Office of the Principal Scientific Adviser
to the Government of India

1999-2024
Years of Impact through Science Advice

सत्यमेव जयते

SCIENCE AND TECHNOLOGY CLUSTERS

Annual Report

2024 - 2025

www.psa.gov.in

अजय के. सूद
भारत सरकार के प्रमुख वैज्ञानिक सलाहकार
Ajay K. Sood
Principal Scientific Adviser to the Govt. of India

सत्यमेव जयते

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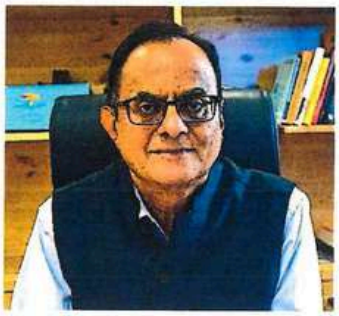

FOREWORD

India's scientific and technological progress is central to our vision for inclusive, resilient, and sustainable development. The Office of the Principal Scientific Adviser (PSA) to the Government of India has been instrumental in nurturing collaborative platforms that strengthen our national innovation ecosystem. Among these, the Science and Technology (S&T) Clusters stand out as powerful enablers of regional and thematic research-driven impact.

S&T Clusters focusses on building a shared ecosystem, addressing regional challenges, and enhancing national and global competitiveness. By facilitating collaboration among key stakeholders, including academia, industry, startups, and government, they drive multidisciplinary research, innovation, and socio-economic growth, supporting Atmanirbhar Bharat and acting as regional solution providers with the capacity to expand globally.

Launched in 2020, India's S&T Clusters began with five cities-Bhubaneswar, Delhi, Hyderabad, Jodhpur, and Pune, demonstrating the power of inter-institutional collaboration for research, innovation, and local problem-solving. Their success led to the addition of Clusters in Bangalore, Chandigarh, and Vizag, forming a network of eight. These Clusters foster collaboration among the stakeholders, driving research and innovation in key areas such as Healthtech, Sustainability, Energy, STEM Education, Industry 4.0, and Agritech to promote socio-economic growth through science and technology-based solutions.

Building on this strong foundation, the Clusters are now entering Phase 2.0, with an emphasis on scaling solutions, strengthening institutional linkages, and commercializing technologies. They are expanding their thematic scope to tackle climate resilience, clean energy transitions, and digital public infrastructure, aligned with India's goals for Viksit Bharat@2047.

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This report offers a comprehensive overview of the scientific and technical outcomes of the S&T Clusters in the year 2024–2025. It serves as a valuable resource for stakeholders across the innovation spectrum, highlighting achievements through success stories, identifying opportunities and areas of improvement, and guiding future collaboration.

As India progresses towards a knowledge-driven, innovation-led economy, S&T Clusters are poised to emerge as dynamic catalysts of transformative change and impactful societal advancement through enhanced public engagement and awareness. They will play a pivotal role in driving deep-tech innovation, technology commercialization, and multi-stakeholder collaborative research.

(Ajay K. Sood)

Dated: 10th June, 2025

सत्यमेव जयते

डॉ. (श्रीमती) परविन्दर मैनी
वैज्ञानिक सचिव

Dr. (Mrs) Parvinder Maini
Scientific Secretary

भारत सरकार के
प्रमुख वैज्ञानिक सलाहकार के कार्यालय
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Maulana Azad Road, New Delhi-110011

New Delhi,
Dated : 11th June, 2025

Message

Global challenges, such as climate change, food security, sustainable healthcare, and clean air & water, demand swift, technology-driven solutions. India's Science and Technology (S&T) Clusters, as theme-oriented regional innovation hubs, are advancing frontier domains such as advanced technology developments, clean energy, bio-manufacturing and improved public infrastructure. By fostering cross-sector collaboration and accelerating technology translation, these clusters are driving innovation. Aligned with national goals like Atmanirbhar Bharat and Viksit Bharat@2047, they are set to deliver S&T driven scalable, inclusive, and globally impactful solutions.

The S&T Clusters, a flagship initiative of Office of PSA, operate as demand-driven, collaborative ecosystems that unite academia, industry, startups, MSMEs, government bodies, and civil society to solve regional problems through S&T intervention. From enabling water conservation and pollution control to advancing genomic surveillance of diseases, health tech, and precision agriculture, the clusters are delivering transformative outcomes through technological innovation, public-private partnerships, and implementation frameworks.

The past year has seen the Clusters deliver several tangible outcomes: facilitation of EV charging infrastructure across Delhi/NCR, AR/VR-enabled artisan marketplace "Kalaanubhav.in", digital transit app "One Delhi" with more than 3 lakh users, and health-tech innovations supporting One Health. Other notable highlights include waterbody rejuvenation in Telangana, development of diabetic foot screening foot-mat in Bengaluru, and e-waste management and pacemaker lead development at AMTZ Vizag, showcasing scalable, high-impact solutions through collaborative efforts.

As the Clusters transition into Phase 2.0, with an enhanced emphasis on inter-cluster collaboration, technology commercialization, and strengthening global competitiveness, the S&T Clusters are set to serve as reliable pillars of India's scientific and technological progress. This Annual Report highlights the key achievements and progress achieved by these S&T Clusters in the past year. It also presents a forward-looking outlook on the evolution of the S&T Clusters, focusing on emerging technology domains, scaling of innovations, and delivering measurable, high-impact outcomes. We invite all stakeholders, including researchers, policymakers, industry leaders, and civil society, to actively engage with this initiative and help shape the future of Indian science and innovation.

(Parvinder Maini)

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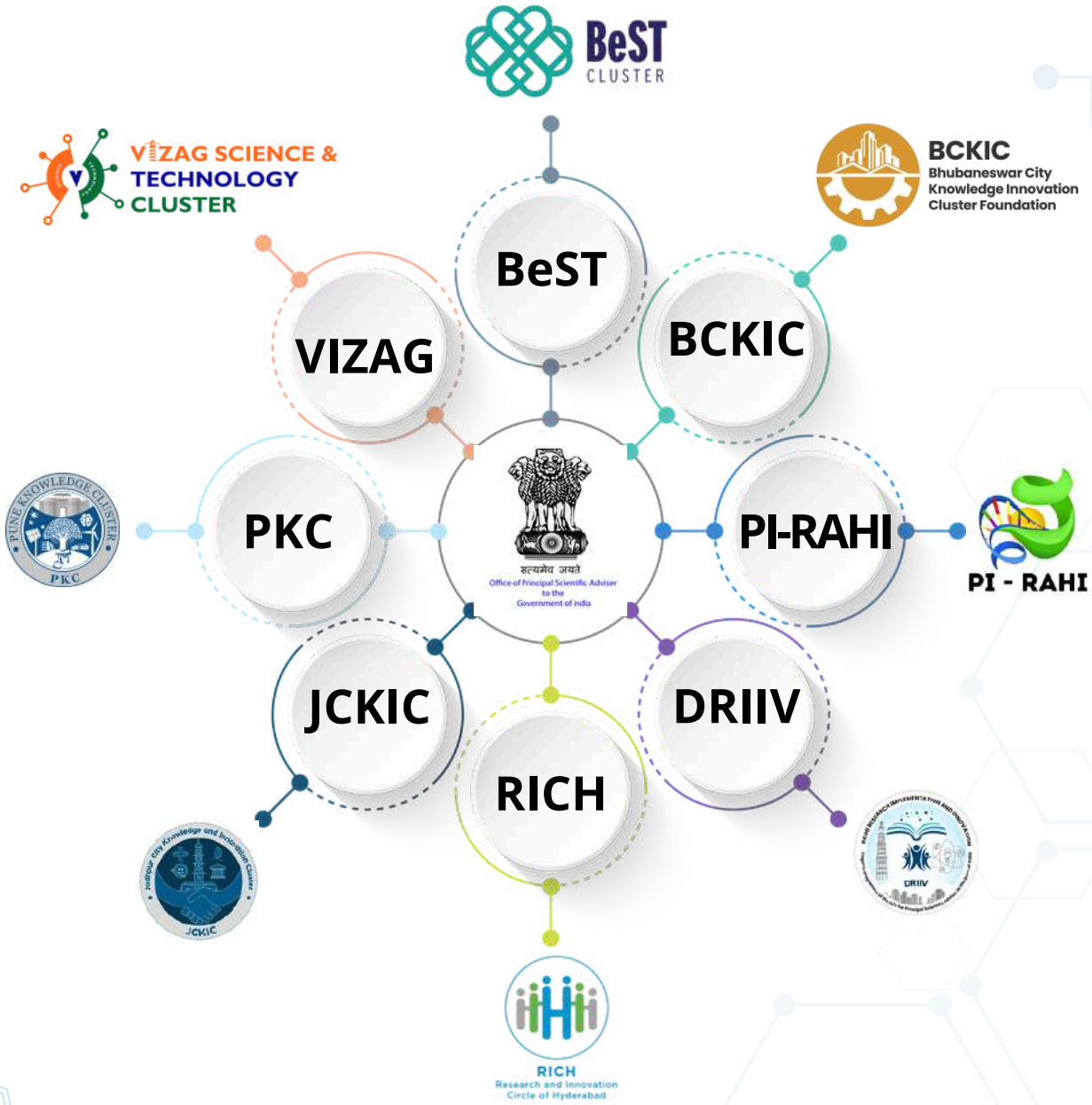
INTRODUCTION TO THE SCIENCE AND TECHNOLOGY CLUSTERS



1. Introduction to the S&T Clusters

A cluster refers to a group of similar entities brought together by shared purpose or proximity, which underpins the concept behind the development of Science & Technology (S&T) city Clusters. This initiative, a flagship program of the Office of the Principal Scientific Adviser (OPSA) to the Government of India, was launched in 2020, following recommendations from the Prime Minister's Science, Technology, and Innovation Advisory Council (PM-STIAC). These Clusters aim to bring together relevant stakeholders with aligned innovative ideas. The cities are chosen based on the presence of dynamic institutions and subject-matter experts, each demonstrating leadership and success in institutional or personal goals.

The S&T Clusters function through a consortium-based model aimed at addressing local challenges via collaborative, science-driven solutions. This initiative brings together academia, R&D institutions, industry and local governments to implement regional interventions using S&T tools. Acting as key platforms for collaborative research, the Clusters support both local and global problem-solving efforts while contributing to the broader goal of "Atmanirbhar Bharat". Their structure follows a three-tiered pyramid model: the foundational tier builds a shared ecosystem among institutions; the intermediate tier emphasizes regional problem-solving; and the top tier aspires toward national and global competitiveness. By leveraging collective strengths and resources, these Clusters aim to deliver significant economic and societal benefits.

To achieve these goals, each S&T Cluster integrates a wide range of stakeholders, including academic institutions, research labs, industry partners, start-ups, MSMEs, state governments, philanthropic organizations and international entities. Operating under a formal legal framework, the Clusters maintain internal autonomy while facilitating structured collaboration. Each Cluster is defined by a unique thematic focus, specific Research and Innovation (R&I) agendas and strategic partnerships across sectors. Currently, eight S&T Clusters have been established across India, with five of them having advanced to Phase 2.0.

Table 1: A detailed overview of all S&T Clusters

Sr. No.	Cluster Official Name	Date of Establishment	Verticals (Phase I)	Verticals (Phase II)
1.	Research and Innovation Circle of Hyderabad (RICH)	29/07/2020	• Food & Agriculture • Life sciences • Sustainability	• We to Me Health Tech • Green Economy • Smart Farming
2.	Jodhpur City Knowledge and Innovation Cluster (JCKIC)	29/07/2020	• Medical Technology • Water & Environment • Handicrafts & Handlooms • I-Governance • AIOT Innovation Hub • Thar DESIGNS	• Handicraft & Handloom • Medical Technologies • Rain water harvesting and Conservation
3.	Pune Knowledge Cluster (PKC)	29/07/2020	• Sustainability & Environment • Big Data & AI • Capacity Building • Health • Sustainable Mobility	• Water Management and Security • Plastic Waste Management. • Industry Connect (Green Hydrogen Innovation Cluster)
4.	Delhi Research Implementation and Innovation (DRIIV)	07/12/2020	• Air Pollution Management in Delhi • E-mobility • AI/ML in Healthcare • Effective Education • Water Security • Solid Waste Management	• Ensuring water security for Delhi NCR • Critical and Emerging Technologies • Clean Energy Transition and Environmental • Sustainability • Using technology for improving public healthcare

Sr. No.	Cluster Official Name	Date of Establishment	Verticals (Phase I)	Verticals (Phase II)
5.	Bhubaneswar City Knowledge and Innovation Cluster (BCKIC)	11/01/2021	• Biosciences • Polymer-based Intervention • Advanced Materials • Wetland Management • Waste to Value • Grassroots Level Interventions	• Affordable Healthcare for All • Future Economy • Industry Connect • Sustainable Tribal Livelihood Network Project
6.	Bengaluru Science and Technology Cluster (BeST)	06/09/2022	• One Health • Precision Agriculture • Digital Health	------
7.	PU IIT Ropar Regional Accelerator for Holistic Innovations (PI RAHI)	09/08/2023	• Agriculture and Food Processing • Indigenous Technology Development & Optimization • Pharma/ Healthcare & Medical Devices • Waste Management & Wealth from Waste • Sustainable Mobility & Green Energy	------
8.	Vizag S&T Cluster (AMTZ)	22/08/2024	• New Materials Development for High-Tech Medical Segments • Industry 4.0 and Automation • E-Waste Management	------

This Annual Report on S&T Clusters offers a comprehensive overview of the initiatives and interventions executed by Clusters across India over the past year. It highlights their strategic role in addressing complex societal challenges through collaborative, technology-enabled and interdisciplinary approaches. The report captures key achievements across domains such as health, agriculture, sustainability and digital infrastructure, showcasing how scientific research is being translated into scalable, high-impact solutions. Additionally, the report also presents a detailed account of MoUs signed, major events and outreach activities organized in the academic year 2024-2025, along with a future outlook for each Cluster. The report also includes a review of the Clusters' performance and milestones based on the Project Review and Monitoring Committee (PRMC) evaluations conducted over the past year.

