



Office of the Principal Scientific Adviser
to the Government of India

SCIENCE AND TECHNOLOGY CLUSTERS

ANNUAL REPORT

2025-26

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अजय के. सूद

भारत सरकार के प्रमुख वैज्ञानिक सलाहकार

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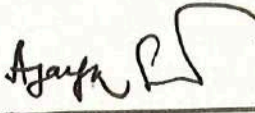
Foreword

Science, technology, and innovation play a pivotal role in driving India's socio-economic development and technological advancement. The Office of the Principal Scientific Adviser (PSA) to the Government of India continues to strengthen this vision by fostering collaborative innovation ecosystems that bridge research, industry, government, and society. The Science & Technology (S&T) Clusters initiative has emerged as a flagship model for accelerating technology translation, regional innovation, and evidence-based solutions to national challenges.

During 2025–26, the S&T Clusters witnessed a significant phase of growth, with eight Clusters driving multidisciplinary innovation across healthcare, medical technologies, precision agriculture, climate resilience, clean energy, advanced manufacturing, environmental sustainability, circular economy, digital technologies, water management, and livelihood generation. The year was marked by the deployment of high-impact technologies, establishment of shared innovation infrastructure, expansion of industry-academia collaborations, mobilization of strategic investments, and strengthening of startup and MSME ecosystems. A defining milestone of the year was the “First International Conference on S&T Clusters – *Making Lives Easier through S&T*”, which positioned India's S&T Clusters as globally connected innovation ecosystems. The Conference facilitated new international partnerships, and accelerated collaborations with leading universities, innovation agencies, industries, and research organizations.

This Annual Report presents the collective achievements of the S&T Clusters during 2025–26, highlighting their contributions to technology development, translational research, capacity building, public-private partnerships, international collaborations, and regional innovation-led development. It reflects the growing maturity of the Clusters as regional innovation ecosystems and national technology accelerators, advancing indigenous technologies, fostering strategic partnerships, and creating measurable socio-economic impact.

As the Clusters continue to evolve, they will play an increasingly important role in strengthening India's innovation landscape by enabling collaborative research, accelerating technology commercialization, and delivering science-driven solutions that improve lives while contributing to an Atmanirbhar Bharat and the vision of Viksit Bharat@2047.


[Ajay Kumar Sood]

Place: New Delhi

Date: 29.07.2026

डॉ. (श्रीमती) परविन्दर मैनी
वैज्ञानिक सचिव
Dr. (Mrs) Parvinder Maini
Scientific Secretary



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Message

The S&T Clusters initiative of the Office of the PSA continues to strengthen India's innovation ecosystem by fostering collaborative, demand-driven platforms that bring together academia, industry, startups, government, and civil society to address regional and national challenges through science and technology.

During 2025–26, the eight S&T Clusters accelerated technology translation across priority sectors, with several indigenous technologies progressing from laboratory research to pilot-scale validation, field deployment, and commercialization. Strengthened public-private partnerships, shared research infrastructure, increased industry engagement, and expanded startup support further reinforced the Clusters as regional innovation ecosystems. The key achievements included the establishment of India's first large-scale E-Waste Management Centre “E-Yantram”, deployment of Digital Podiatry Clinics (D-PoC), advancement of AI-enabled agriculture and weather intelligence systems, indigenous development of pacemaker components & patient-specific 3D-printed implants, expansion of One Health initiatives, and the launch of national initiatives such as i-Passport and Kalaanubhav.in. Collectively, these initiatives have accelerated technology adoption, strengthened domestic manufacturing capabilities, and delivered tangible socio-economic impact.

The “First International Conference on S&T Clusters – *Making Lives Easier through S&T*” marked a major step forward in advancing the global engagement of India's S&T Clusters, bringing together delegates from over 35 countries to foster international collaboration and innovation. The Conference, together with the Annual All Clusters' Meet, strengthened inter-cluster collaboration, enabled strategic international partnerships, and reinforced the role of the S&T Clusters as “National Technology Accelerators” driving research translation, technology commercialization, and innovation-led development.

This Annual Report highlights the achievements of the S&T Clusters during 2025–26, showcasing their contributions to technology development, capacity building, startup growth, international collaboration, and socio-economic impact. As the initiative continues to evolve, the S&T Clusters are well-positioned to accelerate indigenous innovation, strengthen India's technology ecosystem, and deliver science-driven solutions with lasting national and global impact.


(Parvinder Maini)

Dated : 28th July, 2026

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1. Introduction to the S&T Clusters

The Science & Technology (S&T) Clusters initiative, launched in 2020 as a flagship programme of the Office of the Principal Scientific Adviser (PSA) to the Government of India, represents a transformative approach to fostering innovation-led regional development. Conceptualized on the principle of bringing together institutions and experts with shared strengths, objectives and geographical proximity, the initiative was established following recommendations of the Prime Minister's Science, Technology and Innovation Advisory Council (PM-STIAC).

The S&T Clusters are designed as consortium-based innovation ecosystems that unite academia, research and development institutions, industry, start-ups, MSMEs, government agencies, philanthropic organizations and international partners to address regional challenges through science,

technology and innovation. The Clusters follow a three-tiered model that strengthens institutional connectivity, enables regional problem-solving and advances national and global competitiveness. By leveraging collective expertise, infrastructure and resources, the Clusters serve as platforms for translating research into scalable solutions with significant societal and economic impact, contributing to the vision of "Atmanirbhar Bharat".

Today, eight S&T Clusters have been established across India, with six progressing to Phase 2.0. Operating within a formal legal framework while retaining institutional autonomy, each Cluster is guided by a distinct thematic focus, strategic partnerships and targeted Research, Innovation & Implementation agendas.



Three-tiered operational model of the Clusters

**Table : 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	- One Health - Sustainability, Environment & Energy - Sustainable Mobility - STEM Education & Capacity Building - Big Data & AI
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	- Environmental sustainability and green energy transition - Ensuring water security - Emerging technologies in public healthcare and other sectors
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 & Accessible Healthcare - AgriTech, Nutrition & FPO Strengthening - Tribal Development & Livelihood Generation - Education, Innovation & Future Skilling - Climate, Water & Sustainability - Coastal & Wetland Livelihood Systems - Energy Access & Clean Technology

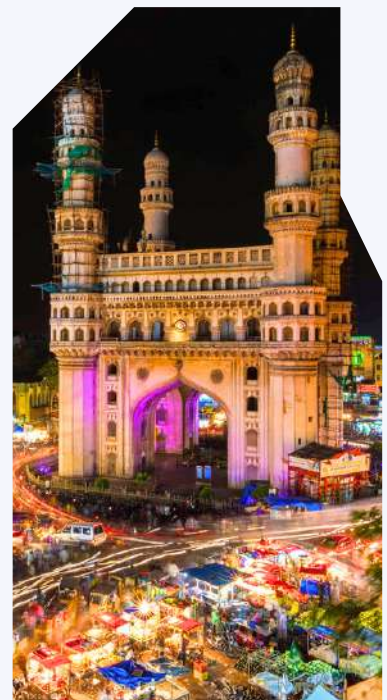


Sr. No.	Cluster Official Name	Date of Establishment	Verticals (Phase I)	Verticals (Phase II)
6	Bengaluru Science and Technology Cluster (BeST)	06/09/2022	- One Health - Precision Agriculture - Digital Health	- Health and Wellbeing - Urban Life - Futuristic technologies - Impact projects under One Health, Digital Health and Precision Agriculture are the focus areas
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 2025–26 presents a comprehensive account of the activities, achievements and impact of the S&T Clusters over the past year. It highlights key interventions across sectors including advanced healthcare, smart agriculture, environmental sustainability and digital infrastructure, demonstrating how collaborative and interdisciplinary approaches are addressing complex societal challenges. The report also documents major partnerships, MoUs, events and outreach initiatives undertaken during the year, while providing insights into Cluster-specific progress, future priorities and performance milestones based on evaluations conducted by the Project Review and Monitoring Committee (PRMC). Together, these achievements underscore the growing role of the S&T Clusters in strengthening India's innovation ecosystem and advancing science-driven development at scale.

This annual report has been prepared by Dr. Shefali Uttam, Technical Staff, and Dr. Vishal Choudhary, Scientist F, Office of PSA.

ABOUT CLUSTERS





BeST
CLUSTER

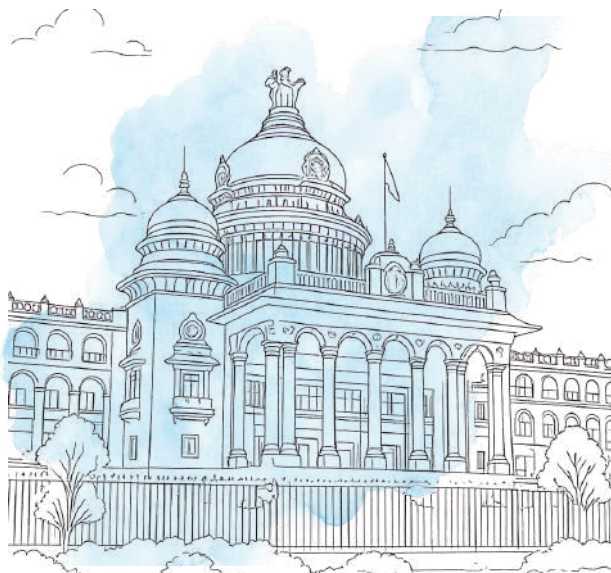
Bengaluru Science and Technology Cluster

BENGALURU SCIENCE AND TECHNOLOGY CLUSTER (BEST)

www.bestkc.in

Introduction:

The Bengaluru Science and Technology (BeST) Cluster, established in September 2022 and anchored at the Indian Institute of Science (IISc), is a pioneering science-society initiative that brings together academia, industry, government, non-profits, investors, and strategic sectors through an inclusive hexa-helical model. Incorporated as a Section 8 not-for-profit company in May 2024 under the name “Foundation for Bengaluru Science and Technology Cluster”, and co-founded by IISc, NCBS, JNCASR, and ICTS, BeST has rapidly evolved into a vibrant innovation ecosystem with over 170 partner organizations. Serving as a bridge between knowledge creators and end users, the Cluster fosters multidisciplinary collaboration to translate research and innovation into scalable societal solutions. Through initiatives such as Industry-



Academia Synergy Workshops, the BioWISE Women in STEM programme, inter-cluster collaborations, and international partnerships, BeST continues to strengthen Bengaluru’s innovation ecosystem and advance the science-driven development of the nation.

Thematic Areas/ Verticals:



Key Projects/ Achievements:

Scaling Digital Podiatry: From Lab to Community:

The Digital Podiatry Clinic (D-PoC) initiative witnessed significant growth during 2025–26, demonstrating BeST’s ability to translate research into accessible healthcare solutions. Building on its work with the Karnataka Institute of Endocrinology and Research (KIER), BeST established a new D-PoC facility at the IISc Health Centre and

launched a Diabetic Foot Care & Research Centre at Chikkaballapura District Hospital in partnership with Trinity Care Foundation and Nandi Medical College & Research Institute. The initiative is being expanded to the aspirational districts of Yadgir and Raichur through CSR support, while an inter-cluster D-PoC facility has also been

established at PI-RAHI, with feasibility assessments underway in other Clusters. BeST further launched PRAIAS (Podiatry Research Across India for Awareness & Screening), a mobile AI-enabled screening platform designed to extend diabetic neuropathy screening services across the country. To date, the D-PoC ecosystem has

screened over 10,000 patients and is being integrated into Karnataka's NCD Mission, with pilots underway across 17 district hospitals. The initiative represents a successful journey from academic research to startup-led innovation and large-scale clinical deployment, delivering tangible societal impact.



Inauguration of "Diabetic Foot Care & Research Centre" at the Department of Surgery, Chikkabalapura Government District Hospital, in collaboration with Trinity Care Foundation and Nandi Medical College & Research Institute.



Building City-Level Health Resilience Through Surveillance and Capacity Building:

BeST's One Health Bengaluru initiative advanced integrated health surveillance and multi-sectoral collaboration by supporting the operationalization of Bruhat Bengaluru MahanagaraPalike (BBMP's) One Health Cell through stakeholder engagement and cross-departmental coordination. Under the Samartha Tarabeti programme, the fourth cohort of training was completed, bringing

the total number of trained personnel to over 800 ASHA workers, 35 government officials, and 70 laboratory technicians in One Health practices, disease surveillance, and digital reporting. The Bengaluru One Health Consortium Stakeholder Meeting convened researchers, policymakers, innovators, and public health experts to strengthen collaborative frameworks for integrated

health systems, while the launch of the “I am One Health” citizen science platform enabled community participation in data-driven policymaking.

The Cluster also piloted a ward-level dengue hotspot prediction model for Bengaluru, developed a One Health wastewater pathogen surveillance programme for urban disease monitoring and AMR tracking, and

conducted bat roost mapping across the city using citizen science and field surveys. Supported by collaborations with leading research institutions and government agencies, and reinforced through participation in the National One Health Mission Assembly, the initiative continues to establish Bengaluru as a scalable model for One Health implementation in India.

Assessing Metro's Impact on Public Health and Quality of Life:

BeST supported a pioneering study led by IISc researchers in collaboration with Imperial College London to evaluate the public health and quality-of-life impacts of Bengaluru Metro's Yellow Line. Funded by the Biocon Foundation and Electronics City Industries Association (ELCIA), the study surveyed nearly 600 residents and commuters along the corridor, examining outcomes related to physical activity, mental wellbeing, pollution exposure, accessibility, and mobility. The findings highlighted significant benefits, including increased

physical activity, reduced exposure to air pollution and heat stress, and improvements in productivity and work-life balance. The study also identified key barriers to metro adoption, such as high fares, inadequate last-mile connectivity, and poor pedestrian infrastructure, providing evidence-based recommendations for policymakers. The initiative demonstrates BeST's role in generating actionable research to inform urban planning and public health policy in rapidly growing cities.

Precision Agriculture – Bridging Technology and the Farm through FPOs

BeST strengthened Karnataka's precision agriculture ecosystem by fostering collaboration between research institutions, government agencies, agritech innovators, and farming communities. A major milestone was the roundtable on “Precision Agriculture: Bridging the Gap Between Technology and Adoption”, organized with the Centre of Excellence for Farmer Producer Organizations (CoE-FPO), which brought together researchers, FPOs, startups, and representatives from the Departments of Agriculture and Horticulture, Government of Karnataka, to address barriers to technology adoption and identify

pathways for deployment. Building on these efforts, BeST signed an MoU with CoE-FPO to integrate research-driven innovations and digital technologies into the FPO ecosystem, accelerating the translation of laboratory research into field applications. The Cluster also facilitated international dialogues with Charles Sturt University, Australia, on precision farming and climate-resilient agriculture, inaugurated an Agriculture Research Station at IISc's Challakere Campus for technology validation, and showcased India's agri-tech innovations at the 1st International Science & Technology Clusters Conference.



Round Table Discussion on "Precision Agriculture: Bridging the Gap between Technology & Adoption" in collaboration with CoE for FPOs.

BioWISE – Empowering Women in STEM from Tier 2 and 3 Universities:

BioWISE, a flagship initiative of the BeST Cluster supported by the Biocon Foundation and NCBS, was launched to strengthen the participation of women from Tier 2 and Tier 3 institutions in Karnataka's life sciences ecosystem. The first cohort, launched in April 2026, onboarded 25 women students across biotechnology, life sciences, microbiology, bioinformatics, and related disciplines. Through scholarships, structured internships, mentorship, Career Connect sessions, and immersion visits to leading institutions including IISc, NCBS, IBAB, CBR, and Biocon Biologics, the programme bridges the gap between

academic training and workforce readiness. Speaking at the launch, Dr. (Mrs.) Parvinder Maini, Scientific Secretary, Office of the PSA, highlighted the importance of building an inclusive talent pipeline by empowering women through greater access to opportunities and leadership, noting that initiatives like BioWISE exemplify how collaboration between academia, industry, and government can prepare the next generation of women leaders in STEM. With the second cohort already underway, BioWISE has emerged as a strong multi-stakeholder model for advancing women's participation in science and innovation.



