International Atomic Energy Agency

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Statement to the 41st Session of the General Conference
of the International Atomic Energy Agency
29 September 1997

Statement to the 52nd Session of the United Nations
General Assembly
12 November 1997

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Introduction

At this 40th anniversary of the International Atomic Energy Agency may I begin by welcoming the many delegations to this General Conference, the Ministers who are present and our special guests - the representative of the United Nations Secretary-General and representatives of many organizations with which the IAEA enjoys excellent co-operation, including the Executive Heads of our new sister organizations, serving the Chemical Weapons Convention and the Comprehensive Nuclear Test Ban Treaty. I also want to greet many "old friends" of the Agency, Professor Winkler, first Chairman of the Board of Governors; Dr. Ramanna, President of the 30th session of the General Conference; and Minister Padolina of the Philippines, President of last year's session.

An organization is not only Statute, records and decisions. It is also personalities, negotiations, tradition and atmosphere. On the occasion of this anniversary two books are being published which give such a broad picture of the IAEA — one is a history of the Agency, written by a former Assistant Director General, David Fischer, who helped draft the Statute and has been close to the Agency ever since. The other book is a collection of recollections by individuals who have played interesting roles at various times in the history of the Agency. They contribute to what I hope will be a growing literature on the Agency. The two books will be officially presented tomorrow.

Let me note at the outset that this 40th anniversary year has been an extremely productive one:

- In the field of technical co-operation, we can register a number of spectacular results. For instance, with significant assistance from the Agency the cattle disease rinderpest has been eradicated from most countries in Africa and the tsetse fly has been eliminated from the island of Zanzibar;

- The Convention on Nuclear Safety, concluded in 1995, has entered into force and the preparation for the first meeting of the parties for safety peer reviews is scheduled for next year;

- New legal instruments on liability for nuclear damage, including a new convention on supplementary funding, were adopted here in Vienna two weeks ago after many years of work;

- In the fields of safety of spent fuel management and safety of radioactive waste management, two years of negotiations culminated with the very recent adoption of a new Joint Convention;

- In the field of verification, an Additional Protocol to safeguards agreements has been adopted by the Board of Governors last June, completing a series of measures which began to be taken after the Gulf War to strengthen the safeguards system;

- To combat illicit trafficking in nuclear materials the Agency has built up a programme of activities which supplements State efforts, provides co-ordination and offers a database of authoritative information.

Research and the Transfer of Nuclear Technology

I turn now to our different working areas and begin with co-operation in research and the transfer of nuclear technology.

Agency activities in these areas have steadily expanded, but the emphasis has changed with changing needs in Member States. For a long time the Agency stressed research in nuclear science and helped develop institutions and cadres which could pursue scientific research and advance the use of nuclear techniques in agriculture, medicine and industry. The Agency was often instrumental in this "capacity building" through encouraging research, training fellows, dispatching experts and providing equipment. In most countries — but not all — this initial formative stage is completed. Support for basic science continues but the programme of co-ordinated research, the work at the Laboratories in Seibersdorf and Monaco, and most of the Agency's technical co-operation is increasingly aimed at achieving direct practical benefits — higher yield crops, assurance of food quality, healthier animals, better use of water, treatment of cancer, etc.

This change in emphasis and direction of the Agency's technical co-operation has been accompanied by efforts to improve planning methods and implementation. The "model project"concept — setting a high level of ambition in planning and execution — was the first innovation. "Country programme frameworks" to identify promising areas of co-operation and to establish priorities was another. "Thematic planning", identifying areas of particular importance to many countries, like radiation protection or water resources, is yet another. We have now restructured the Technical Co-operation Department to be able to pursue this more demanding programme without additional staff.

Let me now mention some of the results that have been achieved with assistance from the Agency's technical co-operation programme.

Sterile Insect Technique

The IAEA's development, use and transfer of the sterile insect technique — which I mentioned at the outset — is one success story.

