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TECHNICAL CO-OPERATION

PROJECT SCHEDULES FOR 1989-90

C. PROJECT SUMMARIES

30. ISLAMIC REPUBLIC OF IRAN

1. CALIBRATION FACILITIES FOR DOSIMETRY (IRA/1/007) E301

YEAR	Experts m/m	CC$	Equipment CC$	NCC$	Fellowships m/m	CC $	Fellowships m/m	NCC $	Training CC$	Sub-contracts CC$	NCC$	Total CC$	Total NCC$	Grand Total
1989		8,100	10,000									18.100		18,100
1990			20,000									20,000		20,000

The Radiation Protection Department of the Atomic Energy Organization of Iran plans to establish a dosimetry laboratory that will assume responsibility for the calibration of all sources of ionizing radiation in the country. The equipment already available, such as an X-ray machine and a cobalt therapy unit, will be housed in a laboratory, the construction of which is expected to be completed in 1989.

Under this multi-year project, first approved in 1987, the Agency has assisted in setting up the design of the laboratory. Training in dosimetry has been provided, as well as some minor equipment components. Once the construction of the facility is completed, the Agency is expecting to provide in the course of the 1989-90 biennium some further expert services, as well as some small items of equipment and supplies to assist in putting the installation into operation.

The project is contributing to the establishment of an effective national dosimetry laboratory capable of providing metrology support for all users of ionizing radiation, including industry, and radiotherapy and radiation protection services.

2. RADIOISOTOPE PRODUCTION (IRA/2/004) G401

YEAR	Experts m/m	CC$	Equipment CC$	NCC$	Fellowships m/m	$	CC m/m	$	Fellowships CC$	NCC CC$	NCC$	Training	Sub-contracts	Total CC$	Total NCC$	Grand Total
1989	3	24,300	90,000	100,000				-						114,300	100,000	214,300
1990	8	50,400	90,000	115,000	5		12,750							153,150	115,000	288,150

With the assistance of the Agency, the Atomic Energy Organization of Iran is setting up a laboratory for the production of radioisotopes and radiopharmaceuticals, including quality control. The main objectives of this multi-year project, first approved in 1982, are: (i) the construction and equipping of hot cells for the production of iodine-131 and technetium-99m generators; (ii) the production of technetium-99m kits; and (iii) the production of radioimmunoassay kits for thyroid hormones. The design of the laboratory, the work plan and the specifications of the equipment have been prepared in co-operation with Agency experts, and the procurement of equipment has been initiated, while the hot cells will be built locally. Fellowship training has already been provided under the project.

In accordance with the work plan, the Agency has been requested to procure, in 1989-90, various items of equipment for quality control of radionuclides, namely manipulators, lead-glass windows, in-cell equipment for iodine-131 and technetium-99m production, a remote-controlled dispensing device and a dose calibrator. Expert services and fellowship training have also been requested.

It is expected that, as a result of this project, the Atomic Energy Organization of Iran will be able to meet local demands for radiopharmaceuticals and radioimmunoassay kits.

3. URANIUM EXPLORATION (IRA/3/002) B103

YEAR	Experts m/m	Experts CC$	Equipment CC$	Equipment NCC$	Fellowships m/m	CC $	Fellowships m/m	NCC $	Training CC$	Sub-contracts CC$	Sub-contracts NCC$	Total CC$	Total NCC$	Grand Total
1989	1	**8,100**										**8,100**		**8,100**
1990	**5**	**42,000**	**50,000**		**8**	**15,300**						**107,300**	**-**	**107,300**
1991	**5**	**44,250**										**44,250**		**44,250**

The Atomic Energy Organization of Iran wishes to assess geophysical data related to uranium exploration in the country. The information is already stored on magnetic tapes but needs to be evaluated.

In this connection, the Agency has been requested to provide, in 1989-90, computer hardware and software as well as expert services and training. This would include provision of technical assistance to interpret aerial radiometric survey data and to review the status of ore processing. Fellowship training in the handling of geophysical equipment is also envisaged.