DRIVING NATIONAL PROGRESS

S&T CLUSTERS ACROSS KEY THEMATIC FRONTIERS

2. Driving National Progress: S&T Clusters Across Key Thematic Frontiers

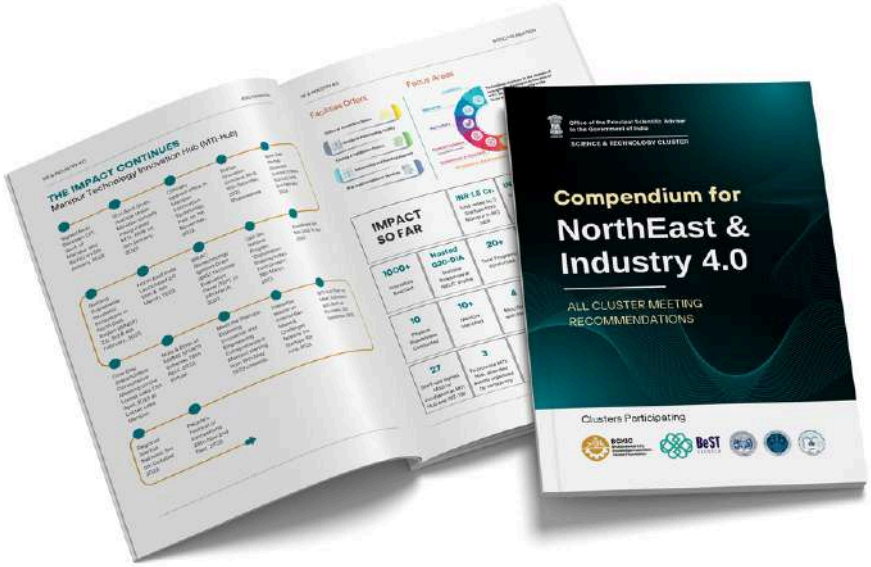
Since their inception, the S&T Clusters have played a pivotal role in generating collaborative research, innovation, and technology translation across India. Anchored in six strategically defined thematic areas, each addressing national priorities, these clusters have fostered interdisciplinary partnerships among academia, industry, startups, and government institutions. To document and disseminate the progress made under each theme, dedicated compendiums were launched in November 2024, showcasing key initiatives, outcomes, and success stories. This chapter presents a brief overview of the compendiums and lists some key initiatives undertaken by the Clusters since their release, with detailed accounts presented in the following chapters. It also highlights the role of thematic areas in demonstrating how the Cluster model contributes to addressing national challenges and advancing innovation-led development through regionally empowered, mission-driven collaborations.

North-East and Industry 4.0

The Compendium on North-East and Industry 4.0 explores the evolving innovation ecosystem of the North-East and highlights the transformative impact of Industry 4.0 digitalization in shaping New India. It showcases the initiatives led by DRIIV, PKC, JCKIC, and BCKIC aimed at strengthening the Northeastern region, fostering startups and innovation, establishing regional innovation hubs, and launching cluster-based programs under the Industry 4.0 framework. These efforts strategically leverage digital technologies to address climate change, enhance smart city infrastructure, and support biodiversity conservation.

In 2024, PI-RAHI launched IGNITE and SPARKS programs to support deep-tech startups across northern India, providing funding for early-stage ideation and prototype-to-market development. They also facilitated the commercialization of innovative Hyaluronic Acid production technology through technology transfer to Invigorate Biotechnologies LLP.

FULL REPORT



Healthcare

The Health Compendium captures the diverse health-focused initiatives of India's S&T Clusters, highlighting their role in pandemic preparedness, digital health and ecosystem strengthening. Key efforts include the RICH and PKC's comprehensive COVID-19 study in Pune, alongside DRIIV's AI/ML-based early warning systems. In the One Health and AMR domain, notable projects include BeST's city-level One Health model, PKC's Metropolitan Surveillance Unit and AMR study, DRIIV's AMR dashboard, and BCKIC's work on antibacterial composites. Digital health interventions span RICH's clinical data digitization, DRIIV's AI-powered decision-support tools, and BeST's digital health use case. Additional initiatives include RICH's biobank and genome atlas, DRIIV's infectious disease model and BCKIC's women's hygiene innovations. Deep-tech support is driven by RICH's AID program, BCKIC's IHF Quest, and collaborative bootcamps, complemented by regional innovation ecosystem development led by RICH, BCKIC, and JCKIC.

In 2024, BeST's One Health Bengaluru Initiative developed a dengue prediction model, established BBMP's One Health Cell, and conducted training to enhance public health surveillance. Its Digital Podiatry Clinic (D-PoC) provided affordable, non-invasive screening and management for diabetic foot disorders. The UK-India Health-Tech Bootcamp, led by BCKIC and the British High Commission, facilitated collaboration between Indian innovators and the UK healthcare sector. Through the AID program, RICH supported over 28 startups with mentoring, IP, regulatory, and commercialization assistance. PKC, in partnership with Pune Municipal Corporation, trained 792 health workers across more than 15 talukas in Maharashtra under the Saksham program.

FULL REPORT

STEM Education

The compendium on STEM Education highlights the contributions of PKC, BKCIC, RICH and DRIIV which, in collaboration with several partner organizations, have implemented diverse projects and capacity-building activities in the last four years focusing on promoting STEM based pedagogies, innovations and careers amongst the youth. These clusters are engaged in projects for enhancing pedagogy and training school teachers; launching Fellowship, Scholarship and Mentorship programs for students and educators; conducting initiatives focused on innovation and entrepreneurship; and undertaking capacity building and outreach activities.

Several initiatives are taken by Clusters in the last year to strengthen STEM education and foster innovation across communities. BCKIC's "Catch Them Young Program," in collaboration with Atal Innovation Mission, promotes innovation, STEM learning, and entrepreneurial thinking among school students in Odisha. PI-RAHI, with Department of Science, Technology and Renewable Energy, conducted workshops on AI for sustainability, agriculture, and health, alongside the "She Cohort 3.0" workshop to support women entrepreneurs through mentoring and funding. DRIIV launched an executive skilling program in Analog and IC Design with IIT Delhi, engaging professionals from leading technology firms. RICH facilitated internships for students from underrepresented backgrounds at top life sciences labs. PKC's ChemAmaze–STEM Gamification initiative introduced interactive educational games to enhance STEM learning in schools. The Vizag S&T Cluster organized educational programs like the "Breakfast with Science" series to encourage interdisciplinary knowledge exchange among stakeholders.

FULL REPORT

Energy & Environment

Compiled by DRIIV as the nodal cluster for Energy & Environment theme, the compendium focuses on four key themes: Sustainable Waste Management & Renewables; Waste Water Treatment; Air Pollution Mitigation; and Sustainable Mobility and Energy Transition. The compendium serves as a comprehensive repository of information, advancements, and innovations in the critical intersection of technology, energy, and environmental sustainability.

BeST launched a Biocon-funded study with IISc and Imperial College London to assess the Yellow Line of Namma Metro's impact on public health and urban mobility in Bengaluru. BCKIC, through the International Conference on Blue Economy, promoted marine sector innovation and initiated the "Blue Economy Mission 50 Accelerator" to support 50 startups. DRIIV implemented projects in NCR-Delhi region to mitigate carbon emissions, air pollution, and plastic waste. JCKIC, in collaboration with IIT Jodhpur, deployed an AIoT-enabled system for efficient water and energy use on campus. PKC contributed to the development of the Detailed Project Report for the Pune Green Hydrogen Valley Innovation Cluster, and Vizag S&T Cluster, in partnership with CSIR-NML, established a sustainable e-waste management facility.

FULL REPORT

Livelihood through S&T

The compendium on Livelihood through S&T highlights the contributions of JCKIC and BCKIC that are working on livelihood support through science and technology. The Jodhpur cluster is working towards uplifting local artisans, through ecommerce platform kalanubhav.in, to showcase and trade their craft products directly to customer (D2C). The Bhubaneshwar cluster is actively engaged in supporting rural areas of Odisha through initiatives such as desilting community water bodies, establishing cashew processing units, processing lemongrass oil, capacity building for farmers and cultivation of indigenous aromatic paddy.

Recently, with support from the Jindal Stainless Foundation, BCKIC launched the ROSHNI initiative to promote sustainable livelihoods in Odisha through rural entrepreneurship and the establishment of a LED Bulb Manufacturing Unit in Kendujhar district. Concurrently, JCKIC is actively working to protect the Intellectual Property Rights of artisans in Jodhpur by facilitating Design Registrations with the Government of India and advancing the Geographical Indication registration process for the Sindhi Sarangi, a traditional instrument of the Langa community.

FULL REPORT

Agritech Startups

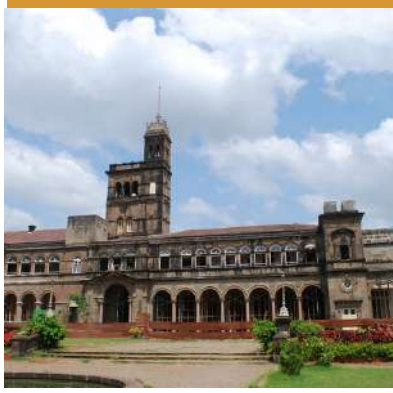
The Compendium on Agritech Startups highlights the role of RICH, BCKIC, and BeST Clusters in leveraging science and technology to address region-specific agricultural challenges. RICH acts as a strategic convenor, facilitating collaboration among agricultural institutions, industry, and startups to drive research translation and scalable agri-solutions. BCKIC focuses on conserving regional agri-biodiversity, transforming agri-waste into value-added products, and supporting grassroots innovations for optimizing the agri-value chain. BeST advances precision agriculture through the deployment of technologies such as pest management systems and advanced sensing tools to strengthen protected farming practices.

BeST's agritech initiatives, presented at Global Bio India 2024 meeting and discussed at an Inter-Cluster Meet on Smart Agriculture with PI-RAHI, aim to enhance productivity, farmer incomes, and food security. Meanwhile, RICH developed a comprehensive AgTech startup database, facilitated pilot projects, and supported Telangana's Department of Agriculture in use case development, proposal writing, and monitoring as part of the Ne-GPA Phase 2 program.

FULL REPORT

ABOUT CLUSTERS





BeST CLUSTER

BENGALURU SCIENCE AND TECHNOLOGY CLUSTER (BEST)

www.bestkc.in

Introduction

Bengaluru Science & Technology Cluster (BeST), established in November 2022, began as a collaborative initiative with more than 50 key stakeholders and now includes over 140 partner organizations. Anchored at the Indian Institute of Science (IISc), the Cluster has been incorporated as a Section 8 not-for-profit company in May 2024, co-founded by IISc, NCBS, JNCASR and ICTS, under the name “Foundation for Bengaluru Science and Technology Cluster”. Operating on an inclusive hexa-helical model, which brings together academia, industry, government, non-profits, investors and strategic sectors, BeST fosters multidisciplinary collaboration to connect science and technology providers with end users. With a focus on responsiveness, competitiveness and synergy, the Cluster designs and implements frameworks that strengthen science-society engagement, aligned with regional and national priorities for an Aatmanirbhar Bharat.

Thematic Areas/ Verticals

- One Health
- Precision Agriculture
- Digital Health

Key Stakeholders

Academia

- National Centre for Biological Sciences (NCBS)
- Indian Institute of Science (IISc)
- TATA Institute for Genetics and Society (TIGS)
- National Institute of Veterinary Epidemiology and Disease Informatics (ICAR-NIVEDI)
- Institute of Bioinformatics and Applied Biotechnology (IBAB)
- Ramaiah University
- Indian Institute for Human Settlements (IIHS)
- Karnataka Institute of Endocrinology and Research (KIER)
- University of Agricultural Sciences, Bangalore (UAS)
- National Bureau of Agricultural Insect Resources (ICAR-NBAIR)
- Indian Institute of Horticultural Research (ICAR-IIHR)
- University of Horticultural Sciences, Bagalkot (UHS)
- Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR)
- International Institute of Information Technology Bangalore (IIIT)
- Karnataka State Council for Science and Technology (KSCST)
- International Centre for Theoretical Sciences (ICTS)
- World Health Organization (WHO)
- Department of Higher Education, GoK
- Bangalore Water Supply and Sewerage Board (BWSSB)

Government

- Bruhat Bengaluru Mahanagara Palike (BBMP)
- Integrated Disease Surveillance Programme, GoK (IDSP)
- National Vector Borne Disease Control Programme (NVBDCP)
- National Centre for Disease Control (NCDC)
- Karnataka State Natural Disaster Monitoring Centre (KSNMDC)
- Department of Animal Husbandry, GoK
- Food Safety and Standards Authority of India (FSSAI)
- Airport Authority
- Forest Department, GoK
- Directorate of Health & Family Welfare, GoK
- Karnataka State Department of Agriculture, Government of Karnataka
- National Rural Livelihoods Mission (NRLM)
- Bangalore Metro Rail Corporation Limited (BMRCL)
- Directorate of Urban Land Transport (DULT)
- Bangalore Traffic Police (BTP)

Industry

- Molecular Solutions Care Health
- Equine Biotech
- PawThNeo
- StrideAIde
- Foot Secure
- Yostra
- Accelerated Translational Grant for Commercialization (ATGC)
- Fuselage
- Avanijal
- Krishitantra
- Cultyvate
- Crop Domain
- Biocon Biologics
- Syngene
- Badische Anilin- und Soda-Fabrik (BASF)
- Open Water
- Bangalore Chamber of Industry and Commerce (BCIC)
- Associated Chambers of Commerce and Industry of India (ASSOCHAM)
- Federation of Indian Chambers of Commerce and Industry (FICCI)

Not-for-Profit Organizations

- Biocon Foundation
- Mission Rabies
- Echonetwork
- AI and Robotics Technology Park (ARTPARK)
- Centre for Cellular and Molecular Platforms (CCAMP)
- Foundation for Science, Innovation and Development (FSID)
- Baptist Hospital, Bangalore
- St. John's Research Institute (SJRI)
- National Institute of Mental Health and Neurosciences (NIMHANS)
- Biome Environmental Trust
- Trinity Care Foundation
- Centre of Excellence for Farmer Producer Organizations (CoE for FPO)
- Selco Foundation
- Hunagunda Farmer Producer Organization (FPO)
- Pingara FPO
- Rajaghatta FPO
- World Resources Institute (WRI)
- Electronics City Industries Association (ELCIA)
- Bangalore Political Action Committee (BPAC)
- Laghu Udyog Bharati Karnataka
- Accenture Corporate Social Responsibility (CSR)

Key Projects/ Achievements

1. Integrating human, animal & environmental health in a global urban center – Towards One Health Bengaluru City Model:

The One Health Bengaluru Initiative is working to integrate existing health efforts and create a collaborative framework for the city. A key project under this initiative involves developing a dengue prediction model at the ward level, leveraging data on climate, environment, entomology, demographics and clinical factors. A consortium of experts, including partners such as TIGS, IISc, NCBS, Molecular Solutions Care Health, Echonetwork and ARTPARK, is driving the creation of a "vulnerability index" to predict outbreak zones. Launched in June 2024 with support from BBMP and other agencies, this initiative aims to improve public health surveillance and reduce disease burden. BeST also facilitated the creation of BBMP's One Health Cell in March 2024 and signed an MoU with BBMP in September 2024 to enhance data-driven urban governance. Additionally, BeST launched training programs in August 2024 and January 2025 to strengthen epidemiological skills and build capacity among district surveillance officers and ASHA workers. Looking ahead, BeST aims to develop a data-driven policy framework for other cities and integrate environmental surveillance into public health systems.

