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The Contribution of the International Atomic Energy Agency to Peace and Development

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The International Atomic Energy Agency

It is a pleasure for me to be in Mexico, to visit this historical city and have the opportunity to address the Diplomatic Academy.

Technology Transfer

Since it became a member of the IAEA in April 1958, Mexico has been an active participant in the Agency's activities and a strong proponent of the cause of non-proliferation and nuclear disarmament. The treaty that banned nuclear weapons in Latin America, which carries the name of the very place where we are now, is a witness to this significant tradition.

Nuclear Power and Sustainable Energy

The International Atomic Energy Agency

Development

Nuclear Safety

Today I would like to talk to you about the role of the IAEA and its contribution to peace and development. The Agency was established 42 years ago to be the global intergovernmental organization for international co-operation in the peaceful use of nuclear energy. The Statute outlines the twin objectives of the Agency: to enlarge the contribution of atomic energy to peace and development and to ensure, so far as it is able, that atomic energy is used at a high level of safety and exclusively for peaceful purposes.

The Agency Verification System

Future Prospects of Verification

I will focus today on the Agency's role in four areas: technology transfer, nuclear power and sustainable energy development, nuclear safety, and the Agency verification system.

Conclusion

Technology Transfer

Meeting the needs and aspirations of the world's growing population requires the application of the best available technologies including nuclear technology. The IAEA is the principal vehicle for multilateral nuclear technology transfer. Its areas of work include human health, food security, environmental monitoring and water resources, plus safe and sustainable energy production.

In these areas and others, nuclear techniques often offer unique inputs to larger national and regional development programmes. Frequently they are used to obtain essential data for project planning or problem solving. Their value thus lies not only in their direct impact on developmental goals but also as a catalyst and a contributor to the efforts of others. For this reason, the Agency places high priority on establishing partnerships with other organizations in the field of development as well as fostering regional co-operative arrangements. An example of such regional arrangements is the Co-operative Agreement for the Promotion of Nuclear Science and Technology in Latin America and the Caribbean (ARCAL). This programme, which embodies the concept of South-South co-operation, celebrates, in 1999, its 15th anniversary. It has been effective in bringing together research institutions in all Member States in Latin America and is now being raised to the level of an intergovernmental Agreement.

The Agency transfers nuclear technology in many ways. It holds some 400 technical meetings on various topics in nuclear science and technology annually, including 10 to 14 major conferences, symposia and seminars. Most of these meetings deal with nuclear applications and techniques which are of direct benefit to developing countries. Many of them result in publications and technical documents which are widely disseminated to Member States.

Unique in the United Nations system, the IAEA operates its own research and service laboratories which contribute significantly to the transfer of nuclear technology. The Agency's laboratories near Vienna provide a wide range of technical services for programmes in physics, chemistry, hydrology, nuclear instrumentation and agriculture



to assist developing countries address their problems. Similarly, the Agency's Marine Environment Laboratory in Monaco is dedicated to studies of pollution and radioactivity in the marine environment.

The Agency also transfers technology through the award of research contracts to scientists in its Member States. These contracts bring together researchers in developing and industrialized countries to interact and move forward towards common research goals.

But the majority of the IAEA's technology transfer activities are undertaken through the Technical Co-operation Programme which has a budget of over \$100 million per year. The programme assists all developing Member States in the use of nuclear technologies relevant to their national development needs through training, expert advice and equipment procurement.

Mexico is an active participant in the Agency's technical co-operation activities and has developed a high level of usage of various nuclear applications. You rely on nuclear power to generate electricity, you have a multipurpose research reactor and an irradiation plant. You are using nuclear techniques in many applications. At the moment the Agency is co-operating with Mexico in 14 projects. One of them aims to upgrade the safety of waste management practices in the country, and to assist in the development of a national policy and strategy for the safe management of radioactive wastes.

We are also assisting the Secretary of Energy in carrying out a comparative energy assessment of the options and strategies for electricity generation in line with the National Restructuring Programme of the Energy Sector. The comprehensive information which will be provided by the project will assist Mexico to make the necessary decisions regarding the electricity system expansion up to the year 2025. Availability of electricity at economical costs with benign impact on the environment is one of Mexico's goals for sustainable development.

A third project worthy of note is one related to the quality assurance of medical diagnostic X rays. Mexico has more than 6000 medical diagnostic X ray units in private and public health services. Many of them are not subject to systematic quality controls. Through this project a programme of basic measurements in these units and assessment of parameters used in clinical practice is being implemented by the Mexican states to establish common quality control procedures at a national level. Up to now a detailed registry of practically all X ray units existing in the country has been completed. The project has provided education and training of 54 inspectors and more than 200 medical doctors participated in the programme.

