



ANNUAL ADMINISTRATIVE REPORT 2025-26



**KERALA DEVELOPMENT AND
INNOVATION STRATEGIC
COUNCIL**



ANNUAL ADMINISTRATIVE REPORT 2025-26



**KERALA DEVELOPMENT AND
INNOVATION STRATEGIC
COUNCIL**



Contents

<u>Executive Summary.....</u>	<u>11</u>
<u>Introduction.....</u>	<u>13</u>
<u>Innovation led development alternative for Kerala.....</u>	<u>15</u>
<u>Young Innovators Programme (YIP).....</u>	<u>21</u>
<u>Manchadi.....</u>	<u>29</u>
<u>Mazhavillu.....</u>	<u>35</u>
<u>One Local Government One Idea (OLOI).....</u>	<u>43</u>
<u>One District One Idea (ODOI).....</u>	<u>49</u>
<u>Accelerating Adoption of Emerging Technology Solutions in Government.....</u>	<u>51</u>
<u>STRIDE – Social Technology & Research for Inclusive Design Excellence.....</u>	<u>59</u>
<u>Innovation by Youth with Disabilities (I-YwD).....</u>	<u>63</u>
<u>Electric Vehicle Consortium.....</u>	<u>65</u>
<u>Kerala Genome Data Centre (KGDC).....</u>	<u>75</u>
<u>Kerala Medical Technology Consortium (KMTC).....</u>	<u>77</u>
<u>Climate Smart Coffee Project.....</u>	<u>85</u>
<u>Vijnana Keralam.....</u>	<u>89</u>
<u>Publications & Presentations.....</u>	<u>101</u>
<u>K-DISC: Future Activities.....</u>	<u>105</u>



LIST OF FIGURES

Figure No.	Title	Page no.
1.1	Innovation Ecosystem for Knowledge Co-Production	17
2.1	Growth of YIP	21
2.2	Map of YIP Coverage	22
2.3	Automatic Solar Panel Cleaning System	26
2.4	Banana Peel Pectin	26
2.5	CelestAlign	26
2.6	Hon'ble Chief Minister Reviewing YIP Exhibitors	26
2.7	Selected Solutions Devised by YIP Participants	27
3.1	Map Representing Coverage of Manchadi Programme as of 2025-26	29
3.2	Teachers Training at Kattakkada Cluster	31
3.3	Demo Class during Teachers Training	32
3.4	Number Sense at General School	32
3.5	Basic Number Sense activity at Tribal School Palakkad	33
3.6	Measurement Activities at MRS	33
3.7	Place Value activity at General School Kattakkada Cluster	33
4.1	Map Representing Coverage of Mazhavillu Programme as of 2025-26	35
4.2	Map of BUDS and Tribal Schools Covered in Parli, Palakkad District	36
4.3	Magazine Release	36
4.4	Mazhavillu Learning Demonstration	37
4.5	Mazhavillu Student Exhibition	37
4.6	Mazhavillu in Print Media	38
4.7	Mazhavillu Student Exhibition	39
4.8	Mother Animator Workshops & Orientation for Programme Executives	40
4.9	Mazhavillu Student Exhibition	41
4.1	Mazhavillu Field Visits	41
4.11	Mazhavillu NRG -Workshop	41
4.12	Mazhavillu Field Visits	41
5.1	Map showing Block Innovation Clusters Implemented by K-DISC under OLOI	43
5.2	35KLD decentralized STPs using biofilter & electrochemical technologies installed for 110 fisher families at Vizhinjam	44
5.3	Time Bank platform is being implemented in Elikkkulam Panchayath, Kottayam, enabling service exchange between elderly citizens and community volunteers	45
5.4	Low-cost electric tricycles handed over to Haritha Karma Sena members of Thiruvananthapuram Municipal Corporation to ease the burden, increase efficiency and efficacy of household inorganic waste collection	46

Figure No.	Title	Page no.
6.1	Road map of clusters, reducing from 63 to 6	50
6.2	Kanhirode Weavers Cooperative Society Ltd. (KWCS)	50
7.1	Project Life Cycle	51
7.2	Blood Bag Traceability Application	52
7.3	Jeevadhaara - Citizen Portal	52
7.4	Installation at Different Blood Centres	52
7.5	Blood Tracker	52
7.6	Official Inauguration of KASP Health Mobile App by Hon'ble Health Minister of Kerala	52
7.7	Hekaflo Installation SAT Thiruvananthapuram	53
7.8	IGNIET Launch Event	58
8.1	STRIDE Assistive Designathon and Website Launch by Hon'ble Chief Minister	59
8.2	Assistive Devices 3D printed under STRIDE	60
8.3	Stride Assistive Designathon 2025	61
8.4	Stride Assistive Low Tech Device Training by Kudumbashree for BUDS School Teachers	61
8.5	Honourable Ministers try the STRIDE devices	61
8.6	Braille Device Distribution at Valakkayam	61
8.7	ADARSH MAKERSTUDIO	61
8.8	DC School Makerspace Design Competition	61
9.1	I-YwD Team with Dr. Arun Surendran	63
9.2	I-YwD Team interaction	63
9.3	Content Development for I-YwD	64
9.4	Many minds, One Vision. The beginning of I-YwD	64
10.1	Dynamometer with Battery Emulator (30 kW)	66

Figure No.	Title	Page no.
10.2	Dynamometer with Battery Emulator (150 kW)	66
10.3	Protomodels of BMS	66
10.4	Protomodels of BMS	67
10.5	Computational domain with 21 cells and enclosure	67
10.6	Computational domain with 21 cells	68
10.7	Designed Enclosure for 40Ah, 48V Prismatic Cell Battery Pack	68
10.8	Electrochemical Workstation Facility	68
10.9	SEM image of micronised LTO with magnification 25,000x	70
10.1	Image of micronised LTO with High magnification 50,000	70
10.11	XRD Analysis of LTO material from TTPL	71
10.12	Physical characterisation of LTO material (Surface Area: 2.7 m ² /g)	71
10.13	Charge-discharge characteristics of 4Ah coin cells	71
10.14	Capacity vs Cycles graph of 4Ah LTO-NCA cells	72
10.15	Charge-discharge cycling of 20Ah LTO-NCA cell	72
10.16	Draft Master Plan	73
11.1	KGDC Workshop At Kannur University	75
11.2	KGDC Workshop at CUSAT University	76
11.3	KGDC Facility at Digital University, Kerala	76
12.1	KMTC Focus Regions	77
12.2	Kerala–Germany Engagement: “Synergies in Motion” (German Industry Delegation Visit)	79
12.3	MEDICA 2025 Düsseldorf, Germany	80

Figure No.	Title	Page no.
12.4	Engagement with Amrita School of Nanosciences and Molecular Medicine	80
12.5	Stakeholder Connect Meet	80
12.6	World MedTech Confluence 2025, Dubai, UAE	81
12.7	Stakeholder Connect Meet	82
12.8	Map Showing the Building of MedTech Ecosystem for Kerala	84
13.1	KIIFB ESG Site Inspection	86
13.2	Broca trap deployment programme	87
13.3	Distribution of dolomite to farmers	87
13.4	Coffee Sapling distribution programme	87
13.5	Digital E-Crop device field Demonstration	87
14.1	Hon'ble Chief Minister Inaugurating Skill Kerala – Global Summit 2025	91
14.2	Vijnana Keralam District Wise Registered Beneficiaries	91
14.3	Vijnana Keralam: Meeting of Functionaries	92
14.4	Vijnana Keralam - Mega Job Fair Organising Committee Meeting	93
14.5	Vijnana Keralam Mega Job Fair Kannur	94
14.6	Virtual Academic Courses	96
14.7	Vijnana Keralam District wise Number of Mentors Across Districts	97
14.8	Master Classes for Skill Academies	98
14.9	Back to Campus Programme	99
14.1	Master Mentor ToT- Soft Skills	100
14.11	Vijnana Kerlam: Back to Campus	100

EXECUTIVE SUMMARY

The Government of Kerala, established Kerala Development and Innovation Strategic Council (K-DISC) with mandates to nurture a conducive ecosystem in the state for fostering innovation, increasing productivity, competitiveness, supplement equitable inclusive development; and build a sustainable model for skill development, employment generation, address unique workforce challenges, position Kerala as a leader in the knowledge economy aligning with state's developmental goals.

Since its inception in 2018, K-DISC has been relentlessly striving to deliver its mandate. To fulfil the same, K-DISC has built a people centric innovation ecosystem for fostering people centric innovation solution blending doing using interacting (DUI) model and Science technology and innovation (STI) model to address the varied, complex second generational developmental challenges facing Kerala. The participative innovation ecosystem interlinking Government, Academia, Industry and Civil society; acts as the foundation for implementing K-DISC programmes aiding in nurturing innovation, drive skilling, increasing employability and foster development enabling K-DISC to supplement the State's efforts in promoting innovating led development.

