Industry

BARC's Nuclear

By Technology Transfer & Collaboration Division and SIRD Newsletter Editorial Team

Technology Transfers

Twenty-two nuclear spin-off technologies have been transferred to 29 pan-India companies by BARC through inking of 37 technology transfer agreements by the Centre's Technology Transfer and Collaboration Division during the last quarter of the calendar year 2025. A brief update on these technologies spanning Metals and Metallurgical processes, Farming, Water Purification, Waste Management, Food Processing, Nutrition is presented below.

The technologies transferred to the industry include 10 kW, 15 kV Electron Beam Melting (EBM) Machine Technology; Air Plasma Incinerator; Hybrid Granular SBR For Wastewater treatment; Arsenic Removal from Drinking Water by physio-chemical process; Membrane Assisted Defluoridation Process for Safe Drinking Water; Fluoride Remediation from Water; Soil Organic Carbon Detection & Testing Kit (SOCDK); NISARGRUNA Biogas Plant for Processing Biodegradable Waste; rapid composting technology for decomposition of dry leaves, kitchen waste and temple waste; Superabsorbent BARC-Hydrogel; VOC-Free Radiation Indicator for Gamma Radiation Processing Plant for Medical Sterilization; Microfine Neem Biopesticide; Micropropogation of Banana; BLDC Motor Based 5HP Solar Water Pump to mention but a few. Detailed description alongside procedure for acquiring the licenses to BARC technologies being offered to the industry is listed on the dedicated webpage https://barc.gov.in/technologies/

New Technologies

BARC streamlines new technologies in the public domain for the benefit of the industry. During the review period, ten technologies with immediate applications in sectors including farming, advanced technology, metals and metallurgy, QA, health and nutrition were introduced.. These technologies alongside their Codenames is summarised here.

Compact Laser based OSL Reader (RT25RPAD). USB-powered TeleECG Machine (MD32ED). Portable Raman Spectroscopy System for Oral Cancer Detection (MD33DRHR). An indigenous, standalone solid-state RF power amplifier (SSRFPA) system (13.56 MHz, 200W) along with impedance matching network (AI41APCS). Technology for preparation of anti-oxidation coating on TZM alloy shapes by pack siliconizing (CH49MPD). Nutri- Shakti: Innovative Plant-Based Protein technology (AB64FTD). Trombay-Actino C3: Formulation for plant defence and growth in vegetable crops (AB65NABTD). Copper Electrode 100kW Hollow Cathode Thermal Air Plasma Torch (EG49L&PTD). Proportional counter for soft X ray/gamma ray energy Spectroscopy (RT26SSPD). Production of O-18 enriched water (H218O) of isotopic purity above 96% 18O using vacuum distillation of water.

Renewal of Technology Licenses

BARC shares the know-how of its technologies to the industry.

Inking of an MoU between AIC Anushakti and HBNI to formalize broader collaboration.

Licenses to these technologies are renewed continuously on the basis of demand and merit considerations. During the review period licenses Handheld 12 Channel Tele-ECG Instrument Technology renewed (1st Renewal) - DNA Microrrayer System - Production of $CaSO_4$: Dy embedded Teflon Discs and TLD Cards - Production Of Dysprosium Doped Calcium Sulphate Thermoluminescence Dosimetry Phosphor Powder were renewed.

Public Awareness in BARC Technologies

The Technology Transfer and Collaboration Division in coordination with various scientific R&D, engineering and technology development teams in BARC organises public awareness programs for the benefit of industry, young entrepreneurs and general public. At a related event held on 14th November 2025 at Training School guest house in Anushakti Nagar, Mumbai , around 40 industry delegates and mentors from various divisions of BARC participated. The event encompassed lectures on various BARC technologies, knowledge management programmes and incubation programmes, among others. A licensee feedback session was also organized. Members of BARC Trombay Council and TSC participated in the event.

AIC ANUSHAKTI Activities

The AIC BARC Anushakti Foundation, a deep-tech incubation centre, established here and supported by Atal Innovation Mission (AIM), continued to strengthen its initiatives toward fostering technology translation, innovation-driven entrepreneurship, and industry engagement. Some of the important activities it conducted during the review period included:

MoU with Homi Bhabha National Institute (HBNI) to formalize collaboration in areas such as Entrepreneurship development, Technology translation and Student training and innovation programs. The MoU was signed by Dr. A.K. Tyagi, Dean, HBNI, and Mr. Martin Mascarenhas, Director, Beam Technology Development Group, BARC & Chairman & Director Board of Directors, AIC Anushakti.

