EXPERTS AND EQUIPMENT: THE IAEA PROGRAMME IN 1965

Nearly 100 projects are being assisted by Agency experts and equipment in 38 countries under the 1965 programme to be financed from Agency funds, which the Board of Governors approved at its meeting in February, together with four other countries where projects previously approved extend into 1965. In addition, further work is being financed under the UN Expanded Programme of Technical Assistance, including several important regional projects.

Under the Agency's long-term programme, it is desirable that all types of technical assistance, whether training, research, or expert advice, should be combined as far as possible. Each country will therefore be asked, in respect of its 1966 programme, to make its requests for experts, equipment, fellowships, scientific visits and research grants as a single submission. The Agency then prepares a country programme of technical assistance, in collaboration with the Government.

The number of requests for experts and equipment continues to grow year by year, and it has not been possible to finance them all. This increase is largely because a number of Member States have now set up research reactors and established a nucleus of laboratories under bilateral arrangements; they then turn to the Agency for assistance in developing their programmes. The estimated cost of experts and equipment being provided from Agency resources is $874 000 in 1965, of which $596 800 is for experts, and $277 200 is for equipment and supplies. The Agency also assists some Member States in making arrangements to receive technical assistance directly from other Member States.

The work covers a wide range, with isotopes predominating; about 30 projects deal with production of isotopes, their applications in medicine, agriculture and hydrology, in food preservation and industry. A number of projects are concerned with various aspects of reactor construction and use; others deal with health and safety, instrumentation, special branches of chemistry and physics, and with raw material prospecting and processing.

The assistance given to the respective countries, grouped by regions, is briefly summarized below.

AFRICA

The democratic Republic of the Congo is enlarging its research reactor and laboratories to form a regional centre. The Agency is providing an expert in nuclear electronics and some equipment, also a radiobiologist to organise a department and establish research.

Ghana is completing the construction of an experimental reactor as part of its new nuclear research institute near Accra, and will be helped by a

reactor programme specialist. An expert in nuclear physics is teaching at the Kwame Nkrumah University of Science and Technology at Kumasi.

The Geological Service of Morocco is engaged in age determination of rocks and plans a new laboratory; an Agency expert is assisting the introduction of geochronological methods and demonstrating the use of mass spectrometers.

Senegal is being helped by a medically-qualified expert in the application of radioisotopes in the investigation and treatment of cancer; also by a soil physicist for a programme of phosphate fertilizer evaluation, and study of the water requirements of plants in dry and irrigated conditions, by means of radioisotopes.

Tunisia is receiving advice on aerial prospecting for nuclear raw materials.

Rhodesia needs to gauge the flow of rivers subject to flash floods, and to measure sediments, for its programme of dam construction. The Agency is providing an expert in radioisotope techniques and two portable scaler ratemeters.

The Atomic Energy Establishment of the United Arab Republic has been developing a programme for the applications of radioisotopes in industry, and an Agency expert has been demonstrating radioisotope methods. A central group is now being set up to work on all kinds of problems which will be referred to it by the various industries in the country; an Agency expert will assist in the direct training of the group. A health physicist will work in problems of control and prevention of pollution of the atmosphere, using radioactive gases and aerosols. Some documentation equipment and periodicals are also furnished for the Atomic Energy Establishment library.

AMERICA

In Argentina, an expert in reactor physics, and equipment consisting of a pulsed neutron source and pulsed neutron logic unit will assist a programme of experiments with a critical assembly; another expert will advise on nuclear spectroscopy research, for which high tension sources and a scintillator are being provided. An expert will advise on the production and processing of radioisotopes.

Bolivia will receive expert advice on medical radioisotope applications, particularly in solving specific local problems, together with equipment and supplies. A nuclear chemist will also assist in basic training at the University of La Paz.

A reactor engineer experienced in design and construction is going to Brazil, also a radiogeneticist to help in the use of radioisotopes in plant breeding. A growth chamber and a hygrothermograph are being provided, and also some library equipment.

