions have taken place during the past year to clarify the complex issues arising in what really
would be a first scheme for international verification of nuclear disarmament. It was agreed during the recent General Conference of the IAEA that these discussions will continue.

**A cut-off agreement**

No progress has yet been made in Geneva on the proposal for a "cut-off" agreement to stop all production of fissile material for weapons purposes. It is to be hoped that progress will soon be made in this area. The combination of verification of the storage or peaceful use of fissile material released from weapons and a cut-off agreement would give the world confidence that no fresh material could go into new weapons.

**Nuclear Trafficking**

In recent years, many criminal attempts have been made to smuggle and sell small quantities of nuclear material and radioactive sources. This has raised both health and proliferation concerns and led to counter measures by governments as agreed at the Moscow Nuclear Summit in 1996. The IAEA has developed a programme which seeks to supplement the action of governments and to co-ordinate a variety of measures directed at the problem. In some States the Agency is offering advice on appropriate legislation, standards of physical protection and administrative machinery. In others, it has provided training. The Agency has also developed a database of all known cases of trafficking and has followed up media reports by contacts with official authorities. Efforts to counter nuclear trafficking must continue. We might also need to review the adequacy of the international convention on the physical protection of nuclear material, which now deals with nuclear material in international transit.
Radiological assessment of nuclear test sites

Let me mention, lastly, in this section about the belligerent atom that the IAEA has been called on increasingly to assess to what extent, if any, former nuclear weapons test sites pose radiological hazards. Now that hopefully the era of such tests is over, such assessments seem particularly appropriate. The Agency has organized international expert teams to perform such assessments at Semipalatinsk in Kazakhstan, at Bikini in the Marshall Islands and at Mururoa and Fangataufa in French Polynesia. These assessments must, of course, be read in all their details. However, the overall impression is that the radiological legacy of the testing era on the sites examined is fortunately not alarming.

Conclusion

This is the last time I have the honour to report to the General Assembly on the work of the IAEA and I should like to tell you, before concluding, that my elected successor, Dr. Mohamed ElBaradei, will take up his functions as Director General of the IAEA after a long and distinguished career in the IAEA. He has been engaged in some of the most difficult questions facing the Agency during my time and he has often contributed decisively to their resolution.

Perhaps I may conclude this statement on a personal note.

The first General Assembly session which I attended — as a Swedish representative in the Sixth Committee — was that of 1961 and I have visited all sessions since then. Despite the frequent — and sometimes justified — criticism of the UN and its family of organizations, I have always felt it was a tremendous privilege to participate in this multilateral work, whether in the UN or at the IAEA, whether as a delegate or an international official, whether helping to draft international norms, to work on arms control or disarmament questions, or dealing with development.
Despite the ups and downs in this work, not to speak about the slow pace at which it often proceeds, there is often a very satisfactory feeling that helping — in however modest a way — to weave the fabric of a global community is meaningful. I think this feeling is also the most important driving force in the highly competent staff which has worked with me in Vienna these past 16 years and succeeded in maintaining and developing the IAEA as an effective mechanism responsive to the needs of Member States.

In ending this report, I shall not fail to express my thanks on behalf of the IAEA and on my own behalf to the Government of Austria, which has invariably been an excellent host to the IAEA and other Vienna-based organizations. I also thank this General Assembly for the kind attention with which it has listened to my reports.