During the period under review K-DISC organized the eighth round of young innovators programme, a competition on innovation covering thirty challenge areas. YIP 8.0 attracted **12.57 lakh young participants** across **8,658 academic institutions**, generating **47,641 ideas** and produced **1,026 state level winners**. Under Vijnana Keralam, **The Skill Kerala – Global Summit 2025** emerged as a landmark achievement, bringing together

government, industry, academia, and global partners on a single platform. K-DISC institutionalized **weekly virtual job fairs** with improved employer participation. To facilitate seamless conduct of weekly virtual job fairs, IT infrastructure was strengthened with setting up of **45+ SDPK Centres across Kerala** more of such facilities would be expanded, **201 Job Stations** have been set up and **226 Job Facilitation Centers** have been started. A total of **40,80,114 jobs** opportunities has been mobilized as on 30.01.2026; **21,07,248 candidates** have registered on DWMS as on 24.02.2026 and **2,52,101 placements** were provided; **1.52 lakh Recruit-Train-Deploy (RTD)** job opportunities has been mobilised across sectors. A total of **1,94,964** have been skilled through various channels. A total of **1,67,284 hyper local job** opportunities has been mobilized at neighbourhood level and **77,450 women** have been hired. To address the problems of career break women and improve female work participation rate the **first Work Near Home facility, Commune** was opened on 19.01.2026 in Kottarakkara. More such facilities are being set-up to provide more knowledge-based job opportunities in the state.

Manchadi- teach maths for Kerala, has travelled from a handful of koodarams. It has been introduced at class III level in **1400 schools**. Mazhavillu – teach science for Kerala, was extended to Class VI in **28 Model Residential Schools**. **Block Innovation Clusters** were initiated in **21 Block Panchayats across 14 districts** under OLOI. Further, 36 pilot projects have been taken up, covering a wide range of local development domains, from climate-resilient agriculture, waste management, and aquifer recharge to livelihood diversification, geriatric care, and digital governance.

To enhance the reach of government services through innovation 32 projects are under various stages of implementation. Under STRIDE a programme launched to improve the quality of life of persons with disabilities 3 functional Maker Studios were established. I-YwD empowers young innovators with disabilities through mentorship, entrepreneurship training, and inclusive learning. With three active cohorts, there is no similar programme anywhere in the world that fosters innovation among people with special abilities. Under Electric Vehicle Consortium, K-DISC with other stakeholders has **set-up A commercial Electric Vehicle Drive Train Testing Lab facility**. Under Centre of Excellence – **Phase I of Kerala Genome Data Centre has been formally launched** with financial assistance of KIIFB.

K-DISC showcased its activities through various research papers. K-DISC functionaries participated in multiple conferences this year, presenting experiences from various projects. **12 papers and 8 posters** were presented by K-DISC functionaries at the 38th Kerala Science Congress. **One paper** was presented at IndiaLICS 2025.

Investment in innovation programmes and building innovation capability is a long-term strategy that aims to transform the state to new paradigms of human development. The state has embraced innovation as a key driver of economic growth. Innovation is necessary to address second-generation problems, high rate of educated unemployed, high social consciousness of environmental rights, ageing population, among others. The transition to a knowledge economy brings to the forefront opportunity to address a myriad of complex socio-economic-behavioural problems that are unique to Kerala.

K-DISC's comprehensive approach integrates education, governance, entrepreneurship, and social innovation to create a robust ecosystem for sustainable development in Kerala. By fostering innovative solutions, empowering marginalized communities, and leveraging emerging technologies, K-DISC is committed to propel Kerala towards a resilient and knowledge-driven future with sustained government support.

Dr. P. V. Unnikrishnan
Member Secretary, K-DISC

INTRODUCTION

Post Independence, India witnessed launching of planned development in which science and technology played a pivotal role. The Government of India passed science policy resolution in the Parliament. Government of Kerala is perhaps the only state government in India to adopt science policy resolution. Development trajectory of Kerala epitomises promotion and application of science and technology to the benefit of the larger society. Since 1980s Government of India stressed on innovation along with science and technology. Over the years, Kerala also emphasized on innovation. Establishment of K-DISC by the Government of Kerala on March 24, 2018, is in tune with the government's commitment to use cutting edge science and technology for development.

K-DISC designed its programme following the ethos of Kerala, which envisaged reforms in all sectors of government, human development and empowerment.

Affirmative action to provide disposed section access to resources was the central axiom. Inclusion and equity were the cherished goal. K-DISC's thrust on innovation followed the broad contours of these initiatives. Philosophically, K-DISC adheres to the principle of inclusive innovation ecosystem. Innovation is not limited to technology and engineering. Every human being is innovative and the community has a large role to play in nurturing innovation-led development.

State can be built up as a living laboratory for innovation-led development. Various activities that K-DISC initiated has yielded wide reaching results. Several lessons were learnt. This report provides a glimpse of the activities undertaken by K-DISC, the challenges and the future activities.



INNOVATION LED DEVELOPMENT ALTERNATIVE FOR KERALA

Innovation is one of the key factors of economic development. Innovation and learning capabilities are vital for growth competitiveness of any region. Therefore, many Governments have tried to steer and foster the development of science, technology and innovation for many years and through many mechanisms, to improve directly or indirectly the wellbeing of their constituents. These efforts are commonly referred to as science policy, technology policy, or innovation policy. Their objectives span from the philosophical view of the enhancement and augmentation of the knowledge to the practical need of the development of the communities of a country.

The Kerala Development and Innovation Strategic Council (K-DISC) was established by the Government of Kerala with a unique focus on innovation policy.

Unlike similar councils in other parts of the world that tend to prioritize science and research policy, K-DISC concentrates on non-linear innovation policy with an aim of building a holistic innovation eco system in the state. This makes it possible for Kerala to move away from the traditional linear model (scientific R&D focused model) in innovation policy, which has been replaced by the innovation system approach.

An innovation system encompasses not only the innovations themselves, but also encompasses all significant economic, social, political, organizational, institutional, and other factors that impact the development, diffusion, and utilization of innovations.

Innovations emerge from interactions between actors with complementary (technological, managerial, investment or regulatory) competencies, which operate under specific institutional settings. The use of a system metaphor emphasizes the distributed, yet more or less coordinated agency that underpins the innovation process; interaction between firms, universities, policy makers and various intermediaries creates positive externalities that are of key importance in the innovation process, but very difficult to be produced or controlled by any actor on its own.

Kerala stands at a critical juncture in its economic development trajectory, marked by a transition towards a knowledge economy. Kerala's journey towards a knowledge economy is shaped by its historical resource constraints. With limited natural resources, Kerala ranks poorly in per capita land availability and has scanty presence of ferrous minerals, non-ferrous minerals, minor minerals and fuel minerals.

The state's parameters are thus not conducive to a conventional investment led growth model. Kerala's economic base is dominated by low productivity and low value addition units. The transition to a knowledge economy presents opportunities to diversify revenue streams. By channeling remittances towards productive investments in innovation, entrepreneurship, and infrastructure, Kerala can stimulate indigenous economic growth and reduce dependency on external inflows. Several factors propel Kerala's transition into a knowledge economy.

Firstly, the state boasts a well-educated and skilled workforce, providing a solid foundation for knowledge-intensive activities. Additionally, Kerala's robust public education system and high literacy rates foster a culture conducive to learning and innovation. Moreover, the proliferation of digital technologies facilitates the dissemination of knowledge and enables participation in the global knowledge economy.

The state has thus embraced innovation as a key driver of economic growth. Innovation is also necessary to address second-generation problems affecting Kerala of high rate of educated unemployed, high social consciousness of environmental rights, ageing population, among others. The transition to a knowledge economy brings to the forefront opportunity to address a myriad of wicked problems that are unique to Kerala. Challenges such as urban sprawl, social inequalities of the outliers and immigrants, complex micro regional issues demand integrated and innovative solutions.

Transitioning from Kerala's low value added low diversification enterprise to high production high productivity requires knowledge input. The growth story of MSME's traced by C. Balagopool through his book "Under the Radar" emphasizes this. Transforming Kerala economic base from the present low productivity regime to a high productivity knowledge economy holds immense promise for driving sustainable economic growth, fostering innovation, and improving living standards.

Central to Kerala's transition is the adoption of the quadruple helix model, emphasizing collaboration between government, academia, industry, and civil society.

This model fosters synergies between knowledge creation, technology transfer, and market dynamics, driving value addition across sectors. By leveraging this collaborative framework, Kerala can accelerate its transition towards a knowledge-intensive economy. Given the limitation of industrial base within the state there is a need to look at a new model integrating startups, sunrise industries, knowledge industries, and local governments.