Together with the FAO, we helped to eradicate the new world screw worm which threatened Libya and Africa as a whole in the late 1980s. In Zanzibar the recent eradication of the tsetse fly has given us confidence that the method can be used on larger areas and plans are now in place for a project in the Southern Rift Valley in Ethiopia. Renewed thought is also being given to the potential of the sterile insect technique to combat malaria-carrying mosquitos. If voluntary contributions were made available, the Agency could start exploring that potential.

Sustainable Fresh Water Supplies

The exploration and rational exploitation of water resources is an area in which isotope techniques are often very useful and where over the years the IAEA has assisted many countries. To offer a recent example, the groundwater reserves in the area of Caracas were mapped with Agency assisted use of isotope techniques. Based on this work some fifty wells were drilled to supplement city water supply — reducing the deficit in the water supply to the city by about 30%.

Accelerator Producing Isotopes for Medicine

Another example: at the Karadj Nuclear Research Centre for Agriculture and Medicine in Iran, a 30 MW(e) cyclotron was installed and commissioned with expert and training assistance provided under an Agency TC project. This cyclotron is now producing radionuclides for 65 nuclear medicine centres in Iran.

Saline Soils and Desertification

Yet another example: saline soils and brackish groundwater are major problems impeding agricultural production in many countries. One approach is to use salt tolerant plants and nuclear techniques to map the interactions between the groundwater, soil and plants. An Interregional

Model Project launched this year is designed to demonstrate the feasibility of this approach by drawing on the successful experience of Pakistan. Sites in eight countries have been selected and salt tolerant plants will be distributed. The project is expected to make viable and sustainable farming possible on once barren land — and in the process, to stop and even reverse erosion and desertification.

National Legal and Administrative Infrastructures

National legal and administrative structures are needed to ensure that the use made of nuclear energy is safe and peaceful — and to give effect to obligations which States have assumed under international agreements. Much progress has been made by States in this area, but much also remains to be done. An IAEA model project has now been launched to help strengthen radiation safety in no less than 53 countries. The ambition is that by the year 2000 these countries will all comply with the Agency's Basic Safety Standards.

Safety Assistance

Let me mention another project in the field of nuclear safety. In 1993 Armenia began preparations for restarting one unit of its nuclear power plant at Medzamor. The Agency, which has extensive experience in analysing safety aspects of the WWER reactor type, was able to offer Armenia detailed advice on the high priority modifications and on the seismicity of the site. The Agency also provided support to the establishment and functioning of Armenia's regulatory body. On a recent visit to Armenia, I was informed of how decisive the restart of the nuclear unit had been to alleviate the catastrophic shortage of electricity.

Regional Co-operation Arrangements

The Asia Pacific Regional Co-operative Agreement, RCA, which is celebrating 25 years of successful activities this year, and similar arrangements

in Latin America and the Caribbean and in Africa — ARCAL and AFRA — continue to address the specific needs of their respective regions and demonstrate that regional technical co-operation between developing countries has a special capacity to mobilize expertise and facilitate technology transfer. Support for these schemes therefore remains an important way for the IAEA to reach out to and co-operate with the countries in the regions.

Future Challenges

As we look to the future we find that some nuclear activities and services will, as they should, become self supporting and some others which have become commercial can be left to the market. We can note with satisfaction that the IAEA has done its job in such areas. However, many other areas remain. Also far from all activities interest the market. For example, the market will not help to develop appropriate norms and institutions to ensure radiation protection, to monitor safety or to apply safeguards. Hence the model project which I just mentioned. And where developing countries introduce nuclear power, the Agency must be ready to provide advice and assistance in the establishment of the complex regulatory and administrative framework that such a programme requires. Standards which have been worked out on the basis of the experience of many IAEA Members may be particularly useful for States embarking on a nuclear power programme.

