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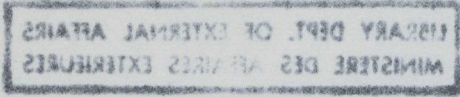
Canada and the IAEA

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Canada and the International Atomic Energy Agency

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The International Atomic Energy Agency, an autonomous intergovernmental organization with membership in the United Nations system, has two major purposes:

- (a) to speed up and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world;
- (b) to ensure, so far as possible, that assistance provided by it or at its request or under its supervision or control is not used for any military purpose.

The origins of the IAEA lie in the "Agreed Declaration on Atomic Energy" issued in November 1945 by the heads of government of the United States of America, Britain and Canada, which proposed the setting-up of a commission of the United Nations to prepare recommendations for "entirely eliminating the use of atomic energy for destructive purposes and promoting its widest use for industrial and humanitarian purposes". With the support of the U.S.S.R., a resolution was adopted by the United Nations in 1946 creating the United Nations Atomic Energy Commission. On December 8, 1953, President Dwight D. Eisenhower of the U.S., addressing the UN General Assembly, proposed the establishment of an international agency devoted exclusively to the peaceful use of atomic energy. This

proposal came to fruition in October 1956 with agreement on the statute for such an agency. When the statute came into force on July 29, 1957, the IAEA was in existence.

The organization is directed by a Board of Governors, consisting of representatives from 34 states, and a General Conference that meets annually and represents the membership of 110 states. As one of the nine members most advanced in the technology of atomic energy, including the production of source materials (i.e., uranium), Canada is a designated member of the Board of Governors and, as such, has been represented continuously on that body since the founding of the organization.

In its pursuit of its two objectives, the IAEA has devised over the years a far-ranging and comprehensive work program. From a level of approximately \$4 million (U.S.) in 1958, the budget of the organization has steadily increased to a level of \$59.8 million in 1978, the bulk of this increase occurring between 1972 and 1978. Canada is paying 3.18 per cent of this total, or approximately \$1.6 million (Canadian) in 1978. The program financed by these funds can be

presented in two general sections and summarized as follows:

IAEA safeguards

The agency, in pursuing the second of its two major objectives, carries out a unique task — the safeguarding by an international body of nuclear materials and equipment intended for peaceful use within a country in order to prevent their diversion to warlike purposes. Under this safeguards system, a country must accept safeguards for any nuclear project with which the agency is directly associated. In addition, states party to a bilateral agreement may request the agency to apply safeguards in one or both countries. States may also unilaterally submit facilities or nuclear materials to IAEA safeguards.

A major step forward took place in March 1970 with the entry into force of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). This instrument requires all non-nuclear-weapon states parties to conclude safeguards agreements with the IAEA covering all nuclear materials used in all their peaceful nuclear activities. By mid-1977, 100 states, including three nuclear-weapon states (the U.S., the Soviet Union and Britain), were parties to this treaty; at present, only five states (Egypt, India, Israel, South Africa and Spain) with significant nuclear programs are not subject to agency safeguards.

The IAEA safeguards system is based on nuclear-material accountability, with containment and surveillance as important complementary measures. This system operates in four main steps: (1) the agency checks the design of the national facilities of the state concerned in order to ensure that the design permits effective controls; (2) the state is required to keep detailed records of plant operations as well as of the flow and inventory of nuclear materials; (3) the state must submit periodic reports to the agency based on those records, and (4) the agency sends inspectors, with the agreement of the government concerned, for on-the-spot checks on the nuclear facilities of the country concerned.

Other programs

(a) Nuclear power and reactors

Since the energy crisis of 1973, the growth of nuclear power has accelerated considerably, the rate in the industrialized countries being approximately 28 per cent a year. A similar rate of growth is also being experienced in a number of developing countries. This has made even more essential long-term planning and international co-operation in this field. Accordingly, the IAEA is carrying out studies of the entire nuclear-fuel cycle, as well as facilitating the exchange of relevant information between governments. This information is of considerable value to all

states by assisting them to develop their national nuclear-power programs.

(b) *Nuclear safety and environmental protection*

The rapid growth of nuclear power mentioned above has led the IAEA to establish a program to devise safety criteria for nuclear-power reactors in the form of safety codes and guides. Codes of practice and safety guides have been prepared in the areas of governmental organization, siting, design, operation and quality assurance. The agency has also formulated basic safety standards for radiation-protection and issued regulations and codes of practice on specific types of operation, including, in particular, the safe transport of radioactive materials. All these activities assist governments ensuring that basic safety requirements are understood and observed in their national nuclear-power development programs.

A very important aspect of the international program that deserves specific mention is the IAEA's work on the safe management of radioactive wastes from all stages of the nuclear-fuel cycle, including those arising from the mining and milling of uranium and thorium ores. The agency has established a number of technical committees to work in this field.

(c) *Technical assistance*

These activities are financed by voluntary contributions from member states, by the UN Development Program and by gifts-in-kind, as well as by cost-free fellowships and funds-in-trust. The Voluntary Fund for Technical Co-operation had a target of \$7 million in 1978. In addition, approximately \$2.1 million of the regular budget was devoted to technical assistance and training.

