

Assurances of fuel services versus **proliferation risks**



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Nuclear energy vs. proliferation

With two objectives in mind – more nuclear power and stronger non-proliferation – the nuclear community must imperatively readjust its plans with respect to the sensitive facilities of the fuel cycle.

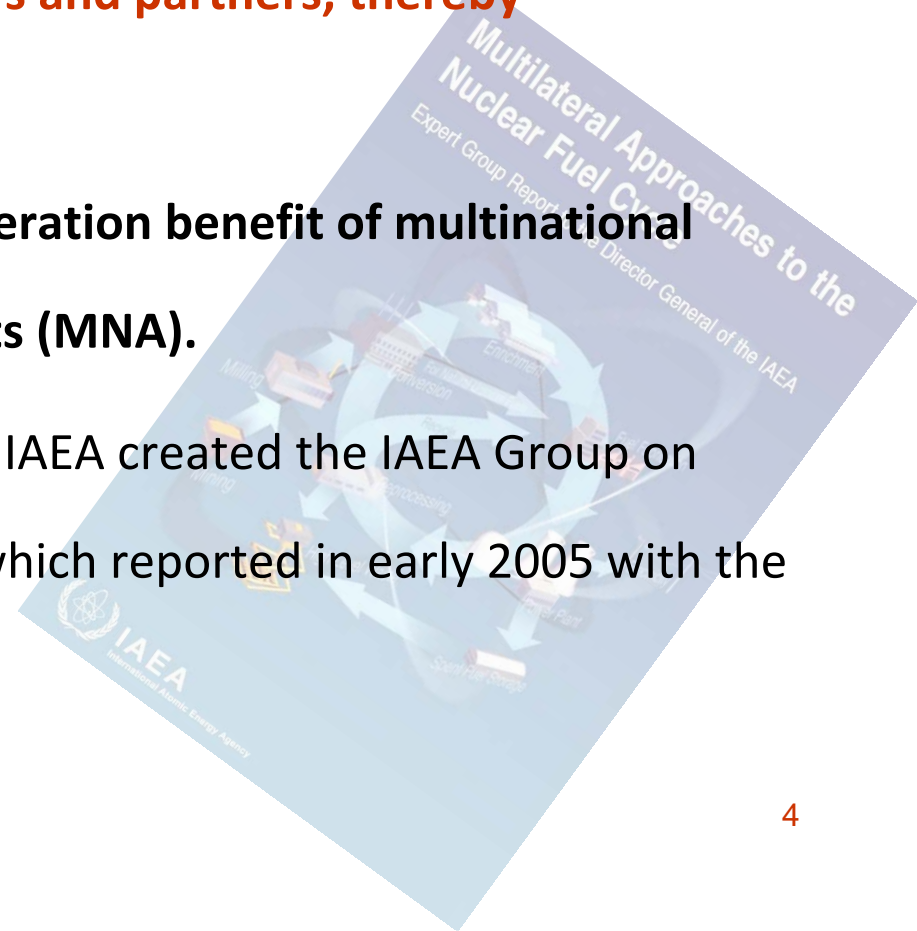
The number of enrichment and reprocessing facilities in the world must not expand in step with the number of nuclear plants. (Other fuel cycle steps: of little concern).