K-DISC was set up with a vision of "A competitive and inclusive Kerala through creation of a healthy, conducive ecosystem for transformative and bold innovations through new directions in technology, product and process innovations". The mission of K-DISC can broadly be classified as holistic and quality human development in Kerala, a knowledge-centred, technology based local economy with global connect and enhanced inclusion, participation and self-reliance through cutting edge knowledge and technology.

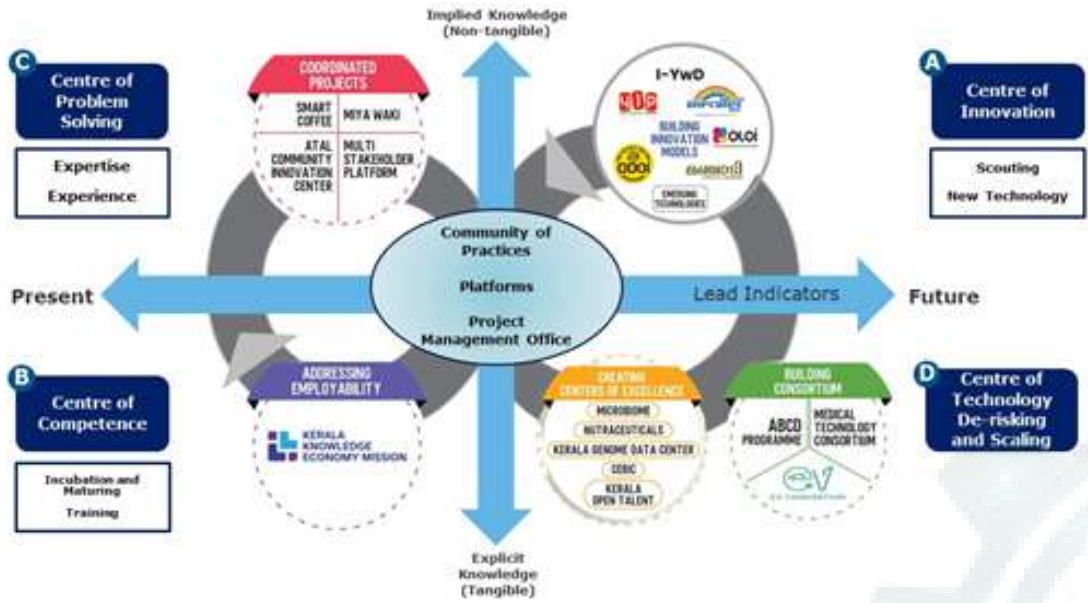


Fig. 1.1 Innovation Ecosystem for Knowledge Co-Production

Seven Year Snapshot of K-DISC Activities

Over the last seven years, K-DISC has built a people centric innovation ecosystem to foster innovation led development; has initiated various programmes to implement people centric innovative solution to address Kerala's second-generation developmental challenges and facilitate Kerala's transition to a Knowledge based economy. Several challenges remain unaddressed and we have been facing many challenges in implementing our programmes. The achievements of the last seven years are the outcomes of persistent efforts put under various constraints, an unwavering mission to propel Kerala towards Knowledge based economy and investments made to instil a culture of innovation and entrepreneurship. Despite various challenges, struggles and set backs, K-DISC programmes aligned with States priorities are expected to bring in transformative impact, enable Kerala to achieve Sustainable Development Goals, address environmental concerns and climatic risks and deliver progress to the citizens of Kerala. Snapshot of notable citizen centric achievements of K-DISC so far include the following:

- **YIP** has evolved into one of the largest structured young people innovation ecosystems in the country, attracting 12.57 lakh participants across 8,658 academic institutions. It has generated more than 60,000 ideas.
- **Manchadi** has travelled from a handful of koodarams to 1400 schools without being a conventional "project". It has grown through iterative work with parents, local governments, DIETs and state missions. The baseline–endline results, while modest in scale, suggest that children's sense of different mathematical concepts can change substantially when they are allowed to think, talk and act mathematically in situations that matter to them. The Manchadi experience so far indicates that treating mathematics as a people's innovation practice rather than only as a school subject can open new pathways for both educational justice and democratic deepening in Kerala.
- **Mazhavillu** has demonstrated that science learning is not merely assimilation of scientific information, but the effective application of scientific understanding in real life contexts. Mazhavillu has also traveled from a handful of 'koodarams' to 28 Model Residential Schools, and two Tribal schools under palakkad District Panchayat.
- **OLOI** has been transitioning in to a evidenced based participatory local innovation system by piloting innovative solution to local challenges with local bodies support. To operationalize OLOI 21 Block Innovation Clusters have been piloted and 35–36 pilot projects have been launched, covering climate-resilient agriculture, water security, waste management, livelihood diversification, geriatric care and digital governance—each rooted in specific panchayat-level problems identified by local communities.
- To move beyond isolated pilots, OLOI now operates through 21 Block Innovation Clusters across all 14 districts, where block panchayats, academic and research institutions, civil-society organisations and local startups jointly take curated problems into solution design, testing and scale-up.

These clusters are the main vehicles for people-centred local economic development, ensuring that innovation capacity sits close to panchayats and communities rather than only at the state level.

- **I-YwD** empowers young innovators with disabilities through mentorship, entrepreneurship training, and inclusive learning. With three active cohorts, there is no similar programme anywhere in the world that fosters innovation among people with special abilities.
- **Vijnana Keralam** has evolved into a people centric skill enabling job campaign striving to bring in equity in job access among career break females, marginalized communities and transgenders. Few notable outcomes in its transition include
 - Institutionalisation of weekly virtual job fairs with improved employer participation, strengthened data processes, and movement toward large-scale conversion of opportunities into structured RTD pathways with defined post-selection accountability. **Weekly Virtual Job Fairs:** 46+ weekly virtual job fairs in 45+ SDPK Centres across Kerala.
 - **Job Mobilisation:** Mobilised a total of 40,77,635 jobs across domains by January 2026.
 - **Establishment of Job Centres:** Job Stations have been set up in 144 Blocks, 54 Municipalities and 3 Corporations, and Job Facilitation Centers have been started in 217 Gram Panchayats and 9 Municipalities.
- The experiences from the implementation of people's innovation ecosystem since inception has been documented in the form of **publications and presentations** totaling **38** so far.



YOUNG INNOVATORS PROGRAMME (YIP)



The Young Innovators Program (YIP) is a transformative platform that empowers young people (school students, science and technology graduates, researchers, postdoctoral, fellows) to engage in contextualised, collaborative real-world problem solving. By identifying locally relevant challenges, analysing root causes, and co-creating innovative solutions, participants acquire critical thinking, design mindset, and execution capabilities. YIP interlinks classroom learning with societal challenges, fosters teamwork, encourages solution-oriented research, and cultivates entrepreneurial thinking.

The program embraces 21st-century competencies while building a sustainable innovation ecosystem driven by youth-led impact. This vision—rooted in the belief that young people must become creators of solutions rather than being passive consumers of knowledge—is fundamentally reshaping Kerala’s education ecosystem. By embedding innovation, problem-solving, and social responsibility at the heart of learning, the Government has ignited a silent yet profound revolution across the state—one that empowers young minds to think critically, act creatively, collaborate purposefully, and solve real-world problems with empathy and impact.