2. Democratizing Digital Podiatry – Bridging the Gap in Foot Care Access:

The Digital Podiatry Clinic (D-PoC) addresses early screening and management of diabetic foot disorders in India, where over 50% of diabetic patients are affected by foot conditions. Developed through a cross-sector collaboration between academia (IISc, Karnataka Institute of Endocrinology), start-ups (Foot Secure, StrideAlde) and the government (Department of Health and Family Welfare, GoK), D-PoC offers affordable, non-invasive screenings using connected devices and trained staff. It also creates a digital footprint for each patient, offering personalized preventive care such as customized footwear and a chatbot for patient queries. Launched in December 2023 at KIER, it has screened over 10,000 patients, with 82% testing positive for diabetic peripheral neuropathy. BeST has partnered with Trinity Care Foundation to expand D-PoC into rural PHCs, starting with Chikkaballapura. The initiative has been integrated into the NCD Mission, with a pilot in 17 district hospitals to assess its scalability and impact on public healthcare.

3. Enabling Technology-led Transformation of Agri-tech Industry:

BeST Cluster is advancing Precision Agriculture and Protected Farming through collaborations with IISc, UASB, JNCASR and NBAIR, focusing on technologies such as climate-controlled polyhouses, drone-based spraying, advanced sensors and pheromone-based pest control. In partnership with ATGC, these pheromone solutions are being deployed across seven cotton-growing districts in Karnataka. An FPO Meet in August 2024 engaged more than 15 FPOs to identify challenges and explore S&T and policy interventions. Deployment frameworks are being developed with IIHR, NGOs, industry partners and the Department of Agriculture, GoK, supported by MoUs with key stakeholders. A Compendium of Agritech Startups 2024 featuring over 35 start-ups will be published on the Office of PSA website. A whitepaper on last-mile delivery and demand forecasting was released at the IISc-IPTeL-FSID-BeST conclave. BeST's agritech initiatives were also presented at Global Bio India 2024 and discussed at an Inter-Cluster Meet on Smart Agriculture with PI-RAHI Cluster. These efforts aim to boost productivity, farmer incomes, and food security, contributing to national growth.

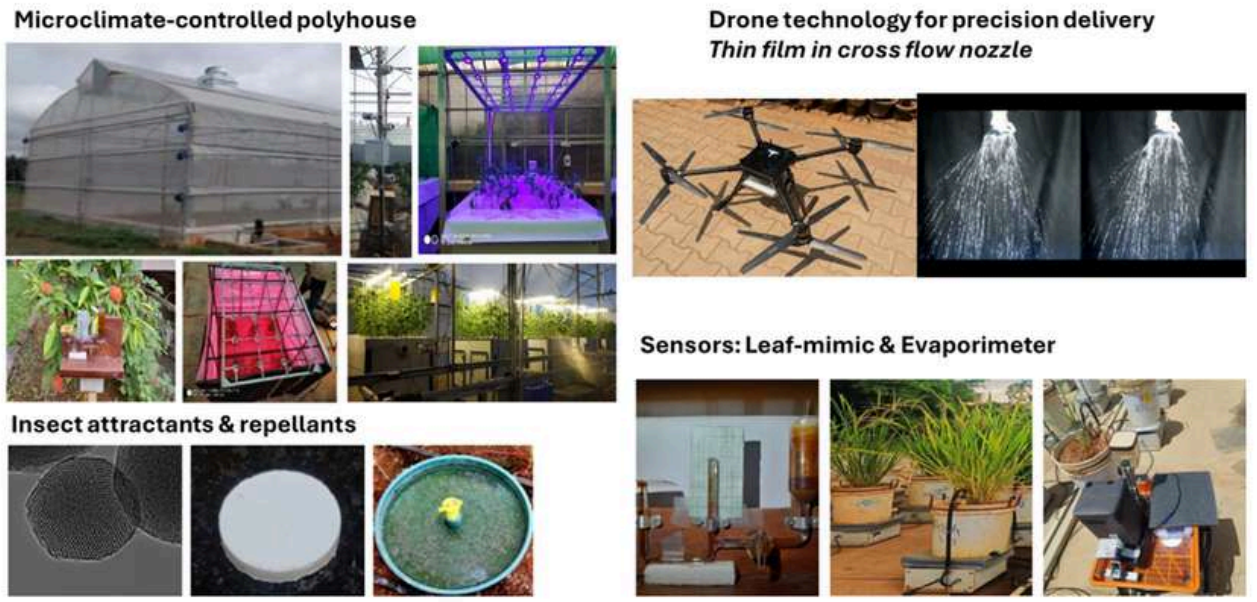


Image Title: Technological Innovations in Precision Agriculture developed by experts from IISc, UAS Bangalore, ICAR-NBAIR and JNCASR.

4. Understanding Sustainable Mobility as a Public Health Measure:

BeST Cluster is exploring the intersection of urban mobility and public health through cross-sector collaboration. In September 2024, a multidisciplinary brainstorming session was held with experts from IISc, Bengaluru Traffic Police, Biocon Foundation, Sensing Local, WRI India, NIMHANS, UN-Habitat India, Imperial College London and others to examine the health impacts of mobility systems, with a detailed report published. Building on this, BeST launched a study on 24th April 2025, funded by Biocon Foundation, to assess the impact of the upcoming Yellow Line of Namma Metro on public health and quality of life in Bengaluru. Led by experts form IISc and Imperial College London, this study will analyze several factors such as physical activity, mental wellbeing, pollution exposure, accessibility, inclusivity, road safety, social well-being, etc. of the public. The findings will inform policies promoting sustainable and health-focused urban mobility.

Image Title: Project Launch for Impact Assessment of Metro line on Health and Quality of Life funded by Biocon Foundation in collaboration with experts from IISc, Imperial College London, Namma Metro, WRI India and ELCIA among others.

MOUs Signed (2024 – 2025)

ATGC Biotech Pvt Ltd

Date of Signing: 20th Jul 2024

Work Progress: Facilitating linkages to scale up pheromone technology in cotton cultivating areas of Karnataka districts.

Biocon Foundation

Date of Signing: 26th Mar 2025

Work Progress: CSR project on Impact Assessment of Metro line of Bengaluru on Public health and quality of life.

BBMP - Bruhat bengaluru mahanagara palike, Government of Karnataka

Date of Signing: 17th Sep 2024

Work Progress: One Health Initiatives for the city of Bengaluru through the BBMP One Health Cell.

BASF India

Date of Signing: 21st Mar 2025

Work Progress: CSR program on STEM Scholarship and mentoring for government school students in India.

Department of Higher Education, Government of Karnataka

Date of Signing: 19th Sep 2024

Work Progress: Industry-academia workshops to fostering industry collaboration with Government institutions of Karnataka.

ICAR – NIVEDI - National Institute of Veterinary Epidemiology and Disease Informatics

Date of Signing: 1st Apr 2025

Work Progress: Activities related to AMR and Zoonoses.

Trinity Care Foundation

Date of Signing: 10th Feb 2025

Work Progress: To establish Digital Podiatry Clinics in semi-urban and rural areas of Karnataka.

TIGS - Tata Institute for Genetics and Society

Date of Signing: 22nd Apr 2025

Work Progress: Activities related to disease surveillance.

NCBS – National Centre for Biological Sciences

Date of Signing: 28th Jan 2025

Work Progress: Capacity Building for ASHA worker, lab technicians and Health officers and Public Outreach in One Health.

Overview of Funds/ Investments Raised

1. Under the OPSA initiative, Rs. 2.78 crore was allocated in the financial year 2024–25.

2. Under CSR initiatives, BASF sanctioned Rs. 63.68 lakh on 21st March 2025 and Biocon Foundation sanctioned Rs. 46.79 lakh on 26th March 2025, both for one-year projects.

3. As part of sponsored event support, BeST secured funding from multiple organizations: Rs. 4.18 lakh from the Ministry of Higher Education, Government of Karnataka (23rd January 2025), Rs. 90,000 from the Embassy of Sweden (11th January 2025), Rs. 25,000 from the Consulate of Israel (7th August 2024), Rs. 60,000 from FICCI (3rd January 2025), and a total of Rs. 1.45 lakh from NCBS through two grants of Rs. 87,000 (20th January 2025) and Rs. 58,000 (28th January 2025).

Future Outlook

BeST is spearheading efforts to bridge the gap between science, technology and society by addressing societal challenges through academia-industry-government collaboration. Its key focus areas include scaling initiatives such as One Health Bengaluru, which integrates human and animal health, and advancing Digital Health solutions like Digital Podiatry Clinics for early disease detection and Precision Agriculture for protected farming technologies. BeST will also explore critical social issues, including sustainable Urban Mobility, to develop solutions that enhance transportation, public health and quality of life. To ensure long-term sustainability, the Cluster aims to diversify funding through government grants, CSR contributions, industry collaborations and philanthropic support. Through these efforts, BeST seeks to position Bengaluru as a model for socially driven S&T, contributing to national goals under AatmaNirbhar Bharat.

Highlights of PRMC Meeting

The 12th PRMC meeting to review BeST was held on 26th June 2024 at IISc Bengaluru, where members recommended several actions, including expanding industry partnerships, fostering inter-cluster collaborations, partnering with local bodies for DPoC installations, involving footwear companies for scaling diabetic footwear solutions and documenting the cluster's achievements. In response, BeST has engaged over 50 industry and startup partners through various initiatives, including workshops and matchmaking events. It also held an inter-cluster meeting on Smart Agriculture with PI-RAHI, conducted international dialogues, such as Indo-Nordic Dialogue on Battery and Energy storage, Indo-UK discussion on Urban Systems and Smart cities, India-EU meeting on Battery recycling to explore collaboration, to explore collaborations, and partnered with Trinity Care Foundation to set up rural kiosks. Additionally, BeST has facilitated the clinical validation of diabetic footwear and documented its activities through videos, magazines and newsletters.

Events

1. Citizen science: Dengue Warriors Education and Awareness Program for Schools in collaboration with APSI India in Bangalore Creative Circus in July 2024.

2. Demonstration of Digital Podiatry Clinic at the Directorate of Health and Family Welfare Services, Government of Karnataka, in collaboration with IISc, KIER and StrideAIde.

3. Indo-UK Urban Systems: Indo-UK Networking session on Urban Systems in collaboration with FICCI in IISc on 7th Mar 2025.

Office of the Principal Scientific Adviser to the Government of India

BCKIC
Bhubaneswar City Knowledge Innovation Cluster Foundation

BHUBANESHWAR CITY KNOWLEDGE INNOVATION CLUSTER (BCKIC)

www.bckic.in

Introduction

Bhubaneswar City Knowledge Innovation Cluster (BCKIC) Foundation, established on February 18, 2022 as a Section 8 company, aims to foster innovation and knowledge exchange through a Hub & Spoke Model connecting research institutions, academia, industry, startups and other stakeholders. It promotes consortium-style collaborations to address regional and global challenges by leveraging shared expertise within a unified yet autonomous structure.

Its key objectives include facilitating industry-academia partnerships, supporting post-incubation deployment of startups, implementing need-based capacity-building programs and driving economic growth in Odisha through scientific infrastructure development, scalable models, investment attraction and job creation.