Two remedies to meet the challenge

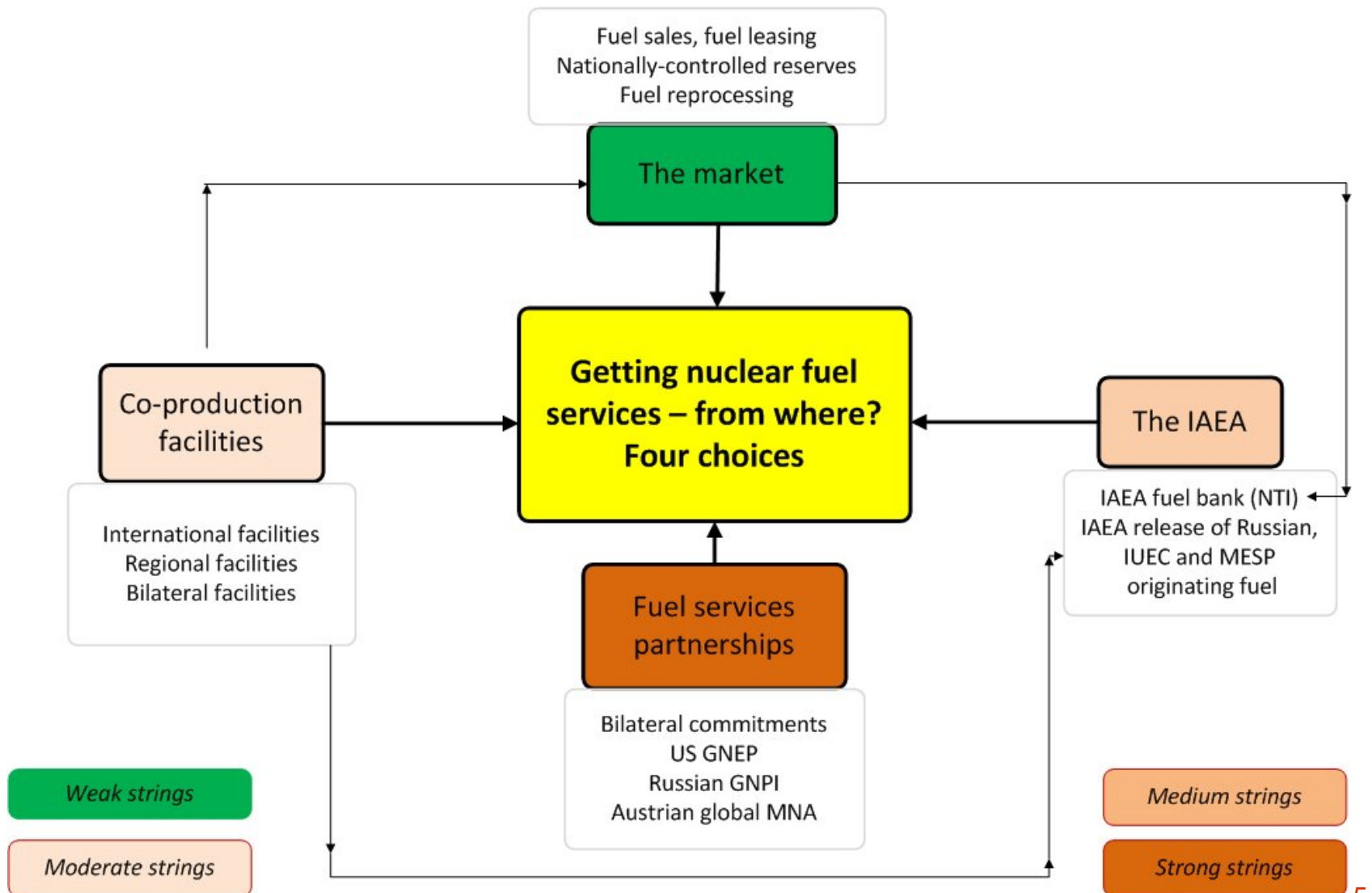
1. Non-nuclear weapon States are to accept a partial **denial of technology** through a reinterpretation of those NPT's provisions governing the rights of access to nuclear technologies (*US academics and politicians*)
2. Promote **multinational alternatives** to the national operation of uranium-enrichment and plutonium-separation technologies, and to the disposal of spent nuclear fuel (*Mohamed ElBaradei and many NNWS*)

The “multilateral” premise

- A joint undertaking with multinational staff puts all participants under a greater scrutiny from peers and partners, thereby strengthening non-proliferation.
- This is the fundamental non-proliferation benefit of multinational nuclear alternatives/ arrangements (MNA).
- 2004 – The Director General of the IAEA created the IAEA Group on Multilateral Nuclear Approaches, which reported in early 2005 with the publication of a substantial report.