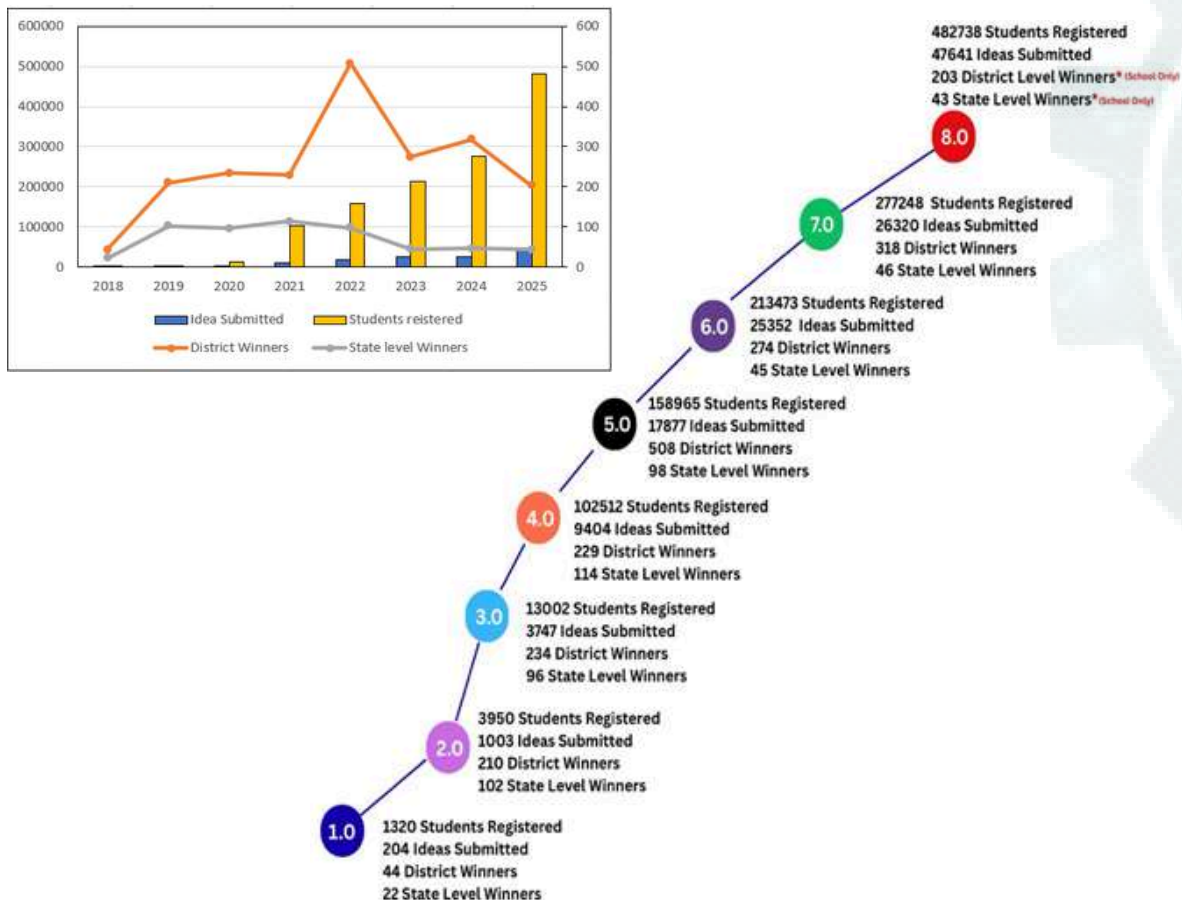


Fig. 2.1 Growth of YIP

This historic shift has transformed classrooms into laboratories of ideas, young people into change-makers, and education itself into a mission of societal transformation. It is from this visionary leadership that the Young Innovators Programme (YIP) was born in 2018— a futuristic initiative of the Government of Kerala, anchored by K-DISC, the Government’s think tank.

Conceived to equip young people and educators with 21st-century skills such as critical thinking, creativity, collaboration, and communication, YIP began humbly with the participation of 1,321 students. Today, in its eighth year, it has evolved into one of the largest structured young people innovation ecosystems in the country, attracting **12.57 lakh** participants across **8,658** academic institutions.

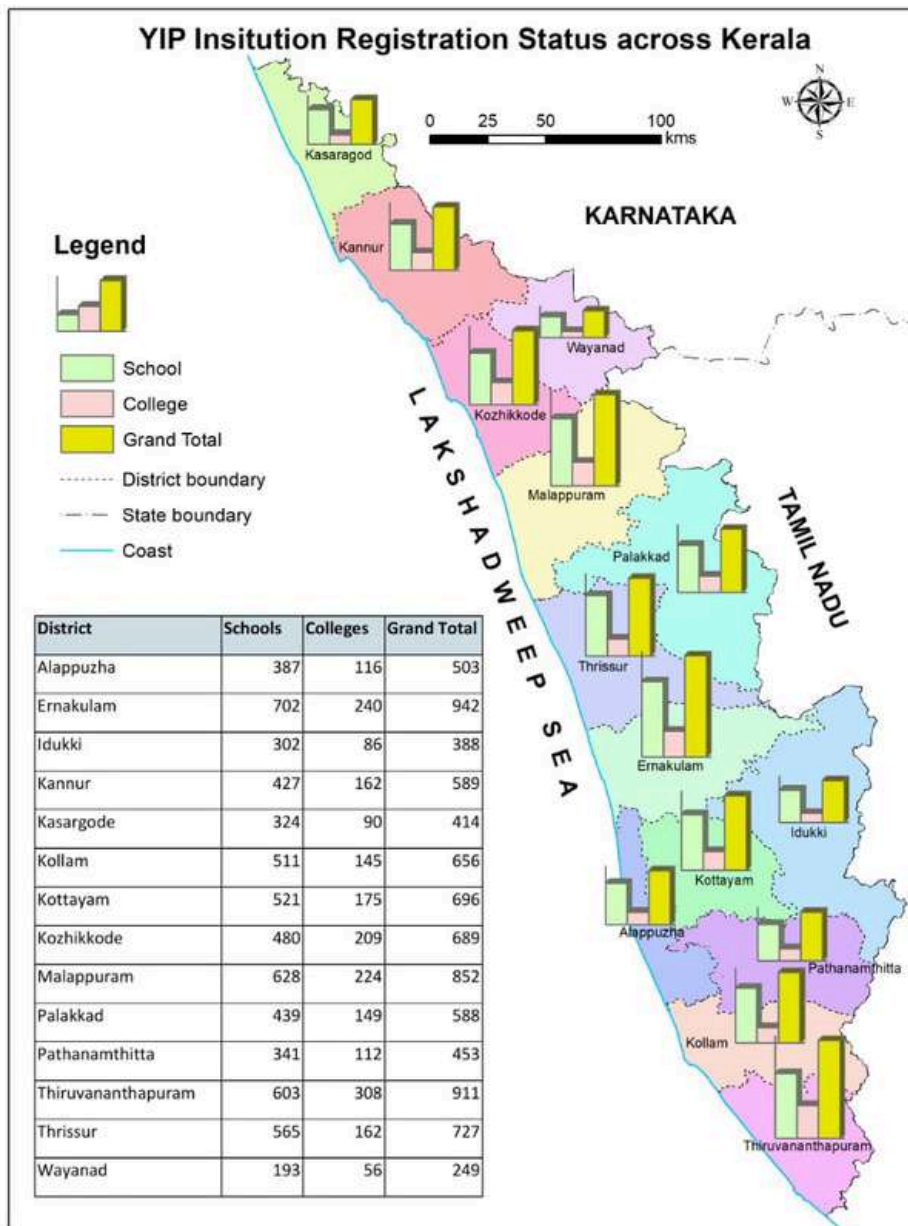


Fig. 2.2 Map of YIP Coverage

The programme brings together academia, industry, government, research institutions, and civil society into a unified innovation ecosystem, where young people aged 13 to 37 collaboratively address real-world challenges using advanced Fourth Industrial Revolution technologies. YIP categorises participants into four streams: school students (Classes 8 to 12), technical and collegiate students, medical and allied streams, and students from industrial training institutes (ITIs) sectors.

Participant teams selected are supported through innovation training, product development, funding pathways, and phased exits. The programme systematically nurtures Applied Thinking Skills and empowers participants into confident societal change-makers.

The YIP programme follows a structured process beginning with idea registration followed by idea submission either across 30 thematic areas, or from problem shelves with 1972 problem statements followed by L0 Evaluation, L1 (Preliminary) Evaluation, Foundation Training, Cop Connect, District-Level Evaluation, Immersion Training, State-Level Evaluation, Maker Camp, and culminating in the Protothon.

KEY ACCOMPLISHMENTS OF 2025-26

- Showcased prototypes of YIP 7.0 State-Level Winners at the State School Science Fair.
- Demonstrated working prototypes of past YIP State-Level Winners at the 38th Kerala Science Congress, held at St. Albert's College, Ernakulam, Kochi.
- Conducted Protothon for the first time, providing YIP State-Level Winners with hands-on opportunities to develop prototypes in Fab Labs with support from industry experts, KSUM, Fab Lab specialists, domain experts, and research mentors.
- For the first time, disbursed grant funds and facilitated funding opportunities to State-Level Winners to scale their projects into valuable products, processes, systems, social enterprises, and applied research initiatives.
- Hon'ble Chief Minister interacted with 190 State-Level Winning Teams, comprising 431 students, as part of the CM-YIP Meet.
- A total of 4 crores as grant money for all YIP Winners has been distributed.
- Developed an indigenous YIP digital portal through which the YIP 8.0 programme was seamlessly executed and effectively managed end-to-end.

OBJECTIVES OF YIP

- **Address Complex Second-Generation Problems in Kerala**

Enable students to identify and solve second-generation challenges such as waste management, climate resilience, public health gaps, sustainable livelihoods, and digital inequity through structured, research-driven innovation processes.

- **Strengthen Transition to a Knowledge Economy**

Foster critical thinking, applied research, intellectual property creation, and entrepreneurship to build a skilled innovation workforce aligned with Kerala's vision of a knowledge-driven economy.

- **Operationalise the Quadruple Helix Model:**

Integrate Government, Academia, Industry, and Society by creating collaborative platforms where students co-create solutions with expert mentors, industry partners, and community stakeholders.

- **Institutionalise Contextualised Innovation Methodology:**

Implement a structured process involving problem identification, root cause analysis, design thinking, prototyping, multi-level evaluation, mentoring, and scaling pathways from idea to Minimum Viable Product (MVP)/ startup.