Nuclear Power and Sustainable Energy Development

I turn now to nuclear technology and sustainable development. A few weeks ago, when addressing the Agency's General Conference in Vienna, I indicated that global energy demand, particularly for electricity, is clearly on the rise, especially to meet the increasing needs in the developing world. A conservative estimate from the World Energy Council is that global electricity demand will triple in the next fifty years. In the coming years, many countries will decide on the nature and extent of new investments in energy production. Energy security and the preference for low price and low risk will, as always, strongly influence the choice of investment. These choices will also be influenced by the growing awareness of the need for energy supply services that are environmentally benign. Nuclear power is one of the few options that can help countries in the next few decades to meet large scale electricity demand with virtually no greenhouse gas emissions and can thus satisfy growing energy needs while helping to meet the carbon dioxide emission targets set out in the Kyoto Protocol to the Framework Convention on Climate Change.

This might suggest that the share of nuclear power in global energy production will grow, or at least remain stable. However, projections point to a less conclusive situation. Today, in Western Europe and North America, nuclear power is at a standstill or almost in decline, though it continues to grow in a few rapidly developing countries in Asia and in parts of Eastern Europe. But the overall share of nuclear power as a

proportion of global electricity production is projected to fall, to about 13% in 2010 and 10% in 2020.

In my view, the assumption that environmental considerations, by themselves, will trigger a resurgence of investment in nuclear power is at best doubtful. A resurgence of nuclear power depends on action in three crucial fronts: continued improvement in the global nuclear safety record, including waste management; further improvements in the economic competitiveness of nuclear power; and the restoration of public confidence in nuclear power. In my view, the assumption that environmental considerations, by themselves, will trigger a resurgence of investment in nuclear power is at best doubtful. A resurgence of nuclear power depends on action in three crucial fronts: continued improvement in the global nuclear safety record, including waste management; further improvements in the economic competitiveness of nuclear power; and the restoration of public confidence in nuclear power.

Nuclear Safety

Openness and transparency are key to public confidence. But equally if not more important is a demonstrated global record of safety in all activities throughout the nuclear fuel cycle. In recent years, since the Chernobyl accident, the global safety record for nuclear power plants has shown a general improvement. However, continuous efforts are required to ensure that the technical and human requirements of safety culture are maintained at their optimum. This includes attention to effective management practices, continuous upgrading of safety features, the safe and secure control of all radiation sources, and the maintenance of a high degree of vigilance. The accident a few weeks ago at the Tokaimura Uranium Conversion Plant in Japan is a case in point. It is an example that such accidents can occur if the required level of vigilance decreases.

Safety is a national responsibility. But we learned the hard way after Chernobyl that international co-operation is indispensable. The contribution of the IAEA is through the development of a comprehensive nuclear safety regime consisting of binding international agreements, detailed safety standards, measures to provide for the application of those agreements and standards, and promotion of technological innovations.

In recent years, several important international conventions, negotiated under the IAEA's auspices, have helped to fill gaps in the international nuclear safety regime — conventions relating to physical protection, civil liability for nuclear damage, nuclear safety and the safety of waste and spent fuel management. And we continue to examine other areas in which the international community might benefit from binding norms. Detailed safety standards are also subject to continuous review to ensure that they are complete and up to date. And new technological improvements that could enhance safety are being pursued.

The provision of safety assistance services is, however, vital to the dissemination of best practices in the safety field. The IAEA provides a wide range of such services such as Operational Safety Review Team (OSART) missions that examine the adequacy of safety features at nuclear power plants. Mexico's nuclear sector has benefited greatly from these services.

Another aspect of nuclear safety concerns waste management. Through the assessment of different technologies and the dissemination of information, the Agency is supporting Member States to manage and dispose of their low and intermediate level waste. With respect to high level radioactive wastes, we are encouraging Member States to develop disposal plans and construct disposal facilities, nationally or in co-operation with each other. Only when permanent repositories for high level wastes have been built will the public accept that the high level waste issue has been resolved.

The Agency Verification System

I turn now to the area of nuclear verification and the security of material. The hopes for a more secure world rest crucially on advancing the agenda for the reduction of

nuclear arms and their eventual elimination. An effective verification system is indispensable to the realization of these hopes. Through its verification system, the IAEA endeavours to provide the necessary assurance that States are complying with their nuclear non-proliferation commitments. Over 180 States have undertaken to accept IAEA comprehensive safeguards pursuant to the Treaty on the Non-Proliferation of Nuclear Weapons and regional non-proliferation treaties.