A last but vital point: we should remember that assisting developing countries to share the benefits of the peaceful uses of nuclear energy was a fundamental part of the vision of the Atoms for Peace initiative on which the IAEA was established. The ability of the Agency to provide this assistance depends on adequate funding. Here I must sound an alarm: at a time when Member States turn increasingly to the Agency to help transfer nuclear techniques — e.g. for more effective food production, or for environmental monitoring — not all donors and recipients are

contributing as envisaged. As a result we are currently facing the prospect of a $5 million shortfall in resources for this year's TC programme. It is formally correct that contributions to the IAEA's Technical Co-operation Fund are "voluntary". However, this is true for practically all assistance programmes in the UN system — indeed, even for bilateral ones.

The Board has urged the Secretariat to take "due account" of the record of contributions — whether from recipient or donor States — in the allocation of resources and in procurement and the Secretariat is doing so. A wholehearted commitment by all donors as well as all recipients and by the Agency's Secretariat is a precondition for continued good results. Moreover, donors who pledge and fully pay their proposed share of the target understandably feel that their contributions should be used for the procurement of services and equipment primarily in States that do likewise or in developing countries.

Nuclear Power and Fuel Cycle

Vigorous expansion of nuclear power is currently seen only in some countries in East Asia. In most other parts of the world there is stagnation or slow down. Most of the electricity generation capacity that is currently being added is based on fossil fuels — coal and gas. Nevertheless, many governments remain strongly interested in international co-operation that can help fully to utilize existing nuclear capacity and also in the further development and diversified use of this power source. For instance, many countries suffering — or expecting to suffer - from shortage of fresh water are interested in the potential use of nuclear power for desalination of water. And, as obstacles arise to the building of new reactors, questions relating to the ageing of existing reactors attract more interest; as concerns are encountered about the longevity of high level nuclear waste, governments take interest in the prospects for the transmutation of actinides, etc. All these interests impact on the

Agency's programme. So does obviously the continuous interest of governments in the safety of nuclear power and waste disposal — which I shall discuss in a moment.

Yet another factor of great relevance for nuclear power has emerged in the 1990s - the risk of climate change, or global warming, due to the accelerated emissions of so-called greenhouse gases from the burning of fossil fuels, the most important being carbon dioxide. Why is this factor of relevance?

It used to be said that the best energy was the cheapest energy and the Agency has had a long tradition of assessing the cost of the nuclear generated energy and comparing it with the cost of other energy from other sources. Cost certainly still remains highly relevant and it is clear that for a variety of reasons the nuclear option has lost the competitive cost advantage it previously enjoyed in many places. However, several other factors than direct generation cost are becoming of great relevance in States' choice of energy sources — and in the calculation of the cost of the energy used, these factors, too, are assessed. To take an example, for a long time the cost of waste disposal has been included in the cost calculated for nuclear generated electricity. More recently the environmental cost to society of the dispersion — or the expense for neutralization by technical means — of wastes from burnt fossil fuels have attracted general attention. Requiring utilities which burn coal or oil to prevent damaging emissions of SO_2 and NO_x into the atmosphere directly and considerably affects the price of the electricity generated by these sources. So would any charge on CO_2 emissions. The IAEA must evidently follow this discussion that may lead to cost increases and/or to restrictions in the use of fossil fuels and cause a greater demand for nuclear power — which gives rise to no CO_2 emissions.

Let me note that there have already been repeated calls for restraint in the emissions of CO_2. These have had little effect, however.

- In 1988, there was the so-called Toronto target to "reduce CO_2 emissions by approximately 20% by the year 2005". However, since this target was adopted in 1988, the global CO_2 emissions have, in fact, increased by some 16%;

- In 1992 came the Rio target for industrialized countries to return to 1990 levels of CO_2 emissions by 2000. However, since that target was set in 1990, CO_2 emissions in OECD countries have, instead, increased by some 8%;

- This year, 1997, a target urged at the special session of UNGA was a 15% reduction of greenhouse gases by 2010 compared to the year 1990. However, a study by the International Energy Agency (OECD) projects CO_2 emissions in 2010 to be 36 to 50% above their 1990 level.