- **Build a Sustainable Innovation Ecosystem:**

Establish long-term institutional networks, evaluation frameworks, funding mechanisms, and incubation linkages to ensure scalable and sustainable impact.

- **Leverage Ecosystem Partnerships:**

- Government of Kerala: Policy support and financial grants
- K-DISC: Programme design, implementation, and monitoring
- Educational Institutions: Student mobilisation and mentorship
- Industry & Startup Ecosystem (e.g., KSUM, Fab Labs, Domain Institutions, CoP Experts): Technical guidance, prototyping support, incubation
- Domain & Research Experts: Evaluation, validation, and research mentoring

OUTPUTS AND OUTCOMES

- Several YIP winners have successfully transformed the prototype of their YIP projects and incubated them into their own startups.
- Established YIP as a socially conscious and inclusive innovation platform, ensuring equitable access across gender, geography, and social backgrounds.
- Achieved strong inclusivity metrics since inception:
 - **62.28%** female participation
 - **16.52%** participation from marginalised communities
- Engaged with 8,658 institutions and 12.57 lakh students, generating **1,22,560 ideas** up to YIP 8.0.
- Produced 1,026 State-Level Winners, strengthening the innovation pipeline across the State.
- Enabled translation of ideas into tangible outcomes, resulting in:

- **421 working prototypes** developed across diverse domains
- **7 patents** filed
- Institutionalised structured financial support from the Government of Kerala:
 - INR 25,000 grant for District-Level Winner
 - INR 50,000 grant for State-Level Winner
 - Facilitated progression from idea to prototype to Minimum Viable Product (MVP).
 - Provided real-time pitching platforms for innovators to attract additional funding, incubation support, commercialisation, and scaling opportunities.
 - Fostered entrepreneurial development, leading to:
 - **24 startups established**, 24 startups currently under incubation
 - Strengthened the innovation ecosystem by converting student ideas into deployable, socially relevant, and commercially viable solutions.

Knowledge Creation:

- Unique content on Innovation, Real-world Problem solving, recording of Problems, Problem Solving tools, Problem Canvas, Design thinking from Empathy Stage to define Stage to ideation to Prototype and test. Design a curriculum for Social Enterprise, IPR, Business Plan creation, IR 4.0 technology Skills, and Research methodology.

Economic Impact:

- Enabled startup creation and incubation, generating direct and indirect employment opportunities.
- Facilitated conversion of student innovations into market-ready products and services.
- Contributed to value creation through scalable solutions addressing real-world societal and industry needs.

Social Inclusion:

- YIP has demonstrated a strong commitment to inclusion, with 62.28% female applicants and 16.52% representation from marginalised communities (SC/ST/Fisher folks) in the YIP 8.0 edition. These figures reflect the programme's deliberate efforts to break barriers related to gender and social background, ensuring equitable access opportunities.
- By empowering diverse youth segments, including underrepresented communities, YIP strengthens social equity while fostering broad-based participation in the State's innovation ecosystem. In the YIP 8.0 edition, at the college level, stream-wise participation comprised **49.6% Arts and Science students**, 30.4% Engineering students, **10.0% Medical and Paramedical students**, 7.1% Polytechnic students, 2.9% ITI students, and 0.1% from other categories, including research.

SUCCESS STORIES & CASE STUDIES

YIP has completed seven cohorts, and eight is ongoing. The programme follows a rigorous, step-by-step process from ideation to implementation, supported by mentorship from domain experts, technology specialists, Communities of Practice, experiential training, prototype handholding, and exposure to R&D institutions, industries, startups, NGOs, and government agencies. Among the many breakthrough innovations that have emerged are: lipid-based liquid crystal technology for detecting fish adulteration, specialised clothing to prevent bedsores, advanced fumigation devices, value-added

products from water hyacinth, marijuana detectors, pneumatically powered robotic exoskeletons, IoT-enabled concrete maturity meters, coconut oil-based eco-friendly bio-resins, semi-automated natural rubber mixing systems, automatic solar panel cleaning mechanisms, bio-bins for waste processing, energy-saving cooking vessels, and aero water makers. Some impactful examples of Student testimonials vividly showcase the real-world impact created by YIP projects across diverse sectors.

Automatic Solar Panel Cleaning System (ASPCS): “YIP helped us transform a simple idea into a smart, deployable solar panel cleaning solution that improves efficiency, saves water, and eliminates manual risk.”



Fig. 2.3 Automatic Solar Panel Cleaning System



Fig. 2.4 Banana Peel Pectin

- **Banana Peel Pectin (Sustainable Biopolymer):** “Through YIP, we converted agricultural waste into a scalable, eco-friendly biopolymer product with real industrial and social impact.”



Fig. 2.5 CelestAlign

- **CelestAlign – Eco-conscious Clear Aligner System:** “YIP enabled us to scale our research into a clinically validated, sustainable orthodontic solution ready for real-world adoption.”



Fig. 2.6 Hon'ble Chief Minister Reviewing YIP Exhibitors

Through YIP, Kerala has not only created products, startups, and patents, but it has also redefined learning itself. By equipping young people with 21st-century skills and embedding innovation into the heart of learning, the Government of Kerala has built a living, breathing ecosystem of problem-solvers, ensuring that the young minds of Kerala do not merely inherit the future but actively design it.



Fig. 2.7 Selected Solutions Devised by YIP Participants

CHALLENGES AND FUTURE ASPIRATIONS

YIP – Challenges & Learnings:

Implementing YIP across multiple institutions and stakeholders - students, teachers, evaluators, industry experts, government departments, and funding agencies - posed coordination, standardisation, and scalability challenges. Ensuring uniform quality of mentoring and evaluation across districts requires robust frameworks and continuous capacity building. Logistical constraints, resource limitations, and the need to align academic calendars also demand adaptive planning. These challenges have strengthened programme governance, refined evaluation mechanisms, and led to structured training models (ToT, evaluator orientations) and phased implementation strategies.

Transition to Sustainability:

YIP is progressively transitioning from a large-scale innovation drive to a sustainable, state-wide ecosystem model. Structured government funding, institutional partnerships, incubation linkages, and prototype-to-MVP pathways ensure continuity beyond pilot stages. By embedding innovation processes within schools and colleges, building local mentor networks, and fostering startup incubation and IP generation, YIP is evolving into a self-sustaining, scalable innovation framework across the State.



MANCHADI മഞ്ചാടി

ഗണിതപഠനം കേരളത്തിൽ

K-DISC initiated Manchadi – Teach Maths for Kerala a pivotal educational programme aimed at strengthening mathematics proficiency among children in Kerala. The programme envisions a result-oriented, problem-solving society through meaningful and explicit application of mathematical knowledge in everyday life.

Manchadi shows that it is possible to shift mathematics learning in Kerala from procedural drill to meaningful mathematisation when three conditions come together: community ownership, a clear pedagogic spine, and patient work on assessment and teacher learning.

