

# THREE COUNTRIES DEMONSTRATE PROTECTION MEASURES

Scientists from fourteen countries were able to study measures taken to protect workers and the public from radiation in USSR, Poland and Czechoslovakia during a tour arranged by the Agency in co-operation with the three Governments. Demonstrations of the latest developments and organization of measures to prevent adverse effects were given at a large number of centres visited.

The tour, which lasted from 1 April – 3 May, was financed from funds made available under the United Nations Development Programme. Radiation protection specialists came from Burma, Chile, Ghana, Greece, India, Indonesia, Iran, Mexico, Pakistan, Peru, Romania, Turkey, United Arab Republic and Yugoslavia, and were accompanied by two members of the Agency's staff.

This was the second tour organized by the Agency; in the first, held in September and October 1966, the industrial uses of radioisotopes in the Soviet Union, the United Kingdom, France and Czechoslovakia were studied.

## USSR'S DIVERSIFIED PROGRAMME

In the development of its diversified atomic energy programme the Soviet Union has taken great care to avoid any harmful effects of radiation on the health of workers and the general public, on future food supplies and on other sectors of the natural environment. Health and safety regulations for work with radioactive substances and sources of ionizing radiation are issued in the name of the State Sanitary Inspection of the Ministry of Health and with the approval of the State Committee on the Utilization of Atomic Energy. These regulations, which have the force of law throughout the Soviet Union, are in substantial conformity with the recommendations of the International Commission on Radiological Protection and with the Agency's Basic Safety Standards for Radiation Protection. Stations have been set up, under the Ministry of Health, at republic, regional and local levels. These stations include radiation protection groups which usually provide all the radiological protection services for small-scale users of ionizing radiation sources in the area. Large-scale users, such as nuclear centres, carry their own specialized groups who provide the radiological protection services for the centre; their work is periodically checked by the local Ministry of Health station. The services include the assessment of installations, personnel

monitoring, of the working environment, of liquid and gaseous effluents, and of the natural environment in the area surrounding the nuclear centre.

Research aimed at extending the scientific data on which the health and safety regulations are based and on improving the available radiation control procedures is conducted at the Institutes of the Academy of Sciences and at other institutes. Extensive training programmes are organized to provide a sufficient number of skilled radiation protection specialists and to acquaint all radiation workers with the possible risks that they may encounter and with the protective measures that can be employed.

A welcoming address was given by Dr. I. D. Morokhov, First Deputy Chairman of the State Committee on the Utilization of Atomic Energy and Governor for the U.S.S.R. to the Agency, in the Atomic Energy Pavilion at the Exhibition of Economic Achievements, Moscow.

The institutes and centres visited were: the Novovoronezhsky Nuclear Power Station; the Physico-Energetics Institute, Obninsk; the Institute of Medical Radiology, Obninsk; the All-Union Organization "Izotop", Moscow; the Institute of Biological Physics, Moscow; the Atomic Reactor Research Institute, Melekess; the Institute of Labour Hygiene and Professional Diseases, Moscow; the Khlopin Radium Institute, Leningrad; the Institute of Radiation Hygiene, Leningrad; the Institute of Physics, Tbilisi, Georgia; the Research Institute for Radioisotope Instrumentation, Riga, Latvia; the V. E. F. Electrical Factory, Riga; the Aldaris Brewery, Riga; the Jaundzieme Paper Mill, Riga; the Joint Institute for Nuclear Research Dubna and the Kurchatov Atomic Energy Institute, Moscow. Lectures, discussions, demonstrations, exhibitions and films were extensively used to explain the control measures that have been developed and to illustrate their application.

## SAFETY MEASURES IN POLAND

In Poland careful attention is also given to safety in the handling of radiation sources and to the control of environmental contamination arising from the disposal of radioactive wastes. Responsibility for radiation protection on a national scale is shared between the Ministry of Health and the Government Commissioner for Nuclear Energy. As far back as 1957 the Central Laboratory for Radiological Protection was established and given the tasks of organizing a system of monitoring and technical supervision in all establishments using sealed and unsealed sources, and of developing techniques for environmental monitoring and internal contamination monitoring for workers handling unsealed radiation sources. In addition it provides training courses for radiation protection officers in centres where sealed and unsealed sources are used, for radiation protection officers in centres where sealed sources only are used, and for persons who perform monitoring in industrial premises where radiation sources are used. The Laboratory is also concerned with the development of new types of radiation detectors and monitoring instruments and co-ordinates all national research on radiation protection.