It is expected that the project will strengthen the Atomic Energy Organization's capabilities in uranium exploration and processing, and in evaluating the uranium exploration data. In the long term, it should lead to improved assessment of the economic potential of uranium mining.

4. NUCLEAR REACTOR DESIGN (IRA/4/016) G302

YEAR	Experts m/m	Experts CC$	Equipment CC$	Equipment NCC$	Fellowships m/m	CC $	Fellowships m/m	NCC $	Training CC$	Sub contracts CC$	Sub contracts NCC$	Total CC$	Total NCC$	Grand Total
1990	1	8,400	10,000									**18,400**		**18,400**

Agency inputs for this approved on-going project have been rephased.

5. RESEARCH REACTOR CORE CONVERSION (IRA/4/017) G301

YEAR	Experts m	Experts CC$	Equipment CC$	Equipment NCC$	Fellowships m/m	CC $	Fellowships m/m	NCC $	Training CC$	Sub-contracts CC$	Sub-contracts NCC$	Total CC$	Total NCC$	Grand Total
1990	**3**	**25,200**										**25,200**		**25,200**

Agency inputs for this approved on-going project have been rephased.

6. NUCLEAR TECHNIQUES IN WHEAT PRODUCTION (IRA/5/008) D099

YEAR	Experts m/m	Experts CC$	Equipment CC$	Equipment NCC$	Fellowships m/m	CC $	Fellowships m/m	NCC $	Training CC$	Sub-contracts CC$	Sub-contracts NCC$	Total CC$	Total NCC$	Grand Total
1989	**2**	**18,200**	**30,000**	**20,000**								**48,200**	**20,000**	**66,200**
1990			**10,000**	**10,000**								**10,000**	**10,000**	**20,000**

The Department for the Application of Isotopes in Agriculture of the Nuclear Research Centre, Teheran, intends to undertake systematic isotope-aided research aimed at obtaining hardier wheat varieties with higher yield and increased efficiency in the uptake of fertilizers and irrigation water. As the progress of the project will depend to a great extent on the work plan, in 1988, the Agency provided expert services in connection with the formulation of a detailed programme that was to include co-operation between the country's nuclear agriculture research institutions and the Ministry of Agriculture.

In 1989-90, the Agency would expect to provide assistance in accordance with the recommendations of the experts and in line with the plan of work. Provision of expert services in plant breeding, soil fertility, soil physics and irrigation and plant physiology and the supply of equipment, including a flame photometer, a beta counter and a liquid scintillation counter, is foreseen.

It is expected that the project will lead to the development of higher yielding varieties of wheat and promote the more efficient use of fertilizers and irrigation water in the country's main agricultural areas.

YEAR	Experts m/m	Experts CG$	Equipment CC$	Equipment NCC$	Fellowships m/m	CC $	Fellowships m/m	NCC $	Training CC$	Sub-contracts CC$	Sub-contracts NCC$	Total CC$	Total NCC$	Grand Total
1989	**30**	**243,000**	**-**		**-**					**-**	**-**	**243,000**	.	**243,000**
1990	20	168,000	-								-	**168,000**	.	**168,000**

The Atomic Energy Organization of Iran (AEOI) is building two nuclear power plants in Bushehr. Some damage has been done by bombardment to the main and auxiliary buildings and the equipment therein. The AEOI wishes to undertake a technical evaluation of the existing damage in order to study the alternative solutions for rehabilitation from the nuclear safety point of view. In addition, the Organization is seeking assistance with establishment of licensing criteria for this plant.

For 1989-90, the Agency has been requested to provide advice to the AEOI on the establishment of a proper organization to carry out the safety review, on the establishment of licensing criteria, on the establishment of acceptance criteria for the reusability of the plant and components and to review the damage report and the final technical and economic study of the proposed solution for rehabilitation.

It is envisaged that Agency support will contribute to safe repair and rehabilitation of the damaged structure and components of the Bushehr Nuclear Power Plant.