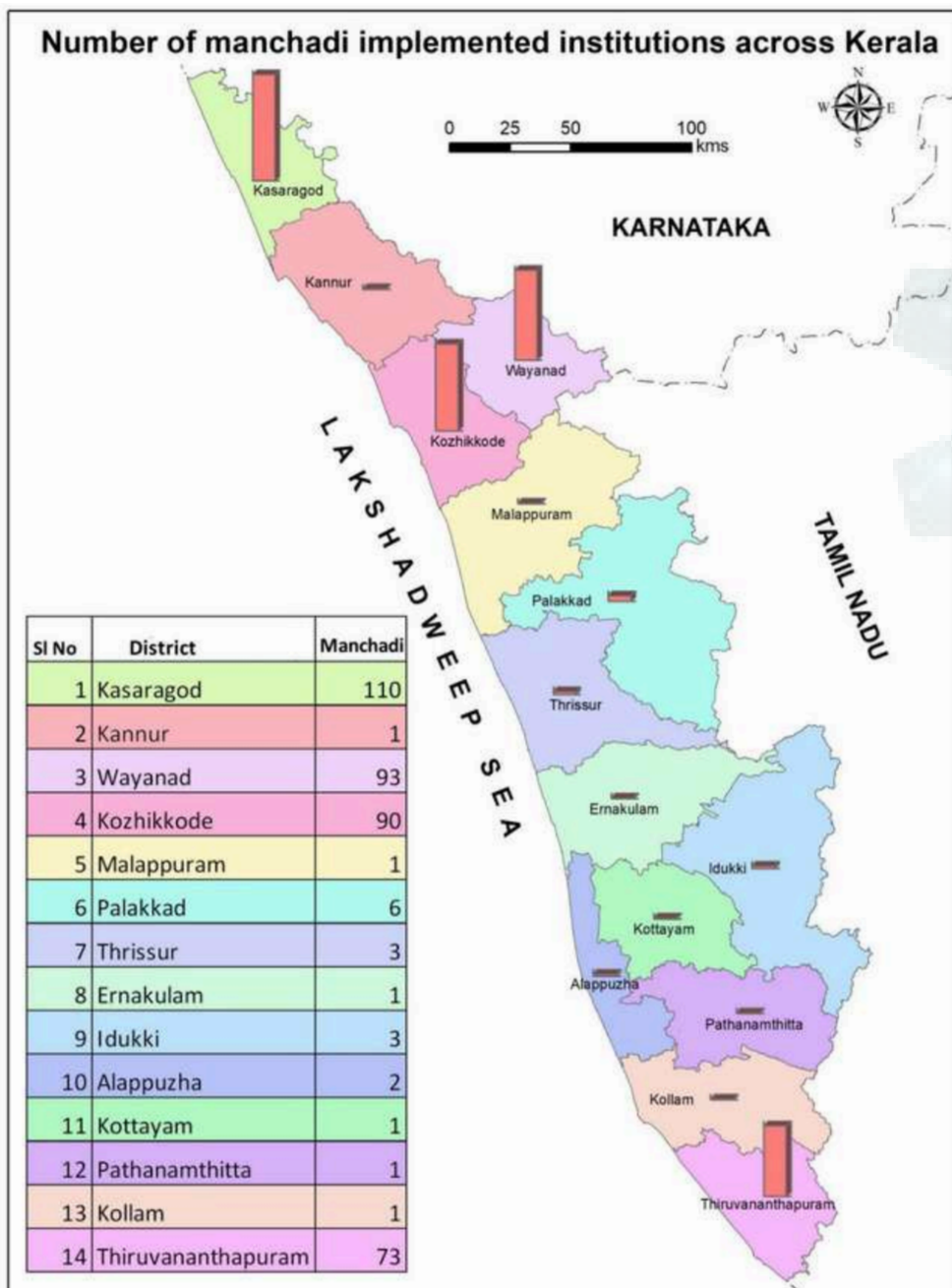


Fig. 3.1 Map Representing Coverage of Manchadi Programme as of 2025-26

The programme has travelled from a handful of koodarams to **1400 schools** without being designed as a conventional “project”; instead, it has grown through iterative work with parents, local governments, DIETs and state missions. The baseline–endline results, while modest in scale, suggest that children’s sense of different mathematical concepts can change substantially when they are allowed to think, talk and act mathematically in situations that matter to them. The experience so far indicates that treating mathematics as a people’s innovation practice rather than only as a school subject can open new pathways for both educational justice and democratic deepening in Kerala.

By promoting adaptive learning models based on globally validated pedagogical practices, Manchadi seeks to transform mathematics education from rote learning to conceptual understanding.

Launched in 2018, Manchadi aligns with the principles of the Kerala Curriculum Framework (KCF) 2007, emphasising logical reasoning, scientific temper, and experiential learning.

The programme focuses on universal mathematising at the community level, enhancing the cognitive abilities of children aged 6–12, and improves employability prospects of adults and unemployed youth through real-life applications of mathematics.

KEY ACCOMPLISHMENTS OF 2025-26

During the current year, the Manchadi programme recorded significant progress in terms of institutional integration and outreach. As part of the Manchadi initiative, the programme was successfully introduced at the **Class III** level in **1,400 Schools** across four districts, marking an important step in early-grade mathematics intervention at a massive scale.

In addition, the Palakkad District Panchayat initiated the integration of the Manchadi programme in **two tribal schools**, in Sholayar and Anakallu, extending the programme’s coverage to underserved and marginalised communities and reinforcing its commitment to **inclusive and equitable mathematics education**. Manchadi is anchored in **30 Model Residential Schools (MRS)** across the state, where **Class V** students receive sustained, activity-based mathematics support.

The Manchadi model was presented at Kerala Science Congress as ‘a people’s innovation framework for community-based mathematical literacies in Kerala’, validating its methodology at the state level. Manchadi has transformed Classrooms into laboratories of mathematical thinking.

MANCHADI CLUSTER PARTICIPATING INSTITUTIONS

Institutions	Count
Model Residential Schools (SC Dept. and ST Dept.)	30
Children’s Home	1
Block Resource Centres	5
Cluster under District Panchayat Palakkad Schools	2
	1400
Total	1438

OBJECTIVES

- To develop students' logical thinking and reasoning skills and provide a strong foundation in basic mathematical concepts and operations.
- To promote problem-solving and critical thinking skills in real-life contexts while reducing fear and anxiety towards mathematics and building learner confidence.
- To make mathematics activity-based, joyful, and learner-centred.
- To support the overall development of the child by enhancing logical understanding, fostering interest, and improving performance across other disciplines, not limited to mathematics.
- To encourage exploration of mathematical concepts through hands-on learning and investigative activities.
- To enhance creativity and curiosity by linking mathematics with everyday life situations.
- To develop collaborative learning skills through group activities and discussions.
- To promote inclusive learning by addressing diverse learning abilities among students.



Fig. 3.2 Teachers Training at Kattakkada Cluster

OUTPUTS AND OUTCOMES

Maths teaching for fifth-grade classes in MRS will be supplemented with Manchadi from this year. As a result of Manchadi's intervention, students have gained proficiency in all basic mathematical concepts.

During the academic year 2025–26, Manchadi intervention was introduced as an innovative mathematics teaching programme to third-grade classrooms in government schools across five clusters in four districts of Kerala. (Thiruvananthapuram, Wayanad, Kozhikode, Kasaragod). Manchadi activities are designed based on the mathematical competencies that a third-grade student is expected to acquire.

Based on the positive changes brought about among students by the Manchadi programme, the programme was introduced during 2025-26 in two tribal schools under the supervision of the Palakkad District Panchayat at Sholayar and Anakallu, at the Class 5 level, to improve the educational standards of marginalised communities.

All teachers unanimously opine that **Manchadi goes beyond being just a mathematics learning programme; it has enhanced children's creative thinking, interest in mathematics, and their problem-solving abilities.**

KNOWLEDGE CREATION

A paper titled "Manchadi: A People's Innovation Framework for Community-Based Mathematical Literacies in Kerala" was presented at the 38th Kerala Science Congress under the Social Inclusion category.

SUCCESS STORIES & CASE STUDIES

Adhrasyhya, a student of Islamiya ALPS, Uduma, Bekkal, Kasargod, before Manchadi's intervention had demonstrated low academic performance, particularly in mathematics, and limited classroom participation. Following the introduction of the Manchadi programme, a noticeable improvement was observed in his engagement during mathematics classes. He began participating more actively and showed greater confidence in interacting with mathematical concepts. This change was also evident at home, where he started discussing mathematics-related topics with his mother, an uncommon behaviour before the intervention. During a class Parent-Teacher Association (PTA) meeting, his mother learned about the Manchadi programme and was able to clearly link the classroom interventions to her child's improved interest and participation in mathematics.

Mohammed Safwan student of Government UP School, Kottikulam, Kasaragod district, had been perceived as a slow learner with limited academic progress, particularly in mathematics. Classroom observations before the intervention indicated difficulty in comprehension and minimal participation during mathematics lessons. Following the introduction of Manchadi-based learning activities, a significant improvement was observed in Safwan's conceptual understanding and classroom performance. During a recent assessment activity involving the sankhyamala (number line up to 200), Shahin was asked to place a clip at 174. Demonstrating clear visualisation and number sense, he counted backwards accurately and positioned the clip correctly. This level of explanation and execution reflected a strong foundational understanding of numerical concepts.

The class teacher noted that such reasoning and visualization would not have been possible without conceptual clarity, leading to a marked change in the teacher's perception of the child—from a slow learner to a capable student with emerging mathematical understanding. This instance highlights Manchadi's role in enabling deep learning and reshaping educator perceptions through observable cognitive progress.



Fig. 3.3 Demo Class during Teachers Training



Fig. 3.4 Number Sense at General School

CHALLENGES AND FUTURE ASPIRATIONS

During the academic year 2025–26, Manchadi has been implemented in 1,400 schools across Kerala. As an innovative pedagogical model, its introduction in selected schools initially posed challenges like a non-welcoming attitude from the teacher community, confusion regarding the timing and outcomes of implementation, fear of handling a new innovative model instead of relying on comfortable traditional teaching methods, and certain administrative-level challenges. However, through continuous monitoring, regular teacher training workshops, and classroom interventions by Manchadi Programme Executives, the project was successfully implemented, resulting in a significant and measurable impact on student learning.