Launch of the 1st cohort of BioWISE Program by Dr. (Mrs.) Parvinder Maini, Scientific Secretary, Office of the PSA.



MOUs Signed (2025-2026)



INTERNATIONAL

1

HL Klemove India Private Limited

Enable knowledge sharing and open avenues for cutting-edge solutions and impactful innovations in urban mobility for Bengaluru city.



NATIONAL

2

StrideAide

Scale up the D-PoC initiative for early screening and management of diabetic foot disorders. As part of this collaboration, BeST also partnered with the Department of Health and Family Welfare, Government of Karnataka, to bring D-PoC under the NCD Mission.

3

Bangalore Apartments' Federation (BAF)

The collaboration fosters science-society engagement and serves as the foundation for the "Science for Sustainable Urban Living" public outreach series.

4

Centre of Excellence for Farmer Producer Organizations (CoE-FPO)

Transform Karnataka's agricultural ecosystem by bridging the gap between research and field implementation, enabling validation of agri-technologies and accelerating the adoption of precision farming solutions through Farmer Producer Organizations (FPOs).

5

Environmental Management and Policy Research Institute (EMPRI), Government of Karnataka

Strengthen collaboration on circular economy, sustainability, and capacity building initiatives.

6

Institute of Bioinformatics and Applied Biotechnology (IBAB)

Leverage expertise in disease informatics, synthetic biology, and AI to drive pathogen surveillance, data analytics, capacity building, and citizen science initiatives through a One Health approach.

7

Federation of Indian Chambers of Commerce & Industry (FICCI)

Strengthen industry-academia collaboration by aligning BeST's research capabilities with national and global industry needs, while leveraging FICCI's international networks.



International Collaborations:

University of Western Australia (UWA) (March 2026):

Part of a strategic MoU between UWA and all of India's Science & Technology Clusters under the Office of the Principal Scientific Adviser. The partnership aims to strengthen Australia-India collaboration in research and innovation, supporting joint projects in AI, climate resilience, energy transition, deep tech, water systems, and health technologies, while expanding research mobility, joint PhDs, and industry collaboration across India's national innovation hubs.

American Society for Microbiology (ASM) (March 2026):

The MoU aims to strengthen scientific cooperation by bringing together ASM's global leadership in scientific publishing and BeST's mission to build a collaborative, innovation-driven science ecosystem in Bengaluru and beyond. The scope covers advancing research, capacity building, and knowledge exchange, particularly in the areas of antimicrobial resistance (AMR) and One Health.

Climate KIC (September 2025):

The MoU aims to create a forum for circular economy in Bangalore and develop impact projects specifically in e-waste management. It also brings out the best practices from Europe given the wide presence of Climate KIC in EU.

Overview of Funds/ Investments Raised:

- Under the OPSA initiative, BeST received financial support of Rs. 2.15 crores during the financial year 2025-26.
- Under CSR and industry-supported initiatives, the Cluster secured Rs. 31.87 lakh from ThoughtWorks, Rs. 10 lakhs from KLE Move, Rs. 153.89 lakh from BASF towards Phase 2.0 activities, and Rs. 10 lakhs from ELCIA.
- BeST mobilized supplementary resources through conferences, workshops, and other outreach and engagement activities, contributing to the long-term sustainability of the Cluster ecosystem.

Future Outlook:

Going forward, BeST will continue to strengthen science-society engagement by fostering collaborative partnerships, promoting the adoption of national and international best practices, and enabling cross-sector dialogue to address Bengaluru's emerging challenges. By bridging the gap between societal needs and available solutions, the Cluster aims to expand the impact of its thematic programmes and build a robust, long-term enablement framework for citizens. A key priority for the coming years will be institutionalizing a self-sustaining operational model to ensure the Cluster's continued growth, resilience, and impact.

Highlights of PRMC meeting:

The PRMC meeting to review BeST was held on 13th August 2025, during which members assessed key administrative and operational milestones and reviewed the expansion strategy for the Digital Podiatry Clinic (D-POC) Polymer-based Interventions initiative. To ensure continuity of financial operations pending FCRA and CSR approvals, the Cluster initiated interim fund management arrangements through partner organizations such as FSID and C-CAMP. Significant progress was also reported in scaling the D-POC ecosystem, with expansion into government medical colleges in Yadgir and Raichur, establishment of a new centre at Panjab University, Chandigarh, and feasibility assessments in Jodhpur. Plans were also discussed for deploying rural diabetic foot screening solutions at Chikkaballapur District Hospital and developing a chatbot-based platform to support remote screening of Ataxia and other neurodegenerative disease patients. In parallel, Strideaide established a secure DPPA- and HIPAA-compliant data management system to enable seamless integration and accessibility of clinical data across multiple healthcare sites.

Events :



MoU with HL Klemove to promote industry academia collaborations in urban mobility.



Partnership with ClimateKIC, an EU organization to promote circular economy, specifically e-waste management in Bengaluru.



Samartha Tarabeti Program for ASHA workers training in collaboration with APSI



Key Stakeholders:



Academia

- NCBS
- IISc
- TIGS
- ICAR – NIVEDI
- IBAB
- Ramaiah University
- IIHS
- KIER
- UAS Bangalore
- ICAR – NBAIR
- ICAR – IIHR
- UHS Bagalkot
- JNCASR
- IIIT Bangalore
- KSCST
- ICTS
- University of Western Australia
- Charles Strut University, Australia
- Annam Ai, IIT Ropar
- Yadgir college of medical sciences
- Raichur medical college
- Ministry of medical education, GoK
- Bhagwan Mahaveer Jain Hospital,
- IIPH- Gandhinagar
- KIMS
- NIMHANS
- KVASFU



Government

- BBMP
- IDSP, GoK
- NVBDCP, MoHFW
- NCDC
- KSNMDC
- Department of Animal Husbandry, GoK
- FSSAI
- Airport Authority
- Forest Department, GoK
- Directorate of Health and Family Welfare, GoK
- KSDA, GoK
- NRLM
- BMRCL
- DULT
- BTP
- WHO
- Department of Higher Education, GoK
- BWSSB
- BMTCL
- Department of Fisheries, Govt of Karnataka



Industry

- Molecular Solutions Care Health
- Equine Biotech
- PawThNeo
- StrideAlde
- Foot Secure
- Yostra
- ATGC
- Fuselage
- Avanijal
- Krishitantra
- Cultivate
- Crop Domain
- Biocon biologics
- Syngene
- BASF
- Open water
- BCIC
- ASSOCHAM
- FICCI
- HL Klemove
- MBRDI
- Sepio Health



Not-for-Profit Organizations

- Biocon Foundation
- Mission Rabies
- Echonetnetwork
- ARTPARK
- CCAMP
- FSID
- Baptist Hospital
- SJRI
- NIMHANS
- Biome
- Trinity care foundation
- CoE for FPO
- Selco Foundation
- Hunagunda FPO
- Pingara FPO
- Rajaghatta FPO
- WRI India
- ELCIA
- BPAC
- Lagu Udyog Bharti Karnataka
- Accenture CSR
- Thoughtworks
- Villgro
- KrishiTantra



BCKIC
Bhubaneswar City
Knowledge Innovation
Cluster Foundation

BHUBANESHWAR CITY KNOWLEDGE INNOVATION CLUSTER (BCKIC)

www.bckic.in

Introduction:

The 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:



Affordable &
Accessible
Healthcare



Agritech, Nutrition
& FPO
Strengthening



Tribal Development
& Livelihood
Generation



Education,
Innovation &
Future Skilling



Climate, Water &
Sustainability



Coastal & Wetland
Livelihood Systems



Energy Access &
Clean Technology

Key Projects/ Achievements:

Waste to Value Initiative from Phragmites karka at Chilika, Odisha supported Epsilon Carbon Pvt. Ltd.:

The Chilika Waste-to-Value Initiative implemented by BCKIC Foundation, aims to address the ecological threat posed by the invasive reed Phragmites karka while creating sustainable livelihoods for vulnerable fishing communities around Chilika Lake. The initiative envisions a community-owned circular economy model that transforms invasive biomass into marketable products such as biodegradable straws, handicraft items, green incense sticks, biopellets, and silica restoring ecosystem health while

generating income opportunities. Through technology transfer, skill development, SHG-led enterprises, and market linkages, the project seeks to establish a scalable Blue Economy model. Expected outcomes include direct employment for 50 individuals, and indirectly benefiting to 600–800 community members, establishment of 3–5 SHG enterprises, conversion of approximately 12,000 kg of biomass annually, and generation of ₹50 lakh–₹1 crore in annual livelihood value.

Centre for Climate Impact Adaptation (CCIMA):

The CCIMA, housed within BCKIC Foundation and led by Imperial College of London, is an interdisciplinary, multi-institutional initiative involving Indian Organisation like – BRIC ILS, NISER Bhubaneswar, KIIT University, IISC Bangalore, Azim Premji University, TERI New Delhi, NCBS Hyderabad, World Resource Institute, Nature Conservation Foundation, Climate Collective, IPE Global, Dakshin Foundation, APOWA, and International Organisation like – John Moore University, Imperial Graham Institute. The initiative is focused on developing integrated, data-driven, and scalable solutions for climate adaptation, resilience, and mitigation across Eastern and North-Eastern India. Its vision is to create a systems-based framework that

addresses interconnected environmental, ecological, and socio-economic challenges while translating scientific knowledge into actionable policies and community-led interventions. CCIMA's initial five-year programme will use the Bhitarkanika Conservation Area in Odisha as a living laboratory to develop and validate climate-resilient solutions for ecosystems and livelihoods. The initiative aims to benefit nearly 280 million people living in climate-vulnerable regions through eight interconnected work packages spanning biodiversity, agriculture, renewable energy, heat resilience, data systems, technology deployment, and community outreach, creating a scalable model for climate-resilient development across India.

Blue Economy:

Building on its commitment to advancing science-led economic development, BCKIC Foundation, organised the Global Summit on Blue Economy, bringing together over 500 stakeholders from government, industry, academia, startups, investors, and international partners. The summit established Odisha as a key platform for collaboration, innovation, and policy dialogue on the Blue Economy. Leveraging this momentum, BCKIC signed an agreement with the Fisheries & Animal Resources Development (F&ARD) Department, Government of Odisha, to serve as the Knowledge Partner in positioning Odisha as India's launchpad for the Blue Economy through innovation, technology deployment, entrepreneurship, and investment facilitation. The collaboration further expanded with the Forest, Environment & Climate Change (FE&CC) Department, Government of Odisha, to strengthen the forest and climate dimensions of the Blue Economy, fostering sustainable livelihoods, climate resilience, and nature-based enterprise development across the state.

Comprehensive School Health Screening Initiative:

The Comprehensive School Health Screening Initiative is a technology-enabled preventive healthcare program led by BCKIC Foundation and supported by NALCO Foundation to address the high burden of anemia, malnutrition, and growth-related disorders among school-going children in Odisha. The initiative envisions creating a scalable, school-based health intelligence system that enables early detection, timely referral, and evidence-based intervention through non-invasive hemoglobin screening, BMI assessment, and real-time digital monitoring. Covered approximately 50,000 children across 100–150 government and government-aided schools in Koraput, Ganjam, and Angul districts, the program aims to establish district-wide health baselines, improve referral compliance, strengthen child health outcomes, and create a replicable digital public health model. Through early diagnosis and preventive action, the initiative seeks to enhance educational readiness, physical development, and long-term human capital formation among vulnerable children and adolescents.

Smart Village Livelihood & Socio-Economic Development Programme

Village Livelihood & Socio-Economic Development Programme, implemented by BCKIC Foundation in Sripura Panchayat of Jharsuguda district with support from Epsilon Carbon, demonstrated an integrated model for rural development by combining smart agriculture, preventive healthcare, and green skilling interventions. The initiative strengthened the livelihoods of over 300 farmers through soil health diagnostics and scientific crop advisory, enabled comprehensive health screening for nearly 2,000 community members through a technology-enabled preventive healthcare

platform, and trained 150 rural youth in solar and mechanical skills linked to employment opportunities. The programme generated measurable improvements in soil health management, early disease detection, and youth employability, while creating a district-level evidence base for future CSR investments. Benefiting more than 3,000 individuals directly and indirectly, the initiative established a scalable Smart Village framework that integrates technology, community participation, and sustainable livelihood development for rural transformation.

MOUs Signed (2025-2026)



INTERNATIONAL

1

University of Western Australia

Plan various research and technology-based interventions and initiatives for Indian startups, academicians and researchers

2

Studio Labs, UAE

Establish DIY Centre of excellence on STEM education at various schools in India

3

RAK Innovation City

Promote startup exchange between India and RAK via CEPA agreement

4

Code Club, Raspberry Pi Foundation

Conduct future skilling initiatives under the STEM vertical



NATIONAL

5

Epsilon Foundation

Waste to Value Initiative at Chilika, Odisha and Baseline Mapping for Smart Village Livelihood program at Jharsuguda, Odisha

6

Mphasis F1 Foundation

Hackathon on Marine Plastics

7

Pernod Ricard India Foundation

Need Assessment & Baseline Mapping of MSMEs in Odisha & Jharkhand

8

Jindal Steel & Power Ltd

Establishment of WTP on LED Bulb manufacturing in Barbil, Keonjhar, Odisha

9

Dept of Fisheries, Govt of Odisha

BCKIC as knowledge partner to establish the Blue Economy Hub in Odisha

10

BIRAC

Establish the BIRAC SPARSH Centre for northeast states

11

NALCO

Comprehensive health screening for school students across 3 districts of Odisha



International Collaborations:

University of Western Australia (UWA):

The collaboration aims to strengthen Australia–India research and innovation linkages by facilitating joint research, technology-driven interventions, and innovation programmes for Indian startups, researchers, and academic institutions, while promoting international knowledge exchange and capacity building.

Studio Labs, UAE:

The partnership focuses on advancing STEM education in India through the establishment of DIY Centres of Excellence in schools, fostering hands-on learning, innovation, and early exposure to emerging technologies among students.

RAK Innovation City, UAE:

The collaboration seeks to promote startup exchange and cross-border innovation opportunities between India and Ras Al Khaimah (RAK) under the framework of the India–UAE Comprehensive Economic Partnership Agreement (CEPA), enabling greater market access, networking, and entrepreneurial collaboration.

Overview of Funds/ Investments Raised:

- Under CSR and philanthropic initiatives, the Cluster secured Rs. 35.96 lakhs from Epsilon Foundation for the Waste-to-Value Initiative at Chilika, Odisha, and Rs. 17 lakhs for baseline mapping under the Smart Village Livelihood Programme in Jharsuguda, Odisha.
- The Cluster also received Rs. 50 lakhs from NALCO to undertake comprehensive health screening of school students across three districts of Odisha.
- Additional project-based funding included Rs. 15 lakhs from the Mphasis F1 Foundation for a Hackathon on Marine Plastics and Rs. 13.50 lakhs from the Pernod Ricard India Foundation for need assessment and baseline mapping of MSMEs in Odisha and Jharkhand.

Future Outlook:

BCKIC's future strategy will focus on strengthening its role as a leading Science, Technology and Innovation deployment cluster in Eastern India through high-impact initiatives in the Blue Economy, Climate Resilience, Healthcare, Livelihoods, and Green Energy sectors. Key priorities include establishing the Odisha Blue Economy Hub and Marine Deployment & Innovation Hub to accelerate the deployment and commercialization of ocean-based technologies, while advancing a Green Hydrogen Valley ecosystem in Odisha

through multi-stakeholder partnerships. The Cluster will further expand the Centre for Climate Impact Adaptation (CCIMA) as a regional platform for climate resilience and scale flagship programmes in healthcare, waste-to-value, smart villages, women-led enterprises, and tribal livelihoods. Through strategic collaborations, startup engagement, technology deployment, and investment mobilization, BCKIC aims to drive sustainable regional growth and develop scalable innovation models with national relevance.

