

Supplemental information regarding the NEA Steering Committee for Nuclear Energy Statement on Qualified Human Resources

There is growing concern about the difficulties nuclear institutions in many OECD/NEA member countries are experiencing in recruiting qualified specialists. Recent studies have also shown that nuclear education and training have been suffering declines of various degrees. If no action is taken on this issue, the nuclear sector risks facing a shortage of qualified human resources to ensure the appropriate regulation and operation of existing nuclear facilities as well as the construction of new ones in those countries wishing to do so.

The NEA Steering Committee for Nuclear Energy issued a statement on this subject in October 2007, the complete text of which is available at:
www.nea.fr/html/general/press/2007/2007-05.html.

The NEA has for many years been involved in efforts to define and address the need for qualified human resources. In this regard, the Agency: 1) carries out assessments of requirements and availability of qualified human resources in the nuclear field, 2) enhances nuclear education programmes, such as the International School of Nuclear Law, and 3) encourages large, high-profile international research and development programmes. These areas are addressed in the NEA Strategic Plan as well as in the specific NEA programmes discussed below.

The NEA will continue to identify ways to address the issue of qualified human resources in response to requests from member countries.

Background: the NEA Strategic Plan

One of the NEA's stated goals is to help member countries pool and maintain their technical expertise and human infrastructure. In this context, the NEA has undertaken to "...assess the availability of... infrastructure required for the deployment of nuclear power and identify the eventual gaps by: ...

- maintaining qualitative and quantitative up-to-date information on existing... human resources deployed in the design, operation, regulation and decommissioning of nuclear power plants;
- investigating the relations between qualified manpower requirements and education systems in place..."

(Strategic Plan 2005-2009, p. 31.)

The NEA has also committed to "...help maintain an adequate level of capability and competence necessary to ensure the safety of existing and future nuclear facilities by:

- reviewing needs, identifying critical areas where capabilities are at risk, especially regarding the key safety research facilities, and defining possible international approaches to the problem; ...

- promoting ways to attract young scientists and engineers to nuclear safety careers, and contributing to the maintenance of an adequate level of education and infrastructure in nuclear science and engineering.”

(*Strategic Plan 2005-2009*, pp. 18-19.)

Regarding legal affairs, the NEA continues to:

- organise nuclear law educational programmes and interact with nuclear law schools and universities, to strengthen and advance nuclear law knowledge and ensure its continuation.

(*Strategic Plan 2005-2009*, p. 33.)

Ongoing and completed NEA work

Committee on Nuclear Regulatory Activities (CNRA)

The CNRA is addressing the issue of qualified human resources in the maintenance of safety competence in nuclear regulatory bodies.

In 1998, the issue was highlighted in *Future Nuclear Regulatory Challenges*. In *Assuring Future Nuclear Safety Competencies* (2001), the age profile of staff in nuclear regulatory bodies and the decline in the numbers of students graduating from courses in nuclear science and engineering were considered in depth. The report was based on the workshop *Assuring Nuclear Safety Competence into the 21st Century* held in Budapest, Hungary, on 12-14 October 1999 and earlier studies performed by expert groups both inside and outside the NEA.

Following the CNRA's confirmation that this issue remained a high priority, in early 2002 a small group of CNRA members reviewed the current situation and proposed conducting a survey to determine the progress made by member countries on those recommendations made in the 2001 report specifically related to future regulatory challenges. Following this review, the CNRA organised the workshop on *Human Resource Management in Safety and Regulation*, held in Stockholm, Sweden on 25-26 October 2005. The proceedings of the workshop are available on CD-ROM on request. In the 2005 CNRA/CSNI joint strategic plan, one of the main challenges identified for regulators and safety researchers in the 2005-2009 period is that of a shrinking nuclear infrastructure. Experts with high-level nuclear safety experience and knowledge are a key element of that nuclear infrastructure. This point was reaffirmed by CNRA members during their December 2006 meeting.

Publications, reports, documents and articles

Assuring Future Nuclear Safety Competencies: Specific Actions

Available online at: www.nea.fr/html/nsd/reports/nea3146-competencies.pdf.

Assuring Nuclear Safety Competence into the 21st Century: Workshop Proceedings

Order from the OECD Online Bookshop at:

<http://www.oecd.org/bookshop?9264185178>.

CNRA/WGIP document (1997): Status Report on Regulatory Inspection Philosophy, Inspection Organisation and Inspection Practices
Appendix IV of this report addresses regulatory authority staffing needs. Available online at: www.nea.fr/html/nsd/docs/1997/cnra-r97-3.pdf.

CNRA/WGIP document (2001): Status Report on Regulatory Inspection Philosophy, Inspection Organisation and Inspection Practices
Appendix IV of this report addresses regulatory authority staffing needs. Available online at: www.nea.fr/html/nsd/docs/2001/cnra-r2001-8.pdf.

