

IAEA Role in Supporting Member States in Strategic Planning for Sustainable Nuclear Energy

International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO)

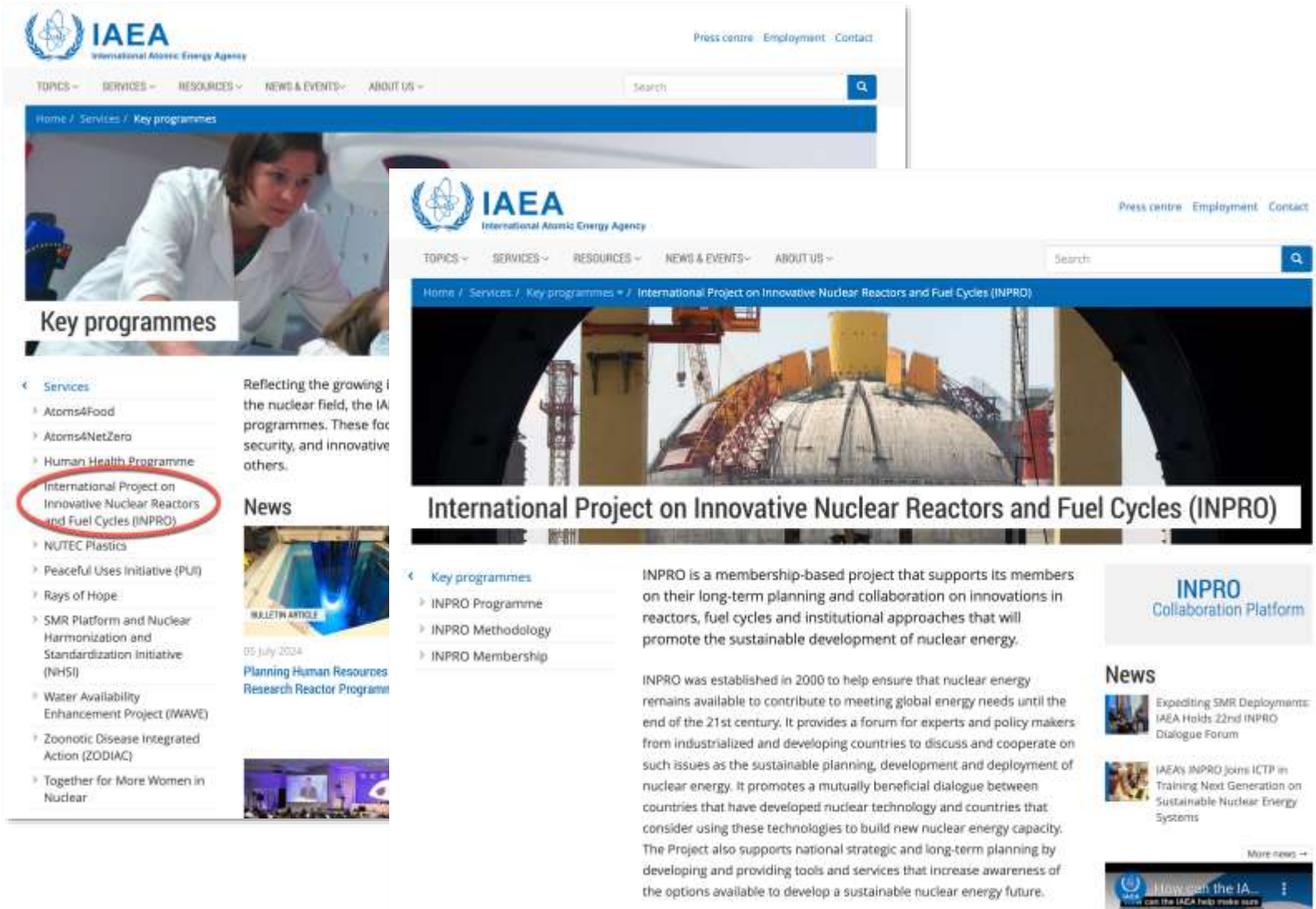
Frederik Reitsma, Section Head, IAEA

26th INPRO Dialogue Forum on the Deployment of Nuclear Energy Systems for Applications Beyond Electricity

24–28 August 2026, Bangkok, Thailand



International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO)



The image displays two screenshots of the International Atomic Energy Agency (IAEA) website. The left screenshot shows the 'Key programmes' section, where the 'International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO)' is highlighted with a red circle. The right screenshot shows the INPRO project page, featuring a large image of a nuclear reactor dome and text describing the project's mission and membership.

IAEA
International Atomic Energy Agency

Press centre Employment Contact

TOPICS SERVICES RESOURCES NEWS & EVENTS ABOUT US

Home / Services / Key programmes

Key programmes

- Services
- Atoms4Food
- Atoms4NetZero
- Human Health Programme
- International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO)**
- NUTEK Plastics
- Peaceful Uses Initiative (PUI)
- Rays of Hope
- SMR Platform and Nuclear Harmonization and Standardization Initiative (NHSI)
- Water Availability Enhancement Project (WAVE)
- Zoonotic Disease Integrated Action (ZODIAC)
- Together for More Women in Nuclear

Reflecting the growing interest in the nuclear field, the IAEA programmes. These focus on security, and innovative others.

News

05 July 2024
Planning Human Resources Research Reactor Programme

International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO)

Key programmes

- INPRO Programme
- INPRO Methodology
- INPRO Membership

INPRO is a membership-based project that supports its members on their long-term planning and collaboration on innovations in reactors, fuel cycles and institutional approaches that will promote the sustainable development of nuclear energy.