Highlights of PRMC meeting:

The PRMC members reviewed BCKIC's progress across its key focus areas of climate resilience, blue economy, sustainable livelihoods, preventive healthcare, and rural development. The Committee appreciated the Cluster's initiatives in advancing the Waste-to-Value programme at Chilika Lake, establishing the Centre for Climate Impact Adaptation (CCIMA), and driving the Blue Economy Initiative through multi-stakeholder partnerships. Progress on the Comprehensive School Health Screening Initiative and the Smart Village Livelihood & Socio-Economic Development Programme was also acknowledged for demonstrating scalable, technology-enabled models for improving health, livelihoods, and rural resilience. The Committee encouraged BCKIC to further strengthen technology deployment, expand strategic partnerships, and accelerate the translation of these initiatives into sustainable, large-scale impact across the region.

Events :



Health screening initiative



Smart soil testing and advisory programme



Inter-Cluster MoU signing with University of Western Australia



Key Stakeholders:



Academia

- CSIR IMMT
- BRIC ILS
- CIPET
- IIT Bhubaneswar
- NIT Rourkela
- KIIT University
- Ramadevi University
- Utkal University
- ICT Bhubaneswar
- NISER Bhubaneswar
- IISER Berhampur
- AADC Berhampur
- CTTC
- Biral Global University
- KIIT TBI
- National Innovation Foundation (NIF)
- ICAR CRRI
- IRMRI
- Trident Academy of Technology
- OUTR
- IESA
- Harvest Plus
- India Health Fund (IHF)
- HDFC Bank Ltd
- Toyota Tsusho
- Bayer India Foundation
- Gates Foundation
- Mphasis F1 Foundation
- CSR Box



International Collaborations

- British High Commission in India
- University of Western Australia
- CPI UK
- Styudio Labs UAE
- RAK Innovation City
- Imperial College of London
- VR Academi Dubai



Government

- Govt of Odisha
- DBT BIRAC
- DST, Govt of India
- NITI Aayog
- MoEF, Govt of India
- MoES, Govt of India
- MoPSW, Govt of India
- OFSDS, Govt of Odisha
- Dept of IT, Govt of Manipur
- AIIDC, Govt of Assam



Industries & Corporates

- NALCO
- Epsilon Pvt Ltd
- SRF Ltd
- CPCL
- Cytiva
- KINGFA Ltd
- Metsol Ltd
- Yes Bank
- Huwel Life Sciences Pvt Ltd
- Kotak Ltd
- Modulus Housing
- Pernod Ricard
- OMC
- BPCL
- Mckinsey & Company India
- Jindal Stainless Ltd
- Jindal Steel & Power Ltd
- JSW
- GGGI
- GASP



PI-RAHI

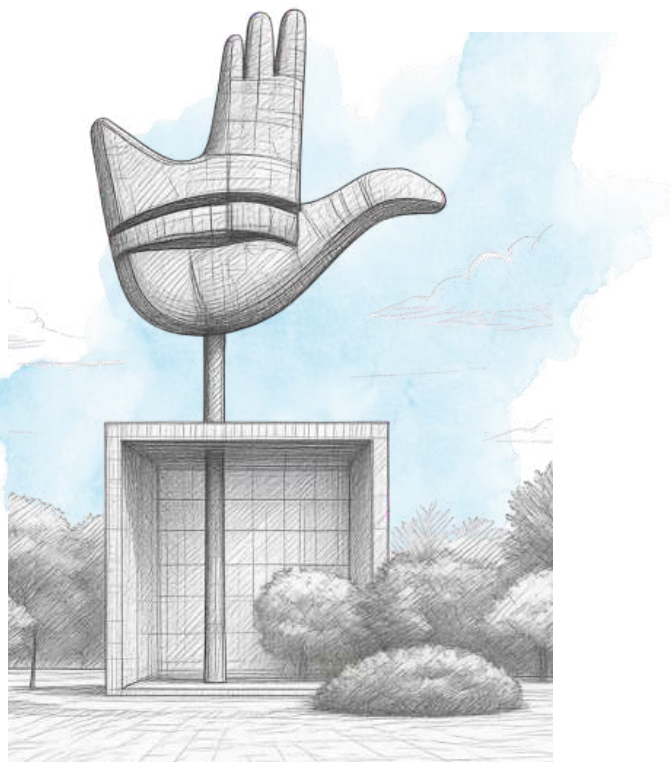
PU-IIT Ropar Regional Accelerator
for Holistic Innovations Foundation
Northern Region S&T Cluster

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

www.pi-rahi.com

Introduction:

The 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:



Key Projects/ Achievements:

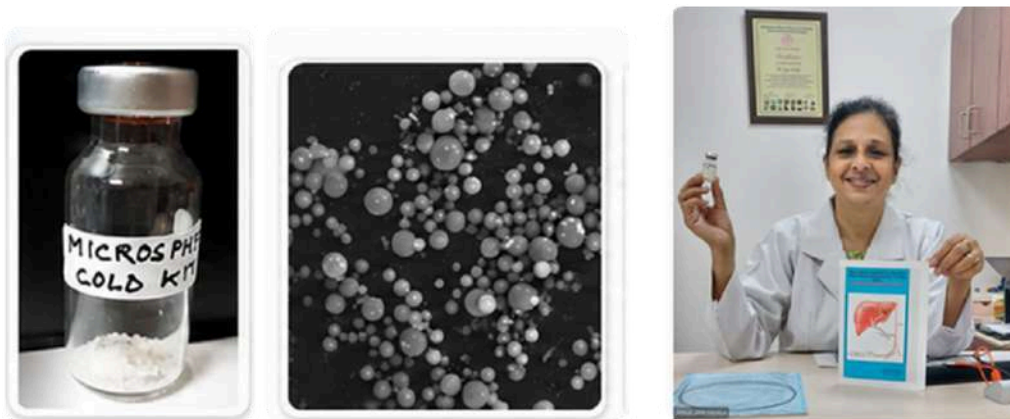
Advancing Affordable Healthcare Through Indigenous Deep-Tech Innovations:

During 2025–26, PI-RAHI advanced affordable healthcare innovation by supporting the development and deployment of indigenous technologies in oncology, biomanufacturing, and pharmaceuticals. A notable achievement was the facilitation of

an indigenous Selective Internal Radiation Therapy (SIRT) cold-kit microsphere formulation for liver cancer treatment, developed by Theranostic Innovations and Research Pvt. Ltd. in collaboration with PGIMER Chandigarh, delivering outcomes

comparable to imported alternatives at a fraction of the cost. The Cluster also supported the scale-up of a non-pathogenic *Bacillus*-based Microbial Hyaluronic Acid production process from TRL 4 to TRL 7, strengthening indigenous manufacturing capabilities and reducing import dependence. To enhance industry–research collaboration, PI-RAHI established the

SynPharma platform in coordination with the Drugs Controller General of India, bringing together over 80 pharmaceutical industries across Northern India to address technology gaps, foster R&D partnerships, and accelerate commercialization. The platform is also supporting studies with CDSCO to improve quality standards and reduce product recall rates.



Cold-kit microsphere formulation for liver.

Bringing AI Foot Care to Northern India – Democratising Digital Podiatry:

To improve early detection of diabetic foot complications, PI-RAHI is introducing the Digital Podiatric Clinic (DPoC), an AI-enabled screening platform that assesses neuropathy, vascular health, and plantar pressure within minutes. Supported by HL Klemove through a CSR initiative, the facility will be established at the Panjab University Healthcare Centre, Chandigarh, marking the first deployment of the technology in Northern India. Developed through an inter-cluster collaboration with the BeST Cluster, the platform has already screened over 10,500 patients nationwide and helped prevent more than 1,500 limb amputations.

Accelerating Industrial Innovation and Green Mobility:

PI-RAHI continued to accelerate the adoption of advanced manufacturing technologies by facilitating the deployment of AI-Vision Welding Technology developed by Terafac at Zenergise, a leading EV charger and solar inverter manufacturer in Himachal Pradesh. The solution enables industrial robots to autonomously identify welding requirements and execute high-precision welds without manual programming, enhancing manufacturing efficiency, product quality, and scalability. By minimizing weld defects that can lead to field failures and safety risks, the technology supports the growth of reliable green mobility manufacturing. Following its successful deployment, the solution is now being expanded across multiple industrial facilities in Haryana and Gujarat.

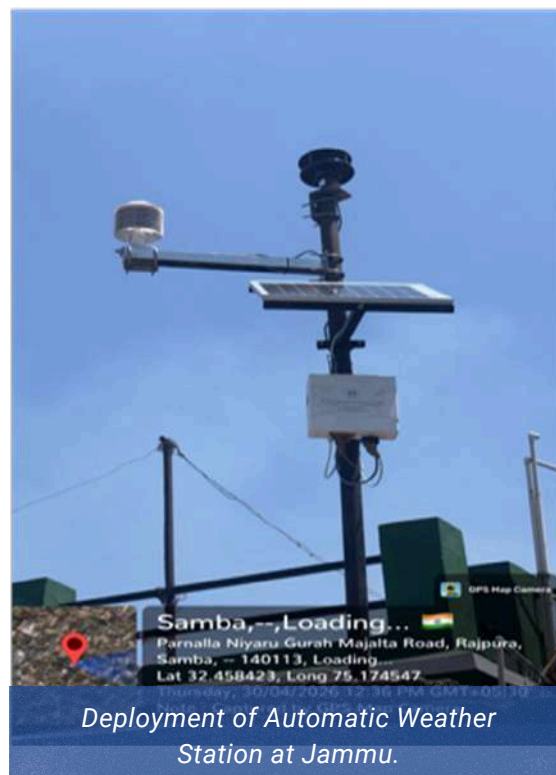


Deployment of AI-Vision Welding Technology at Himachal Pradesh.



Building Climate-Smart Agriculture Through Indigenous Weather Intelligence:

To strengthen climate-resilient agriculture, PI-RAHI facilitated the deployment of an indigenous weather intelligence network developed by Annam.AI through the Centre of Excellence for Agriculture at IIT Ropar. The initiative established 31 low-cost, solar-powered, IoT-enabled Automatic Weather Stations across Punjab and Jammu & Kashmir, delivering real-time weather insights with nearly 98% accuracy. By supporting crop advisories, precision farming, and disaster preparedness, the network is helping farmers make informed decisions while reducing reliance on imported weather-monitoring technologies. Building on its success, a pan-India expansion strategy is being developed to scale the solution for wider adoption across the country.



Deployment of Automatic Weather Station at Jammu.

Transforming Agricultural Value Chains Through Technology and Innovation:

To address challenges related to crop residue management, market access, and farm productivity, PI-RAHI adopted a technology-driven approach focused on strengthening agricultural value chains. The Cluster supported a digital biomass aggregation platform that connected farmers, balers, and biomass-consuming industries across 15 villages in Punjab, managing over 1,000 metric tonnes of biomass and reducing more than 1,250 tonnes of CO₂ emissions. Complementing this effort, crop stubble was transformed into value-added ceiling tiles with thermal

insulation and fire-resistant properties, creating new avenues for biomass utilization.

PI-RAHI also facilitated the deployment of an AI-enabled maize quality assessment platform that onboarded over 2,000 farmers and enabled more than 100 metric tonnes of trade, supporting Punjab's Ethanol Blended Petrol Programme. Together, these initiatives demonstrate how technology and innovation can enhance farmer incomes, promote sustainability, and build more resilient agricultural ecosystems.

Women and Youth in STEM & Entrepreneurship: Building an Inclusive Innovation Ecosystem (Add Idea lab):

PI-RAHI continued to promote inclusive innovation during 2025–26 through initiatives aimed at empowering women and youth in science, technology, and entrepreneurship. Through the STEM Collective programme, implemented with the SanjhiSikhya Foundation, 100 girl students from 25 government schools were introduced to science, innovation, and entrepreneurship through mentorship, bootcamps, and experiential learning. In a special address at the STEM Conclave, Dr. (Mrs.) Parvinder Maini, Scientific Secretary, Office of the PSA, emphasized the importance of creating an inclusive ecosystem that provides young learners, particularly girls, with the guidance, exposure, and opportunities needed to pursue STEM education and careers. She appreciated the STEM Collective initiative for bringing together schools, institutions, and communities to inspire the next generation of innovators and encouraged students to remain curious and embrace

science as a pathway to shaping the future. The Cluster also supported six women-led startups under the SHE Cohort 3.0 through mentorship, investor access, laboratory facilities, and IP support, co-organized the Tech Women Startup and Entrepreneurship Summit (TWESS 2026), and established an Idea Lab to engage undergraduate students in developing technology-driven solutions to regional challenges.



A special video message for the STEM Conclave at PI-RAHI by Dr. (Mrs.) Parvinder Maini, Scientific Secretary, Office of the PSA.



MOUs Signed (2025-2026)



INTERNATIONAL

1

The Network for the Development of Agricultural Cooperatives in Asia and the Pacific (NEDAC)

Strengthen Agricultural Cooperatives and Farmer Associations across Asia Pacific to enhance rural development and sustainable livelihoods under the HARVEST Initiative.

2

HL Mando Softtech India

Industrial training, internships, and hackathons.

3

HL Klemove India

Advanced mobility technologies, industry-academia engagement, internships, and skill development.

4

INC Innovation Center GmbH, Germany

Certificate course for technology-oriented company specialists in R&D, innovation management, and new business development.



NATIONAL

5

Desh Bhagat University

Joint research, innovation, entrepreneurship, internships, and skill development.

6

CGC VentureNest (CGC-J TBI)

Startup incubation, mentoring, and innovation ecosystem development for Northern India.

7

SBSSU, Ferozepur

Research, innovation, entrepreneurship, startup ecosystem strengthening, and capacity building.

8

RNTU, Bhopal

Agriculture, healthcare, clean energy, startup incubation. Co-organised national workshop on AI in Agriculture (279 participants).

9

CRVU, Bhopal

Academic collaboration, research, innovation, entrepreneurship, and capacity-building.

10

Antier Solutions, Mohali

Blockchain, Web3, AI, startup mentoring, skill development, and technology commercialisation.

11

SanjhiSikhya Foundation

STEM Collective Initiative – 100 girl students from 25 Government Schools mentored and motivated to pursue STEM.

**NATIONAL****12****Cheema Boilers Ltd., Mohali**

Green hydrogen: Joint DPR submitted to BIRAC under National Green Hydrogen Mission for H₂ production from Municipal Solid Waste.

13**CGC, Landran**

Research, innovation, entrepreneurship, internships, faculty development, and startup support.

14**Punjabi University, Patiala**

Artisan connect for Punjab under Kalanubhav; entrepreneurship, incubation, mentorship, and rural innovation.

15**Eco Paryavaran Laboratories**

Environmental sustainability, waste-to-wealth, green mobility, and water body rejuvenation.

International Collaborations:

HL Group, South Korea (HL Klemove & HL Mando):

The collaboration focuses on advancing sustainable mobility through joint initiatives in Advanced Driver Assistance Systems (ADAS), electric vehicle technologies, innovation, and capacity building, fostering industry-academia engagement in next-generation transportation solutions.

INC Innovation Center GmbH, Germany:

The partnership aims to strengthen innovation and leadership capabilities through specialized certificate programmes for technology professionals and industry leaders in areas such as R&D management, innovation strategy, sustainable energy, and the circular economy.

