Australian Report to the FNCA Workshop on Human Resource Development
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(1) Strategy and implementation of human resource development

Australia has no overall national plan for the development of human resources in the nuclear arena. Individual nuclear agencies, such as the Australian Nuclear Science and Technology Organisation (ANSTO) and the Australian Radiation Protection Agency (ARPANSA), develop HRD plans to meet their specific needs.

Recruiting qualified staff is an issue as there is a relatively small pool of nuclear trained experts within Australia. ARPANSA staff are recruited internationally, and new staff are being attracted through a targeted graduate recruitment program. Strategies for maintaining critical employees and skills are also being developed. ARPANSA has a graduate recruitment program where graduates in physics, chemistry, environmental science and engineering spend two years being trained in the theory and practice of radiation protection, followed up by working closely with branch management on project based activities aligned to ARPANSA's goals and objectives.

ANSTO has an ongoing skills development program whereby an individual's development needs are reviewed annually in a formal process to identify and address skill gaps in their roles and in the organisation. An 'Emerging Leaders' program identifies early career staff who have the demonstrated potential to fulfill future leadership roles in the organisation. ANSTO has also established a variety of 'Pathway' programs (eg Graduates; Year in Industry, Postgraduate, Doctoral; Post Doctoral and Vacation students). These are specific programs aimed at developing nuclear science and technology capability, with ANSTO responsible for either the full or shared development of the individual, but without the guarantee of an ongoing, tenured position at ANSTO at the conclusion of the program. Individuals are however, encouraged to apply for positions if they become available.

ANSTO has an established a process for succession management where resources are directed and strategies developed to maintain core roles. The strategy may be one of intensive development for successors; or a recruitment drive for this role; or a combination of these methods.

In 2009, the *United Uranium Scholarship* was established. Trust Company Ltd is the Trustee of the scholarship and ANSTO on behalf of the Trustee organises and advertises the scholarship on both ANSTO and AINSE's web-sites. This scholarship is awarded to 'promising young scientists' from any Australian organisation or institution whose research or work is in the field of nuclear energy.

(2) Priority area of HRD and on-going national HRD program including activities of national training center

Australia's immediate priorities for nuclear HRD relate to sustaining an adequate HR base to support activities in research reactor operations and applications, production and application of isotopes, and uranium mining and processing, including the requisite capabilities in nuclear safety and radiation protection. To this end ANSTO provides extensive training and certification in crucial areas such as reactor operations and radiation safety. Some core roles identified as part of ANSTO's HRD plan include Senior Cyclotron Engineers; Senior Nuclear Engineers (Mechanical and Electrical); Security and Safeguards Managers; Waste Operations Managers; Instrument Scientists and Technicians; and Safety and Reliability Advisers.

Although Australia does not have a 'national nuclear training centre', the Australian Institute of Nuclear Science and Engineering (AINSE) provides a mechanism through which students from all Australian universities can access ANSTO's nuclear facilities to enhance their research studies.

(3) Roles of international cooperation such as FNCA for national HRD program

International cooperation, through mechanisms such as the FNCA HRD program, provides a useful route for the development of human resources in specific areas of nuclear capability. Additional opportunities are available through other international initiatives such as the World Nuclear University, the training programs of the IAEA and a number regional nuclear education networks. Placement of individuals at prestigious education/training institutions or relevant operational facilities around the world provides a further option for developing the necessary human resources.

Australia has limited domestic options for education in nuclear engineering. International cooperation provides a way of overcoming this limitation. In developing its own human resources, Australia will look at the full spectrum of training, education and development opportunities available, including those available through the FNCA HRD program. For example, graduates nearing completion of their training as part of ANSTO's 4-year graduate development program would benefit from experience in nuclear facilities elsewhere in the Region. Naturally, Australia would self-fund any such activity.

(4) Progress and implementation plan of ANTEP

Australian entries in the ANTEP database have been updated to reflect changes in responsibility. Otherwise, no specific activities have been implemented by Australia under the ANTEP plan.

(5) Human resource development necessary for introduction of nuclear power

Australia is not planning to introduce nuclear power. HR needs if Australia were to take a decision to introduce nuclear power were outlined in a report prepared for the Australian government in 2006[1].

(6) Roles of nuclear research institute in HRD necessary for introduction of nuclear power

ANSTO undertakes research-related activities in selected areas of the nuclear fuel cycle; notably processing of uranium-containing minerals, research reactor operations and the conditioning of radioactive wastes. ANSTO also maintains an active interest in international developments in nuclear power and the fuel cycle. The Institute of Materials Engineering at ANSTO undertakes studies of the properties of materials and the development of design methodologies for advanced nuclear power generation systems including the use of advanced structural materials for in high stress, high temperature and high radiation environments.

(7)Improvement of ANTEP in connection with MEXT Nuclear Researcher Exchange Program

No comment

[1] Commonwealth of Australia 2006, Uranium Mining, Processing and Nuclear Energy — Opportunities for Australia?, Report to the Prime Minister by the Uranium Mining, Processing and Nuclear Energy Review Taskforce, December 2006.