Against this background the stage would seem to be set for a discussion of energy policies, including policies on nuclear power. The United States has recently announced an initiative for an internal discussion to increase understanding of the problem of climate change; Russia has invited the G-7 energy ministers to a meeting preceding the 1998 G-7+1 summit; and of course the Kyoto Conference on the Climate Change Convention later this year is aiming to reach agreement on targets for reducing greenhouse gas emissions.

It is still far from clear, however, what approach different governments will take in the face of the current dilemma of demand for more energy and the demand to restrain CO_2 emissions. There has long been general agreement that increased efforts should be made to improve energy efficiency and to further the development of renewable sources — to increase their competitiveness and to expand their currently very limited roles. However, such efforts are not likely to go very far to meet the vastly expanding demand for base load electricity and other forms of energy,

especially in the rapidly expanding economies of Asia and elsewhere. The current trend is clearly to meet the major part of the need for additional power capacity by natural gas used in combined cycle and by coal-powered plants. Let me give only two concrete examples — China is planning to add about 16 GW capacity annually — 16 large power plants — annually, and India's goal is to add 200 GW — 200 large power plants — by the year 2020. I note that in both cases most of the capacity is expected to be coal based. I note also that where nuclear power has been rejected as an energy source, experience shows that it is for the most part replaced by fossil fuelled power — not renewables.

Two points can be made: with current trends continuing it is inevitable that there will be a further increase in global CO2 emissions; and, if nuclear power were adopted more widely, this could have a significant restraining impact on CO2 emissions at costs which are not very different from those of fossil-fuelled power. Only hydro could compete with nuclear as a non-CO2 producing source of baseload power.

Future challenges

In this situation, what is the IAEA to do? Most Member States favour an expanded or at least continued use of nuclear power. Some are opposed. However, even in the absence of a consensus about the use of nuclear power, there are fortunately several courses that are generally supported.

One course of action that has been accepted by all members is the one I referred to — the preparation of data and analyses and assessments of the various energy options not only from the viewpoint of direct cost, but also from the viewpoints of their impact on health, environment, safety and security. In collaboration with a number of other international organizations and national institutions, the Agency has developed methodologies and data bases for such comparative assessment. We

have also provided training and assisted individual countries in the use of the methodologies in support of national decision making. While governments also have to consider political and psychological aspects before discussing strategies and taking decisions, these studies contribute some dry reality as a technical basis for policy decisions.

A second area where there seems to be continuing general support for the Agency to act is the exchange of information and experience in the development of modern reactor designs, including breeders, fuel cycle options and the technologies for waste management. While some governments are cutting back on their support for the development of new nuclear technology, leaving this to the private sector, others continue to support active national research and development capacities. By providing fora for the exchange of information the Agency can and does help to ensure that nuclear power development work in one country will be done with some knowledge of what is being done elsewhere. When governments, utilities and the public look at the nuclear power option, they should find new improved models of reactors and fuel cycle technologies which build on the collective experience of the past decades.

With the welcome prospect of nuclear material - including plutonium - being turned over from military programmes to the civilian sector, adding to the quantities arising from the reprocessing of spent civilian nuclear fuel, there is also a need for an intensified international discussion about the use of plutonium stocks and options for the fuel cycle. The Agency is serving as a central forum for that important discussion.In a smaller way the IAEA also continues to provide a forum for exchanges on the development of fusion technology. While the use of fusion energy still seems distant, international collaboration in research remains a sensible approach to contain the development costs of this technology for the future.

Nuclear Safety

A third course of action supported by consensus and followed by the IAEA from its inception is to promote nuclear safety. There is no doubt that a prolonged period of good and beneficial operation of nuclear power around the world will be the most important factor for the future of this source of energy. While the Chernobyl accident has undoubtedly had a deep and negative impact on the public acceptance of nuclear power, the accident has also served as a powerful signal for States and utilities to strengthen international collaboration in the field of nuclear safety. Thus the tragic adversity was at least prompting positive action.