Research on radiobiology and radiation protection, on radiation detectors and measuring instruments, and on the disposal of radioactive wastes is also performed at the Institute of Nuclear Research, Swierk.

The tour began at the Radiation Protection Department of the Government Commissioner for the Use of Nuclear Energy, Warsaw. The following institutes were visited: Central Laboratory for Radiological Protection, Warsaw; Natural Background Radiation Laboratory; Institute of Nuclear Research, A. Soltan Centre, Swierk; Institute of Labour Medicine, Lodz.

## CZECHOSLOVAKIAN PROTECTION PROGRAMME

Czechoslovakia has a long history of valuable research on dosimetry and radiation monitoring, and on the biological effects of chronic exposure to low levels of radiation. It also has a well organized national radiation protection programme in which responsibility is shared between the Ministry of Health and the Atomic Energy Commission. The Ministry of Health lays down standards for maximum permissible doses and through the Regional Hygienic and Epidemiological Centres issues approvals for installations in which radiation sources are used. The Atomic Energy Commission, through its Radiation Safety Committee, has responsibilities in the larger nuclear installations.

At the beginning of the tour in Czechoslovakia an explanatory address was given by Dr. J. Beranek, Czechoslovak Atomic Energy Commission, at the Department of Radiological Dosimetry of the Nuclear Research Institute, Prague. The other institutes visited were: Institute for Research, Production and Utilization of Radioisotopes, Prague; Institute of Radiation Hygiene, Prague; Hydrometeorological Institute, Prague; Institute of Industrial Hygiene and Occupational Diseases, Bratislava.

## HELP IN SOLVING PROBLEMS

In their reports the participants all indicated that they found the tour to be extremely valuable in providing them with a broad picture of the organization of radiation protection and of the most recent developments in techniques and research in the three countries visited. They also felt that the discussions with experts in the host countries and amongst themselves would help them to solve many problems. The contacts thus established could well be of lasting benefit for the development of radiation protection programmes in their home countries through continuing discussion and co-operation in the future.

Great appreciation was expressed of the comprehensive planning of the visits by host countries, of the care taken by the staff of all the institutes visited to explain very clearly the work which they are doing, of the patience

with which all questions were answered, and of the generous hospitality that was offered at all times.

A more detailed report of the tour will be issued by the Agency in due course.

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## **RADIOTHERAPY - MUCH EQUIPMENT, FEW SCIENTISTS**

One of the problems resulting from advances in medical treatment using radioactive sources is that much equipment has been developed and bought by hospitals before they have the trained staff necessary to handle it. Aspects of this question have been examined by a panel of experts brought together in Latin America by the Agency.

It has for some time been recognized in scientific circles that in many parts of the world, the development of physics in radiotherapy - particularly from the point of view of personnel - has not kept pace with that of practical radiotherapy itself. There is an extreme shortage, even complete absence in some cases, of qualified medical radiation physicists at the same time as there exist large numbers of radiotherapy departments, both public and private, which are equipped with expensive telecobalt and X-ray units.

Because of the need for serious consideration of this situation, a panel meeting on "dosimetric Requirements of Radiotherapy Centres" organized by the Agency was held at the Venezuelan Institute for Scientific Research in April. Participants were from Argentina, Brazil, Chile, Colombia, Ecuador, Peru, Venezuela, Canada, the Federal Republic of Germany, UK and USA, and there were three representatives from WHO.

Status reports on the existing situation in the countries represented were followed by discussions of some of the scientific aspects, especially problems of dose calibration and instrumentation. The information examined, although specifically related to Latin America, was felt to be applicable also in other areas. It revealed that:

- there are countries without any legal regulations with regard to the use of radiation sources in radiotherapy;