INPRO was established in 2000 to help ensure that nuclear energy remains available to contribute to meeting global energy needs until the end of the 21st century. It provides a forum for experts and policy makers from industrialized and developing countries to discuss and cooperate on such issues as the sustainable planning, development and deployment of nuclear energy. It promotes a mutually beneficial dialogue between countries that have developed nuclear technology and countries that consider using these technologies to build new nuclear energy capacity. The Project also supports national strategic and long-term planning by developing and providing tools and services that increase awareness of the options available to develop a sustainable nuclear energy future.

INPRO
Collaboration Platform

News

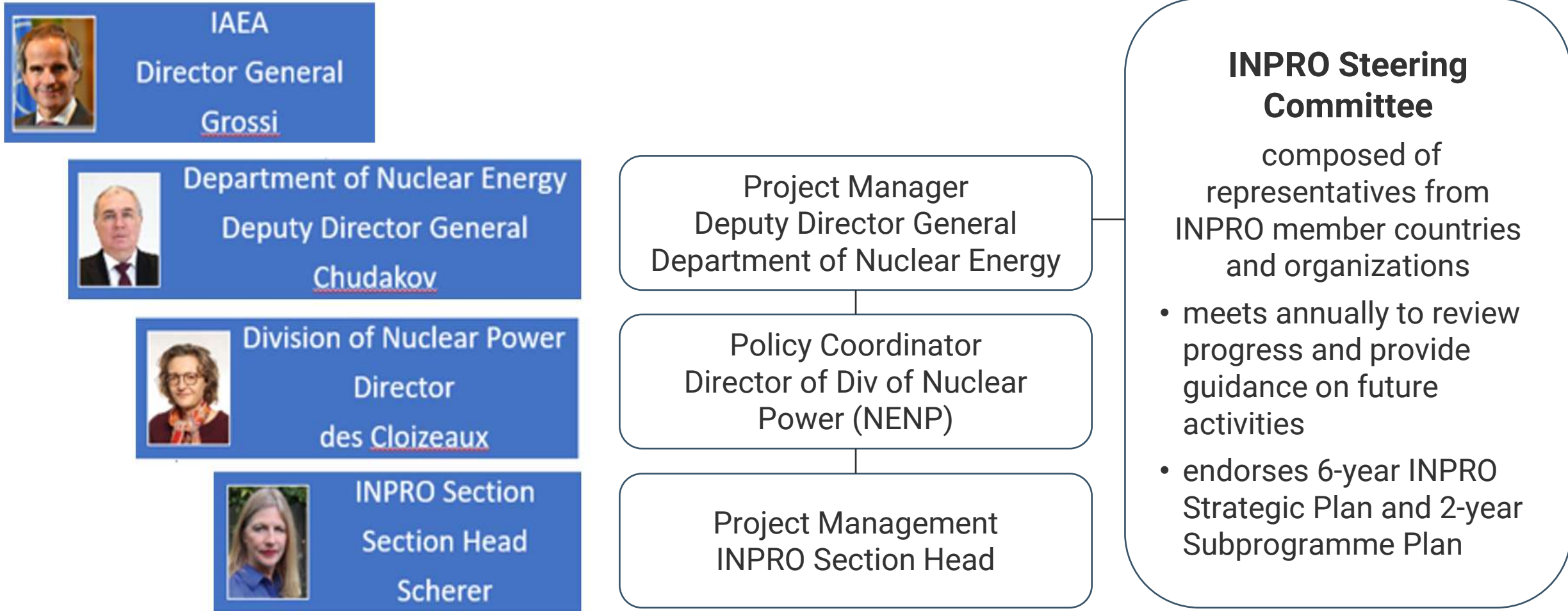
- Expediting SMR Deployments: IAEA Holds 22nd INPRO Dialogue Forum
- IAEA's INPRO joins ICTP in Training Next Generation on Sustainable Nuclear Energy Systems