One important area of such action has been the adoption of legally binding rules. The two conventions on early notification of nuclear accidents and emergency assistance were concluded within four months of the accident. Some 40 States are now parties to the Convention on Nuclear Safety which entered into force in 1996. And this year the revised Vienna Convention on Liability and the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management have been adopted. They are further results of the readiness which States have felt after the Chernobyl tragedy to seek internationally binding rules and procedures to demonstrate commitment to, and to promote, universal safety standards. States must be encouraged to adhere to these conventions and to fully participate in the peer reviews and other procedures for their implementation.

There has also been a dramatic development of non-binding joint norms, for instance regarding radiation protection, in the promulgation of Basic Safety Standards (BSS); regarding nuclear power, in the updating of the comprehensive Nuclear Safety Standards (NUSS); and regarding nuclear waste, in the Radioactive Waste Safety Standards (RADWASS) series. Thus, although maintenance of radiation protection and nuclear safety remain the responsibility of States, an international infrastructure

of basic legal rules and standards aimed at ensuring adequate safety in all nuclear activities, has emerged through the IAEA.

Another important IAEA approach to nuclear safety has been to provide services. Without impinging on national sovereignty and responsibility for nuclear safety, the IAEA has offered extensive services in the safety field, thereby supplementing national efforts. To the extent that the World Association for Nuclear Operators (WANO) and other organizations can provide such safety services, the Agency welcomes this. There should be no duplication.

A special category of safety questions which has been given much attention by the IAEA in the last decade is that which relates to the need for safety upgrades in the power reactors in Eastern Europe. Much has been achieved but a great deal still remains to be done in this area to implement the required improvements. At the same time we are aware of the emerging demands for safety support and advice, e.g. regarding safety infrastructures and training in new or expanding nuclear power programmes, especially in Asia. Fortunately it appears that the Agency will be able to meet these demands as Japan, in particular, has generously offered extrabudgetary support for work in this area.

A question which has received much attention in recent years, and which relates to radiation protection, is to what extent past nuclear weapons tests still leave any radiological hazards. In several cases the IAEA has been asked to answer this question and former nuclear weapon test sites — in Kazakhstan, the Marshall Islands and French Polynesia — have been the subject of examination. The studies performed under Agency auspices with the help of international scientific experts should go a long way to providing the countries concerned and their neighbours with a greatly improved knowledge and understanding of the real radiological situations — which, I am happy to note, have proved to be far less worrisome than some had feared.

Verification

Iraq

Security Council resolution 687 which was adopted in the spring of 1991 decided that Iraq should make a declaration within 15 days describing its nuclear weapons related assets, that the IAEA should urgently inspect and destroy, remove or render harmless what was of relevance for a weapons capacity and thereafter implement monitoring and verification measures to detect any revival of Iraq's clandestine nuclear programme. Due to Iraq's policy of concealment and obstruction — mixed with spells of co-operation — the schedule envisaged by the Security Council could not be followed. The IAEA has been obliged to rely on the results of its own inspections, information from suppliers and governments, information obtained from Iraq and its own expertise and knowledge to form a technically coherent picture of Iraq's vast programme. The completeness of this picture has been and remains decisive for the fulfilment of the mandate to identify, destroy, remove or render harmless relevant material, installations and equipment.

Through more than six years of investigations the blank spots in the picture have become fewer. Yet we can be sure that there still remains more to learn and it is not impossible that some equipment may still be undetected. Only two years ago a considerable amount of additional documentation — and of some material — was handed over by Iraq following the departure from Iraq of the late Lt. General Hussein Kamel. However, as fewer questions pose themselves, the emphasis is shifting to ongoing monitoring and verification which should allow us to strike the alarm if a renewal of the nuclear programme were to be undertaken.

Strengthening of Safeguards

The discovery in 1991 that Iraq had been able undetected to mount a secret programme of uranium enrichment and weaponization confirmed

that the safeguards system of the Agency had to be strengthened. Many measures which fall within the existing authority of the Agency were adopted without much delay and the model additional protocol will — when accepted by States — add some important new teeth to the system and introduce some new cost-effective techniques. I welcome this instrument and I express appreciation to the six countries that are signing it at this juncture. Momentum is thereby maintained. I trust other States will follow soon. For the Secretariat there will be a great challenge to ensure early, smooth and efficient implementation.