Network for the Development of Agricultural Cooperatives in Asia and the Pacific (NEDAC):

The collaboration supports the empowerment of Farmer Producer Organisations (FPOs) by promoting innovation-driven rural entrepreneurship and strengthening agricultural value chains under the HARVEST Initiative.

Tokyo University of Agriculture & Technology and Hokkaido University, Japan:

The partnership focuses on developing an AI-enabled integrated disease forecasting and post-harvest quality intelligence system for stone fruits, supporting climate-resilient horticulture and improving productivity for growers in Northern India.

Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Germany:

The collaboration seeks to promote sustainable agri-residue management solutions for Farmer Producer Organisations in Punjab, enabling improved biomass utilization, environmental sustainability, and rural economic development.



Overview of Funds/ Investments Raised:

- Under CSR-supported initiatives, the Cluster secured Rs. 10 lakh from HL Klemove for the deployment of the Digital Podiatric Clinic at Panjab University Healthcare Centre, Chandigarh.
- Under international partnership-supported initiatives, the Cluster received Rs. 7.31 lakh from NEDAC for the HARVEST Initiative aimed at strengthening Farmer Producer Organisations across Northern India.
- The Cluster also received Rs. 53.12 lakh from the National SC-ST Hub, Ministry of MSME, for the Green Workforce Pipeline programme focused on training youth as certified solar technicians.
- Additional project and event-based support included Rs. 0.90 lakh from GIZ GmbH for a capacity-building workshop on agri-residue management for FPOs in Punjab and Rs. 0.50 lakh from the SROT Foundation for organizing the Tech Women Entrepreneurs & Startup Summit (TWESS).

Future Outlook:

Going forward, PI-RAHI will focus on accelerating the commercialization of indigenous technologies by scaling field-validated innovations into sustainable market deployments across sectors. A key upcoming initiative is Kalanubhav, a dedicated e-commerce platform designed to connect artisan communities with wider markets and create sustainable livelihood opportunities. The Cluster will also expand climate intelligence infrastructure through AI-enabled weather and crop advisory systems, strengthen healthcare technology deployment in underserved regions through public-private partnerships, and foster startup-cooperative collaborations to drive rural entrepreneurship and value-chain modernization. Through enhanced international partnerships, PI-RAHI will continue to promote technology transfer, innovation exchange, and the adoption of scalable solutions for regional development.

Highlights of PRMC meeting:

The PRMC reviewed PI-RAHI's progress across healthcare innovation, advanced manufacturing, climate-smart agriculture, sustainable livelihoods, and entrepreneurship. The Committee appreciated the Cluster's achievements in advancing indigenous healthcare technologies, AI-enabled manufacturing, weather intelligence systems, and technology-driven agricultural solutions, alongside initiatives promoting women and youth in STEM. It recommended strengthening technology commercialization, expanding strategic partnerships, and scaling successful interventions to maximize regional and national impact.

Events :





Key Stakeholders:



R&D Institutions

- CSIR-CSIO, Chandigarh
- CSIR-IMTECH, Chandigarh
- PEC, Chandigarh
- NITTTR, Chandigarh
- PGIMER, Chandigarh
- Panjab University, Chandigarh
- BRIC-NABI, Mohali
- NIPER, Mohali
- ISB, Mohali
- IISER, Mohali
- Amity University, Mohali
- Plaksha University, Mohali
- INST, Mohali
- Desh Bhagat University, Punjab
- SBSSU, Ferozepur
- RNTU, Bhopal
- CRVU, Bhopal
- Ambala College of Engineering & Technology
- IIT Jammu
- Islamic University of Science and Technology
- National Institute of Technology Srinagar
- SKUAST-Kashmir
- Homi Bhabha Cancer Hospital and Research Centre (Tata Memorial Center)
- IIT Ropar (Punjab)
- PAU, Ludhiana (Punjab)
- Punjabi University, Patiala
- Chitkara University, Rajpura
- NIT Jalandhar
- Dr. YS Parmar Univ., Nauni (HP)
- Shoolini University, Solan (HP)
- Maharaja Agrasen Univ., Barotiwala
- MDU, Rohtak (Haryana)
- SKUAST, Kashmir (J&K)
- IUST Avantipura (J&K)
- CGC, Landran
- Rabindranath Tagore University
- Dr. C.V. Raman University
- ICAR-CIPHET
- University of Kashmir
- Central University of Jammu
- Central University of Kashmir
- Cluster University Srinagar
- SKUAST-Jammu
- IIT Mandi (HP)
- CSIR-IIIM Jammu



Government Bodies

- Punjab State Council for Science & Technology (PSCST)
- Haryana State Council of Science & Technology
- HP Council for Science Technology & Environment
- J&K Science, Technology & Innovation Council (JKSTIC)
- Dept. of Industries, UT Chandigarh
- National Innovation Foundation
- Dept. of Science, Technology & Renewable Energy, Chandigarh
- Ministry of MSME, Govt. of India
- Drugs Controller General of India (DCGI)
- Department of Health and Family Welfare, Himachal Pradesh



Industry & Associations

- CII (Northern Region), Chandigarh
- PHD Chamber of Commerce
- CICU, Ludhiana
- BBNIA, Baddi (HP)
- FICO, Ludhiana
- IFFCO, Shimla (HP)
- Hand Tools Manufacturers Assoc., Jalandhar
- Avon Cycles Ltd., Ludhiana
- Cheema Boilers Ltd., Mohali
- CGC VentureNest (CGC-J TBI)
- IM PUNJAB
- Entrepreneurship Promotion & Incubator Council (EPIC)
- TBI at IISER Mohali
- Annam.AI (IIT Ropar CoE Agri)
- PANJ Foundation
- Avanti Fellows
- SKUAST-J ABI FOUNDATION
- Zenergise
- Invigorate Biotechnologies LLP
- AngelBlue Holdings Pvt. Ltd.
- CodriodHub Private Limited
- Genpact
- SROT Foundation
- SanjhiSikhya Foundation
- Antier Solutions Pvt. Ltd., Mohali
- Eco Paryavaran Laboratories
- EST Global Inc.
- I-Hub Awadh – IIT Ropar
- AIC at ISB, Mohali
- iHub & HCI Foundation, IIT Mandi
- Innovation Mission Punjab
- SanjhiSikhya
- SKUAST Kashmir Innovation, Incubation and Entrepreneurship Centre (SKIIE)
- AIC-IIIM Jammu



International Collaborations

- HL Group, South Korea (HL Klemove& HL Mando)
- INC Innovation Center GmbH, Germany
- The Network for the Development of Agricultural Cooperatives in Asia and the Pacific (NEDAC)
- University of Western Australia
- Tokyo University of Agriculture & Technology (TUAT), Japan
- Hokkaido University, Japan
- British High Commission



DELHI RESEARCH, IMPLEMENTATION, AND INNOVATION CLUSTER (DRIIV)

www.driiv.co.in

Introduction:

The Delhi Research Implementation and Innovation (DRIIV) Cluster, established under the Office of the Principal Scientific Adviser to the Government of India, serves as a platform for translating research and innovation into scalable technologies, enterprises, and societal solutions. Leveraging the scientific, industrial, and innovation strengths of the National Capital Region (NCR), DRIIV brings together academia, industry, government agencies, startups, investors, and civil society to accelerate technology validation, pilot deployment, commercialization, and policy-driven innovation.

With a focus on Green Energy Transition and Environmental Sustainability, Water Security, and Critical and Emerging Technologies, DRIIV addresses strategic challenges across climate resilience, environmental remediation, clean energy, healthcare, advanced materials, digital technologies, and industrial safety. Through collaborations with leading industries, government bodies, and research institutions, the Cluster has facilitated the deployment of indigenous technologies in



areas such as wastewater treatment, air quality management, industrial safety, and circular economy solutions. By enabling technology transfer, public-private partnerships, and evidence-based implementation, DRIIV is strengthening India's innovation ecosystem, supporting sustainable industrial growth, and advancing the vision of an innovation-driven and self-reliant economy.

Thematic Areas/ Verticals:





Key Projects/ Achievements:

Industrial waste management and circular economy:

To address the challenge of industrial oily sludge management, DRIIV facilitated the deployment and validation of an indigenous phycoremediation technology developed by Trinity International. Using specialized microalgae to biodegrade hydrocarbons, the technology offers a sustainable and cost-effective alternative to conventional remediation methods. A successful field pilot at Numaligarh Refinery Limited (NRL), Assam, demonstrated over 90% reduction in Total Petroleum Hydrocarbons (TPH), bringing residual concentrations well below regulatory limits prescribed by the Central Pollution Control Board (CPCB).

The project led to the grant of a joint patent to Trinity International and DRIIV for the microalgae-based treatment process and paved the way for scaling up the technology through a 300–400 MT treatment facility at NRL. Supported by stakeholders including the Office of the Principal Scientific Adviser, Ministry of Environment, Forest and Climate Change, NRL, OIL India, and technology experts, the initiative showcases a scalable model for deploying indigenous environmental technologies across India's petroleum sector.

Advancing resource recovery – Plastic-to-circular naphtha conversion:

support India's circular economy objectives, DRIIV facilitated the commercialization of an advanced plastic-to-fuel technology developed by Abhedya. A first-of-its-kind modular facility was established in Chakan, Pune, using integrated catalytic thermocracking technology to convert hard-to-recycle plastic waste into specification-grade diesel and naphtha. Designed for phased expansion from 10 KL/day to 50 KL/day, the facility also creates future opportunities for the production

Nature-based solutions for air quality improvement, industrial decarbonization and water sustainability:

To advance low-carbon solutions for air quality improvement and industrial water management, DRIIV facilitated the deployment of innovative algae-based technologies across critical infrastructure and energy sectors. In collaboration with the GMR Group, algae-based photobioreactor systems developed by Trinity International were installed at five locations within Delhi International Airport, serving as biological carbon capture, air purification, and oxygen enrichment units.

DRIIV also enabled a pilot demonstration at GMR Warora Energy Limited (GWEL) to reduce cooling-water hardness using an algae-based remediation process, with a clear pathway for large-scale deployment. Together, these initiatives highlight the potential of nature-based technologies to support industrial decarbonization, improve environmental performance, and promote sustainable resource management, while accelerating the adoption of indigenous innovations in large-scale industrial operations.

of Sustainable Aviation Fuel (SAF), green hydrogen, and specialty chemicals. The technology's scale-up and commercialization roadmap is being advanced through strategic collaboration between Abhedya, BASF, and DRIIV, highlighting its industrial relevance and market potential. By transforming low-value plastic waste into high-value chemical feedstocks, the initiative demonstrates a scalable pathway for waste valorization, resource recovery, and sustainable industrial growth.



Smart infrastructure, healthy buildings, and industrial safety:

To enhance indoor environmental quality and industrial safety, DRIIV supported the validation and deployment of two indigenous deep-tech solutions. At Indian Oil Bhawan, DRIIV facilitated the demonstration of AIRTH's Smart Fresh Air Damper technology, which improves indoor air quality without increasing HVAC energy consumption. Independently validated by IIT Delhi, the solution achieved significant reductions in particulate matter, CO₂, volatile organic compounds, and formaldehyde, resulting in a 48% improvement in overall

indoor air quality and securing a scale-up deployment at an IOCL facility.

In parallel, DRIIV enabled the deployment of VDOIT's AI-powered digital safety audit platform at IOCL, integrating GPS-enabled inspections, computer vision, thermal imaging, and automated compliance monitoring to strengthen industrial safety management. Together, these initiatives demonstrate the potential of indigenous clean-tech and digital innovations to improve workplace health, operational efficiency, and safety across industrial environments.



Building the innovation and technology translation ecosystem:

DRIIV continued to strengthen India's innovation ecosystem through fellowships, capacity-building programmes, and industry-oriented technology training. In collaboration with the M3M Foundation, the Cluster successfully concluded the MASHAAL Green Fellowship Programme, supporting promising deep-tech innovations in renewable energy, water security, and climate technologies. Following a rigorous evaluation process involving experts from industry and international organizations, Octarange Technologies and AIRTH were awarded research grants and technical mentorship to accelerate their innovations.

DRIIV also delivered specialized training programmes to build future-ready technical capabilities. This included an advanced drone training programme for professionals from WAPCOS Limited, combining regulatory knowledge with hands-on field operations, and an executive training programme for NHPC officials focused on emerging renewable energy technologies, grid-scale innovations, energy storage systems, and evolving regulatory frameworks. Through these initiatives, DRIIV continues to bridge the gap between research, industry, and workforce development while fostering a strong pipeline of innovation and technology leadership.



MOUs Signed (2025-2026)



INTERNATIONAL

1

BASF

Established collaboration on plastic pyrolysis and circular economy technologies. Joint efforts are focused on advancing chemical recycling, resource recovery, and sustainable waste management solutions.



NATIONAL

2

WAPCOS Limited

Initiated collaboration on water systems, automation, and sustainable infrastructure. Joint activities include technology integration, monitoring systems, and climate-resilient engineering solutions for public utilities and water resources.

3

WAPCOS Limited

Collaborating on UAV-based surveys, GeoAI applications, advanced analytics, and capacity building in geospatial and drone technologies to support infrastructure, environmental management, and governance applications.

4

Federation of Indian Industry

Strengthened industry-academia engagement through technology scouting, industry requirement mapping, and commercialization support for innovations across MSME manufacturing clusters.

5

Monoatom Labs Private Limited

Initiated collaboration on graphene-based deep-tech solutions, supporting translational research, technology development, and industry-academia partnerships for high-impact innovation.

6

Kurious Learning Labs Private Limited

Partnered to promote STEM education through technology-enabled learning programmes, pilot deployments, specialized learning toolkits, and skill development initiatives.

7

ECOSTP Technologies Private Limited

Established a partnership to advance decentralized wastewater treatment technologies through joint R&D, pilot deployments, and scalable solutions for urban water management.

8

Mosaic Workskills Private Limited

Collaborating on skill development, vocational training, certification programmes, and innovation bootcamps focused on deep-tech and environmental technology domains.

9

Tagbin Services Private Limited

Initiated collaboration on AI-led innovation and digital transformation, including AI Strategy Labs, command centres, IoT-GIS integrated dashboards, predictive analytics, and capacity-building programmes.

10

VDOIT Technologies Limited

Partnered to develop AI-enabled solutions across sectors including education, healthcare, and agriculture, while supporting the deployment of digital technologies for societal impact.

11

WSAFE Sustainability Private Limited

Established collaboration on nature-based water management solutions, focusing on waterbody rejuvenation, groundwater recharge, sustainable fisheries, climate-smart agriculture, and pilot technology deployments.



International Collaborations:

BASF:

Collaboration on plastic waste valorization and pyrolysis oil upgradation technologies to advance circular economy solutions and closed-loop recycling pathways.

University of Western Australia (UWA), Australia:

Collaboration to promote joint research, technology validation, and innovation in energy security and environmental sustainability.

CSIRO, Australia:

Proposed partnership on energy transition and resource recovery technologies, including green hydrogen, agrivoltaics, advanced energy storage, and wastewater remediation.

Israel Innovation Authority (IIA), Israel:

Collaboration to support joint R&D, technology transfer, and commercialization of deep-tech innovations through India-Israel innovation programmes.

UK Catapult Network, United Kingdom:

Partnership to advance translational research, joint testbeds, and innovation collaborations in clean energy, digital technologies, healthcare, and advanced materials.

University of Miami, USA:

Proposed collaboration on carbon capture, green hydrogen, and climate technologies to support industrial-scale deployment of indigenous innovations.

Attractify Technologies, Singapore:

Collaboration to expand AI, automation, and IoT-based solutions into Southeast Asian markets and strengthen global commercialization pathways.

