INPRO ACTIVITIES
IN SUPPORT OF TRANSITION TO SUSTAINABLE NUCLEAR ENERGY SYSTEMS

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Establishment of INPRO

Origins

- Initiated in 2000
- Authorized by IAEA General Conference resolutions

Basic Characteristics

- Membership based
- Funded mainly from extra-budgetary contributions
- 15 to 20 staff (mainly CFEs from Member States) located at IAEA Headquarters
- INPRO Group in NE-NP
INPRO Objectives

- INPRO cooperates with Member States to ensure that sustainable nuclear energy is available to help meet the energy needs of the 21st century.

- To bring together technology holders and users so that they can jointly consider international and national actions required for achieving desired innovations in nuclear reactors and fuel cycles.

- INPRO is part of the integrated services of the IAEA provided to Member States considering initial development or expansion of nuclear energy programmes.
INPRO Projects in 2012–2013: primary subject of this presentation

**Project 1: National nuclear energy strategies**

To assist Member States in building national nuclear energy strategies and in long-range nuclear energy planning through the INPRO methodology and other tools.

**Project 2: Global nuclear energy scenarios**

To develop global and regional nuclear energy scenarios, on the basis of a scientific-technical analysis, that lead to a global vision on sustainable nuclear energy development in the 21st century.
Project 3: Innovations

Investigate innovations in selected nuclear energy technologies, institutional arrangements and related R&D and support Member States in pursuing these innovations and exchanging progress toward their realization.

Project 4: Policy and Dialogue

Provide Member States’ guidance in the use of nuclear energy planning tools and coordination with other international organizations and initiatives, bringing together technology holders and users to share information on long-range nuclear energy strategies, global scenarios and technical and institutional innovations.
INPRO Methodology for nuclear energy system assessment (NESA) - a comprehensive, internationally agreed criteria-based sustainability assessment in areas of *economics*, *safety*, *waste management*, *proliferation resistance*, *physical protection*, *environment* and *infrastructure*.
Basic Principles:
goals for development of sustainable NES (14).

User Requirements:
what should be done by designer, operator, industry and/or State to meet goal defined in Basic Principles (52).

Criteria-Indicators & Acceptance Limits:
Metrics to check whether a User Requirement has been met (125).
Experience with NESA

- 6 national assessments completed
  - Argentina, Brazil, India, Republic of Korea as technology developers.
  - Armenia, and Ukraine as technology users.
- Results documented in IAEA report TECDOC-1636
  Belarus recently completed!

Ongoing
- Ukraine: part 2, Indonesia, Romania

Completed- 1 multinational assessment ("Joint Study"): Canada, China, France, India, Japan, Republic of Korea, Russian Federation, and Ukraine on “Development of NES of sodium cooled Fast Reactor with Closed NFC”.- published TECDOC 1639
Global Nuclear Energy Scenarios

- Project 2 helps participating countries define comprehensive national energy strategies by providing a framework for the analysis and assessment of:
  
  - transition from the current fleet of nuclear reactors and fuel cycles to a sustainable nuclear energy system
  
  - how a national nuclear energy system could contribute to, and benefit from, sustainability of regional and global nuclear energy systems
  
  - the role that collaboration with other countries may play in transition
Objective:
Develop global and regional nuclear energy scenarios, on the basis of a dynamic NES modelling and analysis, leading to a global vision of sustainable nuclear energy development in the 21st century

Recently completed collaborative project:

Ongoing collaborative project:
Collaborative Project SYNERGIES (Synergistic Nuclear Energy Regional Group Interactions Evaluated for Sustainability) (2011–2014)

Planned collaborative project:
ROADMAPS for a transition to globally sustainable nuclear energy systems (2014–2015)
Innovations – collaborative projects

- 8 collaborative projects are completed to date:
  - Most recent:
    - SMALL (Implementation Issues for the Use of Nuclear Power in Small Countries);
    - Preliminary study on “Legal and Institutional Issues for Transportable Nuclear Power Plants (TNPP)”

- On-going collaborative Projects:
  - PROSA (Proliferation Resistance and Safeguardability Assessment Tools),
  - ENV-PE (Nuclear Accidents: Potential Exposures)

➤ Plus 3 new collaborative projects currently under definition and design!
Dialogue Forum

- 5 Dialogue Forums have been convened including the most recent held in Seoul, ROK.
- Topics to date:
  - Socio & macroeconomic factors
  - Multilateral approaches to nuclear energy deployment
  - Common user considerations for SMRs
  - Drivers and impediments for regional cooperation on sustainable NESs
  - Long term prospects for nuclear energy post Fukushima (Seoul)
  - SMR licensing and safety issues
- Dialogue Forum 7 is on application of INPRO Methodology for NESAs
THANK YOU!

For more detail to:
http://www.iaea.org/INPRO/

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