



KAILASH AGARWAL

- A bachelor's degree in mechanical engineering from Birla Institute of Technology, Ranchi and Postgraduate in Nuclear Science and Engineering from 25th batch of BARC Training School, India.
- Worked for 38 years at Bhabha Atomic Research Centre (BARC), India in various capacities in the field of spent fuel Management including spent fuel storage, fuel reprocessing and waste management.
- A number of FP partitioning and Minor Actinides separation technologies were developed under his leadership to recover resourceful radio-nuclides from high level waste some of them are being used for societal purposes.
- Recipient of prestigious Dr Homi Bhabha Science and Technology Award 2016, DAE Technical Excellence Award from Government of India
- Retired as Distinguished Scientist and Director, Nuclear Recycle Group at BARC
- Carried out additional responsibilities for Atomic Energy Regulatory Board as Vice Chairman of COSTRAM (Committee for Transport of Radioactive Material), Chairman of various Safety committees of BARC Safety Council and Member of MoEF (Ministry of Environment & Forest) Committee for Nuclear and Defence projects.
- Authored and co-authored more than 30 publications (National/International)
- Patent (US) holder on Uranium separation from ground water
- Worked as Nuclear Fuel Cycle Facilities Specialist at International Atomic Energy Agency (IAEA) from 2019 to 2024 and carried out Development of Nuclear Fuel Cycle Simulation code for UOX, MOX and Thorium Fuel Cycles, Authored a number of IAEA technical documents (TECDOCS), Management of Fuel Cycle Facilities Databases and development of e- learning material for Fuel Cycle Facilities at IAEA.

Nuclear Energy for India

The nuclear industry worldwide has been seeing a quantum jump in interest for increasing the electricity generating capacity multifold in recent time. It has found a renewed space to act as a catalytic for meeting the carbon emission targets by 2050 as declared at COP26-27 meets. The world community is already eying tripling nuclear power by 2050 through various means. The European Union and some of the advance countries have embarked on new NPP builds generally called Small & Modular Reactors(SMRs)/Advanced Reactors (ARs) along with life extension (LTO)of existing units from 40 to 60 years and in some places upto 80 years. Some of them have planned for use of MOX fuel in their PWRS or use of LEU fuel to save on Natural Uranium and sustain the nuclear power for longer periods. Recently there have been advances in Nuclear fuel like Accident Tolerant Fuel (ATF) to meet accident conditions of operation after the Fukushima accident.

India has also taken very important steps of passing the SHANTI bill in 2025 in both houses of parliament to amend the Atomic Energy Act 1962 to allow private entity participation in production of nuclear energy and other peaceful applications of nuclear energy. The bill also defines the liability of equipment suppliers for nuclear industry. The Govt of India has announced in it's 2025-26 budget on expansion of nuclear energy to 100 GWe by 2047 which will be partly achieved by setting up home grown PHWR technology and also from imported PWR/SM technologies.

The Nuclear Fuel Cycle facilities too, both at front end and back end would require expanding to cater to nuclear power expansion at a similar pace in addition to advancements to meet these changing NPP requirements both as part of supply chain, and regulatory conditions. These include advances in Nuclear fuel design, fuel manufacturing, New fuel materials, New strategies for spent fuel management , advanced nuclear fuel cycles and high level waste disposal technologies.

There are ample opportunities for Design and analysis consultants, industry, training , insurance and finance professionals to play an active role in building up this mammoth and ambitious target for the country in the next decade.

