

Consolidation of European Nuclear Education, Training and Knowledge Management

a report by

Peter Paul De Regge

European Nuclear Education Network (ENEN) Association

The European Nuclear Education Network (ENEN) Association is currently co-ordinating a project named ENEN-II, funded by the EU, with the purpose of consolidating the results and achievements obtained by the ENEN Association and its partners during the ENEN (2002–2003) and NEPTUNO (2004–2005) projects. These earlier projects focused on the harmonisation of academic curricula of nuclear engineering and fostered mutual recognition of curricula and courses by academic institutions across national boundaries. In addition, these projects explored and developed schemes and modalities for student and teacher mobility. The ENEN-II project will expand the ENEN Association's activities into other disciplines, such as radiation protection, radiochemistry, radioecology and geological disposal of radioactive waste, thereby attracting universities and faculties active in those fields. The ENEN-II project will also extend the scope of activities from academic education towards professional training. It will strengthen co-operation with industry and regulatory bodies, with other networks for nuclear education and training and with the World Nuclear University.

Nature and Scope of the Project

The ENEN-II project is structured around five main work packages to be carried out by consortia made up of three groups of partners. The first group consists of 14 universities and three research institutes, all members of the ENEN Association, the majority of which contributed to the ENEN and NEPTUNO projects. The second group is composed of six universities and two research organisations with an international reputation in radiation protection, analytical radiochemistry and radioecology. The third group is composed of nine universities with a major interest in education and research on management, underground storage and geological disposal of radioactive waste, and six organisations involved in research into and management of radioactive waste. The major objectives of the project are the development of MSc curricula in different nuclear disciplines, their mutual recognition throughout the European higher education area and the testing of education and training modules in pilot sessions. Building on the developments of the NEPTUNO project, teacher and student mobility schemes will be further implemented and optimised.

Activities

Three keywords sum up the the activities of the ENEN-II project – consolidate, extend and expand.



Peter Paul De Regge is Quality Manager of the Nuclear Research Centre in Mol, Belgium, and is also involved in the development and management of the European Nuclear Education Network (ENEN) Association. This network consists of universities, research centres and nuclear companies, and has the mission of preserving, harmonising and developing higher nuclear education and expertise. His previous positions include managing the activities of the International Atomic Energy Agency's (IAEA) Physics, Chemistry and Instrumentation Laboratory.

Consolidate

Consolidation will be achieved by:

- implementing the education and training modules proposed and developed in the past few years and tested during the pilot sessions;
- applying the course evaluation criteria to the actual course and training performance, taking into account feedback from the participants and their companies, the end-users and other stakeholders;
- combining and organising scattered websites, databases and course information in a well-designed and accessible communication and knowledge management system, including the NEPTUNO communication system; and
- testing in practice, and in collaboration with accreditation authorities, the developed mutual recognition schemes for academic education in nuclear disciplines.

Extend

Extension will be achieved by:

- moving outside the academic education area into professional and even vocational training, thereby strengthening interaction and collaboration between universities, research centres, training organisations and industries to make training offers respond to industry needs and to enhance mutual recognition of professional qualifications across European countries;
- making better use of and facilitating access to EU tools to increase the mobility of students and professors in nuclear disciplines; and
- strengthening links with nuclear education and training networks outside Europe, such as the World Nuclear University, and developing a viable Erasmus scheme for an MSc in nuclear engineering within the ENEN Association.

Expand

Expansion will be achieved by:

- moving beyond the disciplines related to nuclear engineering for power plant design, construction and operation into a broader area, including nuclear engineering and other disciplines in support of reactor safety, radiation protection, radioactive waste management, radiochemistry, decommissioning and industrial applications of nuclear technologies; and
- addressing the need for education, training and skills development expressed by other groups of end-users.

Of particular concern to the industry, regulatory authorities and the EU Commission are the deficits at MSc and doctorate levels within

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nuclear radiological protection, radioecology and radiochemistry. It is contended that skills in these areas are of strategic – as well as immediate – importance for the maintenance of European nuclear operations and options within the EU economy.

Expected Results

The 56 project deliverables produced by the seven work packages can be divided into four groups (see *Table 1*). About half of the deliverables are topical and progress reports on co-ordination activities; one-quarter consist of pilot and demonstration sessions of new courses and training packages; one-fifth are newly developed concepts; five reports deal with quality assurance of the products and deliverables of the project; and four reports deal with project and resources management.

