



Industry

BARC's Nuclear

By Technology Transfer & Collaboration Division and SIRD Newsletter Editorial Team

BARC regularly transfers spinoff technologies from nuclear energy research to industry for commercialization. They provide comprehensive support to licensees through technology training, field demonstrations, consultancy, and detailed documentation (including procedures, flowcharts, diagrams, troubleshooting guides, and lists of raw materials, equipment, and suppliers). Between January and February 2025, Technology Transfer & Collaboration Development (TT&CD) continued its efforts to commercialize BARC technologies. A technology transfer ceremony was organized on February 7, 2025, at the HRDD complex in Anushakti Nagar, BARC. A brief summary of the proceedings of the ceremony is presented here.

Technology Transfers

A technology transfer agreement was signed with M/s Relegare Agro Life Bioscience Pvt. Ltd., Sangamner, Maharashtra for the know-how transfer of a process for developing zinc fertilizer formulation from biosludge. Unlike chemically synthesized zinc fertilizers that have limitations in availability and are effective only at certain levels, zinc fertilizer derived from biosludge offers slow-release properties and increases crop yield at half the recommended dose. The process converts post-biomethanation distillery sludge, a waste material for distilleries, into high-efficiency zinc fertilizer for soil application. This improved fertilizer enhances zinc availability to plants while improving crop yield and soil conditions.

Another agreement was signed with M/s Kavitul Life Science Pvt. Ltd., Vadodara for the know-how transfer of shelf-stable oil-free potato chips in different flavors. With potato chips being a

fast-moving snack item globally with high growth potential, and increasing health consciousness among consumers, there is growing interest in tasty potato chips that don't use oil in preparation. The developed process creates oil-free potato chips/wafers in six different flavors with reduced sugar and starch content. This unique process utilizes induction heating, microwave, and hot air oven baking techniques, followed by appropriate packaging.

Agreements for the know-how transfer

- A rapid composting technology for decomposition of dry leaves, kitchen waste, and temple waste (transferred to M/s Kavitul Life Science Pvt. Ltd., Vadodara)
- Gluten-free multigrain premix (transferred to M/s Kavitul Life Science Pvt. Ltd., Vadodara)
- Composite metal membrane reactor for production/separation/recovery of high-purity hydrogen (transferred to M/s Dipesh Engineering Works, Mumbai)

Atal Incubation Centre - BARC

AIC BARC ANUSHAKTI FOUNDATION has been established to connect India's robust start-up ecosystem to the nuclear sector by setting up Technology Development cum Incubation Centers.

AIC-BARC signed a collaborative incubation agreement with M/s Ambetronics Engineers Pvt. Ltd., Mumbai for fabricating sensor electrodes for frying oil quality testing and dew point measurement applications. In alignment with the Government of India's Aatmanirbhar Bharat mission, Ambetronics Pvt. Ltd. aims to develop indigenous sensors with assistance from BARC's Chemistry division.



Officials of Food Technology Division and TT&CD in BARC exchanged the technology transfer agreement with Kavitul Life Science Pvt. Ltd. of Vadodara during the tech transfer ceremony organized on February 7, 2025.

beckons



Spin-off Technologies



BARC and PAN Science India signed an institutional collaboration agreement aimed at building and scaling up cutting-edge deep-tech and AI startups by leveraging industry expertise.

AIC-BARC extended its collaborative incubation agreement with Dipesh Engineering Works Pvt. Ltd., Mumbai for the Iodine Sulphur Thermochemical Process Plant for Hydrogen Production by Splitting Water. The original agreement was signed last year under the mentorship of the Chemical Technology Division. Following successful design and detailed engineering work, the one-year extension agreement was finalized.

AIC-BARC also signed institutional collaboration agreements with Hotel and Resort Association of Western India, M/s PanScience Innovations (PSI), and Foundation for Innovation and Social Entrepreneurship (FISE). As part of Atal Incubation Mission's community engagement program, AIC-BARC approached the Hotel and Resort Association of Western India (HRAWI) to implement BARC's solid wet and dry waste management technologies at their members' premises, with no financial implications for AIC-BARC.

The agreement with PanScience Innovations aims to build and scale cutting-edge deep-tech and AI startups with passionate entrepreneurs by leveraging deep industry expertise. Through hands-on operator support, strategic mentorship, and robust industry partnerships, PSI, working alongside BARC experts, will transform groundbreaking ideas into scalable, market-leading companies that solve real-world problems. PSI and BARC will host final pitching sessions with industry leaders, experts, and a BARC jury to evaluate startups.

Foundation for Innovation and Social Entrepreneurship (FISE), also known as Social Alpha, is a technology business incubator approved by the Department of Science and Technology, Government of India. This agreement aims to promote

technology-based innovation, incubation, and entrepreneurship development including research, training, consulting, and support for entrepreneurs, social enterprises, and startups with social impact. It will establish a center of excellence in social business, entrepreneurship, sustainability, and philanthropy with charitable objectives.

AKRUTI Program

AKRUTI Kendra – Tarapur participated in an entrepreneurship development awareness program to showcase DAE-BARC technologies in Boisar on January 12, 2025. A kite festival was organized to increase attendance, attracting approximately 2,000 visitors who responded positively to products manufactured by KRUTIK Kendra (Vengani, Karajgaon) members.

AKRUTI Kendra – Tarapur, in collaboration with Pasthan Kala Krida and Sanskritik Mandal, Boisar, jointly organized an awareness camp and Pasthan Mela in Boisar. The event featured products manufactured using BARC technologies, generating interest among rural entrepreneurs in obtaining licenses for BARC technologies. A training workshop on dried food packaging and marketing was conducted at Gnyanjyoti Community College, Karajgaon, and in Vengani villages near Boisar. During this period, two bio-compost units were installed at TAPS Colony.

AKRUTI KENDRA – BMI (Brahmdevdada Mane Institute of Technology) Solapur participated in Krushi Pradarshan organized by Shri Siddheswar Devastan Trust, Solapur, presenting BARC technologies to approximately 100,000 attendees. As a result, 80 farmers and entrepreneurs expressed interest in acquiring BARC technology licenses.



A workshop on 'Foldable Solar Dryer' and 'Bio-Composting' technologies was conducted on February 10, 2025, at Gnyanjyoti Community College, Karajgaon.