Education, Training and Knowledge Management
towards a SNETP strategy

Anselm Schaefer
Co-chairman of the SNETP ETKM working group
SNETP ETKM WG
Evolution of Scope

- Initially strong orientation on human resources to support the research recommended by SRA
- Limitations for WG work resulted in a more general approach accommodating the needs of a broader group of nuclear stakeholders
- Focus changed on developing key elements of a strategy for nuclear education and training of academic professionals at the European level with special regard to the conclusions of the Council of the European Union on the Need for Skills in the Nuclear Field (December 2008)
From 5 Subgroups to an Integrated View

• Initially five ETKM subgroups
  1. Human Resources, Human Factors and Knowledge Management
  2. Coordination with other groups (SRA, ENEF-E&T, …)
  3. Education and Training Courses to support Research and Industry
  4. Facilities to support Education and Training
  5. Interactions between Academia and Employers and International Co-operations with non-EU Countries

• SG Work was integrated in one report „Key Elements of a Sustainable European E&T Strategy“
• Separate report of SG 4 on „Current and Future Uses of Nuclear Infrastructure in Europe“
Structure of Strategy Report

- Survey of Current Status
- E&T Challenges for the Next Decade
- Description of Key Approaches
  - Identification of knowledge/skills profiles and gaps
  - Education and training programmes
  - Infrastructure for nuclear E & T
  - International cooperation
- Examples for Good Practices
- Recommendations
Current Status

- Significant progress in the past decade to off-set the demise in nuclear education and training of the 1980s and 1990s in EU countries
- National and international networks for co-operation in research and nuclear education have played an important role in that regard
- Employer-driven collaborations and networks involving universities, industry and further nuclear stakeholders are extending to encompass education, training and provision of skills in a wider context.
New Needs and Opportunities

• Nuclear renaissance requires new human resources with a wide spectrum of qualifications.
• Fast development of middle management capacities is critical factor.
• The increasing international dimension of the nuclear industry requires a more international orientation of professionals and of nuclear education and training.
• New information technologies provide opportunities to make nuclear education and training more attractive and effective.
• ...

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Challenging Questions

• How to identify the qualifications required in the next decade to keep pace with a nuclear renaissance and to reach a sustainable nuclear energy regime?
• What are the gaps between those qualifications and the learning outcomes of existing E&T programmes and how can these gaps be closed timely?
• How can we assure a sufficient number of highly qualified trainers and university professors?
• How can we achieve that new nuclear professionals working for different stakeholders will have a common background of knowledge and culture?
Knowledge and Skills Profiles and Gaps

• Achieve better understanding of the spectrum of knowledge and skills profiles relevant for a sustainable growth of the nuclear industry

• Provide high-quality analyses of knowledge and skills gaps
  – at a European level
  – based on robust scenarios and recent information from EU Member States and the most concerned stakeholders

• ...

Good national practice: COGENTs (UK) systematic approach to a quality-assured skills gap analysis

Promising initiative: European Nuclear Human Resources Observatory as a vehicle for analyses at a European level.
Nuclear E&T Programmes

- Adapt academic programmes to changing needs
- Strengthen the employer’s roles for E & T of graduates
- Establish European standards for nuclear E & T
- Implement processes to learn from good practices
- ...

Good national practices:
- numerous national initiatives with stakeholder support for and involvement in academic programmes
- proficiency passport developed by NSAN (UK)

Promising European initiatives:
- European Nuclear Energy Leadership Academy (ENELA)
- European Credit system for Vocational Education and Training (ECVET)

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Nuclear E&T Programmes Coordiation and Information

- Provide - at the European level - information on and coordination between different E&T opportunities
- Use advanced information technology systematically for the purpose of nuclear education and training
- ...

Good national practice:
Nuclear Liaison's data base (UK)

Promising European initiatives:
- JRC’s Nucleonica Webportal
- ENEN’s Database on European Course Offers
Infrastructure for Education and Training

- Make more systematic use of existing training reactors and other experimental facilities within nuclear education to provide students with a direct and personal nuclear experience.
- Ensure the availability of facilities when these get older and may need to be refurbished or replaced.
- Systematise IT infrastructure for E & T by visible (European) high-level products (e.g. simulation tools, e-learning platforms)
- Ensure transnational access to infrastructure for nuclear E & T
- ...

Good European practice:
Support by the EURATOM Framework Programme for projects improving transnational access to facilities
International Cooperation

- European cooperation in nuclear education and training related to research and transcending that area
- Cooperation beyond European focusing on countries with larger programmes for new build and on emerging nuclear countries:
  - preparing new modes of cooperation in a global environment
  - achieving mutual understanding of each other’s (safety) culture
- ...

Good European practice:
Support by the EURATOM Framework Program for
- E & T related to research projects
- co-operation with non-European countries

Promising initiative:
ENEN’s E&T cooperation with Asia and South Africa
Recommendations

1. Joint action of key stakeholders with EHRO-N to develop a common taxonomy of skills and competencies linked to jobs
2. Optimise curricula of academic programmes with regard to the needs by 2020 and synergies between academic and non-academic programmes
3. Extend private-public partnerships for guiding and expanding E&T programmes and improving the training of trainers
4. Develop European framework for mutual recognition of “learning outcomes” and qualifications transcending academic education
5. Support promising European initiatives with national input required
6. Create a platform for transnational access to infrastructure
7. Systematize E&T cooperation with non-European countries
8. Cooperate more closely to further develop and maintain European data bases and IT plantforms for E & T
What next?

• The key elements do not yet constitute a strategy:
  – Elements need to be structured more systematically
  – Recommendations should be more specific
• Problem: small active membership of the ETKM WG
• Intended further Procedure:
  – Report is distributed as a final draft for consultation to
gather a wider audience input before producing the
final document.
  – Intended consultation process is a structured discussion
with nuclear stakeholders at a workshop organised by
the ETKM Working Group in co-operation with other
relevant European groups (e.g. ENEF E&T, EHRO-N, ENEN,
ENELA, ...)

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