The main objective of the agency's technical-assistance program is to promote the transfer of skills and knowledge relating to the peaceful uses of atomic energy to enable recipients to carry out their atomic-energy activities more efficiently and safely. A major activity in this respect is the agency's series of training courses on nuclear-power project-planning and -implementation.

(d) *Food and agriculture*

Since 1964, the UN Food and Agriculture Organization and the IAEA have worked together in supporting and co-ordinating research to develop better varieties of crop plant, to provide optimum conditions for crop cultivation, to protect crops against losses through disease and insect attack, to improve animal production and health, to prevent pollu-

tion of the environment and harmful residues in agricultural products, and to preserve food for human consumption.

(e) Nuclear physics and applications

The IAEA's program in the physical sciences is designed to assist in exchanging and disseminating basic knowledge that will eventually be of practical use, and to assist developing countries in its employment. Jointly with the United Nations Educational, Scientific and Cultural Organization, the IAEA operates the International Centre for Theoretical Physics at Trieste, Italy. The agency (in co-operation with the FAO and UNESCO) uses isotope techniques to investigate water-resources and -patterns in an effort to increase supply. In industry, radiation sources are used as a means of conferring desirable characteristics on textile, plastic and fibrous products. The agency is also working to facilitate uranium exploration in developing countries.

(f) Life sciences

Working closely with the World Health Organization, the IAEA has contributed to the development of applications for nuclear science in medicine and biology. Examples are the use of radioactive isotopes, in "tracer" quantities, to help diagnose disease, and for biomedical research, as well as the use of high-radiation doses in cancer therapy, in

the sterilization of medical supplies and in the preparation of vaccines. The agency also supports the use of nuclear methods in assessing environmental contamination.

(g) Information

The IAEA is required by its statute to encourage the exchange of scientific and technical information on the peaceful uses of atomic energy. In carrying out this task, it organizes ten to 14 national conferences and symposia a year, as well as about 100 smaller panels and technical meetings. Papers presented at these meetings are subsequently published and given world-wide distribution. In 1970, the agency established the International Nuclear Information System, through which information from member states is checked, combined and then redistributed to national information centres. This system benefits member states by making the results of current scientific research more accessible while avoiding expensive duplication of information-processing efforts.

(h) *Laboratories*

The IAEA operates three laboratories. The one in Monaco, also supported by the UN Environment Program, carries out studies on radioactivity in the marine environment. The laboratories at Seibersdorf (near Vienna) and at headquarters in Vienna perform three functions: (1) they service many of the agency's programs in physics, chemistry, hydrology, nuclear medicine and agriculture; (2) they provide direct assistance to member states and other UN organizations; and (3) they provide facilities for training under the IAEA fellowship program.

In the most basic sense, the objectives of the Canadian Government *vis-à-vis* the IAEA remain those set forth in the November 1945 declaration by the heads of government of the U.S., Britain and Canada—to eliminate entirely the use of atomic energy for destructive purposes and to promote its widest use for industrial and humanitarian purposes. The agency, with its comprehensive membership, provides a unique forum within which Canada can pursue these two aims. Accordingly, Canada participates actively in all the programs described in the preceding section with Canadian experts, from both the public and private sectors, making substantial contributions.

The safeguards program is of special interest to Canada. Since the oil-supply crisis of 1973, there has been a dramatic increase in the amount of interest in nuclear power. This has led to a significant increase in the actual or committed number of nuclear-power facilities, as well as in the number of countries considering the nuclear option. And this, in turn, has led to increased concern as to the possible proliferation of nuclear-explosive capability—a concern that was further heightened in May 1974 when India exploded a nuclear device.

Canada has reacted to this situation by applying very strict national controls on the export of its nuclear technology, materials and equipment, as well as by working with a number of other key countries (the Nuclear-Suppliers Group) to secure agreement on an international mechanism to prevent further proliferation. In both its bilateral and multilateral efforts, Canada has relied heavily on the IAEA as a neutral and internationally-acceptable body that can be called on to assure to the maximum extent possible that diversion of nuclear material for explosive purposes is not taking place. As the number and diversity of nuclear facilities in a growing list of countries increases, this key role of the IAEA will steadily grow in importance, as will the reliance of the international community on the effectiveness and objectivity of the agency.

Canada is represented on the Scientific Advisory Committee, composed of 12 or so distinguished scientists whose task it is to advise the Director-General on scientific and technical matters. In addition, Canada is represented on the Standing Advisory Group on Safeguards Implementation, which provides advice on the technical aspects of safeguards. The Canadian Government also facilitates, where possible, the

employment of qualified Canadian citizens by the IAEA, both at its headquarters in Vienna and in its technical-assistance activities.

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It is evident, then, that the IAEA has a key role in international co-operation in the peaceful uses of atomic energy. With the growing need of all states, industrialized and developing, for more energy, there will be a corresponding dependence and emphasis, during the next half-century or so, on nuclear energy as the major reliable alternative to increasingly-scarce fossil fuels. The IAEA provides a unique forum in which information and experience can be exchanged so that the increased reliance of the international community on nuclear energy can take place in safety for both man and his environment. This is even more important in relation to nuclear proliferation; in the long term, the IAEA provides the only internationally-acceptable mechanism to protect against the diversion of nuclear materials for explosive purposes. For these reasons, Canada strongly supports the IAEA.



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