REPORT ON AN INTERNATIONAL SYMPOSIUM, VIENNA, AUSTRIA, 6–10 MARCH 1978

The symposium was attended by 130 participants from 31 countries and 3 international organizations Thirty-seven papers were presented in 9 sessions

Problems Associated with the Export of Nuclear Power Plants

Recent forecasts indicate that by the year 2000 there will be more than 1000 nuclear power plants operating in 50 countries and with several countries expecting to derive one-half or more of their electric generation from nuclear power plants At present only six countries are exporters of nuclear power systems, three more currently supply their own domestic markets, while the remainder are importers. It is expected that most of the importers will continue to depend to varying degrees on foreign supply, at least in the near future.

If nuclear power is to offer an important benefit to the world, the achievement of this benefit will require co-operation between the supplying and receiving nations in overcoming problems which might inhibit the full development of this energy source. In addition to ensuring safety and reliability, special problem areas include financing, skilled manpower needs, adequate local industrial and engineering infrastructure, access to advanced technology, and an assured supply of nuclear fuel.

The symposium had special emphasis on the problems facing many of the developing countries in the initial stages of nuclear power programmes, and was divided into three major topics nuclear safety, domestic contributions, and international aspects In the safety area, emphasis was given to the special considerations that may exist for countries that import nuclear plants. These special considerations can be due to some non-standard features of the exported reactor such as lower power ratings, dissimilar site characteristics that can effect the design, and the evolution and changes in design and safety requirements during construction This can be complicated by differences in safety philosophy and codified standards of the various suppliers and unique construction problems in the less developed countries Thus, the ability of the importing country to carry out the regulatory and safety function is obviously important. A number of presentations were concerned with actual experiences and practices of countries in the planning and operation of their regulatory and safety review organizations

With respect to domestic participation, a nuclear power project has much stricter requirements for quality control and assurance than would apply for a conventional plant and requires more than a simple extrapolation of the conventional skills of power plant technology Thus attention must be given by the buyer country to establishing and training competent staff and to develop technical and labor skills of adequate quality in areas such as construction, welding, and electrical installation, to mention a few. Many of the papers presented in the sessions on domestic contribution concentrated on the important aspects of manpower development.

In the general area of international aspects, besides the legal and political issues associated with the export and import of nuclear power plants, there is the important aspect of nuclear technology transfer There is a clear trend toward a gradual but continuous increase of national capabilities in the construction and implementation of nuclear power projects with an attendent increase in the domestic contribution of equipment, materials and engineering. Five papers were presented specifically related to technology transfer.

In addition to the formal papers, there were three panel discussions. Hopefully, the symposium brought about an awareness on the part of both supplier and buyer of the special demands involved in planning, constructing, and operating nuclear power plants, especially in the developing countries. The proceedings will be published by the IAEA.