IAEA'S DUAL FUNCTION

"A factor of paramount importance is the dual nature of atomic energy, which is reflected in the dual function of the Agency; not only to promote, but also to safeguard the peaceful uses of atomic energy".

In taking the above statement as a theme in his adress to the 1474th Plenary Meeting of the United Nations General Assembly (22nd November), the Director General, Dr. Sigvard Eklund, went on to speak of a few of the many areas in which society was feeling the impact of atomic energy. During the discussion which followed his report on the Agency's work nearly all speakers referred to the importance of the safeguards system as well as to positive achievements in developing nuclear potential for peaceful purposes.

KEY TO INDUSTRIAL DEVELOPMENT

Atomic energy as a key to industrial development, food and water were chosen by Dr. Eklund as examples of the impact being felt by the world. Ten years ago, he said, nuclear energy as a source of power was represented by one small plant generating five megawatts of electricity. Today these five megawatts have grown to approximately 8 000. This figure is expected to reach 30 000 by 1970, and more than 200 000 by 1980. In one of the great industrial countries more nuclear plant had been ordered during the past year than the total of all other types of power generating plant. One of the most significant decisions had been to construct a 2 200 megawatt station in the midst of a coal producing area. Similar progress was taking place in most large industrial nations. Some smaller ones had indicated that they would, in future, turn exclusively to nuclear power. A new generation of breeder reactors which would come on line in a decade or so would use only about one fiftieth of the primary fuel needed by earlier plant to generate the same quantity of electricity.

The Agency's own programmes were being modified to meet this changing picture. A study IAEA had just completed for the United Nations Development Programme in a developing country showed that the country concerned could profitably look at nuclear power to meet its expanding needs in the 1970s. In many other developing countries in areas deficient of fuels, such as southern and south eastern Asia, the same picture was likely to emerge. The Agency could help by arranging for careful, thorough and objective studies of future requirements. Those countries would require more help in training their technicians, in choosing safe locations for reactors and plants, in ensuring fuel supplies, in dealing with problems of disposal and management of nuclear waste. They would also need guidance in choosing between the proven reactor systems now being vigorously marketed, to ensure that they obtained the character and size of plant best suited to their national requirements. They would also need the considerable capital required for nuclear plants, and Dr. Eklund

hoped that international and regional financing institutions would look sympathetically upon the needs of developing countries in this respect.

One of the main themes of the Agency's 1966 General Conference was that it should now be able to do more to help the developing countries, and that the time was coming for some reorientation of programmes, which he welcomed. This view was perhaps also reflected in the fact that some technically advanced countries had for the first time pledged financial contributions to the technical assistance programme. Gratifying as this was, the Agency would still only be able to attain some 70 per cent of a target which had been stable in financial terms but had declined in real terms by about 20 per cent during the last eight years. IAEA was, as a matter of fact, able to take care of only a small fraction of the requests for technical assistance received from developing countries.

Food and water provided good practical examples of the ways in which developing countries could use nuclear science to help solve one of the main problems of the time — the growing gap between the world's population and its food and water supplies. Two of the many promising uses of radiation were to protect and preserve food and to control and eliminate insect pests. The Agency was at present executing two UNDP projects in developing countries to assist in preserving grain crops and eradicating insects affecting fruit crops. Dr. Eklund took the occasion to express deep satisfaction with the excellent co-operation they had received from the United Nations Development Programme.

MAKING, MAPPING AND MEASURING WATER

The use of nuclear technology to produce fresh water from the sea had commanded the widest interest. "Nuclear desalting" said the Director General "now seems to be at about the same stage as nuclear power ten years ago. It is therefore of utmost interest that a major industrial country is building a large dual-purpose nuclear plant which will produce both fresh water and electricity. Another major industrial country is planning to construct such a plant in the near future. Large research and development efforts are proceeding in other countries. The Agency has become a centre for the exchange of information on the progress achieved — a means whereby scientists and water experts from developing countries can keep in close touch with new advances".

In several other nuclear techniques great advances had been made during the past decade and were already applied on a fairly large scale, though not nearly widely enough. These were the techniques for using radioactive and stable isotopes to map and measure the world's existing fresh water supplies. Instances were the measurement of natural underground reservoirs, identification of sources of surface waters and measurement of their rates of flow, measurement of the amount of water in the soil itself and in the special natural forms of storage like snow and ice. IAEA was co-operating with the Food and Agriculture Organization, the United Nations Educational, Scientific and Cultural

Organization and the World Meteorological Organization in applying these advanced techniques to many projects for exploiting water resources in the developing countries.

In such a rapidly developing domain, numerous new advances, such as medical and industrial applications of radioisotopes, use of nuclear energy for propulsion both in the seas and outer space, and many others were becoming, or might in the near future become, exceedingly important. He would add to this the management of radioactive waste.

Dr. Eklund expressed the opinion that the holding of large general conferences on the peaceful uses of atomic energy, such as the three Geneva conferences, might not be necessary in the future. His reason was that nuclear science and technology had become so broad and diversified both in research and in practical applications, that the most useful exchange of information might best be conducted at a rather specialized level.

SAFEGUARDING FOR PEACE

The second main statutory function of the Agency was to safeguard the peaceful uses of atomic energy so that they might not serve a military purpose. The scope, both of the problem and of potential action, was related to the spread and growth of nuclear power. Peaceful nuclear plants now operating produce more than 4 000 kgs of plutonium per year. The forecasts he had quoted would mean an output of over 10 000 kgs annually in the early 1970s and perhaps 100 000 kgs in the year 1980.

Two aspects of safeguarding activities were touched upon by Dr. Eklund. Firstly, a workable system had been elaborated so that it now applied to all types and sizes of reactor. This system received unanimous acceptance by the Member States of the Agency at their General Conference in 1965. The Agency had recently extended these procedures to be able to safeguard nuclear reprocessing plants used to recover fissile material from burnt up fuel, a crucial link in the chain that could lead either to peaceful or military uses. Interesting proposals had been made that States able to export nuclear materials should notify the Agency of all shipments, and he was pleased to report that two major world exporters had arranged to do this. Another significant development which might lead to greater universality of the safeguards was a proposal by some countries of Eastern Europe regarding the application of safeguards to their nuclear programmes.

Secondly they had the practical inspection of nuclear facilities. The Agency was striving to create a machinery which could ultimately satisfy both rigid requirements for control of agreements, and meet a variety of national attitudes and eliminate apprehensions which were natural at this stage. He was pleased that the operators of two large nuclear power plants under safeguards had stated that inspections had not interfered with operations. The figures of reactors under safeguards had now grown to 57 in 25 countries. The total number

of megawatts concerned had almost doubled in the year. Even so, it still represented only about six per cent of the present nuclear power output.

After referring to the encouragement given by the Agency's General Conference to this vital part of their work, the Director General ended by saying: "I have been particularly encouraged by the interest shown recently by the General Assembly of the United Nations. In the debates in the First Committee on non-proliferation, a large number of representatives referred to the Agency system of safeguards. I believe that our extensive and direct practical experience with the complex problem of ensuring that peaceful nuclear activities are not diverted to military use, can prove useful to the community of nations if the negotiations on non-proliferation are brought to early fruition. In the meantime we will continue to concentrate on our work in the hope that the roads of the technician and of the statesman will meet in the near future. As I affirmed last year, the Agency, in accordance with its Statute, will stand ready and willing to play its part when it is called upon to do so".