Overview of Funds/ Investments Raised:

- Under CSR-supported initiatives, the Cluster secured Rs. 129.73 lakh from Indraprastha Gas Limited (IGL), Rs. 15.46 lakh from Housing and Urban Development Corporation Limited (HUDCO), Rs. 30.22 lakh from the M3M Foundation, and Rs. 99.50 lakh from OPPO Mobiles India Pvt. Ltd. for various sustainability, innovation, and community-focused programmes.

- Under R&D projects, the Cluster received Rs. 5.00 lakh from Numaligarh Refinery Limited, Rs. 21.08 lakh from Aurassure Pvt. Ltd., Rs. 7.79 lakh from UPSIDA, Rs. 4.25 lakh from SBICAP Ltd., Rs. 5.90 lakh under the DAPHNE Project, Rs. 2.75 lakh from Primus Partners Pvt. Ltd., and Rs. 1.00 lakh from Indian Oil Corporation Limited to support technology validation, research, and innovation activities.

- Under skill development programmes, the Cluster secured Rs. 2.59 lakh from Zenith Rail Edvarsity Pvt. Ltd., Rs. 5.00 lakh from WAPCOS Ltd., and Rs. 10.01 lakh from NHPC Ltd. for capacity-building and workforce development initiatives.

- Collectively, these initiatives enabled the Cluster to mobilize Rs. 340.28 lakh during the year, strengthening its technology deployment, research translation, and innovation ecosystem development activities.

Future Outlook:

Going forward, DRIIV will continue to strengthen its role as a “National Technology Accelerator” by advancing the translation, validation, and commercialization of indigenous technologies through strategic partnerships across government, industry, academia, and startups. Key priorities include scaling sustainable technology deployments with Airports Authority of India, accelerating startup innovation and commercialization in collaboration with DPIIT, and supporting the development of clean mobility ecosystems, including the Himachal Pradesh EV Network. The Cluster will further expand its engagement with energy-sector stakeholders such as MoPNG, ONGC, and OIL India to advance alternate fuels, waste-to-energy

solutions, carbon utilization technologies, and refinery sustainability innovations. DRIIV also plans to drive technology deployment projects with leading industry partners across mobility, advanced manufacturing, and industrial decarbonization, while advancing a multi-institutional water security programme for the National Capital Region under the ANRF MAHA Water initiative. Additional focus areas include supporting MedTech innovation, leveraging the incubation ecosystems of NCR-based universities to nurture high-potential startups, and expanding international collaborations to facilitate technology co-development, investment, and global market access.

Highlights of PRMC meeting:

The 14th PRMC meeting was held on 30th January 2026 in a hybrid mode at the R&I Park, IIT Delhi, to review the progress of DRIIV and provide strategic direction for its future activities. The committee reviewed advancements across the Cluster’s thematic areas, including Environmental Sustainability and Green Energy Transition, Water Security, and Emerging Technologies. Discussions focused on strengthening mission alignment, accelerating translational research, and enhancing technology deployment and commercialization outcomes, particularly in the energy, environment, and air quality sectors. The committee reaffirmed DRIIV’s role as the umbrella body of the Delhi-NCR Science & Technology Cluster and emphasized its continued contribution in connecting research, industry, government, and policy to deliver scalable societal impact.

Events :





Key Stakeholders:



Academia

- IIT Delhi
- IIIT Delhi
- AIIMS
- JNU
- University of Delhi
- CSIR-NPL
- CSIR-NEERI
- CSIR-CRRI
- ICAR-IARI
- TERI
- SRM University
- Ashoka University
- G.D Goenka University
- Shiv Nadar University
- Amity University



Government

- AAI
- MoEFCC
- DJB
- MSME
- DPIIT
- DTC
- DDA
- NCDC
- WAPCOS
- NDMC
- Various State Governments
- NHPC



Industry

- TATA Power
- TPDDL
- Google
- Toyota Tsusho
- BASF
- JSW Greentech
- Maruti Suzuki
- OPPO India
- BATX Energies
- IGL
- REC
- PDCL
- HUDCO
- Trinity International
- OIL
- NRL
- IOCL
- Aramco
- Biomimicry Technologies
- EVI Technologies
- RETAS
- Nico Nanobubbles
- Airth
- Vdoit
- Vayuguard
- WSAFE
- Abhedya



International Collaborations

- University of Western Australia
- University of Edinburgh
- Environmental Defence Fund
- CLEAN Danish Cluster
- World Health Organization (WHO)
- Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- UK Catapult Network
- Australia
- University of Miami
- Israel Innovation Authority (IIA)



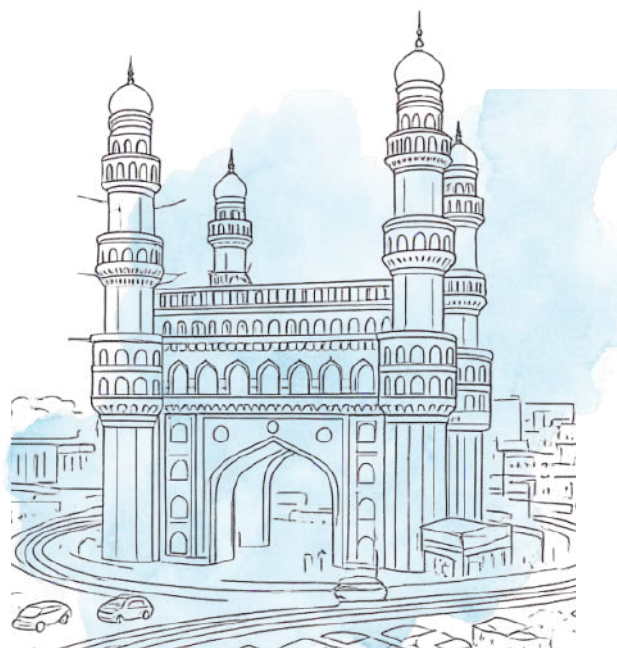
RICH
Research and Innovation
Circle of Hyderabad

RESEARCH AND INNOVATION CIRCLE OF HYDERABAD (RICH)

www.rich.telangana.gov.in

Introduction:

The Research and Innovation Circle of Hyderabad (RICH), a Section 8 company of the Government of Telangana, serves as the Hyderabad S&T Cluster under the Office of the PSA. 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 and agriculture sector, and 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 and Decarbonization of MSMEs, thereby co-creating scalable solutions to strengthen interconnected S&T ecosystems for innovation-led growth.

Thematic Areas/ Verticals:



Key Projects/ Achievements:

Green Economy – Greening of MSMEs (RAMP):

Under the RAMP Scheme, RICH led efforts to enhance the sustainability and competitiveness of Telangana’s MSME sector through energy audits, clean technology adoption, and capacity building. In partnership with CII, the initiative onboarded over 1,000 MSMEs across 15 energy-intensive clusters and completed energy and carbon audits for more than 300 enterprises. RICH also launched Technology Compendiums and a

Greening of MSMEs Dashboard to help industries assess and track their carbon footprint and sustainability performance. Through 10 capacity-building programmes and collaborations with SIDBI, UNIDO, BEE, financial institutions, OEMs, and industry associations, RICH has emerged as a nodal agency under Telangana’s new MSME Policy for promoting R&D, innovation, and technology adoption.



Telangana Hospital-Industry-Innovation Bridge:

The Telangana Hospital-Industry-Innovation Bridge, launched by RICH at BioAsia, is a strategic initiative that connects hospitals, industry, and researchers to accelerate healthcare innovation and MedTech manufacturing. The programme aims to bridge clinical needs with industry-led R&D, strengthening Telangana's healthcare innovation ecosystem.

Ne-GPA – National e-governance plan for agriculture:

In collaboration with the Department of Agriculture, Telangana, PJTAU, and Ag-Hub, RICH is driving the implementation of eight technology-led agricultural use cases, including crop health monitoring, carbon credits, smart farming, agrivoltaics, drone-based spot spraying, and traceability. RICH is leading use-case development, partner evaluation, RFP design, outreach, and project implementation. Implementation agencies have already been onboarded for four use cases, with the remaining initiatives progressing toward deployment.

Acceleration Initiative for Devices, Diagnostics and Digital Health:

RICH has supported 20 startups working in musculoskeletal and neuro-cognitive health by facilitating market access through partnerships with 10 hospitals and clinics, accelerating the adoption of innovative healthcare solutions.

Digital Technologies for Farmer Livelihoods in Partnership with Microsoft:

This initiative promotes climate-smart agriculture by leveraging AI, IoT, and data-driven technologies to improve the productivity, resilience, and livelihoods of 1,000 farmers. Through precision agriculture solutions for soil, water, weather, and pest management, the project enables informed on-farm decision-making while fostering collaborations with agri-tech startups, research institutions, government agencies, and local communities. As part of the initiative, an Agri Innovation Challenge attracted over 50 applications, leading to the selection of five startups to pilot innovative agricultural solutions.

Strengthening Tuberculosis Care through Infrastructure and Nutrition Support:

With support from NewSpace India Limited (NSIL) under its CSR programme, RICH is implementing a comprehensive tuberculosis (TB) care initiative in Devarakonda, Nalgonda district, Telangana. The project strengthens TB care by upgrading healthcare infrastructure at Primary Health Centres, providing nutrition support to patients through the Nikshay Mitra programme, and building the capacity of healthcare workers through targeted training. Together, these interventions aim to improve early diagnosis, treatment adherence, patient recovery, and contribute to the goal of TB elimination.

MOUs Signed (2025-2026)



INTERNATIONAL

1

TiE

Nominated startups for TiE50 Hyderabad, facilitating industry and investor connections, global mentorship, and ecosystem visibility.

2

NICCI

Identified joint collaboration activities, established industry connections for Pixii in India. Submitted research project proposals to UNIDO, EU horizon, NISE.

3

NPTC

Developed a proposal on CoE on EV skilling center and curriculum for practical immersion sessions on E-mobility.

4

PreferCo-Glatt Group CoE

Working with PreferCo to identify the manufacturing equipment and design a structured program with PreferCo and other industries in Telangana.

5

Syngenta

Conducted a workshop on safe chemical application protocols aimed at reducing MRL levels in Siddipet for 100 vegetable farmers.

6

ICRISAT

Exploring collaborations for joint projects.

7

Microsoft

Launched an initiative, Digital Technologies for farmer Livelihoods targeting 1000 farmers in Rangareddy, Telangana.



NATIONAL

8

Malaxmi Group

Connected with PiXii (Norway) to enter Indian markets, working on developing demand-side energy management and battery recycling pilot proposals, startup investments, and clean-tech collaborations.

9

IIHMR Startups

Conducted one webinar on ABDM.

10

IIMR

Exploring joint project developments.



International Collaborations:

Charles Sturt University, Australia:

RICH, in partnership with Charles Sturt University (Australia), Bengaluru Science & Technology Cluster, Professor Jayashankar Telangana State Agriculture University (PJTU), and CoE-FPO, launched the India–Australia Smart Farm Network Initiative with support from the Department of Foreign Affairs and Trade (DFAT), Government of Australia. The initiative aims to foster collaboration between Indian and Australian stakeholders to pilot and scale emerging AgriTech solutions across key agricultural value chains, focusing on areas such as IoT, drones, remote sensing, mechanisation, and climate-smart agriculture. The network seeks to accelerate technology validation, strengthen farmer adoption, and build long-term research and innovation partnerships between the two countries.

Manchester University NHS Foundation Trust, United Kingdom:

The collaboration supports India–UK Joint Working Groups in healthcare to promote knowledge exchange, share best practices, and accelerate market-ready healthcare innovations.

Royal Norwegian Embassy, India:

The partnership advances Indo-Norwegian collaboration in clean energy, sustainability, and emerging technologies, including the DREAMS project, while fostering research and innovation partnerships.

Delaware Collaboration, USA:

The engagement promotes collaboration in green hydrogen and biomanufacturing through joint research, technology commercialization, startup partnerships, workforce development, and industry–academia linkages.

PreferCo–Glatt Group, Germany:

The collaboration established the PreferCo–Glatt Centre of Excellence for Bioprocess Scale-Up in Hyderabad to strengthen precision fermentation, bioprocess scale-up, and BioE3-driven innovation through advanced automation and AI-enabled technologies.

Overview of Funds/ Investments Raised:

- The Cluster secured Rs. 157 lakhs under the Startup India Seed Fund Scheme (SISFS) to strengthen startup incubation and innovation support, along with Rs. 94 lakhs from Microsoft to advance technology-driven innovation initiatives.
- Project-based funding included Rs. 251 lakhs under the Greening of MSMEs project through the RAMP Scheme, Rs. 51 lakhs for the Demand Response Driven Energy Advancements project under the Indo–Norway collaboration, and Rs. 6 lakhs from NewSpace India Limited (NSIL) for healthcare-focused CSR initiatives.
- Collectively, these investments enabled the Cluster to mobilize approximately Rs. 559 lakhs during the year, strengthening its innovation ecosystem across startups, sustainability, healthcare, clean energy, and MSME technology adoption.

Future Outlook:

Building on its strong innovation ecosystem, RICH will focus on scaling high-impact technologies and strengthening strategic partnerships to accelerate sustainable and inclusive development across Telangana. Key priorities include expanding green hydrogen initiatives, MSME decarbonization, EV skilling, and clean energy incubation programmes. The Cluster will strengthen startup support through blended finance and cluster-led innovation programmes, while advancing AI-

and BioE3-driven initiatives, digital health, MedTech, and life sciences infrastructure. RICH will also scale digital agriculture technologies to benefit over 5,000 farmers, promote carbon credit ecosystems and climate-smart agriculture, launch a Climate Innovation Lab and circular economy programmes, and expand global partnerships to position Telangana as a leading hub for innovation, sustainability, and translational research.

Highlights of PRMC meeting:

The PRMC meeting reviewed the progress achieved by RICH under Phase 2 across its three focus areas, Green Economy, Smart Farming, and "We to Me" HealthTech, and discussed the roadmap for the next phase of activities. The committee assessed ongoing initiatives, identified opportunities to enhance programme impact, and provided strategic guidance to strengthen implementation across the Cluster's priority sectors. The meeting also facilitated constructive engagement with sectoral partners, fostering collaborative discussions to advance innovation-driven solutions. The PRMC members appreciated the progress made by RICH during the year and commended the team for the successful planning and execution of the meeting.