An outreach and awareness session at the Haffkine Institute, Mumbai, engaged postgraduate students, researchers, and faculty members

beckons

Spin-off Technologies

interested in scientific innovation and translational research. The session introduced participants to Deep-tech startup pathways, Opportunities for commercializing laboratory research and Support mechanisms available through AIC Anushakti.

The team, in collaboration with HBNI, delivered a dedicated session titled "Funding Pathways for Scientific Innovators & Entrepreneurs" for JRFs, research scholars and students. The session, led by Mr. Aadesh Suryarao, CEO of AIC Anushakti, provided an in-depth overview of Govt. of India-funded grant schemes (through DST, DBT, BIRAC, SERB, AIM).

Participated in the India Food Forum 2025, India Food Forum 2025, considered India's premier platform for food processing, retail and the FMCG ecosystem. The AIC Anushakti team leveraged the platform to interact with multiple stakeholders - MSMEs, technology providers, and retail chains to assess industry interest in BARC's irradiation-based food preservation technologies and value-added food products developed by BARC scientists, and opportunities for market deployment through startup-led interventions, among others.

At the Medicall 2025 exhibit at NESCO, Goregaon, Mumbai, during 12–14 December 2025, various medical technologies of BARC were demonstrated to the public. Technologies like DEAP: A Device to Ease Apnea Problem, DNA Microrrayer System, Extra-Cellular Acidity Analyzer (ECAA), Spot Picker Robot for Proteomics, Deep Brain Stimulator (DBS), Multi-contaminant Exposure Respiratory Cartridge (MERC) for Face-Mask/Respirator, Portable Raman Spectroscopy System for Oral Cancer Detection were demonstrated.

Outreach programmes covered students of St. Francis Institute of Technology, Thakur College of Engineering, and Thadomal Shahani Engineering College at their respective campuses.

AKRUTI

AKRUTI Kendras engage in display, dissemination, demonstration and training on rural-oriented technologies with a focus on promoting rural entrepreneurship and sustainable development through BARC technologies. In October, an agreement was signed with Gangadhar Meher University, Sambalpur, Odisha to establish India's 12th AKRUTI Kendra.

Inking of an agreement with Gangadhar Meher University at Sambalpur, Odisha for the establishment of a new AKRUTI Kendra. October 13, 2025.

AIC Anushakti conducted an outreach and awareness session at the Haffkine Institute campus in Mumbai.

Notable Developments at AKRUTI

AKRUTI Kendra Tarapur launched a sales outlet at Boisar to market food products made using BARC technologies; organised a technology exhibition for AECS-2 school students at BARC Colony, Tarapur; and conducted hands-on training, demonstrations and field visits on low-cost societal technologies for Jai Hind College (TYBSc Physics Biotechnology) with hands-on, demo and field visits on low-cost societal technologies.

Additionally, familiarisation visits were hosted for MG University, Kottayam (14 October); Karmayogi Institute of Technology (16 October); Jai Hind College AKRUTI Kendra, Mumbai; and Dandekar College, Palghar (7 November).

The AKRUTI Kendra – MGU, Kottayam, conducted a development programme on food and agriculture, with demonstrations by the AKRUTI group leader and the BARC Division (DMTD) during 10–14 September; participants included entrepreneurs, SHGs, rural representatives and members.

AKRUTI Kendra – Jai Hind College (JHC), Mumbai, organised an educational visit (six faculty, seventeen BSc and two PhD students) on 17 October. The visit aimed to provide academic exposure to technology implementation.

Five faculty members from AKRUTI Kendra–GITAM attended familiarisation and training on up to 20 BARC technologies at BARC Tarapur to study their functioning and impact on development.

Tech Transfers from AKRUTI

Two technology transfer agreements via AKRUTI were signed: one with M/s. Pure N Care Agro Pvt. Ltd., Palghar, for a self-stable, preservative-free natural multigrain premix, and the second with another company for a similar product.