

MANAGING NUCLEAR KNOWLEDGE in BELGIUM

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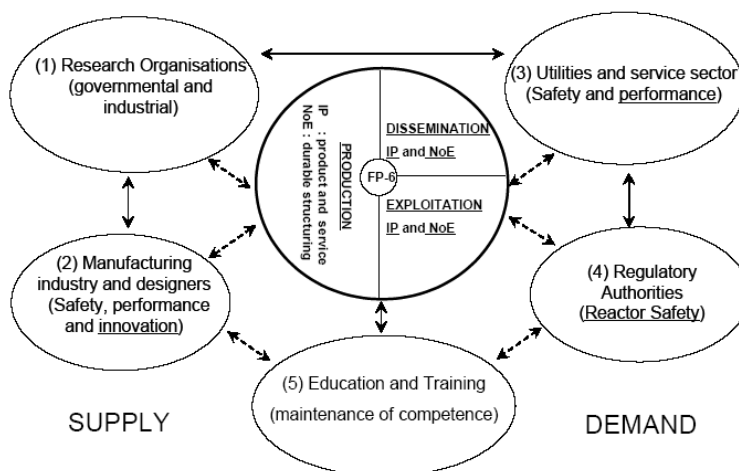
Incentives for K M

- **In a Business Environment**
 - **Competitive advantage**
 - **Cost reduction**
 - **Shorter time to deliver new products**
 - **Accelerated access to new markets**
- **In a Research Environment**
 - **Primary asset of Research & Development**
 - **Capturing, sharing and disseminating knowledge**
 - **Preservation of knowledge**
 - **Establish and maintain institutional memory**

Implementing EU K M principles

- **Moving towards the EU strategic goal to be the most competitive knowledge based society in 2010**
- **Adopting a holistic approach of**
 - Knowledge production
 - Knowledge dissemination
 - Knowledge exploitation
- **Participating to**
 - Integrated Projects
 - Networks of Excellence

Nuclear Knowledge Cycle



➤ Sustaining Nuclear Education.....

- **Belgian Nuclear Education Network consists of SCKCEN and 5 universities (Industry & regulator sponsored)**
- **Lectures**
- **Laboratories**
- **Master Certificate in nuclear disciplines**
- **PhD mentoring**
- **.....and Training Courses**
- **International School for Radiological Protection**
- **Off-site Emergency Planning and Response to Nuclear Accidents**
- **Decommissioning NPPs and Nuclear Facilities**

➤ Preserving and sharing Nuclear Knowledge

- **As default statutory activity performed since 1954**
- **Actively started and organised in 2002**
- **Inventory of existing KM practices and information bases, databases, archives, reports, publications, training....**
- **Organising the information and owners/sources of knowledge**
- **Identifying the K M needs and their priority ranking**
- **Developing tools, systems and procedures for knowledge storage, access, transfer and dissemination**
- **Communities of practice, web based portals + related links**
- **Discussion forum to bring tacit knowledge to the surface**
- **Organise Topical days and Seminars**

➤ Energy

- 55 to 65 % of nuclear electricity (7 power plants)
- Liberal market for electricity production, distribution and delivery
- Government “political” decision to phase out by 2015
- No real alternatives available on this time-scale
- Loss of attraction to young people
- Experienced nuclear workforce is ageing
- Already some difficulties for qualified replacements at NPPs
- K M by codification, education, training, plant (re-) engineering records, alternative sources, active international participation

➤ Fuel Fabrication plants, uranium, mixed oxide

- Future not clear order books until 2006-2007
- Decreasing motivation and attractiveness to young people
- K M by
 - (strong!) codification and records
 - some education and training
 - (extensive!) engineering records
 - active use of alternative sources in international context
 - industrial joint ventures in EU region

- **Waste management institute and waste processing companies**
 - Intermediate storage planned for at least 50 years
 - Forced retirement of senior staff resulting from optimised waste management – producing less waste
 - K M by
 - codification, inventories, databases
 - little education and training
 - engineering status-quo – overcapacity - oversized
 - involvement in international projects for waste disposal

- **Regulatory Body**
 - Formerly incorporated in SCKCEN – good records
 - then independent organisation, no information on K M and records situation for this period (about 25 years)
 - Since a few years newly founded organisation with senior staff recruited from all nuclear companies and a lot of educated young staff to be trained
 - K M by
 - codification
 - education and training
 - active international participation and EU integration

Nuclear Applications in Belgium

- **Radioisotopes production**
 - **Industry**
 - **Gamma irradiators**
 - **Radiopharmaceuticals**
 - **Non-destructive testing**
 - **K M (no information available)**
- **Nuclear medicine**
 - **Diagnostics, Gamma cameras, Nuclear medicine**
 - **Positron Emission Tomography**
 - **Therapy**
 - **K M in medical sector is not a problem: good records, attractive careers, organised education, training, mentorship**

Conclusion

- **Current energy policy is unsustainable and not realistic: phase-out will have to be reversed or postponed**
- **First difficulties in recruiting personnel with nuclear education are showing up (engineering, operators, radioprotection, radiochemistry, physicists)**
- **Urgent need for students in all nuclear disciplines to ensure follow-up in all applications, except medical and human health applications**
- **Need to review the priorities for Management of Nuclear Knowledge at the national level, and to harmonise and consolidate the approaches**