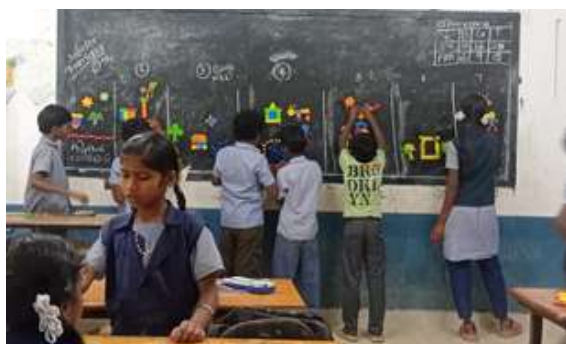


Fig. 3.5 Basic Number Sense activity at Tribal School Palakkad

The next phase of the project aims to expand its implementation to all public schools across Kerala. This large-scale extension is intended to establish a new, inclusive, and sustainable culture of learning throughout the state.

Manchdi's silent growth from five locations in the pilot stage in 2018 to 1400 schools in the State testify it as an innovative people-centric maths teaching programme.



Fig. 3.6 Measurement Activities at MRS



Fig. 3.7 Place Value activity at General School Kattakkada Cluster



MAZHAVILLU



Mazhavillu is a child-centred, innovative science education initiative by K-DISC for Classes 3–7, designed to transform the current curriculum through an integrated, thematic, and inquiry-based methodology. Aligned with the Kerala Curriculum Framework (KCF) 2007, it emphasises hands-on activities, experimentation, and real-world applications. Adhering to the SCERT syllabus

moving beyond conventional rote-based teaching. The programme nurtures curiosity, critical thinking, and creativity, fosters scientific temper as envisaged in the Constitution of India, and ensures inclusive, equitable access for learners from diverse rural backgrounds and marginalised communities.

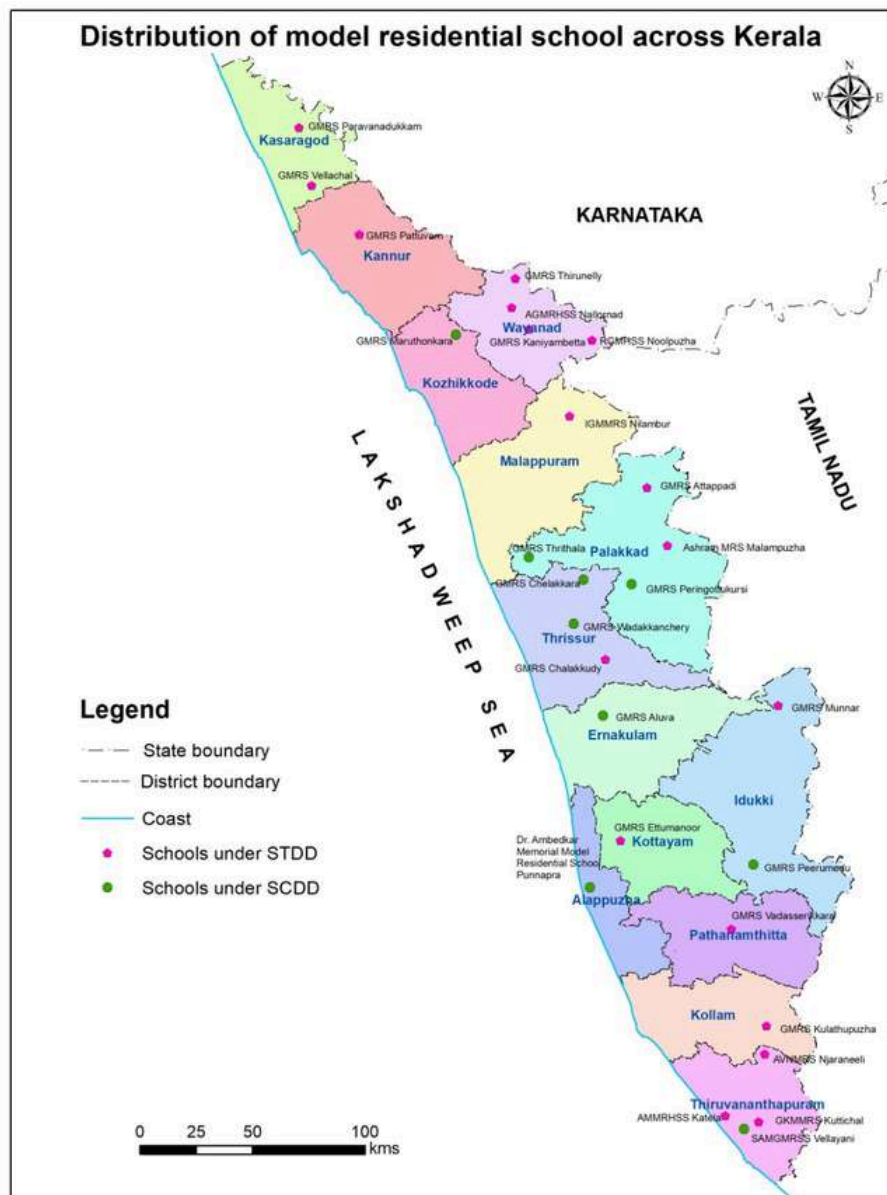


Fig. 4.1 Map Representing Coverage of Mazhavillu Programme as of 2025-26

KEY ACCOMPLISHMENTS OF 2025-26

During 2025–26, Mazhavillu was extended to Class VI in **28 Model Residential Schools**, ensuring continuity of inquiry-based science beyond the initial grades.

The methodology was also piloted with **all Class 3 students in 46 schools under Parali Buds Rehabilitation Centres (BRCs)**, marking the first large-scale integration of Mazhavillu into the general education system.

In Palakkad, the District Panchayat has implemented Mazhavillu in **2 schools** serving indigenous communities, signalling that tribal learners are central to the programme's expansion, not an afterthought.

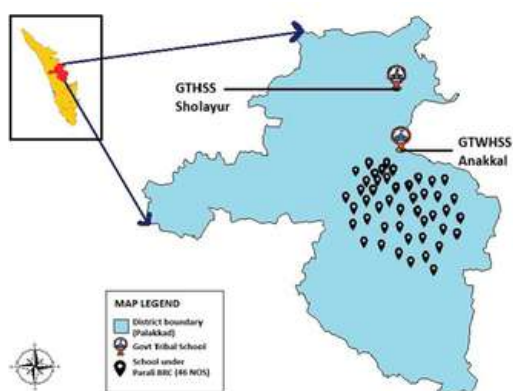


Fig 4.2 Map of BUDS and Tribal Schools Covered in Parli, Palakkad District



Fig 4.3 Magazine Release

OBJECTIVES

- Bringing in an element of the history of science in science teaching.
- Imbibing the scientific temper and spirit of enquiry in children.
- Enhancing critical thinking and analytical skills.
- Practising the methodology of science through experimentation and through open-ended problem-solving exploration.
- Realisation of frontiers of science and use of science in society.
- Identifying problems that need analysis and creative debate, and creating a platform for new, constructive ideas for science exploration.
- Ensuring a logical and coherent progression between the concepts being studied, moving away from fragmented learning.

SECOND-GENERATION CHALLENGE IN KERALA ADDRESSED BY MAZHAVILLU

Despite Kerala's high literacy rate and strong public school system, science education remains largely textbook-bound and exam-oriented, prioritising memorisation over inquiry. Students, particularly from rural and underrepresented communities, often have limited exposure to hands-on experimentation, critical thinking, and real-world problem-solving. Scientific disciplines are taught in isolation, limiting understanding of their interconnectedness in nature. Mazhavillu programme addresses these challenges through a child-centred, inquiry-driven approach that integrates thematic learning, nurtures curiosity, analytical skills, and scientific temper, and equips students to engage meaningfully with real-world scientific phenomena.

KEY PEDAGOGICAL INNOVATIONS

- Science learning is considered a dynamic process by shifting the focus from exam-oriented teaching to a holistic approach.
- Experiential learning replaces passive instruction with active, hands-on exploration to deepen conceptual understanding.
- **Integrated thematic approach** highlights the interconnected nature of scientific disciplines, enabling learners to perceive science as a cohesive and meaningful whole.
- Incorporates a problem-based learning approach for tackling real-life problems.
- Integrates project-based learning for real-world application of science.
- Continuous evaluation and multilevel activities address the individual learning needs and inclusiveness.
- Learning is considered a social process, grounded in Vygotsky's constructivism and promoting collaboration and generalising scientific literacy to overcome superstitions and regional divides.



Fig 4.4 Mazavillu Learning Demonstration

ECOSYSTEM PARTNERSHIPS

SCDD & STDD: The Schedule Castes Development and Schedule Tribes Development Departments provide funding support for implementing Mazhavillu in Model Residential Schools.

Local Self-Government: Funds and facilitates Mazhavillu activities at regional centres. Implementations are ongoing in two tribal schools under the Palakkad District Panchayat.

General Education Department: Monitors the pilot implementation of Mazhavillu in schools under Parali BRC.

Parali BRC: Manages the execution of the pilot programme and coordinates teacher orientation and training.