To be effective, a verification system should provide a high degree of assurance that States are in full compliance with their obligations. Until the early nineties, IAEA safeguards activities focused primarily on activities and material declared by the State. The shortcomings of this system were, however, highlighted in the Agency's experience in Iraq which made it clear that effective safeguards must be able not only to verify declared nuclear activities but also to detect possible undeclared activities at an early stage. The system needed to move beyond its original focus on nuclear material accountancy — essentially an audit system designed to keep track of material declared to the Agency — to one which affords the Agency a vantage point from which to develop a comprehensive picture of all nuclear activities so as to be able to detect any inconsistency or anomaly.

In May 1997, the IAEA Board of Governors approved a Model Additional Protocol which provides the necessary legal authority for implementing new measures that will significantly strengthen the safeguards system. On the basis of the model, States are invited to conclude a Protocol additional to their existing safeguards agreement.

Strengthening the effectiveness of the safeguards system has three major components: increased information, more extensive access and greater use of appropriate technology. Under the strengthened system, States are required to provide more detailed information covering all aspects of their nuclear and nuclear related activities. The system also provides for substantially broader access for inspectors. The State is required to provide access to all locations that are, or could be, engaged in nuclear fuel cycle related activities and, if this is not possible, to make every reasonable effort to satisfy Agency requirements without delay through other means.

With respect to technology, the Agency has the right to collect environmental samples anywhere it has a right of access. Results to date have suggested that such techniques are powerful tools for detecting undeclared activities and for providing unambiguous information about the full range of past and current nuclear activities at a specific site. The Agency is also preparing for extensive use of remote monitoring technology transmitting to IAEA Headquarters near-real-time images and results appropriately authenticated and encrypted.

To date, Additional Protocols have been signed with 44 States. A strengthened safeguards system is a fundamental requirement for an effective non-proliferation regime. Adherence should be global. Our goal is that by the year 2000 all States will have signed and brought into force their Additional Protocols.

But nuclear safeguards must be seen as only one part of the overall non-proliferation regime. The effectiveness of safeguards is a critical element in that regime. But it is not the only element. Other mutually reinforcing elements must all be at work. These include effective export/import controls, sustained efforts towards nuclear disarmament and functioning regional and global security arrangements. The latter is the best disincentive against the misuse of nuclear energy for military purposes.

In this context, the world has learned much from the historic pioneering work of Latin American and Caribbean countries in establishing regional and bilateral non-proliferation arrangements. This year we celebrate the 32nd anniversary of the Treaty of Tlatelolco, which was the first nuclear weapon free zone in a populated region. This treaty has not only helped to keep nuclear weapons out of Latin America but it has been a precedent and an encouragement to similar initiatives in other regions. The concept has now been established in the South Pacific, Africa and Southeast Asia. A major effort is under way to establish such a zone in Central Asia. In the Middle East, there is general agreement among all the States of the region that a nuclear weapon free zone will add to the stability and security of that region, in conjunction with a comprehensive peaceful settlement.

Future Prospects of Verification

I would conclude my remarks on the role of the IAEA verification by mentioning other prospects for verification of nuclear arms control and reduction efforts that the Agency might be asked to perform in the future.

In August 1998, the Conference on Disarmament agreed to commence negotiation of a treaty prohibiting the production of fissile material for nuclear weapons. Should these negotiations prove successful, many countries would look to the IAEA to verify such a treaty. The Agency has been asked to be ready to assist the Conference on Disarmament in the development of the verification arrangements of such a treaty.

In addition, over the past three years, the Agency's Secretariat has been involved in discussions with the Russian Federation and the United States of America to develop modalities for IAEA verification that nuclear material transferred from the weapon sector in these two countries remained irreversibly in peaceful activities. Further progress was made last month when I met with Minister Adamov of the Russian Federation and Secretary Richardson of the USA to set goals for future work.

The Agency stands ready to contribute its verification and safeguards expertise and experience to the full realization of these important initiatives towards nuclear arms control and reduction. An important question, however, that still needs to be addressed is financing. In my view, the establishment of a nuclear arms control and reduction fund based on an agreed scheme of assessed contributions could be a viable option to finance these initiatives and possibly the verification of other future nuclear arms control and reduction measures.

Conclusion

At the end of the day, the success of the IAEA is the success of its Member States. Nuclear energy has always been met by a mixture of hopes and apprehensions. I believe that it is incumbent on us all to strengthen international co-operation to maximize the hopes and eliminate the sources of apprehension. This is a task to which the IAEA remains dedicated.

Thank you.

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