



IAEA

International Atomic Energy Agency

INPRO Activities on Proliferation Resistance

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INPRO

International Project on
Innovative Nuclear Reactors
and Fuel Cycles

3.4 Collaborative Project PROSA (1)

Objective:

- As a follow-up to PRADA, PROSA addresses the development of a “coordinated or harmonized” set of GIF and INPRO PROSA assessment tools. It will identify/define the interface of the PR and safeguardability assessment tools of both approaches at their different levels of evaluation, in full consideration of the scope of their objectives, and examine the validity of a refined methodology by evaluating a mutually beneficial reference case.
- A second objective is to inform the approach to revise the INPRO Methodology Sustainability Assessment in the area of Proliferation Resistance.

3.4 Collaborative Project PROSA (2)

Status:

- ROK updated PROSA case study on sodium bonded fuel pin casting facility to be consistent with current draft of PROSA TECDOC.
- Draft manuscript compiled and edited for submission to DCT – Either this month or next.

What is INPRO Methodology?

- **INPRO Methodology** is a **holistic (multidimensional) NES sustainability assessment metric** derived from the “UN Brundtland Commission Report” (Our Common Future, 1987) on sustainable development.
- Brundtland’s summary concept of sustainable development:
 - **“Development that meets the needs of the present without compromising the ability of future generations to meet their own needs” – needs, limits, intergenerational responsibility.**
- In Part II, Energy Chapter, Section 3: “Nuclear Energy: Unsolved Problems”: Seven key sustainable development issues for NES are discussed:
 - **Proliferation**
 - Economics (costs)
 - Health and environment risks
 - Nuclear accidents risks
 - Radioactive waste disposal
 - Sufficiency of national and international institutions
 - Public acceptability
- INPRO Methodology sustainability assessment is a **“self assessment”** performed by Member States, not by INPRO Staff.
- The first version of INPRO Methodology was published in 2003 and we are half way through the 3rd update – 8 NE Series reports with the same format and structure, covering above topics, plus one manual explaining how to use the other manuals to perform **nuclear energy system sustainability assessment (NESA)**.

Questions...

- What is INPRO's concept of NES sustainability and sustainable development?
- Application of INPRO Sustainability concept to the area of proliferation resistance... or non-proliferation?

Brundtland Commission Report statement:

“The potential for the spread of nuclear weapons is one of the most serious threats to world peace. It is in the interest of all nations to prevent proliferation of nuclear weapons. All nations therefore should contribute to the development of a viable non-proliferation regime. The nuclear weapon states must deliver on their promise to reduce the number and ultimately eliminate nuclear weapons in their arsenals and the role those weapons play in their strategies. And the non-nuclear-weapon states must cooperate in providing credible assurances that they are not moving towards a nuclear weapon capability.”

Brundtland did not provide any clear description of a PR metric for NES sustainability assessment... only a broad problem statement of a global concern about nuclear weapons and world peace.

Nuclear energy sustainable development, PR and INPRO Methodology

- **Thesis:** the apparent effect of proliferation on the health of peaceful use nuclear industry has so far been related to “treaty effects” through international relations and nuclear trade. Otherwise, repeated nuclear detonations in a non-compliant state should shut down the nuclear industry, no?
- **So?** since peaceful use co-operation among nations is essential to NES sustainability on the whole, are the PR metrics of importance only those “proxy measures” that directly indicate the state of health of peaceful use assurances and active nuclear trade?
- **Plainly...** This is a different question than “what is a reasonable generic metric of proliferation resistance?”

Sustainable development, PR and INPRO Methodology – other observations...

- It was determined by the TM that INPRO should try to frame a revised INPRO PR assessment methodology and **INPRO should:**
 - Present a new collaborative project proposal to the Steering Committee in November 2017 – done
 - Limit the consideration to the NNWS case
 - Stay fully consistent with IAEA-SG and OLA terms of art
 - Develop a “narrow” metric, specific to sustainability and sustainable development of NES for NNWS cases.
 - Publish as an NE Series document.
- **OR, INPRO should:** devise an addendum for the Infrastructure Manual to add CR(s) on non-proliferation – The INPRO SCM favoured the revision approach
- **CS on revision scheduled for 28-31 May 2019 in Vienna.**



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Thank you!



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