Disposal of Radioactive Waste from Global Perspective

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Current situation

• Disposal of RW and SF/HLW recognized as the only final solution

• The progress in providing disposal solutions in Member States is slow:
  • 25 countries already have repositories for L/ILW
  • No repositories for SF and HLW yet
  • In many countries still no clear policies and strategies/programmes for waste disposal

• In newcomer countries main focus on power needs and NPP construction – little consideration of spent fuel and waste management needs
Disposal of LLW

- Disposal facilities for LLW successfully operating in many countries
- Different types of repositories: surface, near surface and underground (geological)
- But many nuclear and non-nuclear countries still need to develop repositories

| EUROPE: | (Belgium); Bulgaria; Czech R.; Finland; France; (Germany); Hungary; Latvia; Lithuania; Norway; Poland; Romania; Russian F.; Slovakia; (Slovenia); Spain; Sweden; (Switzerland); Ukraine; United Kingdom |
| AFRICA: | (Egypt); (Ghana); South Africa |
| AMERICAS: | (Argentina); (Brazil); (Canada); (Chile); Mexico; (Peru); United States of America |
| ASIA and the PACIFIC: | (Australia); China; India; (Iran); (Iraq); Japan; (Jordan); (Rep. of Korea); (Malaysia); (Pakistan); (Philippines) |
Management of LLW

- LLW management still needs attention of nuclear industry
- Many countries are still lacking facilities for LLW and VLLW management
- Some countries still missing clear responsibility structure for RWM
- Newcomer countries need to pay immediate attention to LLW
Geological disposal

- Technical solutions for geological disposal available
- Good progress in repository development for spent fuel and HLW in Finland, Sweden and France
- Research and general investigations in several other countries
- Strategy consideration in some countries
- Many countries still at initial stage

Eurajoki in Finland
Newcomer Countries

- Interest for new nuclear build remains but at a slower rate
- Complex infrastructure required for starting nuclear programme including RWM and SFM infrastructure
- Management of SF and waste requires:
  - adequate regulatory framework with clearly allocated responsibilities and necessary bodies/institutions
  - clear policies & strategies for managing SF and RW
  - necessary infrastructure for SFM and RWM
  - adequate funding for SFM and RWM
- Disposal of waste big challenge for newcomers
- Regional approaches and shared facilities for WM – an opportunity for newcomers
How can these challenges be addressed?

• International and regional cooperation in RWM can significantly contribute to the progress of RWM and disposal by:
  • Sharing and disseminating information and knowledge, R&D
  • Sharing lessons learned and experience with less developed programmes
  • Promoting implementation of good practices in RWM
• Co-operation beneficial for developed and developing programmes and for newcomer countries
The IAEA Assistance

- Joint Convention, Safety Standards and guides for harmonization of safety approaches
- Technical publications on specific topics with guides and recommendations
- Networks
- eLearning and Regional Training Centres
- International harmonization projects
- Technical cooperation programme
In response to growing demand from Member States for assistance with radioactive waste management, the Networks have been established to increase efficiency in worldwide sharing and transfer of experience and knowledge leading to safe, economic and timely solutions in this field.
RWM Networks

- Five Networks focused on the following areas:
  - **URF Network** on geological disposal
  - **DISPONET** on near-surface disposal of LLW
  - **LABONET** on characterization of LILW
  - **IDN** on decommissioning of nuclear facilities
  - **ENVIRONET** on environmental remediation of sites
Training and demonstration activities providing hands-on, user-oriented experience and disseminating proven technologies.

Opportunity to compare approaches and discuss evolving concepts with peers in the field.

Access to potentially lower-cost expertise and testing facilities in realistic work environments.

Enhanced recognition through international presence.
Training Levels, Audiences and Delivery for RWM
CONNECT provides professionals in the IAEA’s communities of practice (Networks) with access to high-quality training materials and a means to share and collaborate on-line.
CONNECT Platform

Kick-started by Sandia’s donation of the basic platform, with strong internal and external (EC) support.

Eight IAEA Networks (~1000 MS professionals) have joined this initiative to revolutionize training and engagement of Member States.