While the occurrence of the case of Iraq convinced all of the need to strengthen safeguards, our experiences in Iraq, although based on inspection rights that went vastly beyond what would be accepted by States in normal circumstances, have suggested important new approaches and techniques, some of which are prescribed in the additional protocol.

Thus experience in Iraq broadened the perspective of the Agency in the field of verification. We are now better able to tailor-make verification schemes to fit various needs that may arise — in nuclear-weapon-free zones, in a cut-off agreement and other contexts.

DPRK

In the DPRK the Agency is, of course, asserting its right and duty to perform inspection under an NPT-type safeguards agreement, which remains in force. But at the same time we are verifying a freeze of the DPRK nuclear programme at the request of the Security Council and with periodic reporting to the Council. I regret to report that the measure of co-operation which we receive from the DPRK has not increased since last year. Accordingly the correctness and completeness of the initial inventory of plutonium declared by the DPRK cannot be verified.

Trilateral

During the General Conference last year an arrangement was made between the then US Secretary of Energy, Ms. O'Leary, the Russian Minister of Atomic Energy, Mr. Mikhailov, and myself, to examine the modalities of possible Agency verification in the United States and Russia that nuclear material transferred from the defence sector to the peaceful sector, notably fissile material from dismantled nuclear weapons, remained peacefully stored or were rendered unusable for weapons purposes. A great deal of exploratory discussions have been pursued on this subject in the past year and I, myself, recently visited the Mayak facility under construction in the Urals, where large quantities of fissile material from dismantled Russian nuclear weapons are to be stored. I am pleased that this General Conference is offering an opportunity for a further round of discussions.

Cut-off

The proposal for a so-called "cut-off" agreement to stop all production of fissile material for weapons purposes has not moved forward in the past year. It is to be hoped that the talks will soon be reactivated. While verification of the peaceful storage or use of fissile material from dismantled weapons would give confidence that no such material goes back into new weapons, verification of a "cut-off" would give the world confidence that no fresh fissile material is produced for new bombs. The two measures would complement each other and point toward the long-term goal of a nuclear weapon free world.

Many questions need to be answered, however - not least about the modalities of verification and how it would be financed. It might perhaps be tempting to suggest that the States responsible for the production of fissile material which was produced for weapons or was once placed in weapons should, themselves, pay for the verification. However, such a

regime would make the verification financially dependent upon the party where verification is to take place. Perhaps some thought should already now begin to be devoted to a special nuclear disarmament verification fund based on long term voluntary contributions.

Trafficking

As is apparent from seizures made in recent years of small quantities of nuclear materials and of radioactive sources, criminal attempts are made to exploit a black market in these items. The illicit trafficking we have seen raises both health and proliferation risks. In response to the interest of Member States, the Agency has developed a programme which seeks to supplement the action of governments and to co-ordinate a variety of measures directed at this problem. In some States the Agency is offering advice on appropriate legislation and standards of physical protection. In others training is provided. In addition the Agency has developed a database containing official information about reported cases. It will now be explored whether some of the relevant legal international instruments — notably the Convention on Physical Protection — should be updated.

Management and Reform

As I have tried to show, the IAEA's accomplishments do not mean that our challenges disappear. Indeed, they exist. Not only in the area of our specific mission, the peaceful use of nuclear energy, but also, importantly, in the area of management. If we have faced less criticism than most other international organizations it has probably been because our house has been kept in reasonably good order and we have become aware relatively early of the need for modernization and streamlining. The financial difficulties we experienced in the early nineties, resulting from late payment of contributions, were managed — with difficulty — by timely curtailment of programmes. Our financial vulnerability remains -

any non-payment or late payment by large contributors raise serious problems for the good functioning of the Agency. We appreciate all contributions. Some came only last week, and we look to larger contributions hopefully coming next month to keep us solvent until the end of the year. Needless to say, this monthly money watch is not a healthy situation. Thus, I make my perennial appeal to all Members, large and small, to pay their dues and to pay in time.

