

# 1957-87: Development through global co-operation

*The Chairman of the IAEA Board of Governors reviews the Agency's evolution*

by Dr Munir Ahmad Khan

The Agency is celebrating its 30th birthday with a justifiable sense of pride in being counted among the most effective and respected organizations within the United Nations family. It has come a long way since 1957 when it started off with borrowed office space in the Vienna Konzerthaus and nearby buildings, and an annual budget under US \$4 million. Today, it has its own permanent headquarters overlooking the Danube River, employs nearly 2000 persons, and has a regular budget of over US \$100 million. The remarkable thing about its development is that it has not just been bureaucratic expansion but a well-conceived and organic growth in response to the needs expressed by Member States.

The very idea of the establishment of an organization for promotion and regulation of atomic energy for the welfare of mankind, which emanated from President Eisenhower's "Atoms for Peace" speech of December 1953 before the United Nations, was unprecedented and unique. It had to be translated into a concrete form by the Statute Conference and the Preparatory Commission which developed the structure and charter for the Agency. It was most fortunate that a number of outstanding men of the nuclear age were associated with this work, including Prof. Francis Perrin, Prof. Isidore Rabi, Prof. Vassily Emelyanov, and Dr Wilfrid Lewis.

## Formative years

When the Agency formally came into being, the dream had to be made into reality by developing a concrete programme of action. For this purpose, the first General Conference held in Vienna chose Sterling Cole, a ranking Congressman from USA who, as Chairman of the Joint Committee on Atomic Energy, had strongly advocated the establishment of the Agency. He came as a committed man dedicated to the cause of the peaceful atom. He persuaded some pioneers of the nuclear energy programmes from around the world, supported by young professionals, to join the Secretariat. He gave them the freedom and backing to chart a course of action in line with the Statute and in

accordance with the wishes of the Board of Governors. This team had a sense of mission to bring the benefits of atomic energy to all Member States. The atmosphere was both informal and invigorating. From the balconies of the Grand Hotel overlooking the Ring, one could see parades and motorcades taking Heads of States and visiting dignitaries to the Imperial Hotel across the street and the State Opera nearby. In the lobby one would run into such distinguished scientists as Sir John Cockroft, Dr Homi Bhabha, Dr Bertrand Goldschmidt, as well as great diplomats like V. Molotov who was the Resident Representative of the Soviet Union. During lunch hour one could stroll along the Kärntnerstrasse or go to the cellar to imbibe the pioneering spirit of Dr Henry Seligman's analytical laboratory.\*

Initially the main thrust of the programme was towards helping Member States plan their national nuclear programmes, initiating Agency activities in isotope applications in agriculture, medicine and industry, and exchanging and disseminating scientific information. Preliminary assistance missions were sent to many countries, of which the first one headed by Dr Norman Hilberry visited Latin America in 1958. The third mission covered the Far East, including Japan which is now a leading country in nuclear technology.

## The programme evolves

When the IAEA started, there were only a few operating power reactors in the world and nuclear power was far from proven. However, the expectations were very high and commercial nuclear electricity generation seemed around the corner. The Agency took keen interest in the demonstration power-reactor programme in the United States and started publishing reports on the progress of their design, construction, and operation. The first major technical publication was the *Directory of Nuclear Reactors*, which appeared in 1959. In 1960, the Agency took the initiative to hold a conference on small-and-medium power reactors — a subject which still remains interesting but elusive. Meanwhile, in pursuance of the "Atoms for Peace" programme launched

In his national capacity, Dr Khan is Chairman of the Pakistan Atomic Energy Commission.

\* Dr Seligman was the IAEA's Deputy Director General for Research and Isotopes during the administration of Sterling Cole.



Dr Sterling Cole (seated left), the first Director General of the IAEA, and Dr Leopold Figl, Austrian Minister of Foreign Affairs, sign an exchange of notes in 1958 in connection with the Headquarters Agreement between Austria and the IAEA.

by the USA, a number of research reactors were being provided around the world and the problems of their construction, operation, and utilization became the subject of many meetings.

The Agency was active in the area of nuclear safety from the very beginning. Radiation safety standards and international regulations for safe handling and transportation of radioactive materials were formulated. When one of the first reactor safety incidents took place at the Vinca research reactor near Belgrade, the Agency organized a study on the harmful effects of radiation doses received by some of the workers.

By the end of 1961, the staff of the Agency had increased to about 540, including 230 professionals, and the basic infrastructure and organization of the Agency had taken shape. The Cole era ended after a tumultuous session of the General Conference in 1961 at the Hofburg that year. He left behind a sound tradition and won admiration for his persuasive qualities, his eloquence, and warmth of personality. To bid him farewell in Vienna, his friends organized a dinner in the Griechenbeisel restaurant, where he affixed his signature on the wall along with those of famous writers, artists, and composers. After all, he had signed the Headquarters Agreement between the IAEA and the Republic of Austria and deserved to be remembered by the city.