More news →



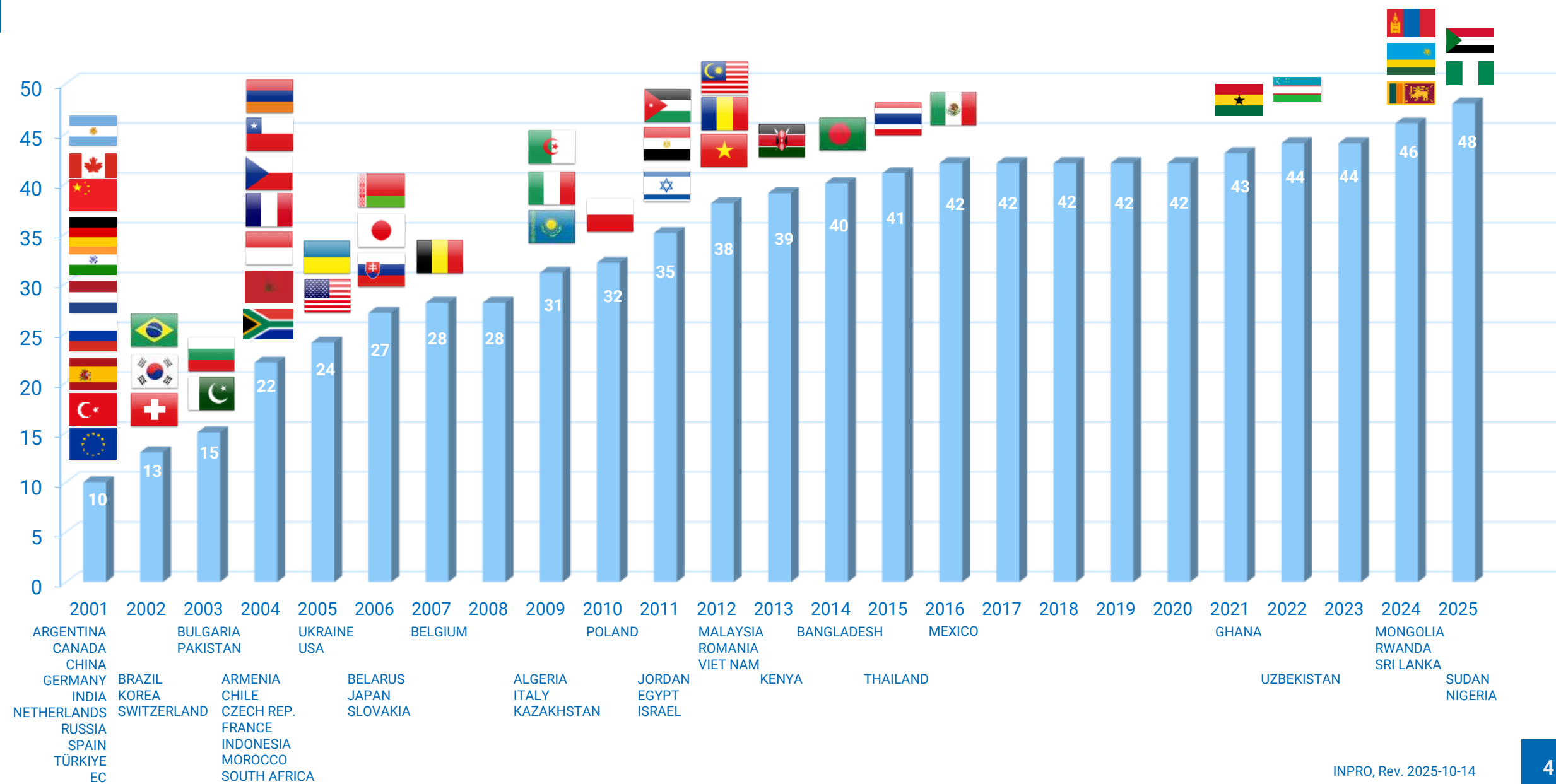
www.iaea.org/inpro

INPRO Project and INPRO Section in IAEA Structure



INPRO is funded primarily by extra-budgetary contributions of its members

49 INPRO Members 2025: 48 Member States + EC



INPRO Membership

IAEA Member States and recognized international organizations can join INPRO and benefit from:

- International cooperation facilitated by INPRO
- INPRO tools, models, publications and expertise
- Participation in the INPRO Dialogue Forums and in collaborative projects
- Results and findings of INPRO studies
- Planning of activities and bringing national expertise to the Project through their representative in the INPRO Steering Committee

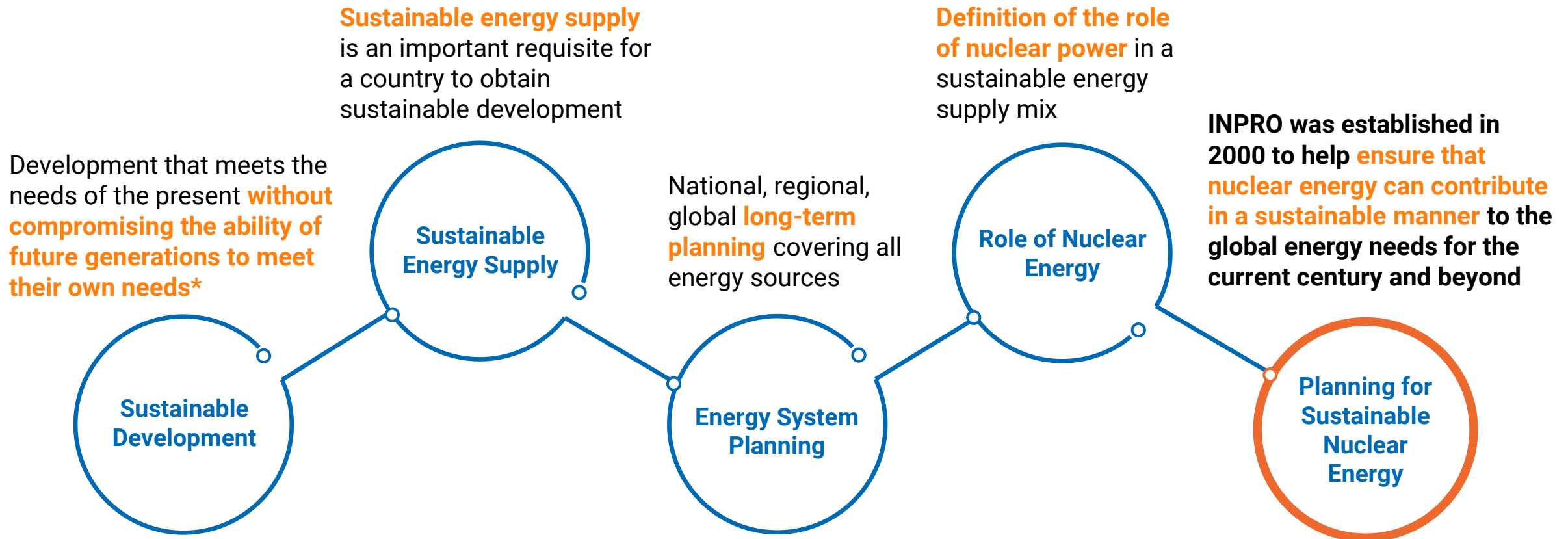
Participation modes and ways to contribute to the Project:

- Providing extra-budgetary funds
- Providing cost-free experts to work with the INPRO Section at the IAEA
- Performing agreed nuclear energy system assessment studies using the INPRO methodology
- Participating in INPRO collaborative projects

INPRO Mission and Vision

IAEA Statute, ARTICLE II: Objectives

The Agency shall seek to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world



* Our Common Future: Report of the UN World Commission on Environment and Development (Brundtland Commission), 1987

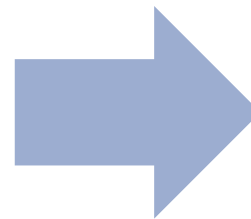
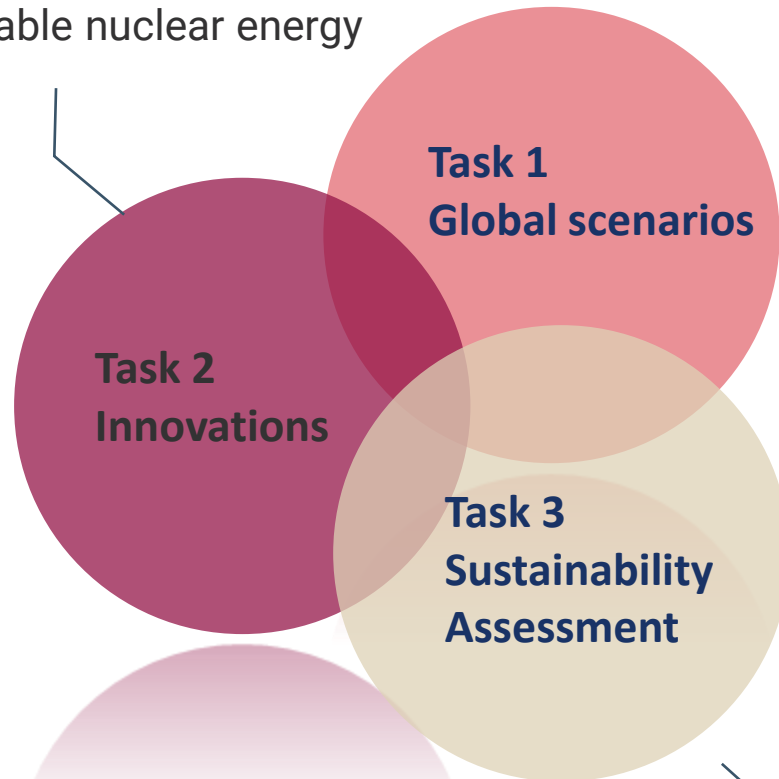
Organization of INPRO Activities

Investigate innovative nuclear energy technologies and institutional arrangements that support sustainable nuclear energy

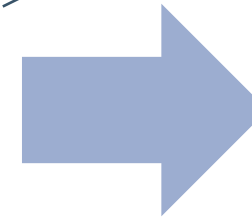
Develop national and regional nuclear energy scenarios that leads to a global vision of sustainable nuclear energy

To bring together nuclear technology users and technology holders and facilitate discussion among them

Outreach and training activities in support of INRPO services



**Task 4
Dialogue,
Outreach, and
Capacity Building**

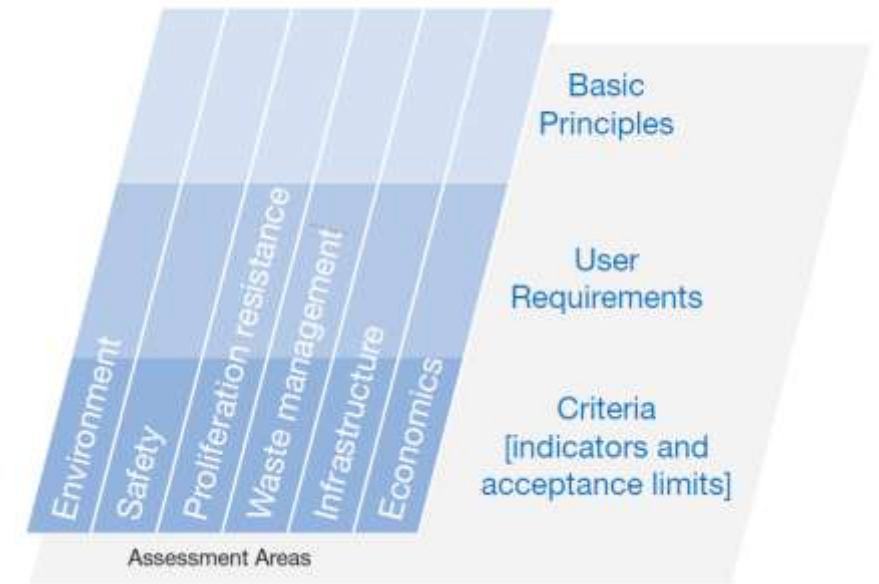


IAEA Member States

Support Member States in nuclear energy system sustainability assessments using INPRO Methodology

INPRO Methodology

- Holistic approach to evaluate long-term sustainability of nuclear energy systems
- The INPRO methodology reflects the four dimensions of the UN concept of sustainability: **environmental, social, economic** and **institutional** through six assessment areas for nuclear energy systems:
 - **environment,**
 - **waste management,**
 - **economics,**
 - **safety,**
 - **proliferation resistance,** and
 - **infrastructure** (including physical protection)
- The methodology helps to identify the sustainability related gaps in the existing or planned nuclear energy system
- Contribution from 300+ IAEA and international experts
- 46 Nuclear Energy System Assessments (NESA) have been conducted by now