Chile is receiving the services of a biophysicist to advise on the development of electron spin resonance and its applications, particularly in

irradiation chemistry, also come equipment. Another expert will advise on the planning of a national atomic energy programme.

Mexico will receive an expert on theoretical nuclear physics to help with its research programme in this field, and also an adviser on radioisotope production.

Peru will receive an expert to assist in establishing a centre for the importation, storage and distribution of radioisotopes, and also some equipment.

An expert in prospecting for nuclear raw materials is being provided for Uruguay, and a fluorimeter, carbome scintillometer and a spectrophotometer. For a study on the use of radioisotopes in treating a local infective disease, a scintiscanner is being provided.

EUROPE AND THE NEAR EAST

At the entrance of an old mine tunnel in the Philippines. IAEA experts instructing a group of geologists from the Philippine Bureau of Mines in the use of geiger counters, before entering the tunnel to test for radioactive material.

A radiochemist will help to set up a laboratory in Afghanistan, and some chemicals are being provided.

Greece is receiving experts in experimental reactor physics for a programme of research, in radiation chemistry to study dosimetry techniques, and in solid state physics ; also a cobalt irradiation unit.

Iran will receive advice on the use of radioisotopes in medicine, with reference to protein deficiency and to endemic goitre. An expert in agricultural applications will assist studies in soil salinity, fertilizer uptake, and the use of isotopes in irrigation.

An expert in nuclear electronics will help establish some specialized techniques in Israel. A health physicist will help in setting up a programme for the control of radiation machines ; condenser Röntgen meters, Cutie-pie survey meters and some other equipment are being supplied.

Lebanon is establishing a national radiation monitoring service, and will be assisted by an Agency health physicist; a 50 millicurie radium source is being provided.

An expert in reactor operation will advise Portugal on a programme of reactor research.

Turkey is establishing a laboratory for the application of nuclear techniques in chemistry, and will receive the help of a nuclear chemist, also a scintillation well detector, a scanning spectrometer, pulse height analyser, ratemeter and other equipment. An existing engineering laboratory is being extended, and a spectrometer, a gas flow detector and an automatic scaler are being supplied.

Yugoslavia is receiving an expert in nuclear heat transfer to advise on calculations, construction and testing of power plant generators.

SOUTH EAST ASIA AND THE FAR EAST

Burma is receiving reference publications and standard books on nuclear physics and engineering.

Cambodia is using radioisotopes in rubber production, and will be helped by an expert, also by the supply of equipment including a microcombustion analyser, a lyphophilizator and a chromatography cabinet. Scientific publications and reference books are also being furnished.

Ceylon is being helped by an expert in agricultural radioisotope applications and equipment including a counting assembly, paper chromatography scanner, freeze drying trap, gamma radiographic machine, and a spectrophotometer. Equipment is also being supplied for the development of a film badge and radiation protection service. An expert in atomic energy legislation will help the Sinhalese authorities in drafting measures for radiation protection.

The National University Hospital in Taiwan, China, is using a cobalt teletherapy unit, and an Agency expert will advise on its use and on the

interpretation of scintigrams, which are being increasingly used. A scinti-scanner is being provided.

India is setting up a new laboratory which will study food preservation by radiation, and will be helped by an Agency expert.

Pakistan will be helped by an expert on the teaching of nuclear physics and the use of a Van de Graaff accelerator for training and research. Some equipment for this purpose is being provided. Some equipment for micro-filming and photocopying and some periodicals are also being provided.

Thailand intends to undertake the use of radiation for the control of insect pests, and will be helped by an entomologist with appropriate experience; also by the supply of equipment, including a low-temperature cabinet, moisture tenter, hygrothermograph, laboratory counter and an insect collector.

Hong Kong is setting up a radiochemical laboratory, and an expert in radiochemistry will advise on installation and use of equipment, and on research and teaching programmes. Some basic equipment is being provided, including ratemeters, scintillation detectors and nuclear training systems.

Viet-Nam intends to develop agricultural uses of radioisotopes, with emphasis on tracers in fertilizer research and the neutron moisture meter in soil studies. The Agency is providing an expert and some equipment.