Thematic Areas/ Verticals

- Biosciences
- Polymer-based Intervention
- Advanced Materials
- Wetland Management
- Waste to Value
- Grassroots Interventions
- Affordable Healthcare
- Future Economy
- Industry Connect
- Sustainable Tribal Livelihood

Key Stakeholders

Academia and R&D Institutes

- Institute of Minerals and Materials Technology (CSIR-IMMT), Bhubaneswar
- Biomedical Research and Innovation Centre – Institute of Life Sciences (BRIC ILS), Bhubaneswar
- Indian Institute of Technology (IIT), Bhubaneswar
- Central Institute of Petrochemicals Engineering and Technology (CIPET), Bhubaneswar
- Kalinga Institute of Industrial Technology (KIIT), Bhubaneswar
- Rama Devi Women's University, Bhubaneswar
- National Institute of Science Education and Research (NISER), Bhubaneswar
- Indian Institute of Science Education and Research (IISER), Berhampur
- National Institute of Technology (NIT), Rourkela

- Birla Global University, Bhubaneswar
- Institute of Chemical Technology (ICT), Bhubaneswar
- Central Tool Room and Training Centre (CTTC), Bhubaneswar
- Indian Rubber Materials Research Institute (IRMRI), Bhubaneswar
- National Rice Research Institute (ICAR-NRRI), Cuttack
- Trident Academy of Technology, Bhubaneswar
- Odisha University of Technology and Research, Bhubaneswar

Government

- Biotechnology Industry Research Assistance Council, Department of Biotechnology (DBT BIRAC)
- Department of Science & Technology (DST)
- Ministry of Environment, Forest & Climate Change
- Ministry of Ports, Shipping & Waterways
- Paradip Port Authority
- Science & Technology Department, Govt of Odisha
- NITI Aayog
- Fisheries & Animal Resources Development Department, Govt of Odisha
- National Innovation Foundation
- National Research Development Corporation (NRDC)
- Odisha Forest Sector Development Society (OFSDS), Govt of Odisha
- Assam Industrial Infrastructure Development Corporation (AIIDC)
- Healthcare Sector Skill Council, NSDC, GoI
- Regional Institute of Education (RIE), MoE

International

- British High Commission in India
- Centre for Process Innovation (CPI), UK

Industry

- National Aluminium Company Ltd (NALCO)
- SRF Ltd
- Chilika Development Authority
- Chennai Petrochemical Ltd (CPCL)
- Cytiva
- Kingfa Science & Technology (India) Ltd
- Yes Bank
- HDFC Bank
- FICCI FLO
- Huwel Lifesciences
- Kotak Bank
- Modulus Housing
- Association of Biotechnology led Enterprises (ABLE)
- Bharat Petroleum Ltd (BPCL)
- McKinsey & Company India
- Harvest Plus
- Toyota Tsusho

Others

- JSW Foundation
- Jindal Foundation
- Indian Health Fund
- The Rotary Foundation
- Bayer Foundation India
- Prabhat Education Foundation
- CSR Box
- Red Dot Foundation
- Bill & Melinda Gates Foundation
- Global Alliance for a Sustainable Planet (GASP)
- Royal Society of Chemistry
- American Chemical Society
- Springer Nature

Key Projects/ Achievements

1. UK India Healthtech Bootcamp:

The UK-India Health-Tech Bootcamp, organized by BCKIC in collaboration with the British High Commission in India, is a pioneering initiative aimed at bridging Indian innovation with the UK's healthcare ecosystem. Designed to foster impactful collaborations, the Bootcamp facilitates networking among National Health Service (NHS) stakeholders, healthcare providers, UK companies, clinicians and thought leaders with Indian health-tech startups to support business growth and address shared challenges for broader global impact. In FY 2024-25, the initiative received 263 startup applications, supported 6 startups for UK immersion and engaged 24 UK NHS mentors.

2. Empowering Sustainable Growth through Marine Ecosystem:

The International Conference on Blue Economy, organized by BCKIC Foundation in collaboration with BRIC ILS, KIIT University and KIIT-TBI, with support from key government bodies, served as a strategic platform to advance innovation and sustainable growth in the marine sector. The event brought together scientists, entrepreneurs, policymakers and industry leaders to explore opportunities in marine biotechnology, fisheries, ocean energy and coastal resilience. A key highlight was the "Blue Economy Mission 50 Accelerator", supported by HDFC Bank, which aimed to support 50 marine-sector startups through mentorship, networking and funding of up to ₹30 lakhs. The accelerator supported 50 startups, facilitated over 10 product launches, conducted 13 mentoring sessions and engaged more than 10 investors. The notable innovations included GoSeaGraze by Gocarin Industries (seaweed-based cattle solution), Credore by Trustless Pvt Ltd (digital cross-border trade platform), and Dhivara Mitra by Thinkraw India (solar-powered IoT prawn farming solution), all contributing to a robust and sustainable blue economy.

3. Establishment of Women Technology Park (WTP):

With the generous support of the Jindal Stainless Foundation, BCKIC has launched a transformative initiative titled ROSHNI, focused on fostering rural entrepreneurship and skill development in Odisha. As part of the project, a LED Bulb Manufacturing Unit has been established to promote sustainable livelihoods and local economic empowerment in the Bileipada and Deojhar blocks of Kendujhar district—an area identified for its socio-economic development potential. A formal MoU has been signed between the collaborating partners, solidifying their commitment to the initiative. The WTP, serving as the operational and training hub, was inaugurated and became functional in December 2024. The project, with a budget of INR 40 lakhs, has so far engaged over 130 Self-Help Groups (SHGs), trained more than 80 beneficiaries, and facilitated the creation of 5 microenterprises, contributing to clean energy promotion and the development of a self-reliant, skilled rural workforce.

4. Transforming Minds at Atal Tinkering Labs (ATL) Labs:

The "Catch Them Young Program", launched in collaboration with the Atal Innovation Mission of NITI Aayog, is a targeted initiative aimed at empowering young innovators through ATLs in schools across Odisha. The program focuses on cultivating innovative skills and an entrepreneurial mindset among students, providing a platform to showcase creative solutions, enhancing teacher engagement with STEM education and emerging technologies, fostering long-term community impact and supporting intellectual property protection and ecosystem collaboration. With a strong presence across 21 districts, the program has engaged over 130 ATL schools, involved more than 1,000 student participants, facilitated the pitching of over 300 ideas, trained more than 100 ATL managers, and showcased over 60 student-led projects.

MOUs Signed (2024 – 2025)

DBT BIRAC

Date of Signing: 4th July 2024

Work Progress:

- To establish BIRAC SPARSH Centre at BCKIC to promote social entrepreneurship in northeast
- Promote blue economy-based activities like – conferences, seminars, etc.

Jindal Foundation

Date of Signing: 2nd Nov 2024

Work Progress:

- Establish Women Technology Park and implement technology-specific interventions in rural areas
- Facilitate startup technology deployments promoting societal benefits

Mckinsey & Company LLP

Date of Signing: 13th Aug 2024

Work Progress:

- Establishing a robust platform to support startups, entrepreneurs, and innovators.
- Conducting training programs, workshops, and bootcamps for professionals and students.

HDFC Bank

Date of Signing: 10th Dec 2024

Work Progress:

- Drive the Mission 50 Blue Economy Startup Accelerator Program
- Promote blue economy-based activities like – conferences, seminars, etc.

Indian Rubber Materials Research Institute (IRMRI)

Date of Signing: 7th Oct 2024

Work Progress:

- Co-participation in "Grand Challenges" or "Hackathons" focused on thematic sectors to discover innovations from startups and innovators that align with industry needs.

NIT Rourkela

Date of Signing: 24th Jan 2025

Work Progress:

- Technology licensing opportunities encompassing innovative technologies emanated from startups, R&D labs and several impactful projects with the goal of licensing and commercializing the resulting technologies.

MOUs Signed (2024 – 2025)

Harvest Plus

Date of Signing: 19th Feb 2025

Work Progress:

- Promote Collaboration: Foster partnerships among public, private, and non-governmental entities to create a scalable ecosystem for biofortified crops in Odisha and beyond.

Healthcare Sector Skill Council, NSDC, GoI

Date of Signing: 28th Feb 2025

Work Progress:

- Organize industry-academia collaborative workshops / Seminars / Conferences / showcasing and network meets, design competitions, etc. in the healthcare sector. Also, facilitate healthcare startup technology deployment

Toyota Tsusho

Date of Signing: 24th Feb 2025

Work Progress:

- Collaboration with BCKIC for the Selection of Startups for POC Trial/New Business.
- Collaboration with BCKIC for Technical and Business Assessment of Startups from Toyota Tsusho.

ICAR - National Rice Research Institute (NRRI)

Date of Signing: 28th Feb 2025

Work Progress:

- Create short - term exchange programs, for students, scientists and innovators
- Technology licensing opportunities encompassing innovative technologies emanated from startups, R&D labs and several impactful projects

Assam Industrial Infrastructure Development Corporation (AIIDC)

Date of Signing: 26th Feb 2025

Work Progress:

- Facilitating strategic collaborations between industries and academic institutions in Assam and Odisha to promote startup ecosystem in the state and address regional challenges

Overview of Funds/ Investments Raised

BCKIC Foundation has successfully mobilized significant funding support from various national and international agencies to advance its innovation-driven initiatives. Key contributions include ₹99 lakhs from HDFC Bank CSR for the Mission 50 Blue Economy Accelerator, ₹1.5 crore from DST, Government of India for establishing the Chilika Bioresource Centre, and ₹5 crore from BIRAC for setting up the BIRAC SPARSH Centre. Additional support includes ₹29.93 lakhs from the UK Government for Business and Trade for the UK India Healthtech Accelerator, ₹28.02 lakhs from Centre for Process Innovation Limited for the UK India Critical Minerals Workshop, and ₹11 lakhs from the Jindal Foundation for establishing a Women Technology Park at Barbil. The Bayer Foundation India has committed ₹1.5 crore for the Bayer MEDHA Fellowship, while Odisha Forest Sector Development Society provides ₹6 lakhs monthly, totaling ₹72 lakhs annually, for the MMSA Project. Further, ₹13.11 lakhs were received from Samagra Development Associates, along with ₹5.23 lakhs from BIRAC and ₹7.26 lakhs from the University of York for conferences and workshops, demonstrating strong financial backing for BCKIC's diverse programs.

Future Outlook

BCKIC's future strategy focuses on fostering innovation through strategic collaborations at state, national, and international levels. It will work with Odisha's Mission Shakti and Tribal Development to promote grassroots entrepreneurship and leverage District Corpus Funds (DMF) funds to launch district-level initiatives such as WTP, Centres of Indigenous Knowledge (CIKITE) and Technology Deployment Hubs for affordable solutions in healthcare, clean energy and agriculture. The "Mission 100 Products" initiative aims to develop 100 market-ready products per district. Nationally, BCKIC will lead multi-institutional projects in Eastern and North Eastern India, while also securing CSR funding to support skilling and social impact startups. Globally, it will pursue partnerships for startup deployment, joint R&D, and innovation acceleration.

Highlights of PRMC Meeting

The PRMC committee noted BCKIC's progress, particularly its efforts to address Odisha's regional challenges through technology deployment. The committee highlighted the strategic value of leveraging CSR partnerships for socially impactful and livelihood-focused projects. It also recommended strengthening BCKIC's role in the socio-economic and environmental development of the Chilika Lake region. The Women Technology Parks, developed in collaboration with startups, industries and corporates, were recognized as a promising model for grassroots technology deployment in underserved communities.

Events

1. Catch Them Young: Science Innovation Fair

2. UK India Healthtech Bootcamp

3. International Conference on Blue Economy

PI - RAHI

NORTHERN REGION S&T CLUSTER, CHANDIGARH (PI-RAHI)

www.pi-rahi.com

Introduction

Panjab University–IIT Ropar Regional Accelerator for Holistic Innovations Foundation (PI-RAHI), Northern Region Science & Technology Cluster, established under the initiative of the OPSA, Government of India, is the first regional S&T cluster focused on addressing science and technology gaps across the states of Punjab, Haryana, Himachal Pradesh and the Union Territories of Jammu & Kashmir and Chandigarh. Incorporated as a Section 8 non-profit company, PI-RAHI aims to serve as a strategic solution provider by synergizing knowledge producers with consumers and end-users to boost regional competitiveness, research capacity and innovation intensity. The cluster is anchored at the Panjab University campus in Chandigarh, positioning it at the heart of the region's innovation ecosystem.

Thematic Areas/ Verticals

- Agriculture and Food Processing
- Indigenous Technology Development & Optimization
- Pharma/ Healthcare & Medical Devices
- Waste Management & Wealth from Waste
- Sustainable Mobility & Green Energy

Key Stakeholders

Academia

- Chandigarh: CSIR-CSIO, CSIR-IMTECH, PEC, NITTTR, PGIMER, Panjab University
- Mohali: BRIC-NABI, C-DAC, SCL, NIPER, ISB, IISER, Amity University, Plaksha University
- Punjab: PAU (Ludhiana), Punjabi University (Patiala), Chitkara University (Rajpura), NIT Jalandhar,IIT Ropar
- Haryana: MDU (Rohtak), Great Lakes Institute of Management (Gurgaon), IMS – Kurukshetra University
- Himachal Pradesh: Dr. Y.S. Parmar University (Nauni), Shoolini University (Solan), Maharaja Agrasen University (Barotiwala), IIT Mandi
- J&K: IIT Jammu, SKUAST (Kashmir), IUST Avantipura

Government

- Punjab State Council for Science & Technology
- Haryana State Council for Science & Technology
- Himachal Pradesh Council for Science, Technology & Environment
- J&K Science, Technology & Innovation Council
- Department of Industries, Chandigarh
- Department of Science, Technology & Renewable Energy, Chandigarh

Industry

- Confederation of Indian Industry (CII), Northern Region
- Ministry of Micro, Small and Medium Enterprises
- Chamber of Industrial and Commercial Undertakings (CICU), Ludhiana
- Baddi Barotiwala Nalagarh Industries Association (BBNIA), Baddi, Himachal Pradesh
- Mohali Industries Association (MIA), Mohali
- Federation of Industrial and Commercial Organization (FICO), Ludhiana
- Indian Farmers Fertiliser Cooperative Limited (IFFCO), Shimla Unit
- Hand Tools Manufacturers Association, Jalandhar
- Avon Cycles Limited, Ludhiana
- International Tractors Limited (Sonalika Tractors), Hoshiarpur
- Invigorate Biotechnologies LLP
- Anglian Omega Group
- HL Mando Softtech India

Others

- Angel Blue Holdings Pvt. Ltd.
- Modulor Capital
- Ludhiana Angels Network
- Chandigarh Angels Network
- Punjab Angels Network
- Technology Business Incubator (TBI) at the Indian Institute of Science Education and Research (IISER) Mohali
- Agritech Water and Development Hub (AWaDH), under the Technology Innovation Foundation (TIF) at IIT Ropar
- Atal Incubation Centre (AIC) at the Indian School of Business, Mohali Campus
- Software Technology Parks of India – NEURON, Mohali
- iHub and HCI Foundation at IIT Mandi
- Innovation Mission Punjab
- Innovation Hub under ARTPARK (AI & Robotics Technology Park)

Key Projects/ Achievements

1. Indigenous Composting Technological Innovation and Startups Acceleration:

RAHI, in collaboration with the Forest and Environment Departments of the Chandigarh Administration, has developed an indigenous, cost-effective microbial consortium technology for rapid degradation of food and horticulture waste into high-quality compost, reducing decomposition time from 1–2 years to just 30 days. Additionally, to strengthen the deep-tech startup ecosystem across Himachal Pradesh, Jammu & Kashmir, Chandigarh, Haryana, and Punjab, PI-RAHI launched two flagship programs – IGNITE (Initiation Grant for Novel Ideas for Transformation & Empowerment) and SPARKS (Strategic Program for Accelerating Research & Knowledge Startups). IGNITE provides up grant up to ₹3 lakh for ideation and proof-of-concept stages, while SPARKS offers support up to ₹10 lakh to support prototype-to-market transitions, bridging research and commercialization gaps.