Future Nuclear Regulatory Challenges
Order from the OECD Online Bookshop at:
<http://www.oecd.org/bookshop?9264161066>.

Nuclear energy: Skills and the safety contract
Article published in the *OECD Observer*. Available online at:
www.oecdobserver.org/news/fullstory.php/aid/1513/.

Safe nuclear power plants: technical support services and contractors
NEA News article available online at:
www.nea.fr/html/pub/newsletter/2004/NEA_news_22_02_safety_contractors.pdf.

Committee on Radiation Protection and Public Health (CRPPH)

In 1997 a survey of universities offering degrees in radiation protection was carried out. This reference document contained information on 71 universities in 19 countries, giving a broad overview of the available study programmes. At that time, it was agreed to update the survey periodically. The study was therefore conducted again during 2000 and the results published in 2001 to show the status of university programmes to inform policy discussions of nuclear infrastructure issues. The issue has also been addressed in the work of the Expert Group on the CRPPH Collective Opinion (EGCO). In the 2007 report entitled *Radiation Protection in Today's World: Towards Sustainability*, the section on "Maintaining competence, transmission of inheritance" specifically addresses the issue of ensuring enough radiological protection professionals are trained to meet future needs.

Reports and documents

CRPPH document: Survey of University-level Education Programmes in Radiation Protection
Available online at: www.nea.fr/html/rp/docs/2001/crpph2001-8.pdf.

Radiation Protection in Today's World: Towards Sustainability
Available online at: www.nea.fr/html/rp/reports/2007/nea6165-rp.pdf.

Committee on the Safety of Nuclear Installations (CSNI)

The CSNI has been reviewing safety research needs and the state of safety research facilities and capability, and works towards strengthening co-operation among member countries. The CSNI has identified facilities to be preserved and has been proposing that international projects be organised at such facilities.

In the 1999 state-of-the-art report on “Identification and Assessment of Organisational Factors Related to the Safety of NPPs”, the CSNI addressed aspects of human resource infrastructure that could potentially affect nuclear safety.

The work of the Senior Group of Experts on Safety Research (SESAR) has addressed the issue of qualified human resources in its reflections on the ability of OECD member countries to sustain an adequate level of nuclear safety research capabilities. The group’s main findings are set out in the 2001 report entitled *Nuclear Safety Research in OECD Countries: Summary Report of Major Facilities and Programmes at Risk*.

Reports and documents

Collective Statement on Major Nuclear Safety Research Facilities and Programmes at Risk

Available online at: www.nea.fr/html/nsd/reports/nea3528-statement.pdf.

Identification and Assessment of Organisational Factors Related to the Safety of Nuclear Power Plants: State-of-the-Art Report

Available online at: www.nea.fr/html/nsd/docs/1998/csni-r98-17-vol1.pdf.

Nuclear Safety Research in OECD Countries: Summary Report of Major Facilities and Programmes at Risk

Available online at: www.nea.fr/html/nsd/reports/nea3144-research.pdf.

Nuclear Development Committee (NDC)

The NDC has been working on infrastructure issues, with particular emphasis on education.

The 2004 joint NDC/NSC study on *Nuclear Competence Building* was launched as a follow-up to the 2000 study *Nuclear Education and Training: Cause for Concern? Identifying mechanisms and policies for promoting international collaboration in the area of nuclear education and R&D*, it aims to address the question of infrastructure as a whole.

Publications and reports

Nuclear Competence Building

Order from the OECD Online Bookshop at:

<http://www.oecd.org/bookshop?9264108505>.

Nuclear Competence Building: Summary Report

Available online at: www.nea.fr/html/nsd/reports/2004/nea5588-competence.pdf.

Nuclear Education and Training: Cause for Concern?

Order from the OECD Online Bookshop at:

<http://www.oecd.org/bookshop?9789264185210>.

Nuclear Education and Training: Cause for Concern? A Summary Report

Available online at: www.nea.fr/html/ndd/reports/2000/nea2428-education.pdf.

Nuclear Law Committee (NLC)

With the support of the NLC, the NEA Legal Affairs section has established an International School of Nuclear Law (ISNL) in co-operation with the University of Montpellier 1. The annual ISNL sessions, which have been conducted since 2001, provide high-quality education in nuclear law to both students and professionals. Over 400 participants from 78 countries have completed the course to date (2007). The NLC also supports the section's contributions to the World Nuclear University educational programmes in nuclear law.

Data Bank

The Data Bank continues to organise training courses and workshops on the utilisation of specific computer codes in order to enhance their competent use. During 2007, seven courses were held and approximately 250 participants were trained.