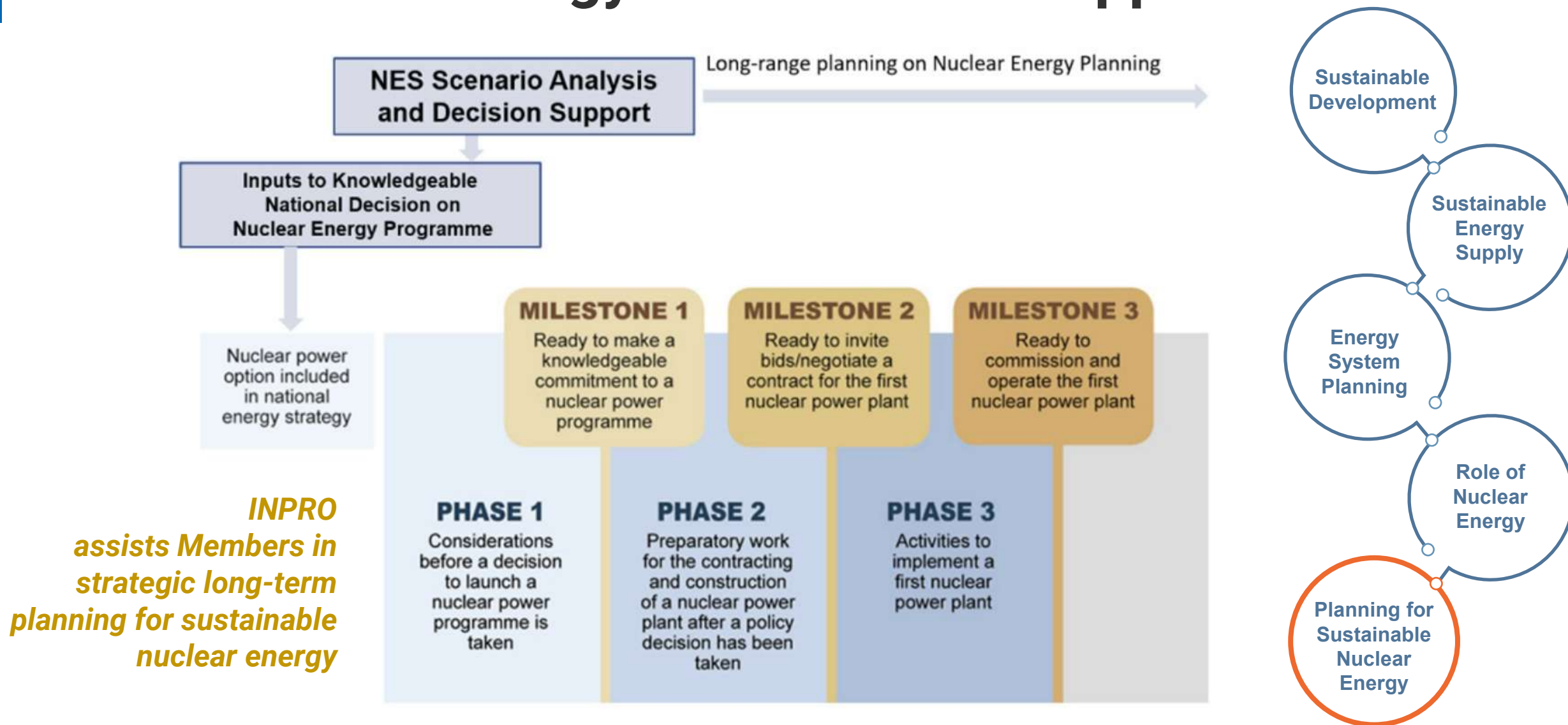


Examples of INPRO Collaborative Projects

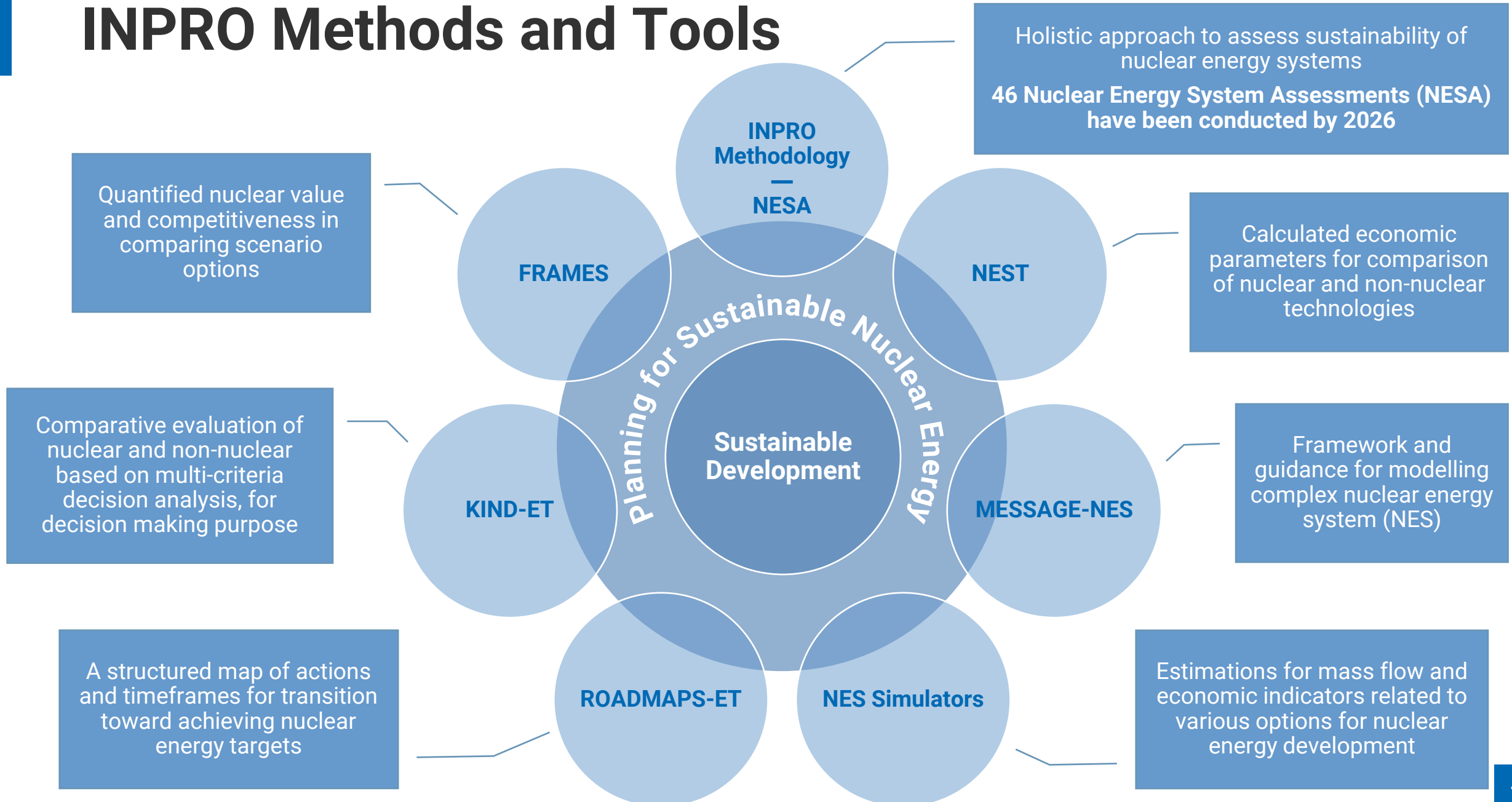
- **Sustainable deployment scenarios for SMRs**
- **Nuclear-hydrogen systems: drivers and institutional, economic and legal impediments**
- Legal and institutional issues of prospective deployment of fusion facilities
- Roadmaps for a transition to globally sustainable nuclear energy systems
- **Comparative evaluation of nuclear energy system options**
- Innovative nuclear installations to support multi-recycling of fuel
- Cooperative approaches to the back end of the nuclear fuel cycle
- **Repurposing or transitioning coal to nuclear plants**
- Developing competency in strategic planning for sustainable nuclear energy through educational programmes
- ...