2. Workshops for Sustainable Innovation and Empowering Women Entrepreneurs:

PI-RAHI, in collaboration with DST and Renewable Energy, organized two significant workshops titled "Transforming Tomorrow: Artificial Intelligence for Sustainable Agriculture, Health, & Ecosystem Resilience" in June 2024 and March 2025. These events brought together a multidisciplinary cohort to explore AI's transformative role in sustainability, agriculture, health, and entrepreneurship. Additionally, the "She Cohort 3.0 Tech Startup Connect & Grow Workshop", held at Panjab University in partnership with the Punjab State Council for Science & Technology (PSCST), engaged over 200 participants & promoted women-led innovation through mentoring, networking, & funding opportunities, empowering women entrepreneurs to scale their ventures. Additionally, PI-RAHI, in partnership with DST-TEC, organized the Investors Summit 2025, providing a platform for over 15 startups to pitch ideas to more than 20 investors, fostering collaboration between public institutions and private sector players.

3. Commercialization of Hyaluronic Acid:

PI-RAHI facilitated the commercialization of an innovative Hyaluronic Acid (HA) production technology by transferring it to industry partner Invigorate Biotechnologies LLP, a biopharma company, with grant support of ₹9.5 lakh. Traditional HA production using Streptococcus equi involves high contamination risks and costly growth media. In response, PI-RAHI enabled the development of a safer, non-pathogenic Bacillus strain that significantly reduces contamination risk and production costs, making HA manufacturing more scalable and commercially viable for pharmaceutical and cosmeceutical applications.

4. AI-Vision Welding Platform for MSMEs:

With over 1.2 lakh MSMEs in Punjab, the shortage of skilled welding labor poses a major challenge to productivity and growth. Addressing this issue, an accelerated startup under PI-RAHI developed an AI-vision-enabled welding platform tailored for small and medium enterprises to automate and enhance welding precision. The solution has been successfully validated with over 20 customers, including Original Equipment Manufacturers (OEMs), and the startup has formed key strategic collaborations, notably with the Chamber of Industrial and Commercial Undertakings (CICU), Ludhiana, to scale the technology across the region.

MOUs Signed (2024 – 2025)

Punjab Innovation Mission (IM Punjab)	AngelBlue Holdings	ARTPARK
Date of Signing: 5th Nov 2024 **Work Progress:** • Strategic alignment initiated to co-create programs that empower grassroots entrepreneurs and embed innovation-led development in Punjab's startup ecosystem.	**Date of Signing:** 28th Oct 2024 **Work Progress:** • Conducted capacity-building sessions on "Demystifying the Indian Startup Ecosystem." AngelBlue is onboarded as a potential angel panel partner for PI-RAHI's SPARKS & IGNITE programs, unlocking a pipeline for early-stage investment and mentorship.	**Date of Signing:** 12th Jun 2024 **Work Progress:** • Thematic collaboration initiated to explore AI and robotics-driven innovations in agriculture and healthcare

Overview of Funds/ Investments Raised

PI-RAHI received seed funding from the Office of the Principal Scientific Adviser (PSA) in August 2023. Additionally, it secured external funding of ₹51 lakhs from the Department of Science & Technology, Renewable Energy, Punjab State Council for Science & Technology, and the Network for the Development of Agricultural Cooperatives, strengthening its financial base for regional innovation initiatives.

Future Outlook

PI-RAHI aims to position itself as the leading Science, Technology, and Innovation (STI) facilitation hub for Northern India, driving impactful innovation across Punjab, Haryana, Himachal Pradesh, Jammu & Kashmir, and Chandigarh. The cluster will actively engage all key stakeholders, including Central and State Governments, R&D institutions, and industries, through focused stakeholder meets across its mandate areas to build a collaborative consortium addressing the unmet technological needs of industries. Future initiatives include setting up a Cyber-Physical Systems Lab for industrial automation, supporting indigenous API development and ETP modernization in the pharma sector, empowering Farmer Producer Organizations (FPOs) with tech-enabled agri-solutions, and advancing waste-to-wealth and sustainable mobility technologies such as hydrogen production and advanced battery systems. By fostering early-stage to MVP-plus deep-tech startups focused on regional challenges and enabling translational research, MSME adoption, and industry-academia partnerships, PI-RAHI will play a catalytic role in strengthening STI capabilities and advancing the vision of Atmanirbhar Bharat.

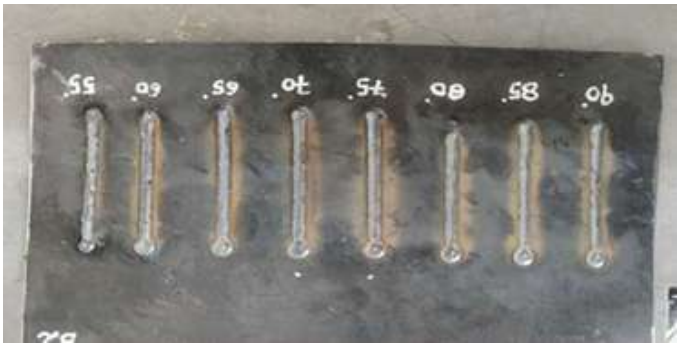
Highlights of PRMC Meeting

The 1st PRMC meeting took place on 4th October 2024 at Panjab University, Chandigarh. PI-RAHI presented its activities related to startup acceleration, technology transfer, and capacity building across five thematic areas. The activities included the launch of the SAMADHAN initiative for industry-academia collaboration, pilot projects such as green waste composting, and the introduction of the SPARKS (Strategic Program for Accelerating Research & Knowledge Startups) and IGNITE (Initiation Grant for Novel Ideas for Transformation & Empowerment) programs aimed at addressing technological gaps. Discussions at the meeting centered on the cluster's direction in developing the regional innovation ecosystem.

Events

1. Flagship Initiatives SPARKS & IGNITE to foster entrepreneurship

2. Startup Accelerated at PI-RAHI developed an AI-vision-enabled welding platform for MSME's



3. Workshops for Sustainable Innovation and Empowering Women Entrepreneurs

Workshop: Artificial Intelligence for Sustainable Agriculture, Health, and Ecosystem Resilience, June 2024

Workshop: Artificial Intelligence for Sustainable Agriculture, Health, and strong focus on budding Entrepreneurs, March 2025

Tech Startup Connect & Grow Workshop Under SHE 3.0 in collaboration with PSCST

DELHI RESEARCH, IMPLEMENTATION, & INNOVATION CLUSTER (DRIIV)

www.driiv.co.in

Introduction

Delhi Research Implementation and Innovation (DRIIV) cluster connects academia, industry, government and civil society to translate research into scalable solutions. Its initiatives align with national missions to drive impactful scientific and technological advancements. In the last year, DRIIV expanded its focus to include a new vertical "Critical and Emerging Technologies" while consolidating ongoing efforts in "Green Energy Transition and Environmental Sustainability" and "Water Security". With a growing ecosystem of over 150 stakeholders, DRIIV has deepened cross-sectoral partnerships and scaled techno-commercial innovations across domains such as plastic waste management, air quality monitoring, wastewater treatment and AI-driven R&D. Through initiatives including pilot deployments, technology transfers and policy advocacy, DRIIV is driving sustainable urbanization, green transition, deep-tech manufacturing and enhancing India's global innovation footprint.

Thematic Areas/ Verticals

- Air Pollution Management
- E-mobility
- AI/ML in Healthcare
- Effective Education
- Water Security
- Solid Waste Management
- Ensuring Water security
- Critical and Emerging Technologies
- Clean Energy & Environmental Sustainability
- Public Healthcare

Key Stakeholders

Academia

- Indian Institute of Technology (IIT) Delhi
- Indraprastha Institute of Information Technology (IIIT) Delhi
- All India Institute of Medical Sciences (AIIMS), New Delhi
- Jawaharlal Nehru University (JNU)
- National Physical Laboratory (CSIR-NPL)
- Central Electronics Engineering Research Institute (CSIR-CEERI)
- National Environmental Engineering Research Institute (CSIR-NEERI)
- Indian Agricultural Research Institute (ICAR-IARI)
- Semiconductor Laboratory (SCL), Chandigarh

Government

- Indian National Space Promotion and Authorization Center (IN-SPACe)
- Airports Authority of India (AAI)
- Ministry of Environment, Forest and Climate Change (MoEFCC)
- Delhi Jal Board (DJB)
- Ministry of Micro, Small and Medium Enterprises (MSME)
- Ministry of Heavy Industries (MHI)
- Various State Governments

International Organisations

- Leonardo Società per Azioni (Leonardo S.P.A.)
- Fincantieri Italy
- Office of Science and Innovation (OSI), Sweden
- CLEAN Danish Cluster
- European Union Trade and Technology Council (TTC)

Industry

- M3M Foundation
- TATA Power Company Limited
- Google LLC
- Morris Garages Motor India Pvt. Ltd.
- BASF India Limited
- GMR Group
- Adani Airports
- BATX Energies Private Limited
- Indraprastha Gas Limited (IGL)
- REC Limited
- Power Development Corporation Limited (PDCL)
- Housing and Urban Development Corporation Limited (HUDCO)
- Indowings Private Limited
- Trinity International
- Biomimicry Technologies Private Limited
- EVI Technologies Private Limited

Key Projects/ Achievements

1. Critical and Emerging Technologies – Spacetech and Civil Aviation:

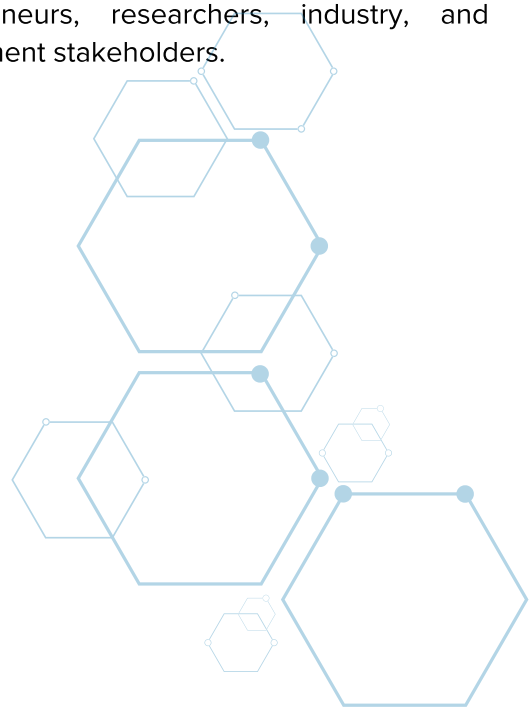
In 2024–25, DRIIV launched a dedicated vertical on Critical and Emerging Technologies to advance India's leadership in deep-tech, aligned with the "Make in India, Make for the World" mission. Under Spacetech, DRIIV signed a landmark MoU with IN-SPACe to promote AI and Large Language Models (LLMs) for mission planning and data processing, develop satellite-based Communication, Navigation and Surveillance (CNS) systems for commercial and defence use, enable workforce skilling, and support policy development. In Civil Aviation, DRIIV partnered with the Airports Authority of India (AAI) to deploy technologies such as Air Traffic Flow Management (ATFM), workload optimization, and satellite-based VHF communication. The initiative engages stakeholders like Adani Airports, GMR, Air India, DGCA and IITs to drive R&D in security, navigation, and infrastructure, fostering indigenous innovation to improve efficiency, safety and sustainability in aviation.

2. Sustainable Innovation & Environmental Impact:

In the green energy transition, DRIIV's pilot project at IIT Delhi demonstrates solar-powered EV charging infrastructure using repurposed EV batteries. This project is co-created with BATX Energies and IIT Delhi which contributes to a reduction of 1653.12 kg of CO_2 over six months. Through Project Air View+, DRIIV has pioneered hyperlocal air quality monitoring in NCR, demonstrating significant reductions in PM2.5 levels in areas like Jahangirpuri and Rohini. Additionally, DRIIV's collaboration with the CLEAN Danish Cluster under the Indo-Danish Plastic Innovation Network fosters international research on sustainable plastic waste management, advancing actionable solutions in plastic waste transformation.

3. Capacity Building & Knowledge Community Development:

DRIIV has significantly advanced capacity building through high-impact skilling programs and strategic knowledge-sharing platforms. In partnership with IIT Delhi, DRIIV launched an executive skilling program in Analog and IC Design to support India's semiconductor ecosystem, attracting professionals from leading firms like Apple and Intel. The cluster hosted key events including stakeholder dialogues on maritime and aviation technologies during Raisina Dialogue 2025, the RESOLVE 3.0 flagship event with Denmark's CLEAN Cluster, and workshops under India-EU collaboration on battery recycling. DRIIV also showcased innovations at SemiConIndia 2024, the FICCI Bharat R&D Summit, and launched a High-End Skilling Module for Critical and Emerging Technologies. Additionally, the first inter-cluster meeting on sustainable plastic waste management was convened. To foster a robust innovation ecosystem, DRIIV launched its new web portal (www.driiv.co.in), enabling technology validation, pilot tracking, and alignment with CSR and policy goals. This helps in creating a dynamic interface for entrepreneurs, researchers, industry, and government stakeholders.



MOUs Signed (2024 – 2025)

M3M Foundation

Date of Signing: Jul 2024

Work Progress: DRIIV to run M3M Foundation's Green Fellowship Program. Conducted first edition of the 'MASHAAL' Green Fellowship Programme. Culmination event scheduled for July 2025.

Airports Authority of India (AAI)

Date of Signing: Oct 2024

Work Progress: Facilitated workshop and presentations with national (Athena)and international agencies (Leonardo SPA) for relevant technologies in Air Traffic Management Systems, Airport Sustainability Technologies, Airport Security Technologies, including Cyber Security for Airport Network.

Indian Chamber of Commerce (ICC)

Date of Signing: Feb 2025

Work Progress: Conducted joint workshops with Global Conglomerates such as Fincantieri & Leonardo SPA. Facilitated engagements with Indian agencies such as AAI with Leonardo. Conducted a Roundtable on IMEC with Fincantieri, in the presence of the Italian Ambassador & CEO of Fincantieri.

In-Space (Dept. of Space, GoI)

Date of Signing: Mar 2025

Work Progress: Participated in Startup-Mahakumbh 2025 with In-Space. Concept note on LLM models shared with In-Space. Meeting with their portfolio companies scheduled in June 2025.

