Perspectives on Multilateral Approaches to the Nuclear Fuel Cycle

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Strengthening Non-Proliferation

- "…***the area of fuel cycle design and operation may face a number of critical choices for the future, in part to address proliferation and waste management concerns. This is an important issue that has been discussed over the years, but in my view now merits serious consideration, as part of our effort to cope with the increasing non-proliferation, safety, security and technical challenges facing nuclear power.***"

-Statement by the Director General to the 47th Regular Session of the IAEA General Conference, September 2003

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Three Part Proposal

- **Limit the processing of weapon-usable material in civilian nuclear programmes, as well as the production of new material through reprocessing and enrichment, by agreeing to restrict those operations exclusively to facilities under multinational control;**

- **Deployment of nuclear-energy systems that, by design, avoid the use of materials that may be applied directly to making nuclear weapons;**

- **Consideration of multinational approaches to the management and disposal of spent fuel and radioactive waste.**

- IAEA Director General
from "Towards a Safer World
The Economist, 16 Oct. 2003

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"Achilles' heel" of the NP regime

- ***"the wide dissemination of the most proliferation-sensitive parts of the nuclear fuel cycle…could be the 'Achilles' heel' of the nuclear non-proliferation regime. It is important to tighten control over these operations, which could be done by bringing them under some form of multilateral control, in a limited number of regional centers…. I am aware that this is a complex issue, and that a variety of views exist on the feasibility or possible modalities of such a multilateral approach. However, I believe that we owe it to ourselves to examine all possible options available to us."***

-*Introductory Statement* to the IAEA Board of Governors by the Director General, March 2004

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Past Efforts (1)

Initiatives on multilateral approaches to the nuclear fuel cycle are not new:

- **Baruch Plan: proposed an International Atomic Development Authority – 1946**
- **Atoms for Peace: speech to UNGA by US President Eisenhower – 1953 – proposed an IAEA**
- **IAEA Statute (1956): Article III.B.2 and Article XII.A.5 provide for Agency control over excess special fissionable materials**

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Past Efforts (2)

- IAEA study project on regional nuclear fuel cycle centres (RNFC) – 1975 to 1977
- Committee on International Plutonium Storage (IPS) – 1978 – 1982
- International Fuel Cycle Evaluation Programme (INFCE) – 1977 to 1980
- United Nations Conference for the Promotion of International Co-operation in the Peaceful Uses of Nuclear Energy (UNPICPUNE) - 1987
- Committee on Assurances of Supply (CAS) – 1980 to 1987

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Regional Nuclear Fuel Cycle Centres

- **1975 – IAEA study project launched to identify the *economic, safety, safeguards and security* aspects of a multinational approach to nuclear fuel cycle facilities**
- **1977 – Study group reported several possible non-proliferation, economic and operational advantages**
- **Fears of "plutonium economy" eased; no follow-up action taken**

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Committee on International Plutonium Storage (IPS)

- 1978 – IAEA established Committee to explore possibilities for plutonium storage under Agency Statute Article XII.A.5
- Key Areas of Disagreement:
  a) definition of 'excess plutonium'
  b) nature and location of facility
  c) mechanisms determining the release of plutonium by IAEA
- Final Report (1982) outlined basis for an IPS scheme

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International Nuclear Fuel Cycle Evaluation Programme (INFCE)

- **Held between 1977 and 1980 to discuss the technical relationship between civilian and military nuclear programmes**
- **Little agreement reached during discussions**
- **Fuel cycle policies of participants remain unchanged throughout. INFCE produced no concrete steps towards multilateral control over the fuel cycle**

General Conclusion: technical measures alone would not compensate for the limitations of the nuclear non-proliferation regime

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UNPICPUNE

- 1980 – UNGA adopted resolution (35/112) for UNPICPUNE
- 1987 – UNPICPUNE met (23 March – 10 April); delay due to disagreements over objectives
- Discussion topics:
  a) safety issues
  b) security measure to prevent diversion
  c) relationship between non-proliferation and assurances of supply

General Conclusion: UNPICPUNE reaffirmed the need for international cooperation on peaceful uses of nuclear energy

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Committee on Assurances of Supply (CAS)

- **Held between 1980 and 1987 to discuss the supply of nuclear material, equipment and technology (and the Agency's role therein)**

- **Possibility of multinational fuel cycle centres discussed as one possible means by which to facilitate the assurances of supply**

General Conclusions: CAS was unable to reach a consensus on either the principles for international nuclear energy cooperation, nuclear non-proliferation or on emergency and back-up mechanisms, and went into formal abeyance

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Recent steps proposed by IAEA Director General Mohamed ElBaradei