#### Expansion of activities

In 1961, Dr Sigvard Eklund, a noted Swedish physicist who was Secretary General of the Second Geneva Conference on Peaceful Uses of Atomic Energy, took over as Director General. Thus began the Eklund period, which was to last a full two decades, and during

which the Agency achieved the eminence in international nuclear affairs which it now enjoys.

The safeguards system began to be developed and the first IAEA inspection was carried out in 1962 at the NORA facility in Norway. It is worth recalling that not all members of the Board were then in support of safeguards and some even withheld contributions to this activity. But the mood gradually changed and safeguards procedures were extended step-by-step to the entire fuel cycle. The detailed safeguards document was developed in 1966. Subsequently, after the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) came into force, a comprehensive compilation, known as the "Blue Book", was published for applying safeguards to treaty signatories.

The Agency has made significant contributions to the technical development and economic assessment of nuclear power, its public acceptance, and its promotion in developing countries. Right at the beginning, technical missions were sent to countries in Latin America, Eastern Europe, the Middle East, and South and East Asia. It is significant that most of these countries, including Argentina, Brazil, Mexico, Bulgaria, Romania, Yugoslavia, Pakistan, and the Republic of Korea, now have nuclear power stations in operation or under construction.

The announcement in 1967 that the USA's Oyster Creek nuclear power plant could be built at a fixed price of US \$140 per kilowatt provided a fillip to nuclear power.\* A large number of orders were placed, and the 1971 Geneva Conference organized by the IAEA,

\* The original cost of the 650-MW Oyster Creek plant was figured at US \$91 million, according to the US Department of Energy, Energy Information Administration.

represented the peak of expectations. It was not realized that the planned expansion of nuclear capacity was too fast and too optimistic. The oil crisis of 1973 provided the first acid test for nuclear power. With the sudden fourfold increase in oil prices, nuclear power economics looked much better and there should have been a boom in the nuclear industry. But the oil crisis also led to recession, economic slowdown, and energy conservation. The demand for electricity fell, and many orders for new power stations (including the nuclear ones) were cancelled. Another factor which contributed to the slowdown of the nuclear industry was a growing concern about nuclear proliferation reflected in wider adherence to the NPT and heightened by the first explosion by a non-nuclear-weapon State in 1974. A group of advanced States agreed to adopt strict guidelines for nuclear supplies and the Agency itself revised the procedures for technical assistance in certain areas. The International Nuclear Fuel Cycle Evaluation (INFCE) programme was organized to evaluate the non-proliferation aspects of alternative fuel cycles. Non-proliferation became the major theme governing international nuclear co-operation as well as Agency activities.

The accident at the Three Mile Island plant in 1979 created a new awareness of the safety dimension of nuclear power. The Agency reacted positively by strengthening its technical programme in this field. The Nuclear Safety Standards (NUSS) programme was furthered, Operational Safety Review Teams (OSART) were initiated, and an International Incident Reporting System (IRS) was established. These measures boosted emergency preparedness and enabled IAEA to respond effectively to the Chernobyl accident in 1986.

The technical assistance programme of the IAEA also developed further through the 1960s and 1970s. Valuable training opportunities, equipment, and advice were provided to developing countries. The overall resources available for this purpose rose from the level of less than US \$1 million in 1961 to about US \$24 million in 1981. The concept of regional co-operation was first introduced through the Regional Co-operative Agreement (RCA) in Asia and the Pacific, and it has been extended to Latin America and the Caribbean through a programme called ARCAL.

The International Centre for Theoretical Physics was established in Trieste in 1964 at the suggestion and forceful advocacy of Prof. Abdus Salam, who later won the Nobel Prize in Physics. The Centre, which is a notable success story, has not only promoted development of basic science in the Third World but has also provided a valuable meeting place for scientists from both the East and the West.

The IAEA moved from the Grand Hotel to its present premises in November 1979, when the General Conference was held in New Delhi. For the old timers, who were used to the cosyness and comfort of the Grand Hotel and the convenience and charm of the old city, the parting was doubtless difficult. But the expansion in the

staff and activities of the Agency had made the shifting inevitable. It was befitting that this physical manifestation of development and growth should come in the final years of the Eklund era. For his outstanding contributions in consolidating and expanding the programme, in imparting a distinctive technical bias to the Agency, in vitalizing the promotional and regulatory activities envisaged in the Statute, and in taking several bold initiatives, Dr Eklund has been honoured with the lifelong title of Director General Emeritus. He continues to take deep interest in the promotion of nuclear energy, as indicated by his active participation in various conferences around the world.