Fundamental to sound budgeting and financing — apart from the payment of dues — is that the Member States fully participate in the budget process and in the programme formulation. I believe the Agency has achieved this. The preparatory process although, long and heavy, does offer an opportunity for all to participate.

Oversight functions within the Agency have also been strengthened. The External Auditor now routinely undertakes broader efficiency reviews, in addition to the necessary analysis of the accounts. The internal audit, programme evaluation and investigatory functions are being upgraded and a revised staff appraisal system has been introduced.

Information technologies have radically changed the ways in which the Secretariat works and will increasingly change the way it interacts with Member States and counterpart organizations. For example, most of the documentation for this Conference is available electronically, via the Internet, to Member States and to the world. Documents of the Board are also becoming available electronically — but in view of the confidentiality requirement, recipients must be registered with the Secretariat. Once that step is taken the material is simply accessed from anywhere in the world through the Internet. The benefits for both Member States and the Agency are speed and ease of access as well as reduced printing and distribution costs.

Staffing of the Agency's Secretariat

In personnel matters we have sought, in line with the directives of the General Conference, to increase the number of staff from developing countries and to improve the representation of women on the professional staff.

The measures taken are described in the documents before you (GC(41)/18 and 19). I shall only make a few comments on some of the results. For instance, since we celebrated our 25th anniversary in 1982 the developing country share of professional staff subject to geographical distribution has almost doubled and is now close to 33%. For senior officers — that is Directors and Deputy Directors General — it is currently even higher — 36.4%.

The number of women on the professional staff has not increased as much as it should, although progress can be recorded. From 1982 to 1997, the share increased from 11.7% to 18.6%. The figures for women at higher level professional posts, i.e. P-5 and above, are better. In 1982, the highest graded women in the Secretariat were two staff members at P-5. Today, we have 11 women at the P-5 level and 6 at the D-1 grade.

The participation of women in the work of the Agency should also be seen in a larger context. We constantly endeavour to increase their participation in expert missions, training courses, advisory groups and in fellowship and junior professional programmes. However, Member States must also help. We need more flexibility as regards government sponsorship of applicants to avoid women candidates on short list being barred from selection for lack of government endorsement.

Let me add to my comments on recruitment of staff, words of appreciation to all staff on board. The good reputation of the Agency is due to

the readiness of Member States and their representatives to work constructively to achieve results and to the competence, professional skill and dedication of the Secretariat staff.

In addition, it should be recognized that Vienna provides a very positive environment for our work and lives. We all appreciate the good conditions prevailing here for which I express our gratitude.

The IAEA as a Member of the UN System

I should like to conclude with some reflections on the role of the IAEA as a member of the United Nations family. The Agency has a very specific profile within that family in its dedication to science and technical excellence — characteristics which should be preserved. Our statutory mandate is also very specific — to promote the peaceful applications of nuclear energy and to help prevent the military uses. Thus, we know what we are to do. We are not, however, the only international organization engaged in the field of energy, nor the only one engaged in nuclear arms control. And we function within the UN family of organizations and this calls for co-operation to achieve joint goals and distribution of labour to avoid duplication.

We seek faithfully to observe and implement UN system wide policies — be they about the status of women, about least developed countries or about protection of the environment. We have also successfully achieved co-operation with other UN organizations in areas where our mandates are back to back or overlap. The IAEA Division of Food and Agriculture, which is operated by the IAEA jointly with the FAO, is the best example; another is the co-operation with UNEP and some other organizations in the use of the excellent resources of our Monaco Laboratory.

