INPRO Dialogue Forum on Cooperative Approaches to the Back End of the Nuclear Fuel Cycle:
drivers and legal, institutional and financial impediments

IAEA HQ, Vienna
Why cooperative approach for BE?

Growth of electricity demand for sustainable development

Nuclear is one of the key way forward!

Overall impediments for NP development:
- Financial and human resources
- Political and public acceptance - Complex understanding and vision for the nuclear industry as a whole life cycle
  - Including non-proliferation and safety aspects
The objectives of the Dialogue Forum 10:

- To better understand the value of cooperation in the back end of the nuclear fuel cycle and the implications of such cooperation for the management of spent nuclear fuel (SNF);
- To analyze drivers for cooperation, as well as to identify and analyse impediments, including a discussion on ways of overcoming some of the impediments identified;
- To discuss in more detail the impediments which may arise due to the diversity of national legislative frameworks, public perception/acceptance and views on the urgency (or lack there of) of implementing end points for SNF or HLW;
- To point out potential technological developments that may impact on the pros and cons of SNF management through cooperation.
Expected Outputs

- Understanding the value of cooperation in the back end of the nuclear fuel cycle and the implications of such cooperation for SNF management.
- Identification of drivers and impediments for cooperation on the back end of the nuclear fuel cycle, including proposed solutions to overcome some of the impediments identified.
- Identification of potential technological developments that may impact on the pros and cons of SNF management through cooperation.
- Clarification of Member States’ interest in participating in a future study on cooperative approaches to the back end of the nuclear fuel cycle, and development of recommendations to the IAEA on possible future activities in this area.
Need for cooperation in the Back-End of the Nuclear Fuel Cycle

Chairman: Mr Tariq RAUF

Overview of the session subject’s history
Overview of the approaches and the results of international efforts

- storage and/or disposition of spent fuel could be a suitable candidate for a multilateral approach, primarily at the regional level

- final disposal of spent fuel and high level radioactive waste may be a candidate for a multilateral approach

- bundled fuel cycle services >>> NPP, nuclear fuel, SNF take-back provide assurance of supply at both: the front-end and the back-end
International conventions and national laws/regulations for SNF-transfer of responsibilities, trans-boundary transport

Chairman: Mr Alan BROWNSTEIN

There are differing views on the question of whether responsibility for SNF management can be fully transferred. There is a need for a harmonized framework in which trust must be a key component of any arrangement.

Addressing issues now that are associated with transfer of responsibility is important so that it does not become an impediment in the future to progress on multinational repositories.

There is important work that can and should proceed now to address the many policy, technical, legal, and economic issues. Many forums exist that can and should play a prominent role in some of the key questions.
Drivers and Impediments for cooperation in area of Nuclear Fuel Cycle Back End

Chairman: Mr Leonid YANKO

Some conclusions:

• The international community has invested much effort on multinational cooperation for repositories. These actions give some positive results, but further efforts are still necessary.

• Furthermore, there are too few international cooperative actions in other areas of Back End; a broader approach including storage, conditioning etc. could be useful.

• International bodies should play a leading role in supporting and enhancing international cooperation in the back-end area.

• Nuclear vendors provide support to newcomers in their efforts to develop a credible, safe and secure back end strategy.

• However, a bottom-up approach in which those countries interested in potentially being users (and/or hosts) of a multinational facility directly interact with one another is crucial.
Time frames and public acceptance

*Chairman: Mr Charles Antoine LOUET*

- Uncertainty: scenarios, costs, technical, political
  
  “We live in an ever-changing environment”

- Time frames: R&D, siting and licensing take ~30/40 years
- Staged approach towards the repository is necessary
- Importance of having a national strategy, that covers all the steps until disposal.
- Openness, transparency and participation are essential

- International cooperation is already in place for spent fuel (reprocessing, fuel take-back)

- Reducing time-scales by reprocessing
- Existence of a successful national programme
- Responsibility issues taken care of clearly
- Long-term availability needs to be guaranteed
- Effective participation of the public in the decision-making process
- Economic benefits for the host country
- Link with nuclear industry
Impacts of development of advanced reactors and fuel cycles to SNF management

Chairman: Mr Zoran DRACE

• If nuclear power is to be sustainable as a global source of emission-free energy, the fuel cycle should remain sustainable
• A number of complex technological system works for realization of BE NFC including current and innovative reactor and recycling system (France, Russia, India…)
• New combined approaches are under detail consideration

Conclusions
• Synergistic collaborations among countries in the fuel cycle back end offer higher rates of capacity growth and larger-capacity centralized fuel cycle enterprises.
• Models for collaboration among counties already exist. The initial phase of the cooperation are use of recycling strategies and minimizing NFC infrastructure among interested partners.
• Potentially, PWR/SFR NES is capable to reduce Pu inventory to operational needs and radically save natural U, even in conditions of no-growth in nuclear energy demand.
• Using the system by cooperative countries could help to contribute to solving the problems at the global level.
• Understanding of legal and institutional issues in interested technology holders, technology users and newcomer countries is necessary to foster global cooperation in the back–end fuel cycle.
Consideration of cooperative (multilateral) approaches and tools in area of fuel cycle is essential for further development and implementation of nuclear power!

- Continue the efforts started by the 10th Dialog Forum
- Modeling synergies in Back-End NFC including legal/institutional aspects
- Detail studies on drivers and impediments should be based on systematic INPRO methodology
MANY THANKS FOR PARTICIPATION!

And think positive !!!