Current Practices and Future Challenges in Radioactive Waste Management

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International Public Forum “Nuclear Power, Society, Safety”
Saint-Petersburg, 20-21 April 2010

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New optimism – increased responsibility

- New development and expectation in nuclear field
- Ambitious plans for new build: between +40% to + 120% increase projected by 2030
- New countries considering to introduce nuclear power
- Main attention on power needs, still difficult to attract the real attention to WM
- Need to:
  - increase awareness in newcomer countries that RWM should be considered from the early stage
  - to further develop RWM programme in existing nuclear countries

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The role of international community and the IAEA

- Ensure that adequate safety standards are applied worldwide
- Ensure sharing of experiences and good practices
- Promote international cooperation on R&D and implementation of good practices
- Transfer knowledge and experience to developing countries and to newcomer countries

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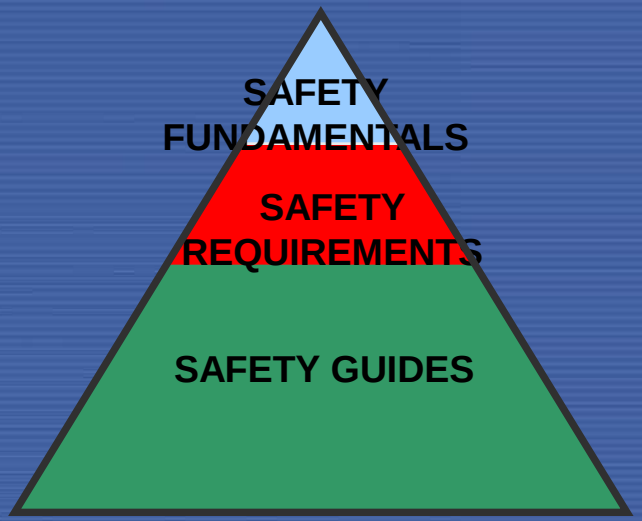
IAEA Framework for Safe SFM&RWM

- Joint Convention on the Safety of SFM and Safety of RWM
  - Legally binding instrument
  - 55 contracting parties in March 2010
- Safety Standards
  - Waste Safety Standards
  - 21 Waste Safety Guides already published, additional being prepared
- Code of Conduct on the Safety and Security of Radioactive Sources
  - Legally non-binding instrument
  - 97 countries already committed



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Challenges in SFM and RWM

- Significant progress and many lessons learned in SFM and RWM
- But still need for:
  - Clear policies and strategies for SFM and RWM
  - Progress in implementing waste processing and disposal facilities including HLW and long lived waste
  - Safe and environmentally acceptable uranium production
  - Decommissioning of obsolete nuclear facilities and management of waste from dismantling
  - Management of legacy waste and contaminated environments from past practices, accidents and military activities

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Policies and strategies

- IAEA strongly promotes the need for clear policies & strategies in RWM (Who? What? How? When?)
  - countries with existing nuclear programmes
  - countries with only nuclear applications
  - in newcomer countries
- Allocation of responsibilities and financing methods should be included
- IAEA guidance document on Policies and Strategies for RWM , published in 2009 in NE Series

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Management of SF

- Different approaches to long-term SFM:
  - Some countries go for reprocessing and recycling of SF
  - Others have decided for direct disposal of SF and make good progress in establishing geological repositories
  - Some countries keep both options open
- No disposal for SF or HLW exists yet, but good progress in several countries (Sweden, Finland, France) and also delays and setbacks in others
- The IAEA assists its MSs developing geological disposal through the Network URF on Underground Research Facilities

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Management of Radioactive Waste

- Processing and disposal of LLW well established practice:
  - Disposal facilities for LLW successfully operate in many countries
  - But many countries still need to establish repositories for LLW and also for VLLW
- IAEA assists MSs
  - through activities of DISPONET - Network on near surface disposal
  - technical documents and guides on development and operation of waste disposal facilities
  - by supporting development of Mobile and transportable facilities for waste processing
  - development of Borehole disposal concept for disused sources, particularly interesting for countries with only source applications

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Decommissioning of nuclear facilities

- Number of decommissioned facilities grows
- Technologies available, many experience collected and good practices developed
- It is important to have:
  - Well developed plan for decommissioning & dismantling
  - System in place for management and disposal of all types of waste from dismantling
  - Adequate funding
- IAEA is assisting its MSs through IDN – International Decommissioning Network in
  - Hands-on training
  - Direct communication between those who have experience with those who are needing it

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Uranium mining and Environmental remediation

- The mining production is increasing and new countries interested in opening U-mines
- Important that new mines are developed:
  - Under established regulatory control
  - By considering environmental and societal aspects
  - By applying good practices to avoid future legacy sites
- Currently many activities to remediate legacy sites from past practices (Central Asian Initiative)
- IAEA future actions focused on sustainable practices for U production (ENVIRONET and UPT Networks)

Former uranium production in Tajikistan

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Cleaning of legacy waste in Russia

- CEG – Contact Expert Group addressing nuclear legacy issues of Cold War in Russia:
  - Defuelling and dismantlement of nuclear powered submarines and surface ships
  - Retrieval of radioactive thermo-electrical generators from the Russian coast
  - Remediation of contaminated areas and facilities of the former navy bases
- 13 donor countries and 2 international organizations in CEG, working in the framework of Global Partnership Programme
- IAEA providing secretariat to CEG

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Concluding remarks

- Many experiences in SFM and RWM have been collected, good practices have been developed
- Significant progress has been made in developing solutions for SF and RW:
  - Disposal facilities for LLW and VLLW operating in many countries
  - First geological repository close to implementation
- With increased interest for new nuclear build great responsibility is put on all nuclear countries to show good examples and pass lessons learned to all newcomer countries

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Concluding remarks

- For existing nuclear countries and for newcomer countries it is important:
  - To have adequate regulatory framework
  - To have clear policies & strategies for managing SF and RW
  - To allocate responsibilities and establish necessary bodies and organisations (regulatory body, implementing organization)
  - To establish necessary infrastructure for SFM and RWM
  - To provide adequate funding for SFM and RWM
  - Continuous capacity building and human resource development