- **Stronger, more effective programmes and actions to secure nuclear materials and technology**
- **Universal acceptance and application of IAEA additional protocol, oversight and inspection of nuclear facilities**
- **Multilateral approaches to new uranium enrichment, reprocessing, and spent fuel**
- **Assurance that participating nations have reliable access to nuclear fuel at a reasonable cost**
- **Proliferation resistant nuclear fuel cycle**

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Definitions – what is (*not*) meant by 'Multilateral' [Multinational]

- **Need to avoid prejudging the outcomes of a preliminary expert study must be recognised**
- **To this end, and at this early stage, "multilateral" or "multinational" shall be understood to refer simply to *any approaches to the management of the nuclear fuel cycle that go beyond purely national control – transcending national sovereignty***
- **Goal of a 'Phase 1' expert study would therefore be to identify promising institutional and technical possibilities, and to identify and consider a comprehensive list of relevant questions**
- **IAEA Director General to appoint ad hoc, independent 'Experts Group' to carry out Phase 1 scoping study**
- **Follow-up by IAEA Member States**

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Indicative Questions for Consideration (1)

- **How would 'multilateral' be defined for the purposes of the expert scoping study?**
- **How might multilateral managerial control, operation or ownership affect the NPT regime – specifically in terms of Article IV of the Treaty?**
- **What would be the risks of the transfer, or operation, of proliferation sensitive technology as a result of multilateral management, and how might they be controlled or foreclosed?**
- **How would assurances of supply of nuclear fuels be formulated, implemented and guaranteed?**

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Indicative Questions for Consideration (2)

- What would be the role of the NPT nuclear-weapon-States, and other States reportedly possessing nuclear weapons, in possible multilateral nuclear fuel cycle arrangements?
- How might consideration of multilateral options for the management of spent nuclear fuel impact on current national efforts or projects?
- What are the existing models for multilateral operation of elements of the nuclear fuel cycle?
- Can there be generic solutions, or should they be tailored to the region or other circumstances? Would regional arrangements for the production and supply of nuclear reactor fuel and waste management be both technically feasible and politically acceptable?

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Why revisit this option?
Back to the Future

- End of the Cold War has resulted in rise of regional political security agendas
- Rise of an illicit market in nuclear technologies / items
- Possibility of "break out" from the NPT by non-nuclear-weapon States (NNWS) with advanced nuclear fuel cycle technology and/or stocks of enriched uranium or separated plutonium
- Increased threat of nuclear and/or radiological terrorism

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Transcending National Sovereignty to Strengthen Global Non-Proliferation

- ***"If the world does not change course, we risk self-destruction. Common sense and recent experience make clear that the nuclear Non-Proliferation Treaty, which has served us well since 1970, must be tailored to fit 21st-century realities. Without threatening national sovereignty, we can toughen the non-proliferation regime."***

– Director General ElBaradei
"Saving Ourselves From Self-Destruction"
New York Times, February 2004

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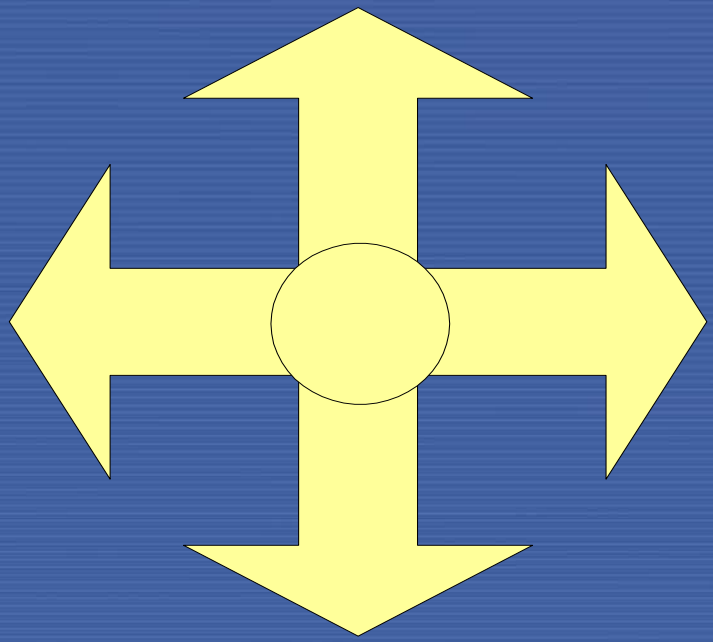
Future Nuclear Non-Proliferation System

2. Prevent / Inhibit diversion

1. Reduce material attractiveness



3. Prevent / Inhibit undeclared production

4. Verification (CSA + AP)

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