Overview of Funds/ Investments Raised

During the financial year 2024–25, the DRIIV cluster received a total funding of ₹3,24,47,188 through various projects, CSR contributions, sponsorships, and memberships. Major contributions included ₹1.91 crore from Bharat Petroleum Corporation Ltd (BPCL), ₹43.78 lakh from Good Ventures Foundation, and ₹30.36 lakh from Aurassure Pvt. Ltd. Notable project-based support also came from DENSO Project (₹21.31 lakh), and Bio-Mimicry Technologies Pvt. Ltd (₹1.77 lakh). Additionally, institutional support was received from the University of Edinburgh (₹3.70 lakh), M3M Foundation (₹7.58 lakh), along with ₹3 lakh from annual membership fees and ₹3.18 lakh via sponsorships.

Future Outlook

DRIIV will scale its impact under the Viksit Bharat 2047 vision by expanding the “Critical and Emerging Technologies” vertical with a focus on indigenous innovation, solar-linked silver ink production, and deep-tech collaborations with MSMEs and MeitY. Key initiatives include strengthening India’s GPU ecosystem, advancing AI skilling, and promoting advanced manufacturing through the TAG chaired by the Hon’ble PSA. DRIIV will launch targeted capacity-building programs in ESDM, semiconductor technologies, avionics, functional safety, cybersecurity, and railway technologies, in partnership with Anritsu, Indian Railways, and other stakeholders. On the sustainability front, DRIIV will drive initiatives in waterbody rejuvenation, carbon capture and utilization (CCUS), graphene-based energy storage, plastic waste management, and air purification through collaborations with GMR Group, M3M Foundation, and others.

Highlights of PRMC Meeting

The 13th PRMC meeting was held on 27th September 2024 at IIT Delhi under the chairpersonship of Dr. Swati Basu. The meeting reviewed the progress of DRIIV's Phase-1 and discussed the roadmap for Phase-2. Updates were provided on pilot projects in areas such as critical technologies (which includes dual-use drones and airport X-ray systems), and electric vehicle infrastructure. The role of DRIIV in offering mid-TRL support through CSR–VC partnerships involving organizations like M3M Foundation, ICC, MG Motors, and Titan was also presented. The committee advised maintaining a focus on industry-oriented innovation and expanding international collaboration, particularly with European clusters. Phase-2 received formal approval, with attention directed toward scaling, long-term viability, and broader engagement between industry, government, and academia.

Events

1. Pilot of next generation solarized EV charging infra at IITD

2. Resolve 3.0: Transforming Plastic

3. DRIIV Showcase at FICCI Annual Summit 2024

Office of the Principal Scientific Adviser to the Government of India

RICH
Research and Innovation Circle of Hyderabad

RESEARCH AND INNOVATION CIRCLE OF HYDERABAD (RICH)

www.rich.telangana.gov.in

Introduction

Research and Innovation Circle of Hyderabad (RICH), established in 2017 by the Government of Telangana as a Section 8 company, is Hyderabad's Science and Technology City Cluster under the Office of the Principal Scientific Adviser to the Government of India. Acting as a strategic convenor, RICH fosters innovation by facilitating partnerships among research institutions, industry, startups and government to address complex societal challenges. It drives high-impact projects in Health Tech, Smart Farming and the Green Economy, thereby translating research into real-world solutions. RICH supports deep-tech startups, promotes technology adoption among MSMEs & agriculture sector, & offers expert guidance on taking innovations to market, shaping policy and capacity building. Its work aligns with national goals in areas like clean energy, digital health and public welfare. In its Phase 2, RICH focuses on "We to Me" Precision Health, Digital Agriculture & Decarbonization of MSMEs, thereby co-creating scalable solutions to strengthen interconnected S&T ecosystems for innovation-led growth.

Thematic Areas/ Verticals

Food & Agriculture	Life Sciences	Sustainability	We to Me Health Tech	Green Economy	Smart Farming

Key Stakeholders

Academia

- International Institute of Information Technology, Hyderabad (IIIT-H)
- Indian Institute of Technology, Hyderabad (IIT-H)
- National Institute of Technology, Warangal (NIT-W)
- Birla Institute of Technology and Science, Hyderabad (BIT-H)
- Professor Jayashankar Telangana Agricultural University (PJTSAU)
- National Academy of Agricultural Research Management (ICAR-NAARM)
- National Institute of Agricultural Extension Management (MANAGE)
- Tata Institute of Fundamental Research (TIFR)
- Indian Institute of Management, Ahmedabad (IIM-A)
- Centre for Cellular and Molecular Biology (CSIR-CCMB)
- Dr. Reddy's Institute of Life Sciences (DRILS)
- National Academy of Legal Studies and Research (NALSAR)

Government

- Govt of Telangana (Health, Industries, Agriculture, Energy)
- Department of Biotechnology (DBT)
- Department for Promotion of Industry and Internal Trade (DPIIT)
- Central Drugs Standard Control Organisation (CDSCO)
- National Bank for Agriculture and Rural Development (NABARD)

International Organisations

- World Economic Forum (WEF)
- Japan International Cooperation Agency (JICA)
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
- National University of Singapore (NUS)
- Green Hydrogen Association (GH2)
- International Finance Corporation (IFC)
- Smart Innovation Norway
- Centre for Agriculture and Biosciences International (CABI)
- International Rice Research Institute (IRRI)
- National Health Service (NHS Manchester)

Industry

- Syngenta
- Biocon
- International Trade Centre (ITC)
- Amara Raja
- Sahajanand Medical Technologies Ltd. (SMT)
- HBL Power
- Prasad Seeds
- National Thermal Power Corporation (NTPC)
- PathnSitu Biotechnologies

Others

- Telangana State Road Transport Corporation (TGSRTC)
- State Pollution Control Board
- Sustainability, Equity and Diversity (SED) Fund
- Centre for the Fourth Industrial Revolution (C4IR Telangana)

Key Projects/ Achievements

1. Health Tech Acceleration – AID Program:

Through the Acceleration Initiative for Devices, Diagnostics & Digital Health (AID) program, RICH supported over 28 startups in Cohorts 5 and 6 with mentoring, IP strategy, regulatory guidance and commercialization support. This resulted in more than 300 jobs and 5 paid pilot projects. Cohort 7 is now focussing on musculoskeletal innovations, with continued specialized support in IP, regulatory pathways and market access.

2. Smart Farming and Digital Agriculture:

RICH built a database of more than 600 AgTech startups and facilitated pilots with 35 of them. As a partner in Ne-GPA Phase 2, RICH supports Telangana's Department of Agriculture in use case development, proposal writing, startup scouting and monitoring and evaluation (M&E). RICH has proposed three use cases out of eight: Crop Health Monitoring, Carbon Credits in Agriculture and Smart Farming. It is currently developing RFPs for these and a Post-Harvest Moisture Prediction use case, leveraging AI, IoT, remote sensing, image recognition and GIS to boost farmer incomes and promote sustainable use of soil, water, and climate resources.

3. Green Economy – Greening of MSMEs (RAMP):

Under the RAMP Scheme, RICH spearheaded efforts to future-proof Telangana's MSME sector by conducting energy audits, piloting clean technologies and building capacity. It engaged over 100 MSMEs across 6 industrial zones, collaborating with partners like CII, SIDBI, and the Telangana Industries Department to identify energy-intensive clusters. A baseline study has been completed, and RICH is now a nodal support system under the new MSME Policy for promoting R&D and tech adoption.

4. Women in STEM:

RICH has provided internships to over 50 students from underrepresented backgrounds at leading life sciences labs, including Syngene International, CCMB, DRILS, DRL, Bharat Biotech and PathnSitu. Two cohorts have completed their internships and recruitment for the third cohort is underway, with Rs. 32 Lakhs raised from the Biocon Foundation.

RICH organized a social media series titled "League of Her Own" to celebrate women leaders in science through interactive interviews. The series featured prominent speakers, including Dr. (Mrs.) Parvinder Maini, Kiran Mazumdar Shaw and Dr. Renu Swarup.

MOUs Signed (2024 – 2025)

Huwel Lifesciences

Date of Signing: 1st Jun 2024

Work Progress: Provided the students selected under the Women in STEM programme to get a chance of experiential learning by engaging them in R&D projects.

Biocon Foundation

Date of Signing: 30th Nov 2024

Work Progress: Supported 30 students in the 2nd Cohort of the Women in STEM Scholarship & Mentorship Programme, offering learning, research, and career development in life sciences.

PathnSitu Biotechnologies

Date of Signing: 1st Jun 2024

Work Progress: Provided the students selected under the Women in STEM programme to get a chance of experiential learning by engaging them in R&D projects.

TIFR

Date of Signing: 24th January 2025

Work Progress: Establish Green Energy Materials for Sustainability (GEMS) cluster.

DRILS

Date of Signing: 1st June 2024

Work Progress: Provided the students selected under the Women in STEM programme to get a chance of experiential learning by engaging them in R&D projects.

SteerX

Date of Signing: 9th December 2024

Work Progress: Collaboration for startup product development, mentoring support, investment opportunities & joint project collaboration.

CSIR-CCMB

Date of Signing: 1st June 2024

Work Progress: Provided the students selected under the Women in STEM programme to get a chance of experiential learning by engaging them in R&D projects.

SMBT

Date of Signing: 29th November 2024

Work Progress: Collaboration for clinical validation, clinical trials, tech transfer funding opportunities, Market access and commercialisation for startups.

30M Genomics

Date of Signing: 1st June 2024

Work Progress: Provided the students selected under the Women in STEM programme to get a chance of experiential learning by engaging them in R&D projects.

Manchester University NHS Foundation

Date of Signing: 25th Feb 2025

Work Progress: A collaborative framework is being established to drive healthcare innovation & address shared challenges between Telangana & Greater Manchester; a steering committee is in place, with program rollout discussions underway.

Overview of Funds/ Investments Raised

1. ₹2 Cr under Startup India Seed Fund (SISFS) for funding startups.

2. ₹32 Lakhs for providing scholarships to our Women in STEM initiatives' 3rd cohort.

3. ₹1.3 Cr under the Raising & Accelerating MSME Performance (RAMP) - Greening MSMEs.

4. ₹49 Lakhs for Indo-Norway collaborative initiative – Demand Response Driven Energy Advancement.

Future Outlook

In Phase 2.0, RICH will strengthen its role as a strategic convenor across three key verticals: 'We to Me' Health Tech, Green Economy and Smart Farming. These verticals focus on precision medicine for India, greening of MSMEs and digital agri-tech adoption respectively. Building on Phase 1.0's success, RICH will leverage its multi-stakeholder ecosystem to bridge data gaps, shape policy and drive tech validation pilots across sectors. Future efforts will emphasize on industry-scale impact, inter-cluster collaboration and alignment with national missions like the AI Mission and Net Zero 2070. RICH will continue to foster partnerships, support scalable & sustainable innovation and accelerate India's innovation-to-market journey across health, sustainability and agriculture sectors.

Events

1. ABCs of Medical Devices and IVDs Commercialization Journey Event: Hands-on Workshop

2. Smart EV Training Center

3. RICH leads Telangana's AI Research & Collaboration Network, anchoring roundtables on AI in healthcare and smart cities.

JODHPUR CITY KNOWLEDGE & INNOVATION CLUSTER (JCKIC)

www.jckif.iitj.ac.in

Introduction

Jodhpur City Knowledge and Innovation Cluster (JCKIC), also referred to as the Jodhpur Cluster, is managed by a non-profit entity registered under Section 8 of the Companies Act since March 31, 2021. JCKIC operates in close collaboration with the Indian Institute of Technology (IIT) Jodhpur, its designated nodal agency, and engages with research institutions across the country. The foundation's core vision is to foster innovation that accelerates the growth of local industries, promote new entrepreneurial initiatives and develop solutions to address critical regional challenges.

Thematic Areas/ Verticals

- Medical Technologies
- Water & Environment
- Handicrafts & Handlooms
- I-Governance
- AIOT Innovation Hub
- Thar DESIGNS
- Rain water harvesting & Conservation

Key Stakeholders

Academia

- Indian Institute of Technology (IIT), Jodhpur
- All India Institute of Medical Science (AIIMS), Jodhpur
- Indian Institute of Management (IIM), Indore
- National Institute of Fashion Technology (NIFT), Jodhpur
- Indian Institute of Handloom Technology (IIHT), Jodhpur
- Footwear Design and Development Institute (FDDI), Jodhpur
- Dr. Sampurnanand Medical College (SNMC), Jodhpur
- Dr. Sarvepalli Radhakrishnan Rajasthan Ayurved University, Jodhpur
- Jai Narain Vyas University, Jodhpur
- Sardar Patel University of Police, Jodhpur
- Seth Gyaniram Bansidhar Poddar College, Jhunjunu
- Agriculture University, Jodhpur
- MBM University, Jodhpur
- Centre for Studies on Indigenous Knowledge
- Dr. Hari Singh Gour Vishwavidyalaya Sagar, Madhya Pradesh
- Agriculture College, Nagaur
- Shri Baldev Ram Mirdha Govt. College, Nagaur

Government

- Rajasthan State Industrial Development and Investment Corporation (RIICO), Jaipur
- RajComp Info Services Ltd. (RISL), Jaipur
- Department of Information Technology & Communication (DOIT&C), Jaipur
- Rajasthan State Pollution Control Board (RSPCB), Jodhpur & Jaipur
- Jodhpur Development Authority (JDA), Jodhpur
- City Administration, Jodhpur
- Zoological Survey of India, Jodhpur
- Rajasthan Police
- Development Commissioner (Handicrafts and Handlooms), Jodhpur
- District Industries Centre, Jodhpur

R&D Labs:

- ICMR-National Institute for Implementation Research on Non-Communicable Diseases
- Defence Laboratory (DRDO), Jodhpur
- Central Arid Zone Research Institute (ICAR—CAZRI), Jodhpur
- Regional Remote Sensing Centre-West (RRSC-W), Jodhpur
- Arid Forest Research Institute (AFRI), Jodhpur
- ICAR- National Research Centre on Camel (NRCC), Bikaner

Industry/Startups/ MSMEs/ NGO:

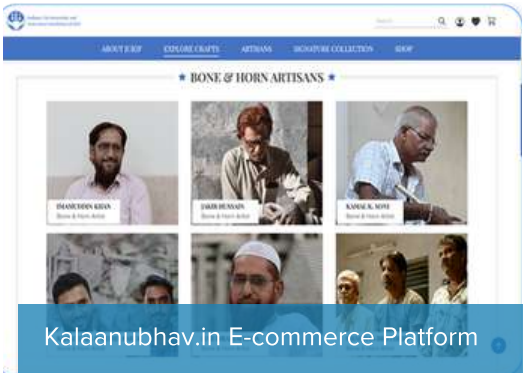
- Jodhpur Industries Association
- Futurense Technologies
- Marudhara Industries Association
- Electronics Sector Skills Council of India
- Rural Electrification Corporation Foundation
- Banglanatak dot com
- Rao Jodha Desert Rock Park

Key Projects/ Achievements

1. Phygital Museum "Dharohar", Kalaanubhav.in and 3D Experience Center:

JCKIC has launched two innovative initiatives at IIT Jodhpur to blend traditional crafts with modern technology. The Phygital Museum "Dharohar" showcases a diverse collection of handcrafted items, such as Bone & Horn artistry, Block Printing, Leather Mojari, and Tie & Dye, each paired with a QR code to offer detailed stories of the crafts and artisans. The museum features interactive 3D views, allowing visitors to explore the items from multiple angles. Complementing this, Kalaanubhav.in is an immersive e-commerce platform that connects artisans, particularly from the informal economy, to national and global markets. Featuring over 800 products from 23 artisan families, the platform ensures global exposure and sustainable livelihoods. Additionally, the 3D Experience Centre uses AR/VR technology to provide an interactive, immersive experience, allowing visitors to explore crafts in 360° and learn about the artisans. These initiatives empower artisans, promote India's rich heritage, and preserve cultural traditions through innovation.

