
HUMAN RESOURCES DEVELOPMENT: CAPABILITIES AND EXPERIENCE OF CNEA AND ITS INSTITUTES IN ARGENTINA

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The Argentinean Atomic Energy Commission (Comisión Nacional de Energía Atómica – CNEA) was created in 1950. CNEA and its related companies of the nuclear sector are presently active in several fields: operation of two nuclear power plants, construction of a third one, operation of several research reactors and critical facilities, production of Mo-99 from low enrichment targets (having world leadership in that field). Argentina has also exported, in the last twenty-five years, four research reactors (the last one, OPAL in Australia, attained criticality last year), and is active in the fuel cycle (having attained maturity in high-density and very high-density fuel for research reactors, among others), in radioisotope production and in nuclear medicine.

The successful attainment of these achievements has always been supported by an active policy of human resources development, either through “on the job” training activities guided by experienced professionals and sustained on a fellowship programme, or via institutes for under and postgraduate studies.

This programme not only satisfies CNEA demands, but also helps providing highly qualified personnel to the local industry and research institutions.

Nowadays, the perspective for nuclear energy is promising, but for many years nuclear activities had been losing momentum worldwide. The nuclear sector became weaker, and CNEA was not an exception. However, it never stopped its activities in educational areas, knowing that many years are needed to form a solid professional in the nuclear field, and having the conviction that, for a sustainable development of the country, nuclear energy should necessarily be part of the supply. Nuclear engineers, material scientists and technologists, physicists, radio chemists, etc., ended up working in industries, universities and R&D institutions after finishing their education, instead of joining CNEA.

In 2006 the Argentinean government re-launched nuclear energy programmes. Funds are being provided for finishing the construction of the third NPP, for a feasibility study of a fourth one, as well as for life extension of the Embalse NPP, and for various projects in the areas of small reactors and fuel cycle.

As in other countries, in Argentina there is a need to accelerate the development of the nuclear workforce. New, young personnel are being trained and are joining the organization.

The number of students and fellowships devoted to nuclear careers was increased; young engineers and technologists are receiving fellowships for training in specific areas, in turn related to the ongoing projects.

Yet, the working force is still ageing, and consequently a strong plan to maintain, expand and recover technical capabilities is underway, based mainly on:

- Review of the present situation regarding human resources, their fields of expertise and their retirement plans.
- Identification of key knowledge areas, at present times and in the mid term.

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- Identification of both active and retired people that could help in transferring the accumulated knowledge to the newcomers. Due to the large junior to senior staff ratio, grouped tutorship is being proposed.
 - Identification of knowledge gaps or bottlenecks, in the frame of the new projects.

In few words, a concentrated effort of human assets development is being faced, to sustain the nuclear workforce for existing and future nuclear installations and for developing new designs, based on:

- A fellowship program of “learning by doing” which is under way for technicians, university students, doctoral and post-doctoral fellows. More than 200 fellows are presently being trained in CNEA laboratories, under supervision of staff members.
- Study fellowships for education in the Institutes created in alliance with national universities, whose faculty members are CNEA researchers and whose laboratories are CNEA facilities, including a research reactor mainly devoted to training:
 - Balseiro Institute: offers under and postgraduate studies in nuclear and mechanical engineering, and in various areas of physics, including medical, as well as training in nuclear applications. More than 250 nuclear engineers have been formed there, as well as an important number of physicists.
 - Jorge Sabato Technology Institute: offers undergraduate and postgraduate studies in materials science and engineering. Around 200 professionals have been formed there.
 - Dan Beninson Institute for Nuclear Studies: offers one year postgraduate programmes in nuclear reactors and its fuel cycle, and in radiochemistry and nuclear applications. They are mainly aimed to people directly involved in the nuclear field.

There are also courses to fulfil specific needs, e.g. welding, radiological protection, non destructive testing, radioisotope use and dosimetry, etc.

Since its very beginning, CNEA’s efforts in education have been opened to fellows from other countries, mainly from the Latin American region, sponsored by CNEA itself, by IAEA, by the Organization of American States (OAS) or by bilateral cooperation agreements.

At present, Argentina has significant means to provide the qualified personnel necessary for the growing of nuclear activities in the country, with capacities that can be offered to international projects on nuclear education. Based on our 50-year experience of international cooperation in this field, CNEA is willing to contribute to the worldwide effort in developing human resources for the nuclear future.