Events :







Key Stakeholders:



Academia & Research

- International Institute of Information Technology, Hyderabad (IIIT-H)
- National Institute of Technology, Warangal (NIT-W)
- Professor Jayashankar Telangana Agricultural University (PJTUAU)
- Indian Institute of Management, Ahmedabad (IIM-A)
- Dr. Reddy's Institute of Life Sciences (DRILS)
- IIHMR University Foundation
- The Indian Institute of Millets Research (IIMR)



Government

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



Others

- Telangana State Road Transport Corporation (TGSRTC)
- Sustainability, Equity and Diversity (SED) Fund
- MSME-DFO Hyderabad
- National Turmeric Board (NTB)
- State Pollution Control Board
- Centre for the Fourth Industrial Revolution (C4IR Telangana)
- New Space India Limited (NSIL)
- Federation of Telangana Chambers of Commerce and Industry (FTCCI)

- Sri KondaLLaxman Telangana Horticulture University (SKLTHU)
- Indian Institute of Chemical Technology (IICT)
- Indian Institute of Technology, Hyderabad (IIT-H)
- Birla Institute of Technology and Science, Hyderabad (BIT-H)
- Tata Institute of Fundamental Research (TIFR)
- Centre for Cellular and Molecular Biology (CSIR-CCMB)
- National Academy of Legal Studies and Research (NALSAR)
- International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
- National Institute of Plant Health Management (NIPHM)
- PV Narasimha Rao Telangana Veterinary University (PVNRTVU)



Industry

- Syngenta
- ITC
- Amara Raja Design Alpha
- Prasad Seeds
- PreferCo
- Akriti Ophthalmic
- Microsoft
- Biocon
- Sahajanand Medical Technologies Ltd. (SMT)
- National Thermal Power Corporation (NTPC)
- Sids Farm
- Coromandel
- International Trade Centre (ITC)
- HBL Engineering
- PathnSitu Biotechnologies
- Samunnati



International

- World Economic Forum (WEF)
- National University of Singapore (NUS)
- Smart Innovation Norway
- Manchester University NHS Foundation Trust
- Crop Trust (Australia)
- ZAG & University of Miami (USA)
- Bharat Biodesign
- Japan Biodesign Tokyo
- Biodesign Israel
- Glatt Group
- Denso Global
- Japan International Cooperation Agency (JICA)
- Green Hydrogen Association (GH2)
- Centre for Agriculture and Biosciences International (CABI)
- SwissNex (Switzerland)
- Naya Development (Norway)
- British Deputy High Commission (BDHC)
- Nagoya University
- Taipei Medical University Biodesign
- Bioinnovate Ireland
- Charles Sturt University (CSU)
- Murata Electronics
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
- International Finance Corporation (IFC)
- International Rice Research Institute (IRRI)
- Clusters of Sweden (Sweden)
- Energy Catapults Network (UK)
- Stanford Biodesign
- Biodesign Australia
- Singapore Biodesign
- Biodesign Innovation Melbourne
- Global Green Growth Institute (GGGI)
- Good Food Institute



Hospitals

- AIG
- Argala Revive
- Center for Sports and Spine Health
- Grace Cancer Foundation
- MNJ Institute of Oncology
- Premier Hospitals
- CardiacRehab
- Renovo
- Maxivision
- AINU
- Atharv Ability
- Asian Spine Hospital
- Kamineni
- Osmania Medical College
- Star Hospitals
- Arete
- Smiline
- Ankura Hospital Hyderabad
- Apollo
- Basavatarakam
- Excell
- KIMS
- NICE Foundation
- Yashoda Hospitals
- Malla Reddy Health City
- KIMS-Sunshine
- Yuti Clinics
- Apollo Home Care
- Continental
- Fernandez
- LVPEI
- NIMS
- Rainbow Hospitals
- WinVision
- Gleneagles Global Hospitals
- Go Hospital

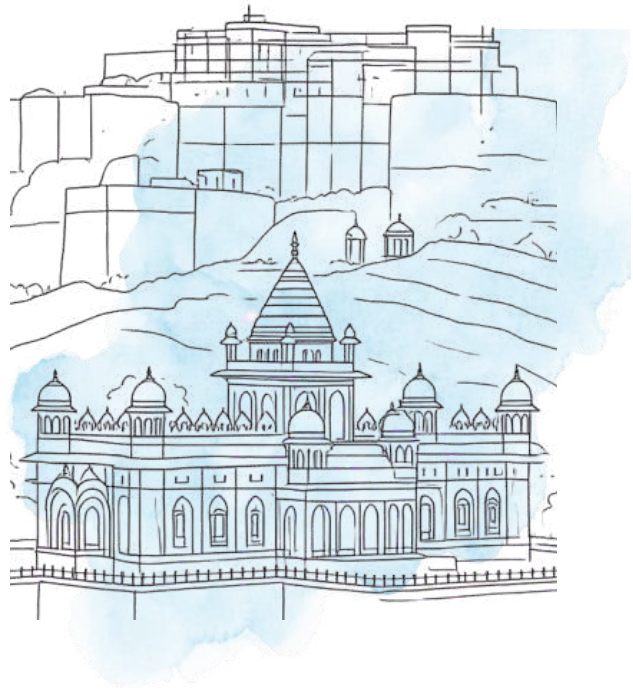


JODHPUR CITY KNOWLEDGE AND INNOVATION CLUSTER (JCKIC)

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 includes enabling innovation for the accelerated growth of the local industry, generating new initiatives in entrepreneurship, and developing solutions for the critical problems of the region.



Thematic Areas/ Verticals:



Medical
Technologies



Handicrafts &
Handlooms



Rain water
harvesting and
Conservation

Key Projects/ Achievements:



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

JCKIF is transforming the way traditional crafts are experienced and marketed through a first-of-its-kind immersive museum, the Kalaanubhav.in e-commerce platform, and a 3D Experience Centre at IIT Jodhpur. Showcasing over 1,000 handcrafted products across 12 craft traditions, the initiative combines QR-enabled storytelling, immersive

3D product visualization, and AR/VR technologies to connect visitors with the rich heritage of India's artisans. By providing artisans with direct access to national and global markets, Kalaanubhav promotes sustainable livelihoods while preserving and showcasing India's traditional craftsmanship through an engaging digital experience.

Mission “NEER UDAY”:

Under Mission NEER UDAY, JCKIF launched the Student Explorer Internship Programme (SEIP 2025) to document traditional water bodies and rainwater harvesting systems across India's arid and semi-arid regions while exploring sustainable solutions to regional water challenges. The mission also promotes community engagement, capacity building, water conservation, and the restoration of traditional water resources through workshops, outreach programmes, stakeholder collaborations, and volunteer participation. To guide future interventions, JCKIF conducted a need assessment to identify gaps in water management and develop village-level water management and phased intervention plans.

I-RISE Operator Training Program (I-OTP):

JCKIF, in collaboration with IIT Jodhpur's Central Research Facility and I-STEM, organized the I-RISE capacity-building programme on 24–25 March 2026 under the Office of the Principal Scientific Adviser to the Government of India. The two-day programme brought together nearly 100 participants, including students, researchers, faculty, laboratory professionals, and industry representatives from across the country, to strengthen technical expertise in advanced scientific instrumentation and promote effective utilization of national research infrastructure. Participants received hands-on training in advanced characterization techniques such as SEM, XRD, ICP-MS, FTIR, and HPLC, reinforcing the programme's objective of democratizing access to high-end scientific facilities and building a skilled research workforce for a Viksit Bharat.

“Navsrijan” – Design Innovation Workshop:

JCKIF organized a two-day Design Innovation Workshop in collaboration with IIT Jodhpur, NIFT Jodhpur, and FDDI Jodhpur, bringing together 100 artisans from Rajasthan's textile and leather craft sectors. Through hands-on mentorship, the workshop enabled artisans to integrate contemporary design practices with traditional craftsmanship, enhancing product innovation and market appeal. The event also marked the signing of MoUs with the Ruma Devi Foundation and FDDI Jodhpur to strengthen long-term collaboration in artisan development, design innovation, and the sustainable growth of the state's craft ecosystem.





MOUs Signed (2025-2026)



INTERNATIONAL

Circular Economy IL, Israel

1

Initiated collaboration on circular economy, sustainable livelihoods, water conservation, medical technologies, startup support, and international knowledge exchange through joint research and capacity building.

University of Western Australia (UWA), Australia

2

Established partnership to advance joint research and innovation in water sustainability, climate-resilient agriculture, rural healthcare, affordable medical technologies, STEM education, and academic exchange for arid and semi-arid regions.



NATIONAL

Footwear Design and Development Institute (FDDI), Jodhpur

3

Established collaboration on design innovation, skill development, entrepreneurship, startup incubation, product development, and industry-academia partnerships in the footwear, leather, and lifestyle sectors.

Ruma Devi Foundation, Barmer

4

Partnered to strengthen rural livelihoods through skill development, women empowerment, design-led value addition, entrepreneurship support, and capacity-building programmes for artisan communities.

International Collaborations:

Circular Economy IL, Israel:

Collaboration to promote circular economy practices, sustainable resource utilization, and livelihood enhancement through innovation-driven solutions and community engagement.

Israel Innovation Authority (IIA), Israel:

Engagement to foster joint R&D, technology development, industry-academia partnerships, and commercialization under the India-Israel innovation ecosystem.

UK Catapult Network, United Kingdom:

Engagement to strengthen innovation, technology commercialization, and industry-academia collaboration through partnerships with India's Science & Technology Clusters.

Australia Industry Connect Program, Australian High Commission:

Collaboration to explore joint initiatives in solar energy, advanced battery technologies, green hydrogen, and other emerging technology sectors.

University of Western Australia (UWA), Australia:

Partnership to advance joint research and knowledge exchange on water sustainability, climate-resilient agriculture, rural healthcare, affordable medical technologies, and STEM education for arid and semi-arid regions.

Overview of Funds/ Investments Raised:

- Under CSR-supported initiatives, the Cluster secured approximately Rs. 3.7 crores from the SBI Foundation for the three-year SBIF LEAP: KALAUTKARSH project, aimed at empowering nearly 1,800 artisans across Barmer, Jodhpur, and Jalore through skill development, productivity enhancement, and improved market linkages.
- This investment will strengthen artisan entrepreneurship, promote sustainable livelihoods, and support the preservation and commercialization of Rajasthan's traditional crafts through a cluster-based development approach.

Highlights of PRMC meeting:

The PRMC appreciated JCKIF's progress in artisan development, water conservation, and scientific capacity building, highlighting initiatives such as Kalaanubhav, Mission NEER UDAY, Navsrijan, and I-RISE. The Committee recommended expanding strategic partnerships and scaling these initiatives to enhance their long-term impact.

Future Outlook:

JCKIF will continue to advance impactful initiatives across its key focus areas of Handicrafts & Handlooms, Rain Water Harvesting and Conservation, and Medical Technologies. Efforts in the Handicrafts & Handlooms Vertical will focus on expanding the reach of Kalaanubhav.in, onboarding new artisan clusters, facilitating design registration and GI-tagging related initiatives, and strengthening artisan capacities through digital literacy, product innovation, and entrepreneurship programs. The Foundation will also pursue strategic partnerships and advance the proposed Craft Village in Jaisalmer to create sustainable livelihood opportunities, particularly for women and youth.

Under the Rain Water Harvesting and Conservation vertical, JCKIF will promote community-led water conservation through rainwater harvesting, efficient irrigation practices, and rejuvenation of traditional water bodies, including projects in the Pachpadra Refinery region. Simultaneously, the Med-Tech Vertical will work towards establishing an advanced Medical Devices Testing Laboratory to support innovation, testing, validation, and certification of healthcare technologies. Together, these initiatives aim to foster sustainable development, strengthen innovation ecosystems, and create long-term socio-economic impact.

Events :



Visit of Shri Bhajan Lal Sharma, Hon'ble Chief Minister of Rajasthan to JCKIF Handicraft & Handloom Exhibition on State-Level Independence Day celebrations on August 14, 2025, at Ashok Udhyan, Jodhpur.



Prof. Ajay Kumar Sood, PSA, along with Dr. (Mrs.) Parvinder Maini, Scientific Secretary, O/o PSA, and Prof. Avinash Kumar Agarwal, Director, IIT Jodhpur, inaugurating the JCKIF Craft Exhibition at The Kunj, New Delhi – an initiative supporting the Government of India's vision of taking artisans from "gaon to global".

Key Stakeholders:



Academia & Research

- Indian Institute of Technology, Jodhpur
- All India Institute of Medical Science, Jodhpur
- Indian Institute of Management, Indore
- National Institute of Fashion Technology, Jodhpur
- Indian Institute of Handloom Technology, 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
- Seth Gyaniram Bansidhar Poddar College, Jhunjunu



Government Department/ Ministries & Local Administration:

- 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), Jodhpur
- Development Commissioner (Handlooms), Jodhpur
- District Industries Centre, Jodhpur

- Sardar Patel University of Police, Jodhpur
- Agriculture University, Jodhpur
- MBM University, Jodhpur
- Centre for Studies on Indigenous Knowledge
- Dr. Harising Gour Vishwavidyalaya (A Central University) Sagar, Madhya Pradesh
- Agriculture College, Nagaur
- Shri Baldev Ram Mirdha Govt. College, Nagaur
- University of Western Australia (UWA), Australia



Industry/Startups /MSMEs / NGO:

- Jodhpur Industries Association
- Futureense Technologies
- Marudhara Industries Association
- Electronics Sector Skills Council of India
- Rural Electrification Corporation Foundation
- Banglanatak dot com
- Rao Jodha Desert Rock Park
- Ruma Devi Foundation Barmer
- Circular Economy IL, Israel



R&D Labs:

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



PUNE KNOWLEDGE CLUSTER (PKC)

www.pkc.org.in

Introduction:

The Pune Knowledge Cluster (PKC), established in 2020 under the Office of the Principal Scientific Adviser to the Government of India, is the country's first Science & Technology Cluster, leveraging the rich ecosystem of academic institutions, R&D laboratories, industries, and innovation-driven organizations in the Pune Metropolitan Region. Registered as a Section 8 not-for-profit company in 2022 under the name Pune Knowledge Cluster Foundation (PKCF), the Cluster brings together government, academia, research institutions, industry, and civil society to address regional challenges through science, technology, and innovation. With thematic focus areas spanning One Health, Sustainability, Environment & Energy, Sustainable Mobility, STEM Education & Capacity Building, and Big Data & AI, PKC adopts a consortium-based approach to translate scientific knowledge into scalable solutions. Through a network of over 130 partners, the Cluster has fostered collaborative research, technology deployment, and capacity building across



sectors, while serving as a catalyst for innovation, a programme management unit for strategic initiatives, and a platform for mobilizing resources to drive sustainable regional development.

Thematic Areas/ Verticals:



Key Projects/ Achievements:

Advancing Technology, Research and Innovation:

PKC continued to strengthen its innovation ecosystem by translating research into impactful technologies and scientific outcomes. Under its technology initiatives, ChemAmaze enhanced chemistry education through interactive digital learning, while ConnecTree engaged citizen volunteers and students in mapping native riparian biodiversity. In the Sustainability, Environment & Energy domain, the TreeVerse study estimated an increase of approximately 10,490 Mg in urban tree carbon stocks across the old Pune Municipal Corporation area between 2023 and 2025, highlighting the critical role of mature trees in carbon

sequestration and urban climate resilience. PKC also facilitated the deployment of Solinas' smart sewer inspection technology with the Pimpri Chinchwad Municipal Corporation (PCMC), supporting technology adoption for urban infrastructure management. Further strengthening its innovation pipeline, the WEnyan programme emerged as a notable success story with four women researchers securing entrepreneurship funding and four patent applications filed during 2025–26, reflecting the programme's success in nurturing research-driven innovation and entrepreneurship.

Strengthening Collaborative Research, Capacity Building and Science Outreach:

PKC expanded its impact through integrated research, capacity building, scientific dialogue, and citizen engagement. As the Project Management Unit (PMU) for the Environmental Surveillance as a Key Public Health Strategy in India programme, funded by the Bill & Melinda Gates Foundation, the Cluster coordinated a multi-state surveillance network for Lumpy Skin Disease, Foot-and-Mouth Disease, and Avian Influenza across Maharashtra. In collaboration with CSIR–NCL and Ashoka University, PKC also advanced wastewater-based surveillance of antimicrobial resistance (AMR), strengthening evidence-based public health monitoring.

The Cluster delivered an extensive portfolio of training programmes covering AI and digital tools in education, gamification, STEM education, entrepreneurship, intellectual property, faculty development, ChemAmaze, wastewater management, Mission LiFE, women in science, and community-focused

initiatives such as SAFAL, SAKSHAM, AMR, and WEnyan—enhancing scientific, digital, entrepreneurial, and sustainability competencies across academia, industry, government, and local communities. PKC also convened flagship events including the International Citizen Science Conclave, Indrayani Project Launch, GIFTS Summit, Solid Waste Technology Compendium Launch, EduConclave 3.0, STEMpreneurs, and KINETICS, creating platforms for interdisciplinary collaboration, innovation, and policy dialogue. These efforts were complemented by large-scale public outreach through Walk, Bus, Cycle & Metro (WBCM) campaigns, World Walking Day, Metro Orientation Sessions, Sustainable Transport Day Jan Samvad, Pint of Science, and WEnyan awareness programmes, engaging thousands of citizens while promoting scientific temper, sustainable mobility, and public participation in science.