Societal Impact

Due to the nature and scope of the ENEN-II project, the exploitation of its results affects virtually and effectively the whole European nuclear community. In this respect, the impact of the project is huge. As for the earlier NEPTUNO project, European universities, students in nuclear fields, nuclear professionals, training centres, nuclear operators, regulators and research institutions in each country, as well as the related international organisations, are the potential customers and beneficiaries of the project's achievements.

The practical implementation of the project outcomes will result in the consolidation of a sustainable European area of higher education and training covering nuclear engineering, nuclear safety, radiation

Table 1: ENEN-II Work Packages

	Communication and Reports	New Concepts	Pilot and Demo Sessions	Quality Assurance
WP 1 – Networking	5	1		
WP 2 – Academic Education	9	6	2	2
WP 3 – Support Research	1	1	5	1
WP 4 – Training Professionals	2		4	1
WP 5 – Knowledge Management	1	3	2	1
WP 6 – Meetings	5	1		
WP 7 – Project Management	4			
Totals	27	11	13	5

WP = work package.

protection, analytical radiochemistry, radioecology and radioactive waste management and disposal. This would contribute to the preservation of nuclear knowledge in Europe, and also make it more accessible. It would also facilitate the mobility of individuals, students and professionals, and enhance the mutual recognition of their diplomas and qualifications, across the EU. Through the mechanisms implemented within the project, it will be possible to achieve European certifications of an educational type, such as the European MSc and advanced courses in a variety of nuclear disciplines, and also of a professional type, such as training programmes or post-graduate courses that are recognised everywhere in Europe. ■

Events Diary

2008

January 21–23

World Future Energy Summit

Abu Dhabi

www.wfes08.com

WFES will be the world's largest conference and exhibition on renewable and future energy solutions, innovations, policy and vision.

Speakers include world ministers, politicians, business leaders, environmentalists and opinion makers. In addition, 200+ international exhibitors will showcase tomorrow's energy solutions.

January 22

Nuclear Fuel Supply Forum

Willard InterContinental

Washington, DC, US

This one-day forum is designed to provide information on policy issues related to the nuclear fuel industry and encourage discussion on these issues within the industry. Speakers from key government agencies and organisations that shape policy present the latest insights on current topics.

February 10–13

PIME 2008 – Defining Tomorrow's Vision of Nuclear Energy

Prague, Czech Republic

PIME, the conference on Public Information Materials Exchange, is THE annual meeting place

for professional nuclear communicators from around the world. It is a unique international conference that has grown in value and stature year on year.

Various factors have contributed to PIME's continuing success: a programme addressing the essential issues of the moment, a line-up of quality speakers and ample opportunities for information-sharing and discussion.

Organised by the European Nuclear Society, PIME is simply a 'must' for all nuclear public information specialists wishing to enhance and share their know-how and explore possible new strategies.

February 18–21

Seminar on IAEA Safeguards for States with Limited Nuclear Material and Activities

Meeting ID: 35185

Vienna, Austria

www.iaea.org

March 2–5

12th Annual Topical Meeting on Research Reactor Fuel Management (RRFM 2008)

Hamburg, Germany

RRFM 2008 is organised by the European Nuclear Society and will take place in Hamburg, Germany from 2 to 5 March 2008. The 12th Annual Topical Meeting on Research Reactor Fuel Management (RRFM) will focus on all key areas of the nuclear fuel cycle of research reactors.

March 10–11

The Adam Smith Institute's 2nd Annual European Nuclear Forum

Brussels, Belgium

www.marketforce.eu.com/eunuclear

The outlook for nuclear power in Europe is increasingly positive. Changes in the energy market wrought by climate change challenges, the increasing costs of fossil fuel generation and advances in decommissioning and waste management are converging to make the prospect of a nuclear renaissance increasingly probable. However, the industry must forge the right strategies if the future security and profitability of the sector is to be ensured. After the success of its inaugural event, the Adam Smith Institute's market-leading European Nuclear Forum will once again bring together senior decision-makers from across the sector to discuss the issues shaping the industry.

March 17–21

International Conference on Topical Issues in Nuclear Installation Safety, Ensuring Safety for Sustainable Nuclear Development

Mumbai, India

April 8–11

The World Nuclear Fuel Cycle 2008 Conference

Miami, Florida, US

April 14–25

Review Meeting of the Convention on Nuclear Safety (CNS)

Vienna, Austria