# Multinational Approaches in Radioactive Waste Management

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INPRO Dialogue Forum on Nuclear Energy Innovations:
Multilateral Approaches to Sustainable Nuclear Energy Deployment
– Institutional Challenges
4-7 October 2010, Vienna

IAEA
International Atomic Energy Agency

# Multinational initiatives in fuel back-end

- *Majority of initiatives related to disposal of SF and HLW*
- *Main driving forces:*
  - *Security and environmental safety, non-proliferation*
  - *Economics and finance*
  - *Technical issues*

- 1970s-: Several IAEA initiatives on RFCC, INFCE, IPS, ..
- 1990s: Pangea's proposal for commercial world's nuclear repository in W Australia
- 2001-: Russian proposals for storage/reprocessing SNF
- 2002-: Arius Association to promote and develop the concept of shared facilities for storage and disposal of long lived waste >
- 2003-2008: European project SAPIERR – Support Action on Pilot Investigations on EU Regional Repositories >
- 2009: ERDO Working Group for European Repository Development Organization

# IAEA position

- The IAEA supportive to the regional/multinational ideas but also cautious
- Joint Convention – Preamble (1997)
  - *Convinced that radioactive waste should, as far as is compatible with the safety of the management of such material, be **disposed of in the State in which it was generated**, whilst recognizing that, **in certain circumstances, safe and efficient management of spent fuel and radioactive waste might be fostered through agreements among Contracting Parties to use facilities in one of them for the benefit of the other Parties**, particularly where waste originates from joint projects.*

# Commission of Eminent Persons Report to the DG (2008)

*"For countries with limited waste or without access to geologically suitable disposal sites,* ***multinational disposal at sites with good geology might be an option****. Several studies have identified the* ***potential benefits, in terms of possible economic, non-proliferation, safety and security*** *advantages, of multinational disposal as well as institutional and political issues standing in the way.* ***The IAEA could help States arrive at a solution that fits their needs****."*

# IAEA reports addressing multinational issues

- 1998: TECDOC-1021 on *Technical, Institutional and Economic Factors Important for Developing a Multinational RW Repository*
- 2004: TECDOC-1413 on *Developing Multinational Radioactive Waste Repositories: Infrastructural Framework and Scenarios of Cooperation*
- 2005: TECDOC-1482 on *Technical, Economic and Institutional Aspects of Regional Spent Fuel Storage Facilities*
- 2005: *Multilateral Approaches to the Nuclear Fuel Cycle*, Expert group to the DG
- 2006: TECDOC-1522 on *Potential of Sharing Nuclear Power Infrastructure between Countries*
- (2010): TECDOC on *Viability of Shared Facilities for the Disposition of Spent Nuclear Fuel and Nuclear Waste – An Assessment of Recent Proposals (in preparation)*
- *(2010): New NE Report: Options for Management of SNF and Radioactive Waste for Countries Developing Nuclear Programme (in preparation)*

# Potential scenarios of cooperation

- Three basic concepts (TECDOC- 1413):
  - **Cooperation scenario** – partner countries cooperate in developing a repository jointly, one of them becomes a hosting country or each country takes one type of waste
  - **Add-on scenario** – the host country has already implemented a national repository and offers to dispose of imported waste from other countries
  - **International or supranational scenario** – repository fully in the hands of international or supranational body, the host country effectively cede the control of the siting area

# Areas of important benefits and challenges

- Security and environmental safety
- Non-proliferation
- Economics and finance
- Legal and institutional issues
- Public acceptance and support

# Main conclusions (TECDOC 1413)

- Implementation challenging but feasible
- Enhances safety and security by making disposal options timely available
- Benefits potentially large and possibly outweighing drawbacks
- Discussion on multinational concepts can be initiated by interested countries without prior definition of host country

# Concerns and controversies

- Advanced programmes afraid that their national programmes would be jeopardized
- Several countries introduced ban on RW import
- For regional/multinational repository political decision and support needed
- Small programmes interested in principle but no serious commitment and so far no interest to host repository
- Concerns that multinational initiatives just misused to remain in-active in searching for disposal solutions

# Recent developments

- International strategic studies and reports
  - MNA Expert Group (2005)
  - WNA views security & supply at the FC back end (2006)
  - Proposal at the 2006 GC
  - US NAs and RAS initiatives (2006)
- Ad-on and leasing initiatives
  - US GNEP/IFNEC (2006/2010)
  - Russian GNPI-INFCC/IUEC (2006)

# Current situation

- In spite of recognized benefits **no real progress** in sharing repositories among established nuclear programmes because:
  - Initiative limited mainly to geological disposal (GD)
  - Time distant plans for GD – no time pressure for action now
  - No national GD implemented yet
  - No real political support
  - Negative public perception

# Current situation

- But:
  - New countries coming on board
  - Renewed concerns about security, safety and non-proliferations
- And waste issue?
  - Newcomers focused on energy build, awareness of the need to address RWM low
  - Will the history be repeated?

# Can it be different for Newcomers?

- Several countries facing similar problems at the same time
- Similar requirements for WM infrastructure in several countries – an opportunity for cooperation
- Regional cooperation can consider all WM facilities: processing, packaging, encapsulation, storing and disposal facilities
- Agreements should clearly specify all responsibilities at an early stage