INPRO Methodology and Milestone Approach

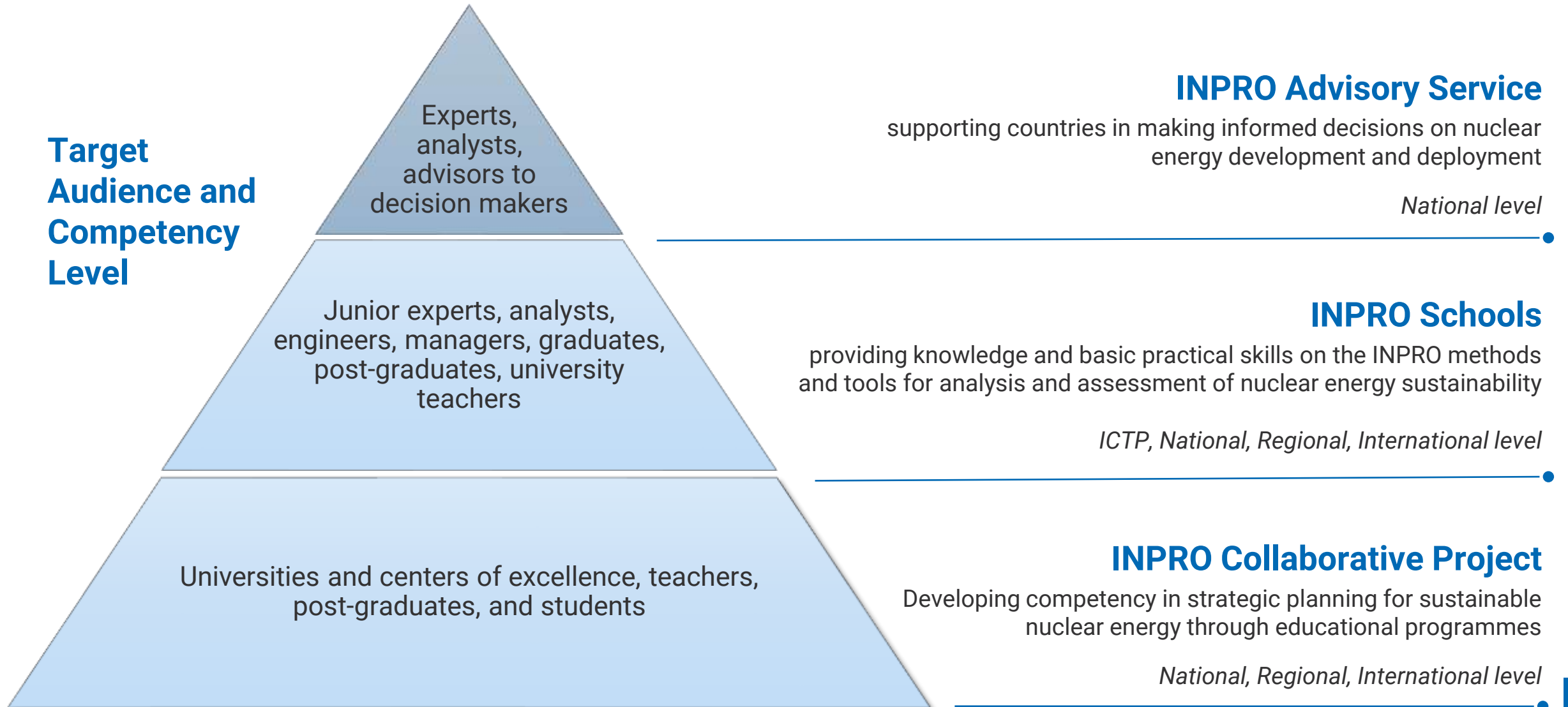


INPRO Methods and Tools



Building Capacity in Strategic Planning for Sustainable Nuclear Energy

Target Audience and Competency Level



The IAEA INPRO School

- Annually and jointly with ICTP in Trieste, Italy
- Regional INPRO schools organized at the requests of Member States
- About 400 people from over 50 Member States participated since 2021





The IAEA INPRO School
on Strategic Planning
for Sustainable
Nuclear Energy

CERTIFICATE COURSE

Many countries, faced with sharply rising energy costs and heightened security of supply concerns, are reconsidering nuclear power. They are realizing more and more that nuclear power has a proven ability to reduce greenhouse gas emissions, avoid air pollution, improve energy security and access, mitigate fuel price volatility and power sustainable development.

The IAEA works with young people, engaging a new generation of scientists so that they have the opportunities to work together to face these problems and to provide the necessary solutions.

Rafael Mariano Grossi
IAEA Director General

MAIN REASONS FOR ATTENDING THIS SCHOOL

- 1 The curriculum covers the most important topics related to strategic planning for sustainable nuclear energy.
- 2 Participants will gain knowledge and practical experience on modelling, analyzing and assessing the sustainability of nuclear energy systems.
- 3 The School offers a unique opportunity for capacity building and career growth by supporting interaction and networking with international nuclear energy experts and peers.

The International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO) was established in 2000 to ensure that nuclear energy is available to contribute, in a sustainable manner, to the growing energy needs of the current century and beyond.

INPRO is one of several key IAEA programmes. It is a forward-looking project that integrates all areas important to the sustainability of nuclear energy. INPRO's activities are centred on the key concepts of global nuclear energy sustainability and the development of long-range nuclear energy strategies. INPRO promotes technological and institutional innovations in the development and deployment of nuclear energy systems that are safe, secure, economically viable, and environmentally sustainable. INPRO supports Member States' capacity building through its educational and training programmes.



ACHIEVING A SUSTAINABLE FUTURE

Sustainable development aims to meet the needs of the present generation while ensuring that future generations would have the resources to meet their own needs. Achieving such a future is a complex process that involves balancing economic growth, social equity, and environmental protection in a way that benefits both the present and the future generations. The United Nations sustainable development goals (SDGs) encompass the spectrum of human life and set time-bound targets to achieve sustainable development.

Energy plays a critical role in sustainable development by enabling economic growth, improving social well-being, and reducing poverty. However, the way energy is produced, distributed, and consumed has significant impacts on the environment and climate. The present global energy system relies heavily on fossil fuels, which are not only finite but also cause substantial environmental damage. The use of fossil fuels is also the main source of greenhouse gas emissions (GHGs) causing climate change. A swift transition to reliable, affordable, clean and GHG-free energy systems is vital for achieving sustainable energy development. Nuclear energy is a reliable, clean and competitive source of energy that can support the realization of sustainable

development. Its use, however, requires a comprehensive evaluation of a wide range of issues covering technology, economics, safety, non-proliferation, and waste management. Strategic long-term planning is thus necessary to ensure that the nuclear energy system is fully aligned with sustainable development.

The IAEA's INPRO has developed a set of decision support tools for developing nuclear energy scenarios and conducting studies for formulating national strategies for sustainable nuclear energy systems. INPRO disseminates these tools and conducts specialized training in the IAEA INPRO School on Strategic Planning for Sustainable Nuclear Energy (the INPRO School), to help Member States build local expertise for strategic planning for sustainable nuclear energy development.

THE INPRO SCHOOL

The IAEA assists Member States in capacity building through various educational and training programmes, including long-term and strategic planning for sustainable nuclear energy. The INPRO School introduces the INPRO concept of nuclear energy sustainability and develop competencies for assessment and analysis of nuclear energy systems to support national decisions on the future use of nuclear energy.

The IAEA INPRO School



- Took place over the last two weeks in Trieste
- Next school scheduled for 28 June – 9 July 2027
- [Joint ICTP-IAEA INPRO School on Strategic Planning for Sustainable Nuclear Energy I \(smr 4367\) \(28 June 2027 - 9 July 2027\)](#)

Joint ICTP-IAEA INPRO School on Strategic Planning for Sustainable Nuclear Energy

DESCRIPTION:

Focused on strategic planning for sustainable nuclear energy, the INPRO School brings together IAEA and international experts to share practical insights and experience, equipping participants with core concepts, methodologies, and tools for modelling, analysis, and sustainability assessment of nuclear energy systems.