International co-operation in or regarding the general field of energy is a more complex matter. The Agency's statutory mandate was limited to nuclear energy which was deemed to call for global intergovernmental co-operation. The members of the UN community have not — at least so far — wanted to establish any organization for energy generally — not even after the oil crises in the 1970s. And the members of the IAEA have never had any ambition to extend the scope of the Agency's work to promoting, for instance, renewable energy sources. However, when we find today that the accelerated use of energy, more particularly fossil sources of energy, could have the most dramatic consequences for our world, there is no specialized global intergovernmental forum for the discussion of the accelerated energy use and the current mix of sources. Nor am I advocating that one should be created at this stage. Maybe more modestly, as is the case with other questions which are of great relevance under Agenda 21, an organization in the UN system could be made the focal point and task manager within the system for the compilation and analysis of relevant data. I am aware of course that the International Energy Agency is a highly competent institution of this kind, but the OECD is not — perhaps I should say not yet — a global organization.

For the IAEA I believe our present activity in the general field of energy, which I have described, is adequate. It consists essentially in collecting data concerning nuclear power and other sources of energy and comparing them from a variety of viewpoints, including cost, risk, health and environment, and providing these data to Member States and other UN organizations as a factual basis for policy consideration. I am personally convinced that in due course such data will convince governments that a revival of the nuclear power option is both needed and justified. The problems facing that option today are not so much technical and economic as psychological. If I were to recommend any expanded Agency activity, I would point to the need everywhere for better understanding of nuclear energy, radiation and risk. Most people have not yet

come to grips with the force of the atom — as they have come to grips with the force of gravity — its benefits and risks. Perhaps more information and education in this area on a long term basis will help to solve the psychological problems. The Agency might be a forum where this need for information is discussed and an instrument through which basic material could be provided for use by governments.

In the area of arms control the IAEA is no longer the only global intergovernmental organization. The Organization for the Prohibition of Chemical Weapons is in operation at the Hague and the Provisional Technical Secretariat for the Comprehensive Test Ban Treaty is now in place here in Vienna. Like the IAEA these organizations have important verification functions. We look forward to co-operation and enriching discussions about common objectives and varying methods of work. While the UN Security Council is responsible for any enforcement actions regarding weapons of mass destruction, organizations like ours will be the watchdogs of the system.

I am optimistic about the long term prospects of nuclear arms control, including the currently delayed cut-off agreement. Let me end by citing a remarkable recent speech in which the President of Brazil announced the intention of his Government to supplement Brazil's adherence to the Tlatelolco Treaty by adherence to the Non-Proliferation Treaty:

- The atomic bomb is losing its juridical legitimacy and its political importance. Earlier, nuclear weapons were central to the military planning of the Superpowers. It was thought that the bomb was necessary to attain the status of a Power.

- Nowadays, in contrast, the atomic bomb is seen merely as a source of risk, costs and uncertainty. Even in the nuclear Powers, public opinion is recognizing that the bomb only increases insecurity.

- Meanwhile, non-nuclear countries, stronger in economic production and trade, in social cohesion and political stability, have gained great influence in international relations.

- The essential power factors in today's world are competitiveness and social cohesion. It is in this direction that we must concentrate all our efforts.

I subscribe to these thoughts. I will only add that as the sun is slowly setting on the nuclear weapons era that sunset will need to be closely watched. There will be no lack of work for the IAEA.

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 Agencys 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 *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.

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 Agencys 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 IAEAs 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 CO_2, SO_2 and NO_x 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 CO_2-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 CO_2 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 CO_2 emissions, because in various fora and secretariats of the UN system — focussing 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 CO_2 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 CO_2 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 permanent 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 installations 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 IAEAs 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 IAEAs 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 Agencys 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.

International Atomic Energy Agency

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THE INTERNATIONAL ATOMIC ENERGY AGENCY SHALL SEEK
TO ACCELERATE AND ENLARGE THE CONTRIBUTION OF ATOMIC ENERGY
TO PEACE, HEALTH AND PROSPERITY THROUGHOUT THE WORLD.
IT SHALL ENSURE, SO FAR IT IS ABLE, THAT ASSISTANCE PROVIDED
BY IT OR AT ITS REQUEST OR UNDER ITS SUPERVISION OR CONTROL
IS NOT USED IN SUCH A WAY AS TO FURTHER ANY MILITARY PURPOSE.

(Article II of the Statute)

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