Supply: a choice of four sources



Follow-up proposals

- **IAEA arrangements** - **USA** - The “*Nuclear Threat Initiative*” (NTI) offered to contribute \$50 million to the Agency to create an LEU stockpile owned and managed by the Agency, to be made available should other supply arrangements fail. The offer was contingent on other States contributing an additional \$100 million in funding, a condition achieved in 2009. Every other element of the arrangement — the structure, its location, the conditions for access — would be up to the IAEA. The **United Kingdom** has proposed a guarantee that national enrichment providers would not be prevented from supplying enrichment services; and that the IAEA would benefit from the prior consent right on the fuel.

Follow-up proposals (cont.)

- **Partnerships** – e.g. between suppliers States and Middle-East States, with a commitment not to engage in sensitive technologies. The American "*Global Nuclear Energy Partnership*" (GNEP) and the Russian "*Global Nuclear Power Initiative*" (GNPI) go the same way, but undefined yet.
- **Coproduction** – The **Russian Federation** has established an "*International Uranium Enrichment Centre*" (IUEC) at the Angarsk Electrolysis Chemical Combine.
- **Coproduction - Germany** - proposed the creation of a "*Multilateral Enrichment Sanctuary Project*" (MESP) with extraterritorial status, operating on a commercial basis as an additional supplier in the market, under some kind of Agency control.

Coproduction: the market solution

1. When needed, new multilateral facilities will add fluidity to the enrichment market.
2. One could even follow Mohamed ElBaradei in making them the norm (or later mandatory), when a country, a region, a continent wants its own enrichment production. Brazil and Argentina together, as already decided; possibly Japan and South Korea together; Australia and Canada together (as potential enrichers to add value to their uranium) , small European countries together; and of course a truly international facility under an IAEA umbrella, as proposed by Germany.
3. **Such multilateral solutions have economical and commercial advantages; they will not hamper the development of nuclear power.**



Questions about MNAs

- *Where are the incentives for a Non-Nuclear Weapon State (NNWS) to enter into multilateral arrangements? Economical, political? (**e.g. subsidised fuel?**)*
- *Would a unilateral dependence towards NWS be acceptable? (**In the long term, not acceptable for independent/neutral countries and most NNWS**)*
- *Should the internationalisation of facilities become the norm under the NPT? (**YES**)*
- *What is the political framework to eventually make such arrangements mandatory? (**The NPT, only**)*

IAEA-related arrangements

Legal/institutional question marks



- All IAEA related proposals (fuel banks and fuel centres) are confronted to diverging perceptions about the political independence of the IAEA. Yes, its Executive, the Board of Governors, is an eminently political entity.
- To give the IAEA a maximum of credibility on such fuel arrangements, a clear distinction must be made between the role of the Board and the role of the Secretariat (Director General). It is up to the Board to write the appropriate guidelines, but up to the Secretariat to implement them free from external interferences.

IAEA-related arrangements

Two central prerequisites for IAEA-related arrangements:

- 1. The delegation by the Board of Governors to the Secretariat of the operating competence for the implementation of "qualifying and release criteria" in relation to any fuel cycle activity of the Agency;**
- 2. The granting to the IAEA of a generic "prior consent or 'de-flagging' by the suppliers contributing fuel to the IAEA bank, in order to preclude multilayer release criteria. (As in the UK proposal).**

The outlook...

- *"The likely scenario of a strong expansion of nuclear energy around the world calls for the development of nuclear fuel cycles with **stronger multilateral arrangements/facilities** – **by region, by continent or by dedicated cooperation** - and for a broader cooperation within the international community". (From IAEA report on MNAs)*
- Multilateral facilities should not all be located in nuclear weapons States, so as to provide as much supply diversity as possible to those plant operators in **Non-Nuclear Weapon States** with a vital dependence on nuclear power. (**A NNWS view, of course**)