Nuclear newcomers tackle spent nuclear fuel and radioactive waste management

By Shant Krikorian

Growing demand for large-scale, low carbon electricity has prompted many countries to consider nuclear power to meet their growing energy needs. With nine nuclear reactors under construction in four countries that are introducing nuclear power for the first time, demonstrating adherence to the international legal instruments, safety standards, security and nuclear energy guidelines and safeguards requirements is an important aspect of preparing for a nuclear energy programme. This also includes the management and disposal of spent fuel and radioactive waste.

For newcomer countries like Bangladesh, Belarus, Turkey and the United Arab Emirates, the issue of spent fuel and radioactive waste management should be addressed from the very beginning of a nuclear power programme and should not be neglected, since it influences both the economics and public acceptance of nuclear power, said Mikhail Chudakov, IAEA Deputy Director General and Head of the Department of Nuclear Energy.

The IAEA supports its Member States in establishing policies on spent nuclear fuel. This assistance is integrated into the IAEA's overall support for newcomer countries in the form of guidelines, Integrated Nuclear Infrastructure Review (INIR) missions, and regional, national and international workshops on issues related to infrastructure development.

IAEA Director General Yukiya Amano has repeatedly called for newcomer countries to join and ratify the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management. The principles of the Convention should be part of the national nuclear infrastructure throughout the development of a nuclear programme, he has said.

INIR missions are important tools for assessing the status of national nuclear infrastructure and provide recommendations and guidance for safe, secure and responsible development of nuclear power programmes.

"From the construction of a nuclear power plant to the final disposal of all the waste it produces can take well over several decades. That is why it is important that a credible strategy and technical plans, as well as methods for their financing, exist from the outset for carrying out all future actions in a manner that ensures safety, security and the necessary resources and competences at all times," underlined Milko Kovachev, Head of the Nuclear Infrastructure Development Section at the IAEA.

The key waste-related message given to newcomers is as follows: radioactive waste needs to be managed in such a way as to avoid imposing an undue burden on future generations.

For spent fuel management, the IAEA advises nuclear newcomers to:

- Ensure that spent fuel and radioactive waste management infrastructure is fully developed when implementing nuclear power programmes. This infrastructure is best built through the formulation of a national spent fuel and radioactive waste policy and related strategies.
- Take into account that the development and implementation of a national policy requires a systematic, staggered approach lasting several decades.
- Establish the waste management infrastructure in the early stages of planning nuclear power programmes.