Image Title: Phygital Museum "Dharohar"



Kalaanubhav.in E-commerce Platform

2. Design Registrations and Geographical Indication (GI) tagging-Protecting Heritage, Empowering Artisans:

JCKIC is committed to protecting the intellectual property of Jodhpur's artisans by supporting the Design Registration of their crafted products with the Government of India. Up to now, 23 designs from 10 artisans across five craft forms have been submitted, with 19 registrations approved. On November 25, 2024, 10 artisans received Design Registration Certificates for 19 product designs at IIT Jodhpur, in a ceremony attended by Chief Guest Dr. Vinod Gupta, H.H. Maharaja Gaj Singh Ji and other dignitaries. Additionally, JCKIC is facilitating the Geographical Indication (GI) registration for the Sindhi Sarangi, a traditional bowed instrument of the Langa community, with the application currently under process at the Intellectual Property Office, Chennai.

3. Smart Graded-Water Supply Grid Development and Demonstration:

The IIT Jodhpur project implemented an AIoT-enabled system to optimize water and energy use for sustainable, graded water delivery (~1 MLD capacity). Key achievements include the strategic deployment of sensor nodes, a 24x7 real-time monitoring system, a baseline data analysis tool and a Digital Twin model with a calibration framework for the campus water network. The project also established an international collaboration with Fraunhofer IGB, Germany, offering effective solutions to key water management challenges.

Image Title: Smart Graded-Water Supply Grid Development and Demonstration at IIT Jodhpur

Overview of Funds/ Investments Raised

The Rural Electrification Corporation (REC) Foundation sanctioned ₹1.52 crore to support 41 Government Child Care Institutions in Rajasthan. A budget of ₹47 lakh was received from the Indian Farmers Fertilizer Cooperative (IFFCO) for project activities. Additionally, Hewlett-Packard funded a ₹8 lakh study to investigate the ecological impact of Prosopis Juliflora on the Thar Desert.

Highlights of PRMC Meeting

The PRMC meeting for the JCKIC was held on 25th March 2025 at IIT Jodhpur. Key discussions focused on scaling MedTech labs, accelerating the Craft Village initiative, and promoting self-sustainability and artisan empowerment with a Pan–India outreach. The committee emphasized enhancing marketing strategies, automating production, forging industry partnerships and expanding the global footprint of Kalaanubhav.in. The potential revival of the I-Governance and Thar Design verticals was also discussed. Overall, the committee endorsed JCKIC's ongoing initiatives and future strategic roadmap.

Future Outlook

JCKIC plans to scale up the Kalaanubhav.in platform under the Handicrafts & Handlooms Vertical by expanding its reach, onboarding artisans from across India and promoting indigenous crafts through design registration and GI tagging. Digital literacy and product innovation programs will be launched in collaboration with partner institutes to equip artisans with e-commerce skills and foster sustainable, market-driven product development. A proposal has been submitted to establish a Craft Village in Jaisalmer to empower women and youth through training, resources and market access. In the Rainwater Harvesting & Conservation Vertical, village committees will be formed to lead initiatives involving resource surveys, implementation of harvesting systems and stakeholder training, aiming for a 25% reduction in groundwater use and full restoration of existing water bodies. The Med-Tech Vertical envisions setting up a state-of-the-art Medical Devices Testing Laboratory to support innovation, certification, and research collaboration in medical technology development.

Events

1. Participated in the Paschimi Rajasthan Hastshilp Udyog Utsav held from 9–19 January, 2025, in Jodhpur. JCKIC showcased the Kalaanubhav.in platform, exhibited handicraft products, and demonstrated a 3D Immersive Craft Space, along with prototypes from MedTech startups and Traffic Management Software under I-Governance.

2. JCKIC was an organising partner at "Transforming the Thar Ecoregion through Startups, Innovation, and Entrepreneurship for Sustainable Development (THRIVE 2025)" 19-21 March 2025 at IIT Jodhpur.

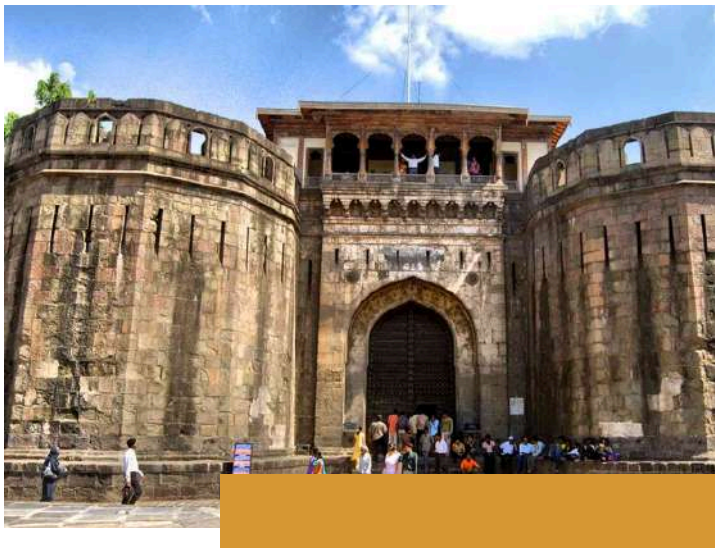
3. JCKIC and IIT team field visit at Barnawa Jageer for GI Tagging of Sindhi Sarangi.

4. Design Registration Certificates Awarding Ceremony

PUNE KNOWLEDGE CLUSTER (PKC)

www.pkc.org.in

Introduction



Pune Knowledge Cluster (PKC) was established by the Office of the Principal Scientific Adviser to the Government of India as the first of its kind, leveraging the strong presence of academic institutions, R&D labs and knowledge-based industries in the Pune Metropolitan Region (PMR). PKC aims to unite government bodies, academia, research institutions and industry to collaboratively address regional challenges through scientific innovation, sustainable development and skilled human capital. Over time, PKC has developed more than 130 partnerships across public health, water management, STEM education and sustainability, involving universities, national and state research bodies, industries and NGOs. It plays a catalytic role in fostering ideation, collaboration and innovation, while also functioning as a Program Management Unit (PMU) for large-scale projects and mobilizing funding for new S&T initiatives.

Thematic Areas/ Verticals

Sustainability & Environment	Big Data & AI	Capacity Building	Health
Sustainable Mobility	Water Management and Security	Plastic Waste Management	Industry Connect (Green Hydrogen Innovation Cluster)

Key Stakeholders

Academia & R&D Organisations

- Agharkar Research Institute (ARI), Pune
- Ashoka University
- Armed Forces Medical College, Pune
- Automotive Research Association of India (ARAI), Pune
- BJ Medical College, Pune
- BAIF Research Foundation
- Center for Development Studies and Activities (CDSA)
- Center for Materials for Electronics Technology (CMET)
- Dr. Bhanuben Nanavati College of Architecture for Women, Pune
- D.Y. Patil Hospital and Research Center
- FLAME University

- Gokhale Institute of Politics and Economics
- Inter University Center for Astronomy and Astrophysics (IUCAA), Pune
- Indian Institute of Astrophysics (IIA), Bangalore
- Indian Institute of Science Education and Research (IISER), Pune
- Indian Institute of Science (IISc), Bangalore
- Indian Institute of Technology, Bombay
- Indian Institute of Technology, Madras
- International Institute of Information Technology, Pune
- Interactive Research School for Health Affairs (IRSHA), Pune
- Jnana Prabodhini Foundation, Pune
- Jyotirvidya Parisanstha- Science Club
- Khagol Vishwa- Science Club
- Maharashtra University of Health Sciences, Nashik
- Pune International Center (PIC)
- Savitribai Phule Pune University, Pune
- Symbiosis International University, Lavale, Pune
- Symbiosis Medical College for Women, Pune
- Symbiosis Statistical Institute, Pune
- Symbiosis School of Biological Sciences, Pune
- Agharkar Research Institute, Pune
- Automotive Research Association of India, Pune
- Centre for Development Of Advanced Computing, Pune
- Centre for Materials for Electronic Technology
- Christian Medical College, Vellore
- CSIR-Centre for Cellular and Molecular Biology, Hyderabad
- CSIR-National Chemical Laboratory, Pune
- Deenanath Mangeshkar Hospital
- Defence Institute of Advanced Technology, Pune
- FLAME Centre for Earth and Environment, FLAME University, Pune
- Homi Bhaba Center for Science Education (HBCSE), TIFR, Mumbai
- King Edward Memorial Hospital and Research Centre, Pune
- KEM Hospital, Vadu
- National Centre for Biological Sciences, Bengaluru
- National Centre for Cell Sciences, Pune
- NICMAR University, Pune
- Noble Hospitals and Research Center, Pune
- Symbiosis University Hospital and Research Centre
- Tata Institute for Genetics and Society, Bangalore
- Vasantdada Sugar Institute
- Wildlife Research & Conservation Society, Pune

Government

- District Institute of Education and Training, Pune Zilla Parishad
- Pune Municipal Cooperation
- Pimpri Chinchwad Municipal Corporation
- Pune Smart City
- Pune Zilla Parishad
- Pune Metropolitan Region Development Authority (PMRDA)
- Maharashtra state Forest Dept
- MahaMetro
- Pune Metro
- Pune Mahanagar Parivahan Mahamandal Limited (PMPML)
- Nehru Planetariums- Mumbai and Bangalore
- Indian Academy of Sciences

Industry/ Startups/ MSMEs/ Incubation Centers:

- ARTPARK
- Attero
- BiofuelCircle
- CPC Analytics
- Eternis
- Fluid Robotics
- Genepath Laboratories
- GI BOTS
- Kishore Pumps
- IBM NASSCOM
- Icertis
- Iora Ecological Solutions
- Illumina
- Infosys Springboard
- International Business Machines
- Mahindra CERO
- Persistent Systems
- PH Diagnostics
- Praj Industries
- Primove Engineering
- Premas Biotech
- Sahayadri Speciality Labs
- Samuchit Enviro Tech
- Serum Institute of India
- Suburban Diagnostics
- Suyog Lifecare Diagnostics
- TATA Consultancy Services
- TATA Motors
- Thyrocare
- C4i4 - Center for Industry 4.0, Pune
- Venture Center, Pune
- Social Alpha
- India Health Fund

International

- Rockefeller Foundation
- Water Valley Denmark
- Clean Cluster, Denmark
- Force Technology, Denmark
- Danish Hydraulic Institute (DHI)
- International Union for Conservation of Nature (IUCN)
- Global Green Growth Institute (GGGI)
- Leakman Consortium
- University of Southampton

Others

- BASF Chemicals India Pvt Ltd
- BASF India Pvt Ltd
- Lenovo India
- Rockefeller Foundation
- Bill and Melinda Gates Foundation
- Intox Pvt. Ltd.
- WRI India
- CODATA National Committee
- Indian Academy of Sciences
- Indian National Science Academy
- Institute of Electrical and Electronic Engineers, Pune
- Society of Automotive Engineers, India
- Bhujal Abhiyaan, Mission Groundwater, Pune
- Center for Environment Education, Pune
- Samuchit EnviroTech, Pune
- Environment Conservation Association
- Paryavaran Gatividhi
- Wildlife Research and Conservation Society (WRCS)
- ACWADAM
- Meghshala Trust
- Save Pune Traffic Movement (SPTM)
- Mukhtangan
- Jnana Prabodhini

Key Projects/ Achievements

1. Disease Surveillance Program:

PKC led a consortium of over 10 organizations to implement city-level disease surveillance for infectious diseases such as COVID-19, Dengue, H1N1, H3N2 and Antimicrobial Resistance (AMR), using genomic and environmental monitoring. The initiative resulted in the sequencing of over 1,000 samples, supported four research publications and developed two open-source data dashboards for COVID-19 and AMR. Notably, the COVID-19 dashboard was recognized by the WHO as India's only live wastewater surveillance platform for COVID-19 and has received over 50,000 views from users in more than 90 countries.

2. Public Health & Community Development:

PKC, in collaboration with the Pune Municipal Corporation, conducted the Saksham training program for 792 multi-purpose health workers across more than 15 talukas in Maharashtra. Under the WEnyan scholarship and mentorship program, 37 women from 19 districts received support to advance their careers. Additionally, through the Teach with Tech initiative, 359 teachers from 25 schools were trained to effectively integrate digital tools into classroom teaching and learning.

