Challenges and Opportunities in Nuclear Knowledge Management and Networks

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Euratom Treaty
"...the Commission actors in the Euratom Work programme"
JRC Nuclear Activities

Support EU policy-making by mapping, collating, analysing, quality checking and communicating in a systematic and digestible way all the relevant scientific data, methods, tools and knowledge available worldwide in the relevant policy area, anticipating knowledge needs, mapping knowledge gaps and suggesting research topics to be carried out in the JRC.
Challenge: Dealing with the information overload
Challenge: Globalisation
Knowledge Management for Nuclear Safety, Security & Safeguards

Three dimensions of KM support in nuclear:

• Within JRC
• Policy support within the Commission
• For Member States

"As the science and knowledge service of the Commission our mission is to support EU policies with independent evidence throughout the whole policy cycle."
Examples of KM services for Member States

• Hosting databases, in some cases also carrying out analyses, compilations, publishing newsletters (few examples below, the list is not exhaustive)
  • European Human Resources Observatory for the Nuclear Energy Sector (EHRO-N)
  • European Clearinghouse on Operating Experience Feedback for NPPs
  • European Safeguards Research and Development Association (ESARDA)
  • Storage of Thermal REactor Safety Analysis Data (STRESA)
  • Radioactivity environmental monitoring

• Education and training courses

• Support to working groups / communities of practice
EHRO-N approach

Nuclear Facilities (including NPPs, fuel cycle, waste management)
Government Agencies (e.g. Ministries, Atomic Agencies)
Nuclear Energy Programme Implementation Organizations (NEPIO), Owners, Operating Organizations, Corporations
Technical Support Organizations
Educational Institutions
Specialized Training Organizations
International and Professional Organizations
Organizations involved in activities with nuclear or radioactive materials (e.g. transport, security, organizations using sources of ionizing radiation)
Equipment Vendors, Suppliers, Construction Organizations
Regulators (including nuclear)
R&D organizations

Source: IAEA NG G2.1 Managing Human Resources in the Field of Nuclear Energy.
Radioactive Environmental Monitoring

1. Traces analysis
2. Procedures for data collection, evaluation and harmonisation
3. Dispersion model (routine and emergency conditions)
4. Nuclear emergency support
5. Nuclear emergency preparedness
6. Natural radiation

Natural Radiation: Radon

Radiation is all around us. It comes from radioactive substances present naturally in the ground, the air, building materials and food. Radiation is also found in the cosmic rays from space.

Some rocks contain radioactive substances that produce a radioactive gas called radon.

Accurately estimating the quantity of Natural Radiation helps reduce the impact of Natural Radiation on human health.

Besides its expertise in the measurement of radioactivity, the IRE collects and provides information about levels of radioactivity in the environment to increase public awareness and to ensure that the European public health is not exposed to unacceptable levels of radon.

Procedures for data collection, evaluation and harmonisation

Standard formats for data sharing and informatics applications have been developed to ensure EU Member States can exchange data easily.
Sharing Knowledge and Resources

Nuclear knowledge management, training and education

Promotion / Dissemination of EU’s highest Safety/Security standards

1. Training and education of next generation of scientists and experts
2. User access programmes and Network of Excellence
3. European Nuclear Security Training Centre (EUSECTRA)
4. Karlsruhe Nuclide

Monitoring human resources in the nuclear energy sector (EHRO-N)

Network to improve the collection, analysis and feedback of operational experience
Living together, Working together...