Driving Community Innovation and Translational Impact:

PKC advanced community-centric innovation through strategic public-private partnerships and evidence-based interventions. Supported by Intox, the SAFAL and SAKSHAM programmes empowered sanitation workers and waste pickers through capacity building, health awareness, digital literacy, and skill development. In partnership with MAHA Metro, PKC implemented behavioural interventions based on insights from nearly 6,000 commuter surveys, achieving a 3.4%

increase in ridership at intervention stations—demonstrating the effectiveness of data-driven approaches in promoting sustainable urban mobility. The Cluster also collaborated with HNB Engineers to deliver specialised technical training programmes and played a catalytic role in conceptualizing the Pune Hydrogen Valley Innovation Cluster (P-HVIC), now being implemented by CSIR–NCL under India's National Green Hydrogen Mission.

MOUs Signed (2025-2026)



INTERNATIONAL

1

BASF

Partnered to advance the WEnyan and ChemAmaze initiatives, promoting women-led innovation, STEM education, and industry collaboration.



NATIONAL

2

ACWADAM

Established collaboration on groundwater management through the Pune Sponge City Initiative, supporting sustainable urban water management and aquifer conservation.

3

YASHADA

Partnered to deliver capacity-building and training programmes for Government of Maharashtra officials across priority thematic areas.

4

BAIF Development Research Foundation & CSIR–National Chemical Laboratory

Collaborated on the Environmental Surveillance as a Key Public Health Strategy in India programme, strengthening zoonotic disease surveillance and public health preparedness.

5

INTOX

Partnered to implement the SAFAL and SAKSHAM programmes, supporting skill development, health awareness, and capacity building for sanitation workers and waste pickers.

6

Other Partner Institutions (Environment Club of India, Environment Conservation Association, MIT-World Peace University, Padma Education Society, Social Alpha, Symbiosis Skill and Professional University, IITM, CII Young Indians, Pune Chapter, Pimpri Chinchwad Science Park, IFRE, Bhujal Abhiyan Trust, Climate Environmental Foundation, Tree Public Foundation, VRAT-Puranbharan Foundation, HNB Engineers Pvt. Ltd., Ecovratenvirosolutions Pvt. Ltd., Ecosan Services Foundation Pvt. Ltd., CEE, and Ecovratenvirosolutions Pvt. Ltd.)

Collaborations were established with academic institutions, research organizations, industry bodies, NGOs, and civil society partners to advance initiatives in sustainability, education, environmental conservation, scientific outreach, skill development, and community engagement.



International Collaborations:

Bill & Melinda Gates Foundation (BMGF):

PKC serves as the Project Management Unit for the Environmental Surveillance as a Key Public Health Strategy in India programme, supporting multi-state disease surveillance and strengthening public health systems through collaborative research.

Circular Economy Israel Ltd., Israel:

The collaboration focuses on advancing circular economy and Extended Producer Responsibility (EPR) initiatives through knowledge exchange, industry engagement, and the development of pilot projects for sustainable resource management.

EarthOps:

The partnership supports sustainability leadership by enabling knowledge sharing, best practices, and collaborative management of sustainability initiatives through a global digital platform.

Overview of Funds/ Investments Raised:

- The Cluster secured Rs. 1 crore from NCBS, Rs. 60 lakhs from the Office of the OPSC, and Rs. 66.09 lakh under the ANRF programme to strengthen research, innovation, and strategic S&T initiatives.
- Under CSR and industry-supported initiatives, the Cluster mobilized Rs. 60.30 lakh and Rs. 15 lakhs from BASF for the WEnyan programme, Rs. 25.04 lakh from BASF for the Gamification initiative, Rs. 10 lakhs from INTOX for the SAFAL and SAKSHAM programmes, Rs. 15.82 lakh from HUL, and Rs. 5 lakhs from HNB Engineering to support capacity building, sustainability, and community-focused interventions.
- Additional project funding included Rs. 37.45 lakh from WRI (Cohorts 1 & 2) to advance sustainability initiatives and Rs. 40 lakhs from multiple partners to support innovation and programme implementation.

Future Outlook:

Building on its strong collaborative ecosystem, PKC will continue to drive S&T led solutions that address regional challenges while strengthening India's innovation ecosystem. Key priorities include expanding initiatives across One Health, Sustainability, Environment & Energy, Sustainable Mobility, STEM Education, and Big Data & AI. The Cluster will advance emerging areas such as the circular economy, battery recycling, clean energy, and hydrogen skilling, while scaling digital learning platforms including ChemAmaze, Math

Gamification, astronomy outreach, and low-cost STEM laboratories for rural schools. Building on the success of SAFAL and SAKSHAM, PKC will introduce specialized capacity-building programmes for laboratory and technical professionals. As the Programme Management Unit for the ANRF MAHA EV Mission, PKC will also lead stakeholder coordination and multi-sector collaborations to strengthen India's electric mobility research and innovation ecosystem.

Highlights of PRMC meeting:

The PRMC meeting held on 28th October 2025 reviewed the progress of PKC under Phase II across key focus areas, including plastic waste management, water management, and Industry Connect. The committee appreciated the quality of work undertaken and recommended greater emphasis on measurable field-level impact, scalable implementation, and outcome-based monitoring. It also advised strengthening industry and government partnerships, leveraging emerging national funding opportunities, and continuing efforts to translate research into deployable solutions with tangible societal benefits.

Events :



A young participant shares his project at the International Citizen Science Conclave 2025 Exhibition



The Environment and Sustainability stall at the International Science and Technology Conference 2025 featured innovations and technologies presented by PKC and its ecosystem partners.



Students in a remote school in Maharashtra, learning through tablets provided by PKC, enabling greater access to quality STEM education.



Teachers explore hands-on, easy-to-build physics experiments during the Physics Teacher Training Workshop organized by PKC at SPPU.



Teachers equipped with tablets under the STEM ReWired initiative.

Key Stakeholders:



Academic Institutions:

- Indian Institute for Science Education & Research (IISER) Pune,
- Savitribai Phule Pune University (SPPU)
- Pune–PKC–IUCAA (Tripartite Collaboration)
- Defence Institute of Advanced Technology (DIAT)
- College of Engineering Pune (COEP)
- Gokhale Institute of Politics and Economics
- IIT Madras
- Krishna Vishwa Vidyapeeth
- Karad



Government Bodies:

- Pimpri Chinchwad Municipal Corporation (PCMC)
- YASHADA



NGOs/Non-profit Organizations:

- WRI India (India Resources Trust)



R&D Organizations:

- CSIR–National Chemical Laboratory (CSIR-NCL)
- MACS–Agharkar Research Institute
- National Centre for Biological Sciences (NCBS–TIFR)
- Indian Institute of Tropical Meteorology (IITM)
- Automotive Research Association of India (ARAI)
- ACWADAM



Industry/Startups/MSMEs:

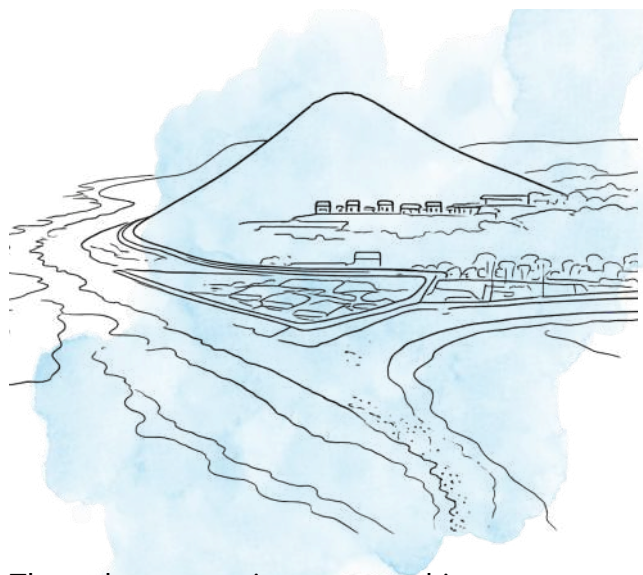
- BASF Chemicals India Pvt. Ltd.
- GenePath Diagnostics
- Maharashtra Metro Rail Corporation Ltd. (Maha Metro)
- INTOX Pvt. Ltd.
- EarthOps



VIZAG CLUSTER (AMTZ)

Introduction:

The Vizag S&T Cluster is a collaborative innovation ecosystem dedicated to accelerating research, technology translation, and industry led innovation. Bringing together academia, research institutions, startups, industry, healthcare providers, and government agencies, the Cluster fosters the development, validation, and commercialization of advanced technologies, with a strong emphasis on healthcare and medical devices. Anchored at the Andhra Pradesh MedTech Zone (AMTZ), which is India's flagship MedTech innovation hub and the world's largest integrated medical technology manufacturing cluster, the Cluster leverages world-class common infrastructure, advanced testing facilities, and a thriving network of over 180 MedTech companies to reduce barriers to innovation and accelerate product development.



Through strategic partnerships, startup support, skilled workforce development, and access to globally benchmarked manufacturing and regulatory capabilities, the Vizag S&T Cluster is driving technology-led economic growth while strengthening India's position as a global leader in medical technology and healthcare innovation.

Thematic Areas/ Verticals:



New Materials
Development for High-
Tech Medical Segments



Industry 4.0 and
Automation



E-Waste
Management

Key Projects/ Achievements:

Advancing Circular Economy through E-Waste Recycling:

The Vizag S&T Cluster established a state-of-the-art E-Waste Management Centre at AMTZ (E-Yantram) with support from the Office of the PSA, inaugurated during the All-Cluster Meet in September 2025. With an annual processing capacity of 20,000 metric tonnes, the facility is equipped with advanced L1, L2, and L3 recycling technologies to recover

valuable and rare earth metals from electronic waste, including discarded medical devices. Beyond promoting environmentally sustainable waste management and circular economy practices, the Centre serves as a national platform for innovation, research, skill development, and industry collaboration in e-waste recycling and critical material recovery.



Building a National Innovation Access Ecosystem:

The Cluster launched the “i-Passport” Initiative, a first-of-its-kind national platform designed to provide startups, researchers, industry, and academic institutions with seamless access to shared innovation infrastructure, testing facilities, mentoring, regulatory support, translational research, and industry networks. This initiative has already

issued over 2,000 i-Passports and onboarded more than 75 incubators, scientific institutions, and innovation ecosystems. By enabling nationwide collaboration and resource sharing, the programme is strengthening India's innovation ecosystem and accelerating technology development, commercialization, and strategic partnerships.

Advancing Indigenous Materials and MedTech Innovation:

The Vizag S&T Cluster strengthened India's capabilities in indigenous high-performance materials and advanced medical device manufacturing through strategic R&D and technology translation initiatives. In collaboration with Andhra University and IIT Delhi, the Cluster successfully achieved pilot-scale development and validation of high-performance sodium and lithium zeolites, with a manufacturing facility now being established at AMTZ to support applications in oxygen concentrators, PSA plants, and gas separation systems. The Cluster also enabled the indigenous development of critical pacemaker components, including titanium outer shells, feedthroughs, connector blocks, and leads, supporting affordable domestic manufacturing. Complementing these efforts, advanced 3D-printed, patient-specific implants, trauma care devices, and dental implants were developed through integrated metal additive manufacturing, precision machining, and material R&D, creating a validated pathway for scalable production of next-generation medical devices.

Delivering Societal Impact through Indigenous Innovation:

Indigenous technology development and strategic innovation initiatives have delivered significant societal and economic benefits across healthcare, environmental sustainability, and entrepreneurship. Affordable, locally manufactured endoscopes, pacemakers, and 3D-printed implants have reduced import dependence while improving access to advanced medical care. The 20,000 MT E-Waste Management Centre has strengthened circular economy practices through the safe recycling of electronic and medical waste and recovery of valuable materials. The i-Passport Initiative has democratized access to world-class research infrastructure for startups, researchers, and students, fostering innovation-led entrepreneurship and employment. Complementing these efforts, the indigenous development of medical-grade zeolites and titanium pacemaker components has strengthened India's healthcare supply chain and enhanced national technological self-reliance.

MOUs Signed (2025-2026)



INTERNATIONAL

1

FBE Biomedical, Australia

Established collaboration for the indigenous manufacturing and commercialization of advanced endoscopes, reducing import dependency and strengthening India's MedTech ecosystem.

2

University of Western Australia (UWA), Australia

Partnered to promote collaborative research, academic exchange, technology development, and innovation in emerging technology domains.

3

OIC International (USA), Medi Mold India & AddUp Fives Group (France)

Collaborated to establish India's first advanced 3D printing hub for orthopedic implants, strengthening capabilities in additive manufacturing, product development, and technology commercialization.

4

MicroPortCRM, France

Established collaboration to support indigenous pacemaker manufacturing through joint research, innovation, product development, and market access in the medical technology sector.

International Collaborations:

MicroPort CRM, France:

Collaboration to strengthen research, manufacturing, training, and commercialization of advanced cardiovascular technologies, supporting indigenous development of cardiac rhythm management devices.

Orthopaedic Implant Company (OIC), France:

Partnership to advance the design, development, manufacturing, and commercialization of advanced orthopedic implants while strengthening India's medical device manufacturing capabilities.

FBE Biomedicals, Australia:

Collaboration to facilitate technology transfer and indigenous manufacturing of endoscopes and related medical devices, expanding India's MedTech manufacturing ecosystem.

University of Western Australia (UWA), Australia:

Partnership to promote joint research, academic exchange, translational research, technology development, and skill enhancement across emerging technology domains.

Future Outlook:

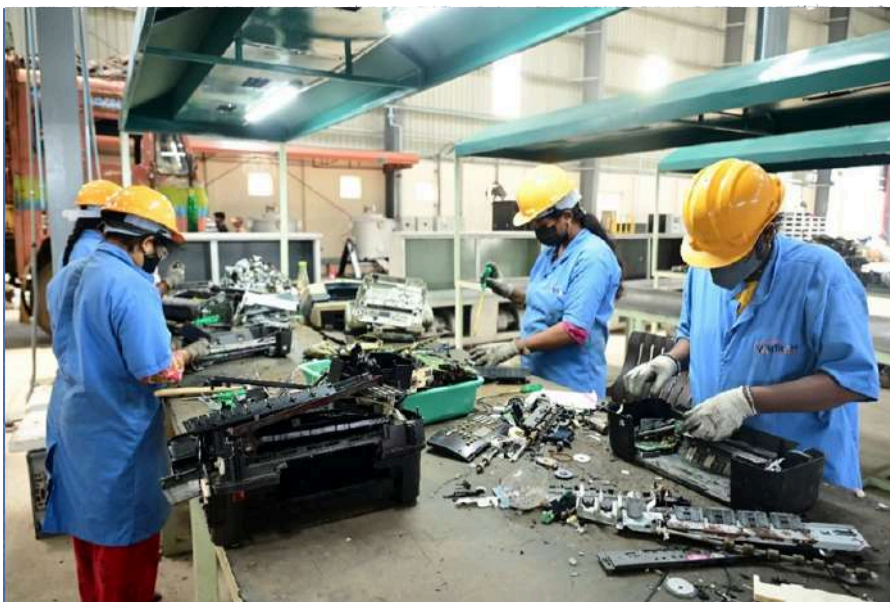
Building on its strong MedTech ecosystem, the Vizag S&T Cluster will focus on strengthening its position as a globally connected hub for advanced manufacturing, healthcare innovation, and technology commercialization. Key priorities include establishing a Centre of Excellence for Medical Robotics and Telesurgery to support the development, testing, validation, and manufacturing of indigenous robotic surgical systems, while advancing research in Industry 4.0, new materials, and circular economy

solutions such as e-waste management. The Cluster will also expand the i-Passport network to provide innovators with seamless access to infrastructure, mentoring, funding, regulatory support, and market opportunities. Through strategic global partnerships, technology transfer, and industry-academia collaboration, the Vizag S&T Cluster aims to accelerate technology commercialization, generate high-skilled employment, strengthen India's technological self-reliance, and drive sustainable regional economic growth.