### **New directions**

In September 1981, the Board of Governors unanimously recommended and the General Conference approved the appointment of Dr Hans Blix as the new Director General. Dr Blix, a former Foreign Minister of Sweden, has brought to this office his recognized expertise in international law, insight into the UN system, consummate skill as a diplomat, and a strong belief in the peaceful and safe exploitation of atomic energy. He has infused a new sense of dynamism in the Agency. In particular, safeguards activities have been further strengthened. His response to the Chernobyl accident was prompt and positive, which helped project the Agency and played a very constructive role in the field of nuclear safety. Two new international conventions dealing with accident reporting and emergency assistance were drafted in record time and adopted at a special session of the General Conference. There is also an increasing awareness of the need to expand the promotional activities of IAEA and to provide better representation to developing countries on its staff.

### **An appreciation**

While celebrating the 30th anniversary, we must not forget those who have contributed to its success — the innumerable scientists, engineers, managers, administrators, and supporting staff from nearly a hundred countries around the world who worked as a team to further the objectives of the Agency. The IAEA alumni span the globe and constitute an influential community which continues to advocate the cause of international co-operation in peaceful uses of atomic energy. There are others who, though not staff members, have helped shape the policies and programmes of the Agency as members of the Board of Governors, as delegates to the General Conference, and as members of the Scientific Advisory Committee. Among them special mention may be made of towering people, such as Ambassador G. Arkadiev, Ambassador C. Bernardes, Dr DeWolf Smyth, Ambassador Cissé, Prof. Robert Oppenheimer, Dr Glenn Seaborg, Prof. Nils Bohr, and Prof. H. Yukawa.



Former IAEA Board Chairman, Ms Artati Sudirdjo of Indonesia, greets Mr Munir Ahmad Khan of Pakistan following his election as Chairman for 1986-87.

### Looking ahead

The Statute of the IAEA reflects a carefully negotiated consensus among Member States. It is, therefore, vital to respect it in letter and spirit. It emphasizes both promotional and regulatory functions and a proper balance must be kept between these two types of activities so that the credibility and effectiveness of the Agency are maintained.

Energy is essential for the economic development of the poorer two-thirds of mankind and for the growth of industrialized countries. Nuclear power has an important role to play in meeting world energy needs at a reasonable cost. The energy-deficient less-developed countries have so far not reaped the economic benefit of nuclear power. The Agency can play a very useful role in this context by persuading the industrialized countries to develop small-and-medium power reactors adaptable to the smaller grids in developing countries.

While promoting nuclear power, the Agency should continue its efforts to reassure world public opinion that nuclear power plants do not pose any health hazards and that there are reliable and effective provisions against any diversion of materials to non-peaceful use. These two issues have to be adequately addressed on the technical and political planes. The IAEA has consistently maintained a balanced approach to nuclear power and not succumbed to the euphoria of the 1960s, the retreat of the 1970s, or the reluctance of the 1980s.

Apart from nuclear power and its fuel cycle, there will be increasing demands from developing countries

for co-operation in application of radioisotopes and radiation in agriculture, medicine, hydrology, and industry. The technical assistance programmes must, therefore, be greatly expanded. Only then would the tighter controls and ever-widening scope of safeguards be acceptable to Member States in the Third World. The Agency is equipped to meet these challenges and it must be encouraged and allowed to discharge its statutory obligations without undue pressures.

The IAEA has been very successful as a forum for discussions on international policies relating to nuclear issues. However, the Committee on Assurances of Supply (CAS), which was constituted to advise on norms for international nuclear trade for ensuring continuity of nuclear supplies to recipient States has not been able to make desired progress. It has yet to agree on the basic principles of international co-operation in nuclear energy. There is need for more work and greater mutual understanding in order to reconcile the perceptions of the supplier and the recipient States. Once CAS reaches an agreement, the role of IAEA as a supplier of fuel, as envisaged in the Statute, would also be facilitated.

Evolution of the safeguards system is another notable success story of the IAEA. It is a unique confidence-building measure which has proved its efficacy in actual practice. It can serve as a very useful model for verification of arms control agreements in the future.

The Board of Governors, which determines the policy of the Agency, approves its programme, and provides overall guidelines for implementation, has played a major role. Over the years, it has maintained the tradition of seeking reconciliation of differing viewpoints by consensus, avoiding voting, and acting positively and promptly. Today, there exists a harmonious relationship between the Board and the Secretariat which facilitates smooth functioning of the Agency. The Board has grown in size from membership of 23 in 1958 to 35 in 1987, reflecting the increase in the Agency's membership and the development of nuclear technology in various regions. Efforts must continue to ensure that the Board remains truly representative and fully responsive to the needs and aspirations of all Member States.

Nuclear energy has irrevocably transformed the world and demonstrated its vast potential for both constructive and destructive purposes. Its far-reaching and global implications have underscored the value of co-operation and the inevitability of interdependence. Against this backdrop, the IAEA has a vital role to play in the orderly, regulated, and peaceful development of nuclear energy for the benefit of mankind. The Agency deserves the unstinted support of all Member States, which must realize that it is in their own interest not to politicize it, so that it remains an effective instrument for both promoting and regulating the use of atomic energy for peaceful purposes.