MORE INFORMATION:

The International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO) was established within the IAEA in 2000, with the goal to ensure that nuclear energy is available to contribute, in a sustainable manner, to the growing energy needs of the current century and beyond. INPRO is one of several key IAEA programmes. The IAEA has developed a set of decision support tools for developing nuclear energy scenarios and conducting studies for formulating national strategies for sustainable nuclear energy systems. The INPRO School aims to disseminate these tools and to develop and strengthen the competencies needed for long-term strategic planning of sustainable nuclear energy systems at the national, regional, and global levels. This objective is accomplished by providing knowledge and basic practical experience on the INPRO analytical approaches, methods and tools for assessment and analysis of nuclear energy systems.

The School programme focuses on topics related to the sustainability of nuclear energy systems.

TOPICS:

- Energy planning and strategies for sustainable development
- Planning for nuclear energy sustainability
- INPRO methodology for assessing sustainability of nuclear energy systems
- The role of innovations for sustainability of nuclear energy systems
- Methods and tools for modelling and analysis of nuclear energy systems
- Nuclear reactor technology assessment for near term deployment
- Evolutionary and innovative reactor designs, including SMRs

SPEAKERS:

M. B. Ben Ticha, IAEA
A. Bychkov, International Expert
Y. Chernyakhovskaya, International Expert
L. Jafar, International Expert
J. M. C. Johari, IAEA
M. Khorosheva, Nuclear Expert
I. L. Pioro, University of Ontario
C. Scherer, IAEA

Co-sponsor:



10 - 21 August 2026



Trieste, Italy



Deadline:
1 May 2026

DIRECTOR:

M. Gladyshev, IAEA, Austria
F. Reitsma, IAEA, Austria

LOCAL ORGANIZER:

R. Kaiser, ICTP, Italy

FURTHER INFORMATION:

E-mail: smr4231@ictp.it

Web: <https://indico.ictp.it/event/11157/>

Female scientists are encouraged to apply.

GRANTS:

A limited number of grants are available to support the attendance of selected participants, with priority given to participants from developing countries. There is no registration fee.



INPRO Dialogue Forums

- To bring together nuclear technology users and technology holders from all IAEA interested Member States and facilitate discussion among them
- To consider jointly the actions required to achieve desired innovations in nuclear reactors and fuel cycles
- Through these events, technology holders can better understand the needs and concerns of technology users and technology users can better understand the possibilities and limitations of technologies and services
- Twenty-five INPRO Dialogue Forums have been held since 2010
- **26th INPRO Dialogue Forum on Deployment of Nuclear Energy Systems for Applications Beyond Electricity**
24-28 August 2026, Bangkok, Thailand



Webpage for the 26th INPRO Dialogue Forum

IAEA.org NUCLEUS

IAEA INPRO Collaboration Platform

Home Collaborative Projects Dialogue Forum

26th Dialogue Forum, 2026

Past Dialogue Forums

- 25th Dialogue Forum, 2025
- 24th Dialogue Forum, 2025
- 23rd Dialogue Forum, 2024
- 22nd Dialogue Forum, 2024
- 21st Dialogue Forum, 2023
- 20th Dialogue Forum, 2023
- 19th Dialogue Forum, 2021
- 18th Dialogue Forum, 2021
- 17th Dialogue Forum, 2019
- 16th Dialogue Forum, 2018
- 15th Dialogue Forum, 2018
- 14th Dialogue Forum, 2017
- 13th Dialogue Forum, 2016
- 12th Dialogue Forum, 2016
- 11th Dialogue Forum, 2015
- 10th Dialogue Forum, 2015
- 9th Dialogue Forum, 2014
- 8th Dialogue Forum, 2014
- 7th Dialogue Forum, 2013
- 6th Dialogue Forum, 2013
- 5th Dialogue Forum, 2012
- 4th Dialogue Forum, 2012
- 3rd Dialogue Forum, 2011
- 2nd Dialogue Forum, 2010
- 1st Dialogue Forum, 2010

26th INPRO Dialogue Forum on the Deployment of Nuclear Energy Systems for Applications Beyond Electricity ©

24–28 August 2026 | Bangkok, Thailand

The INPRO Dialogue Forums offer a platform for technology holders, technology users and other stakeholders to share information, perspectives and knowledge on issues related to sustainable nuclear energy development. The Dialogue Forums focus not only on technology, but also institutional aspects, such as market resources, effects of regulation, public acceptance, and contribution to sustainable development.



Among the areas of growing interest are industrial applications that require reliable, high-temperature heat. Nuclear energy is being examined as a potential source of process heat for sectors such as steelmaking, oil refining, chemical production, and hydrogen generation. Advanced reactor designs, including Generation IV systems, offer capabilities well suited to such requirements. These developments open new opportunities for nuclear cogeneration—the combined production of both electricity and process heat—while also introducing technical, regulatory, and organizational challenges that call for coordination among a wider range of stakeholders, including industrial users, energy suppliers, regulators, technology developers, and investors.

Previous INPRO Dialogue Forums have highlighted the importance of innovation and collaboration in expanding the role of nuclear energy beyond electricity generation. Building on these discussions, the 26th INPRO Dialogue Forum will focus on nuclear energy innovations for industrial applications. The Forum will include keynote addresses, technical presentations, and interactive discussions with participants from Member States and international organizations, with the aim of advancing practical understanding and informed decision-making.



<https://nucleus.iaea.org/sites/INPRO/Pages/df-26.aspx>



Thank you!

inpro.contact-point@iaea.org