3. Environmental Sustainability & Climate Action

PKC played a key role in conceptualizing and enabling the Detailed Project Report (DPR) for the Pune Green Hydrogen Valley Innovation Cluster, a public-private partnership involving 8 industries and 3 R&D organizations, which has received in-principle approval. PKC is also a partner in the Harit Bharat Fund initiative, aligned with the National Mission for Green India, supporting 15 NGOs through grants for land restoration efforts across Maharashtra, Madhya Pradesh and Chhattisgarh.

4. STEM & Educational Innovation:

Under the ChemAmaze–STEM Gamification initiative, 42 educational games were developed and validated across 16 schools in India, engaging 368 teachers and 751 students in interactive STEM learning.

5. International Collaborations:

As part of the Global Innovation Network Program funded by the Danish Government, PKC facilitated joint collaborations between Indian and Danish partners to promote the commercialization of technologies in the water management sector.

6. Capacity Building & Knowledge Sharing

PKC organized 57 training programs, conferences, workshops, talks and networking events, reaching and benefiting over 3,400 industry professionals, students, academics and citizens.

MOUs Signed (2024 – 2025)

Meghshala Trust

Date of Signing: April 2024

Work Progress: PKC and Meghshala worked together to implement a STEM program called Teach with Tech where digital tools as teaching aids in classrooms were validated. Program was supported by Lenovo India.

BASF Chemicals Pvt Ltd

Date of Signing: March 2025

Work Progress: PKC implements the WEnyan Scholarship and Mentorship program supported by BASF Chemicals.

NCBS, Bangalore

Date of Signing: April 2024

Work Progress: PKC works with TIFR-NCBS on a zoonotic disease surveillance project supported by the Bill Gates Foundation.

Indian Institute of Technology, Bombay (IITB)

Date of Signing: October 2024

Work Progress: PKC worked with a data modelling team in IIT-Bombay for analysing health data and building disease modelling and prediction models.

Genba Sopanrao Moze College of Engineering

Date of Signing: May 2024

Work Progress: PKC collaborated with GSMC for capacity building activities

Kalpak Solutions

Date of Signing: October 2024

Work Progress: PKC collaborated with the Kalpak Solutions for urban forestry projects.

Edunet Foundation

Date of Signing: July 2024

Work Progress: PKC collaborated with Edunet Foundation for conducting teacher training programs in STEM education.

JSPM University Pune

Date of Signing: October 2024

Work Progress: PKC collaborates with JSPM for capacity building activities

CSIR-NCL

Date of Signing: August 2024

Work Progress: PKC collaborates with CSIR-NCL on various projects including green hydrogen, disease surveillance

Dr. D. Y. Patil School of Allied Health Sciences (DYPSAHS)

Date of Signing: November 2024

Work Progress: PKC collaborates with DYPSAHS for health related initiatives

Indian Plastic Institute (IPI)

Date of Signing: December 2024

Work Progress: PKC partners with IPI for stakeholder engagement in plastic waste management.

Social Lab Environmental Solutions Pvt. Ltd.

Date of Signing: February 2025

Work Progress: PKC collaborates with Social Lab for capacity building activities under waste management.

Chase Avian Communications Pvt. Ltd.

Date of Signing: January 2025

Work Progress: PKC collaborates with CHASE India for policy advocacy work for public health initiatives.

Green Concept Ecoscapes Pvt. Ltd.

Date of Signing: February 2025

Work Progress: PKC collaborated with the Green Concept for urban forestry projects.

Ecovrat Envirosolutions Pvt. Ltd.

Date of Signing: January 2025

Work Progress: PKC works with Ecovrat for monitoring and evaluation of a national land restoration project.

ICGA

Date of Signing: March 2025

Work Progress: PKC works with ICGA as an outreach and knowledge partner.

CSIR-CCMB

Date of Signing: January 2025

Work Progress: PKC works with CCMB for disease surveillance projects.

ExploreiT Nextgen Solutions Pvt. Ltd.

Date of Signing: March 2025

Work Progress: PKC collaborated with the Green Concept for urban forestry projects.

Pint of Science India

Date of Signing: February 2025

Work Progress: PKC collaborated with PSI for science popularization.

Maharashtra Metro Rail Corporation Ltd. (Maha Metro)

Date of Signing: March 2025

Work Progress: PKC works on a commissioned project from the Maha Metro to help increase ridership on Pune's metro services.

Overview of Funds/ Investments Raised

Between January and December 2024, PKC received financial support from a diverse set of national and international partners for various initiatives, amounting to significant funding across multiple projects. Major contributions included INR 281.08 lakhs from the Rockefeller Foundation (through CSIR-CCMB) on 23rd August, and INR 160 lakhs from the Bill and Melinda Gates Foundation (through TIFR-NCBS) on 23rd April, both inclusive of allocations for project partners. Lenovo India extended support of INR 19.92 lakhs on 6th December, while BASF Chemicals and BASF India contributed INR 45 lakhs (24th May) and INR 117.52 lakhs (24th September) respectively. Intox Pvt Ltd. provided INR 10.39 lakhs on 10th October and the Norway Consulate supported with INR 1.18 lakhs on 22nd January. Additionally, WRI India contributed INR 38.72 lakhs on 15th November, including funds for project partners, and other services generated INR 1.27 lakhs, further strengthening PKC's resource base for impactful program delivery.

Future Outlook

PKC's long-term vision is centered on sustainable innovation, global competitiveness and inclusive growth, aiming to evolve into a vibrant ecosystem that integrates research excellence, advanced technology and entrepreneurship to drive economic and societal impact. The Cluster aspires to become a hub for investment and global partnerships, fostering strong collaboration among academia, industry, and government. Key priorities include promoting public-private partnerships, mobilizing resources for industry-driven R&D and enabling initiatives with broad societal benefits.

Highlights of PRMC Meeting

The PRMC meeting held online on 11th July 2024 reviewed PKC's Phase II funding proposal submitted to the Office of the PSA. The committee recommended the proposal for approval, resulting in PKC securing three years of Phase II funding support from the PSA office.

Events

1. Carbon Conclave 2024

2. AMR Frontline Workshop 2024

3. WEnyan Industry Visit

4. Sensor Workshop 2025

5. Edu-Conclave 2025

6. CDAC-LEAD Teacher Training 2025

VIZAG SCIENCE & TECHNOLOGY CLUSTER

VIZAG CLUSTER (AMTZ)

Introduction

Vizag S&T Cluster, anchored at Andhra Pradesh MedTech Zone (AMTZ), is a flagship initiative of the Principal Scientific Advisor's office, positioned within India's premier medical technology park. Serving as a catalyst for innovation, the cluster connects academia, industry and government to drive regional and national economic growth through R&D collaboration, product development and workforce training. With a focus on MedTech, High-Tech Materials for Medical Applications, Industry 4.0 and E-Waste Management, it addresses critical technological needs while promoting sustainability and self-reliance. Through strategic partnerships, technology programs and events, the cluster advances national goals such as "Make in India" and "Atmanirbhar Bharat".

Thematic Areas/ Verticals

New Materials Development for High-Tech Medical Segments	Industry 4.0 and Automation	E-Waste Management

Key Stakeholders

Academia

- Homi Bhabha Cancer Hospital & Research Centre
- Indian Institute of Management (IIM) Visakhapatnam
- GITAM University
- Jawaharlal Nehru Pharma City, Visakhapatnam
- National Metallurgical Laboratory (CSIR-NML)

Industry/Startups/MSMEs / Incubation Centers:

- Microport CRM & Purple Microport
- Deeptech Naipunya Foundation

Key Projects/ Achievements

1. Technological Innovations:

The Vizag S&T Cluster has undertaken key projects and partnerships to strengthen domestic capabilities. Key developments include the establishment of a sustainable e-waste management facility with NML, covering collection, dismantling, material recovery, and disposal, and the indigenous development of pacemaker leads through a technology transfer MoU with Microport. Furthering public-private partnerships, strategic MoUs have been signed with Microport CRM, Purple Microport, and public institutions like NML to support domestic pacemaker production. These efforts were complemented by industry-academia engagements during the Vizag S&T Cluster Industry Meet, fostering collaboration and knowledge exchange.

2. Societal Impacts

The Vizag S&T Cluster has made significant societal impacts through its initiatives, including promoting a circular economy model in e-waste recycling, which contributes to environmental protection, and fostering indigenous MedTech solutions that reduce import dependency in cardiac care. Educational and training programs, such as the “Breakfast with Science” series, facilitate knowledge exchange across disciplines and stakeholders. Additionally, the cluster has engaged in public awareness activities through events like the World Health Innovation Forum (WHIF) 2024, which attracted over 1,500 attendees, and science-industry meets, furthering the dialogue between the public, industry, and scientific communities.

MOUs Signed (2024 – 2025)

Microport CRM & Purple Microport

Date of Signing: 7th Jan 2025

Work Progress: A major step toward strengthening India’s domestic production of pacemakers, reducing dependency on imports, and boosting technological innovation in cardiac care.

National Metallurgical Laboratory (NML)

Date of Signing: 24th Mar 2025

Work Progress: This initiative aims to enhance resource recovery, promote environmental sustainability, and establish a circular economy model. Developed a strategic roadmap for e-waste handling, recycling technology implementation, and public awareness programs. Defined process flows for collection, dismantling, material recovery, and responsible disposal.

Future Outlook

The Vizag S&T Cluster aims to establish itself as a nationally recognized innovation hub by scaling its research and industrial collaborations, promoting indigenous technology development, and enhancing sustainability. Future plans include expanding its thematic areas, fostering high-impact research, and enabling large-scale technology transfer and commercialization. The cluster also envisions building infrastructure to support advanced materials R&D and circular economy models in India.

Events

1. E-Waste Management Centre

2. Science and Technology Forum

3. Stakeholder's Meet

4. Demonstration of the hPod Health Kiosk which can measures over 50 vital health parameters, including blood pressure, weight, SpO2, BMI, body mass composition, pulse, temperature, and ECG

FROM DIALOGUE TO DISCOVERY:

Meetings and Movements Driving Industry-Academia Partnerships

I. Industry-Connect to promote Research & Innovation

The Office of the Principal Scientific Adviser to the Government of India conducted an 'Industry-Connect' meeting on 21 May 2024 at Vigyan Bhawan Annexe, New Delhi, under the chairmanship of Prof. Ajay Kumar Sood, with the objective of strengthening collaboration between S&T Clusters and industry stakeholders to bridge the 'Lab to Market' gap. The meeting brought together representatives from S&T Clusters and leading industry associations, including FICCI, ASSOCHAM, AIPMA, ICC, CCFI, CLI, AIMED, CII, IPA, IDMA and CPMA. Discussions focused on showcasing the clusters' innovations, understanding industry needs for technological advancement and process optimization, and identifying potential areas for product development aligned with industrial requirements. During the meeting, experts from industry, academia and research institutions shared insights on existing gaps and proposed actionable strategies to enhance collaboration, aiming to foster a robust and responsive research and innovation ecosystem.

Following the connect meetings, several collaborations have proven to be highly beneficial for the Clusters. The BeST Cluster connected with agrochemicals industry associations under the 'Smart Agriculture' vertical, leading to the launch of a project for the commercial introduction of pheromones and derivatives in collaboration with M/s. UPL Ltd. Additionally, BeST has initiated a project focused on optimizing drone nozzle specifications in collaboration with drone manufacturing associations. The BCKIC & PKC clusters also engaged with the Plastic Park at Paradeep & plastic manufacturers associations, now working together on plastic waste management solutions. Overall, the DRIIV, PKC, JCKIC, BeST, and RICH S&T Clusters benefitted from this meeting, which led to the initiation of several project works. Notably, DRIIV has taken on two projects with MoEFCC as a direct result of these engagements.

II. All Clusters' Meet

The Second "All Science & Technology (S&T) Clusters Annual Meet" was held on 25th – 26th November 2024 in Bhubaneswar, under the chairmanship of Prof. Ajay K. Sood, Principal Scientific Adviser to the Government of India. Dr. (Mrs.) Parvinder Maini, Scientific Secretary, Office of the PSA, was also present. CEOs of the clusters and other key stakeholders participated in the meet. The event marked the continuation of the All-Cluster Meet series, with the first meeting having taken place in October 2023 in Jodhpur, hosted by JCKIC.

During the Bhubaneswar meet, six thematic compendiums were released by Prof. Sood, encapsulating collaborative efforts and outcomes across clusters. These compendiums reflect focused work in specific domains—Healthcare (Hyderabad, Pune, Jodhpur, Bhubaneswar, Bengaluru), Energy & Environment (Delhi, Bhubaneswar, Bengaluru), STEM Education (Pune, Bhubaneswar, Hyderabad, Delhi), Livelihood through S&T (Jodhpur, Bhubaneswar), Northeast and Industry 4.0 (Bhubaneswar, Jodhpur, Pune), and Agritech Startups (Bengaluru, Hyderabad). The compendiums are briefly described in the following section, with detailed versions provided through the associated links.

The discussions in the meeting underscored the need for enhanced inter-cluster collaboration and scaling of impactful initiatives, while advising caution against launching premature solutions. The meet reaffirmed the role of S&T clusters as regional innovation ecosystems that drive knowledge creation, address local challenges, and contribute to national growth through thematic and synergistic engagements.

III. Dashboard Launch

The “All Clusters Deployable Technology Dashboard” was also launched to boost collaboration and knowledge-sharing across eight S&T clusters. It offers registered Users real-time access to mature technologies and key sectoral innovations. With regular updates, the platform keeps stakeholders aligned and accelerates national R&D impact.

IV. 25th Anniversary Celebration of Office of PSA

The “All Science & Technology (S&T) Clusters Annual Meet”, hosted by BCKIC, coincided with the 25th anniversary of the establishment of the Office of the PSA and served as a platform to review the progress and achievements of all S&T clusters.

V. Inter-Cluster Collaboration

In line with the recommendations of the All Clusters Meet, the first “Inter-Cluster Collaboration” meeting was convened to address the thematic area of ‘Plastic Waste Management’. The meeting was jointly organized by DRIIV and PKC, bringing together key stakeholders from industry, academia and research institutions. The discussions focused on critical aspects such as efficient collection and sorting mechanisms, advancements in recycling technologies, and sustainable end-of-life solutions for plastic waste. Emphasis was also placed on the integration of circular economy principles to develop comprehensive and scalable strategies for mitigating the plastic waste crisis.

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