Highlights of PRMC meeting:

The PRMC meeting held on 17th April 2026, reviewed the progress of the Vizag S&T Cluster across key focus areas, including e-waste management, high-tech materials, Industry 4.0, and medical technology innovation. The committee appreciated milestones such as the operationalization of the E-Yantram E-Waste Management Centre, progress in zeolite commercialization, indigenous pacemaker component development, the establishment of the Centre of Excellence for Medical Robotics & Telesurgery, and the expanding reach of the i-Passport initiative and MedTech Hackathon. The committee recommended scaling the i-Passport programme as a national initiative under the Office of the PSA, strengthening industry and startup participation, and advancing standardized waste-to-wealth frameworks, e-waste recycling, and chemical management solutions to enhance sustainability and global competitiveness.

Events :

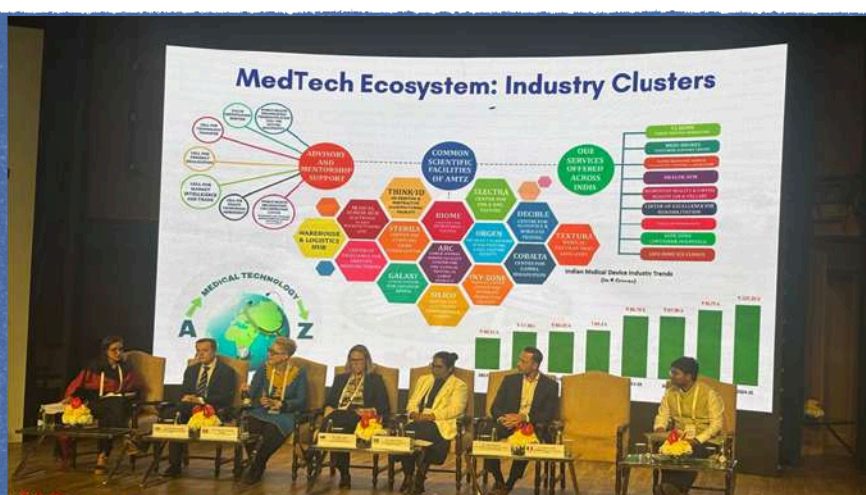


*Women Technicians
conducting
dismantling of various
electronic products at
E-Yantram: E-waste
management center*



*Innovators at
MedTech Hackathon
conducted at AMTZ
Campus*

*The First International
Conference of S&T
Clusters – Advancing
Healthcare Innovation
Through Expert Panel
Discussion Led by the
Project Director, Vizag
S&T Cluster*



*The Vizag S&T Forum:
A Bi-Weekly Forum for
Scientific Learning,
Industry Collaboration,
and Healthcare
Innovation*

Key Stakeholders:

- Andhra Pradesh MedTech Zone (AMTZ)
- Gandhi Institute of Technology (GITAM)
- Deep tech Nipunya
- Jawaharlal Nehru Pharma City (102 Industry Partners)
- Homi Bhabha Cancer & Research Centre
- Indian Institute of Management (IIM) Visakhapatnam

**STRENGTHENING
THE S&T CLUSTERS
THROUGH
STRATEGIC
ENGAGEMENTS**



All Clusters' Meet



The Third “All Science & Technology (S&T) Clusters Annual Meet” was held on 9th – 10th September 2025 at the Vizag Science & Technology Cluster, Andhra Pradesh MedTech Zone (AMTZ), Visakhapatnam, under the chairmanship of Prof. Ajay K. Sood, PSA to the GoI. The meeting was attended by Dr. (Mrs.) Parvinder Maini, Scientific Secretary, Office of the Principal Scientific Adviser, along with representatives from the Office of the PSA, including Dr. Rakesh Kaur, Dr. Vishal Choudhary, Mr. Vivek Kumar, and Dr. Shefali Uttam, as well as the CEOs/COOs of all eight S&T Clusters. The meet marked the fifth anniversary of the S&T Clusters initiative, providing a platform to review progress, strengthen inter-cluster collaborations, and align future strategies for technology translation, commercialization, and societal impact.

The meeting reviewed the progress of all eight Clusters across their thematic areas and emphasized greater convergence with national initiatives such as RuTAG, RSVC, and MANTHAN, enhanced industry partnerships,

sustainable business models, and outcome-driven inter-cluster collaborations. Cluster-specific action plans were formulated to accelerate technology deployment in areas including One Health, digital health, smart agriculture, circular economy, water management, sustainable mobility, MedTech, AI, and Industry 4.0, while also preparing joint thematic compendiums for the upcoming International Conference on S&T Clusters.

The meeting showcased the redesigned S&T Clusters Dashboard, providing a unified platform for deployable technologies, annual reports, thematic compendiums, and other cluster resources to strengthen collaboration and technology visibility. Key releases included the official S&T Clusters logo, the International Conference on S&T Clusters webpage and conference flyer, the One Health Compendium by the BeST Cluster, and the inauguration of the “EYANTRAM” E-Waste Management Facility at the Vizag S&T Cluster, reinforcing the national focus on innovation, knowledge sharing, and circular economy solutions.

The deliberations culminated in a comprehensive roadmap for the year ahead, including the preparation of Smart Agriculture and Water Management technology compendiums, AI-enabled technology mapping on the Manthan platform, strengthening the integration of RuTAG, RSVC, and S&T Clusters, expanding inter-cluster initiatives such as Kalanubhaav.in, Digital Podiatry Clinics, and

Innovation Passport, and enhancing global outreach through the International Conference on Science & Technology Clusters. The meeting reaffirmed the role of S&T Clusters as regional innovation ecosystems and national technology accelerators, translating scientific research into scalable technologies that address regional priorities while contributing to India's innovation-led socio-economic development.





International Conference on S&T Cluster 2025

The “First International Conference on S&T Clusters – Making Lives Easier through S&T” was organized by the Office of the PSA on 4–5 December 2025 at Dr. Ambedkar International Centre, New Delhi. The Conference marked a significant milestone in strengthening India's S&T Clusters as globally connected, implementation-oriented innovation ecosystems, convening policymakers, scientific leaders, academia, industry representatives, startups, investors, innovation agencies, and international organizations from over 35 countries to foster collaboration and technology-driven solutions.

Structured around six thematic domains: Smart Agriculture, Healthcare, Environmental Sustainability, Industry Automation & Start-ups, Plastics & E-Waste Management, and Technologies Empowering Livelihoods, the Conference highlighted the role of S&T Clusters in bridging research, industry, government, and society to accelerate technology translation and deployment. Technical deliberations emphasized strengthening translational research pipelines, shared testbeds, pilot-scale validation, technology commercialization, and cross-sector partnerships to address national and global challenges.

The Conference also showcased a portfolio of high-TRL, field-validated technologies through

dedicated Technology and Innovation Pavilions spanning clean energy, AI-enabled healthcare, precision agriculture, circular economy solutions, advanced manufacturing, digital livelihood platforms, and smart infrastructure. Four thematic technology compendiums on Smart Agri-Tech, Water Management & Rejuvenation, Solid Waste Management, and Livelihood Technologies (Kalaanubhav) were released, providing a curated repository of deployable technologies and implementation models for replication across the country.

A key outcome of the Conference was the signing of 12 international MoUs with leading global universities, innovation organizations, and industry partners (list provided below), alongside the launch of “ChemAmaze”, a national curriculum-aligned digital knowledge platform to strengthen research collaboration, technology co-development, standards harmonization, skilling, and capacity building. The Conference reaffirmed the vision of India's S&T Clusters as “National Technology Accelerators”, fostering global partnerships, advancing translational research, and accelerating the deployment of science- and technology-driven solutions for sustainable, inclusive, and innovation-led socio-economic development.

Table : List of MoUs signed as an outcome of the International Conference on S&T Clusters

Sr. No.	Cluster	International Organization/Agency	Country	Area of Collaboration
1	RICH	Norwegian-Indian Chamber of Commerce & Industry (NICCI)	Norway	Clean energy collaboration
2	RICH	National Physical Training Consortium (NPTC)	United Kingdom	EV skilling and applied research



Sr. No.	Cluster	International Organization/Agency	Country	Area of Collaboration
3	DRIIV	BASF	Germany	Environmental sustainability solutions
4	DRIIV	WAPCOS Ltd.	India	Water, power, and infrastructure technologies
5	BeST	ATGC Biotech in collaboration with Luxembourg Industries	Israel	Pheromone-based semiochemical technology
6	BeST	HL KLEMOVE	South Korea	Sustainable mobility across India (Inter-Cluster MoU)
7	PI-RAHI	HL KLEMOVE	South Korea	Sustainable mobility across India (Inter-Cluster MoU)
8	PI-RAHI	INC Innovation Centre	Germany	Industry 4.0, sustainable energy, AI, and circular economy
9	Vizag S&T Cluster	FBE Biomedical	Australia	Advanced biomedical products manufacturing
10	Vizag S&T Cluster	OIC Health (Medihold)	France	Advanced biomedical products manufacturing
11	BCKIC	Khasi Hills Autonomous District Council	India	Healthcare, agriculture, renewable energy, and water solutions
12	JCKIF	Circular Economy	Israel	Sustainable livelihoods and circular economy



Inauguration of the International Conference



International Conference Protocol Photo.



Delegations at the 1st International Science & Technology (S&T) Clusters Conference 2025, reflecting a globally connected innovation ecosystem.



Inter-Cluster Initiatives

Sr. No.	Initiative	Clusters Collaborating	Progress
1	Digital Podiatry Clinic (D-PoC)	BeST with PI-RAHI	BeST expanded its AI-enabled Digital Podiatry Clinic to PI-RAHI, establishing the first D-PoC facility in Northern India at Panjab University. The platform has screened over 10,000 patients and helped prevent 1,500+ limb amputations, with feasibility assessments underway for deployment in additional Clusters.
2	Kalaanubhav	JCKIF with PI-RAHI, BCKIC and BeST	JCKIF is supporting PI-RAHI, BCKIC, and BeST in scaling the Kalaanubhav platform to their respective regions, enabling artisan communities to access wider markets through a shared digital marketplace while promoting sustainable livelihoods and preserving traditional crafts.
3	I-RISE Operator Training Programme	JCKIF, PI-RAHI and DRIIV with I-STEM	Multiple Clusters jointly organized I-STEM-supported I-RISE Operator Training Programmes to strengthen technical expertise in advanced scientific instrumentation and promote optimal utilization of national research infrastructure.
4	Innovation Passport (i-Passport) Initiative	Vizag Cluster with S&T Clusters Network	The PRMC recommended scaling the i-Passport programme as a national initiative under the Office of the PSA, enabling innovators across all Clusters to access shared infrastructure, testing facilities, mentorship, regulatory support, and industry networks.

International Collaborations

The First “International Conference on S&T Clusters – Making Lives Easier through S&T” not only culminated in the signing of 12 international MoUs during the Conference but also catalysed a series of new strategic international collaborations in the months that followed. Building on the partnerships,

stakeholder engagements, and thematic discussions initiated at the Conference, several global institutions and innovation organizations have since established structured collaborations with India's S&T Clusters. Key collaborations that have emerged following the Conference include:

Strategic Partnership with the University of Western Australia:

As a direct outcome of the Conference, the University of Western Australia (UWA) and India's S&T Clusters signed a strategic MoU on 3 March 2026. The partnership establishes a long-term framework for mission-oriented research collaboration, integrating UWA with India's national cluster-led innovation ecosystem. It will promote joint research programmes, co-funded initiatives, startup engagement, technology co-development, and student and faculty mobility across priority sectors, strengthening India–Australia scientific cooperation within the Indo-Pacific framework and accelerating the translation of research into deployable technologies.



India – Australia Smart Farm Network Initiative:

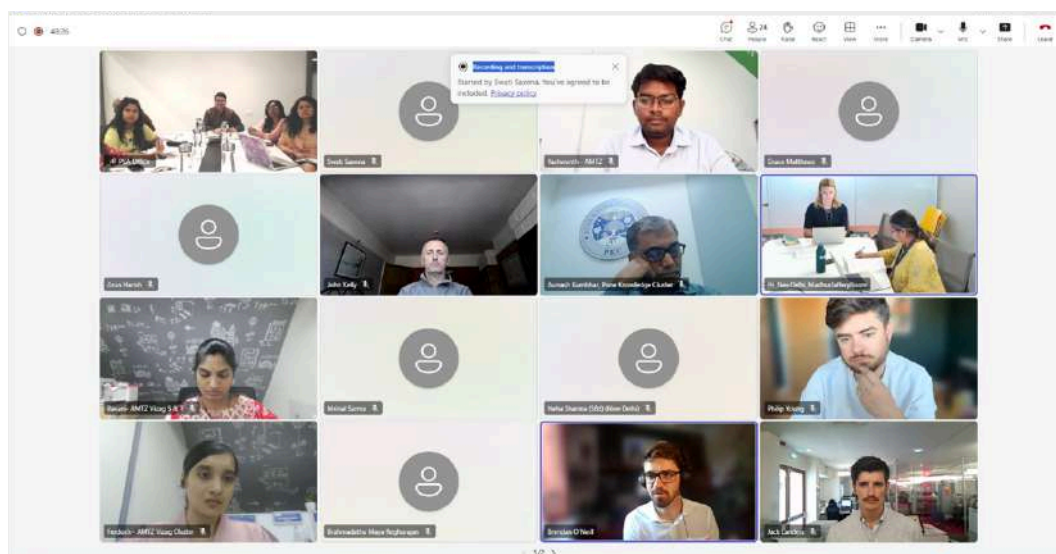
Building on the international partnerships initiated through the Conference, the RICH and the BeST Cluster signed a strategic Inter-Cluster-Global MoU with Charles Sturt University, Australia, on 14 May 2026 to launch the India–Australia Smart Farm Network (IASFN). Supported by the Department of Foreign Affairs and Trade (DFAT), Government of Australia, the initiative establishes a bilateral platform for the testing, validation, and deployment of emerging AgTech solutions across diverse agro-climatic regions in both countries. Through joint field trials, pilot demonstrations, technology validation, and stakeholder workshops, the programme will accelerate precision agriculture, climate-smart farming, and digital agriculture while strengthening technology commercialization and the India–Australia AgTech innovation ecosystem.



**UK – India Research & Innovation Corridor (RIC):
S&T Clusters – Catapult Collaboration:**

The Conference also laid the foundation for deeper engagement between India's S&T Clusters and the UK Catapult Network under the UK-India Research & Innovation Corridor (RIC). Following the UK's participation and strong interest in advancing collaboration in health technologies and climate/net-zero innovation, discussions have progressed towards structured partnerships across Health, Emerging Technologies, and Net Zero Technologies. The proposed collaborations envisage partnerships between Cell & Gene Therapy and Centre for Process Innovation Catapults with DRIIV, RICH, PI-RAHI, and the Vizag S&T Cluster in areas such as medical technologies, biomanufacturing, AI-enabled diagnostics, digital health, advanced

manufacturing, startup acceleration, regulatory harmonization, and joint R&D funding. Collaborations with the Digital Catapult will focus on artificial intelligence, digital platforms, data-driven innovation, interoperability, and deep-tech applications. The Energy Systems Catapult will work with DRIIV, RICH, PI-RAHI, and PKC to advance smart grids, energy flexibility, EV infrastructure, green energy materials, digital energy systems, sustainable mobility, and net-zero technologies. Collectively, these collaborations are expected to strengthen translational research, technology validation, commercialization, workforce development, and long-term UK-India partnerships in strategic and emerging technologies.



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to the Government of India**