SSK: Samagra Shiksha Kerala provides funding and conducts teacher training for the pilot at Parali BRC.

IRTC & Maharajas: The Integrated Rural Technology Centre (IRTC) and Maharajas College, Ernakulam, serve as academic hubs for academic research, methodology practice, and transacting Mazhavillu methodology with students in Classes 3–7



Fig 4.5 Mazhavillu Student Exhibition

OUTPUT & OUTREACH

- This year, the Mazhavillu project was extended to Class 6 across 28 Model Residential Schools, consolidating the previous year's gains and ensuring pedagogical continuity.
- Beyond conventional classroom instruction, MRSs and Regional Centres (RCs) implemented innovative initiatives, including the publication of handwritten student magazines that fostered creativity and enhanced linguistic skills.
- 20 MRSs and 2 RCs also organised exhibitions showcasing Mazhavillu activities, where students conducted live experiments, articulated scientific concepts to audiences, and demonstrated practical applications, thereby cultivating confidence, communication, and collaborative skills.
- Mazhavillu was introduced in two tribal schools under the Palakkad District Panchayat, beginning with Class 3.
- Additionally, as part of its integration with the General Education Department, the methodology was piloted and scaled to all Class 3 students of 46 schools under Parali BRC, marking a significant milestone in the programme's expansion and systemic adoption.

KNOWLEDGE CREATION

A scientific paper titled "Effectiveness of Mazhavillu in Promoting Integrated-Thematic Science Learning in Kerala" was presented at the Kerala Science Congress, highlighting Mazhavillu's integrated thematic approach to science learning.

Mazhavillu was selected as one of the five **best practices under the Scheduled Tribes Development Department (STDD)** and was presented at the "Nanka Dhari – Back to School" workshop.

SOCIAL INCLUSION

The Mazhavillu project involves students from diverse socio-economic and cultural backgrounds, many of whom are first-level learners. Exposure to experiential learning, scientific inquiry, and creative exploration is often minimal. Traditional classroom practices that focus heavily on rote learning and examination performance may not fully address their needs or build confidence. By introducing Mazhavillu, we aim to bridge this gap and create a space where every child can participate actively in learning science, regardless of their background or prior achievement. The project designs activities tailored to each child's knowledge, abilities, and limitations, enhancing their capacity to construct knowledge. By providing opportunities for all students to participate in activities and discussions, Mazhavillu has helped bridge linguistic and conceptual gaps. Its methodology, emphasising group work, has fostered cooperation and made knowledge construction a collective process.



Fig.4.6 Mazhavillu in Print Media

MAZHAVILLU CLUSTER PARTICIPATING INSTITUTIONS

Institution	Count
Model Residential Schools under STDD	18
Model Residential Schools under SCDD	10
Schools Under Parli BRC	46
Schools Under Palakkad District Panchayat	2

SUCCESS STORIES & CASE STUDIES

Anu, a student from GMRS, Ettumanoor, Kottayam, faced speech difficulties, which made it tough for her to communicate. In 5th standard, she joined Mazhavillu, initially quiet and reserved. This changed when learning about the moon, sun, and Earth sparked her curiosity. **Suddenly, Anu was asking questions, and lots of them!** "What if Earth stops rotating?? Will one side totally be dark??" "Can we build an ice spacecraft to explore the sun?" Her imagination knew no bounds. Mother animators were amazed as Anu, once reluctant to speak, now expressed thoughts fearlessly. Anu's transformation was evident in her regular classes, too. Her science teacher testified to her newfound confidence in speaking up and asking doubts. Anu even wrote a story in the school magazine, which was widely appreciated by peers and teachers. Anu's story showcases Mazhavillu's power of **creating a safe space for students to grow.**



Fig 4.7 Mazhavillu Student Exhibition

When **Uthara**, a student at Maharajas College Regional Centre, joined the 4th standard, she was a slow learner, struggled to write or communicate, and would easily get bored. Her mom was anxious, fearing she might be left behind or struggle to cope. But as time passed, Uthara **found her spark in experiments.** Her mom was overjoyed to see her remember scientists' names and share her Mazhavillu experiences daily. "A single word out of her was a big change," her mom shared at a parents' meeting. Fast forward to today, Uthara, now in 7th standard, confidently presented a chart on states of matter at the Mazhavillu exhibition - a milestone moment that marked her remarkable growth. Her peers from school congratulated her, a testament to her progress. This exemplifies Mazhavillu's efficacy in nurturing a scientific temper.

Srividya, a student at GMRS, Chalakudy, was initially disinterested in classes and struggled to fit in. In the 2023-24 academic year, she was part of the Mazhavillu project, sparking Srividya's curiosity. As she watched her peers explore and learn, she began to show interest. The Mazhavillu approach slowly won her over, and she started participating in activities. One day, the headmaster visited the Mazhavillu classroom and was surprised to see Srividya growing and explaining the stages of germination of a dicot seed with precision and confidence to the mother animators. Impressed, he asked her more about it, and Srividya was **eager to share her knowledge.** She also actively participated in magazine work and exhibitions conducted at school, showcasing her newfound passion. But during her biology exam, a surprise awaited. Srividya drew detailed pictures of seed germination, but struggled to write the answers. The teacher was puzzled, but Srividya confidently explained that she knew the concept, but couldn't write it in Malayalam. "Writing isn't the only way to convey what I know," she said. "I can draw it and explain it to you, as I do with Mazhavillu teachers".

Srividya's story showcases Mazhavillu's impact, transforming a disinterested student into a confident, passionate learner. Now in 8th standard, her experience highlights the importance of **looking beyond traditional assessment methods** and embracing diverse learning styles.

CHALLENGES AND FUTURE ASPIRATIONS

i) Community Engagement: The programme faced initial difficulty in gaining the trust and cooperation of parents and communities. Some parents were concerned that additional activities might distract students from regular studies or exams. Continuous discussions were therefore organised to explain the purpose of Mazhavillu and to highlight how hands-on learning, critical thinking, and scientific temper would benefit children in the long run. This helped build understanding and support.

ii) Diverse Learning Levels: In many centres, students had varied academic foundations, language barriers, and different levels of exposure to science. A uniform teaching approach was not effective. To address this, **flexible learning strategies** were adopted. Teaching-learning materials were modified according to the needs of the learners, multilevel activities were designed, supplementary support was provided, and collaborative group activities were encouraged so that peer learning could take place naturally.

iii) Student Confidence and Participation: We also observed that some students initially lacked confidence to speak, ask questions, or participate in discussions. **Years of exam-focused learning had made them hesitant and fearful of making mistakes.** Mazhavillu sessions deliberately created a friendly and non-judgmental environment where

students could explore, experiment, and learn through doing. Activities such as simple experiments, observations, storytelling, and group tasks helped them engage more freely. Gradually, students began to show curiosity, express their ideas, and take ownership of their learning.



Fig. 4.8 Mother Animator Workshops & Orientation for Programme Executives

iv) Logistical Challenges: Transportation and consistent attendance posed difficulties for students from remote areas. Coordinating schedules and ensuring consistent participation required careful planning and support from schools and regional centres.

v) Assessment Methods: Transitioning from traditional mark-based evaluation posed challenges. To address this, new assessment methods were introduced that emphasise skills, participation, and understanding, capturing students' overall growth rather than relying solely on test scores.

Despite these challenges, the outcomes have been encouraging. Students showed increased interest in science, improved confidence, and better collaboration with peers. More importantly, they began to see science as something connected to their daily lives rather than as a difficult subject confined to textbooks.



Fig 4.9 Mazhavillu Student Exhibition



Fig. 4.10 Mazhavillu Field Visits

FUTURE ASPIRATIONS

Mazhavillu will be expanded to additional Block Resource Centres (BRCs) across all districts, reaching a wider student population and covering multiple classes. The programme will progressively include several classes in Model Residential Schools (MRSs), ensuring continuity and reinforcing effective implementation. Ultimately, Mazhavillu's child-centred, inquiry-based methodology will be integrated into Kerala's mainstream education system, making science learning more engaging, practical, and impactful for students.



Fig. 4.11 Mazhavillu NRG -Workshop



Fig. 4.12 Mazhavillu Field Visits



ONE LOCAL GOVERNMENT ONE IDEA



OLOI aims to enable Local Self-Government Institutions (LSGIs) to identify complex, locally rooted problems and address them through participatory, technology-enabled, and multidisciplinary innovation processes. The initiative operationalises the Quadruple Helix model, a collaborative framework connecting Government, Academia, Industry, and Civil Society, to drive local economic development (LED) through innovation-led value creation.

Real-life problems are identified by LSGIs and curated collaboratively by academic and research institutions, domain experts, and community stakeholders. Every OLOI cycle begins with Local Self-Government Institutions and local communities surfacing their own complex, locally rooted problems, not with pre-defined schemes, so that innovation responds to real lived challenges in panchayats and municipalities

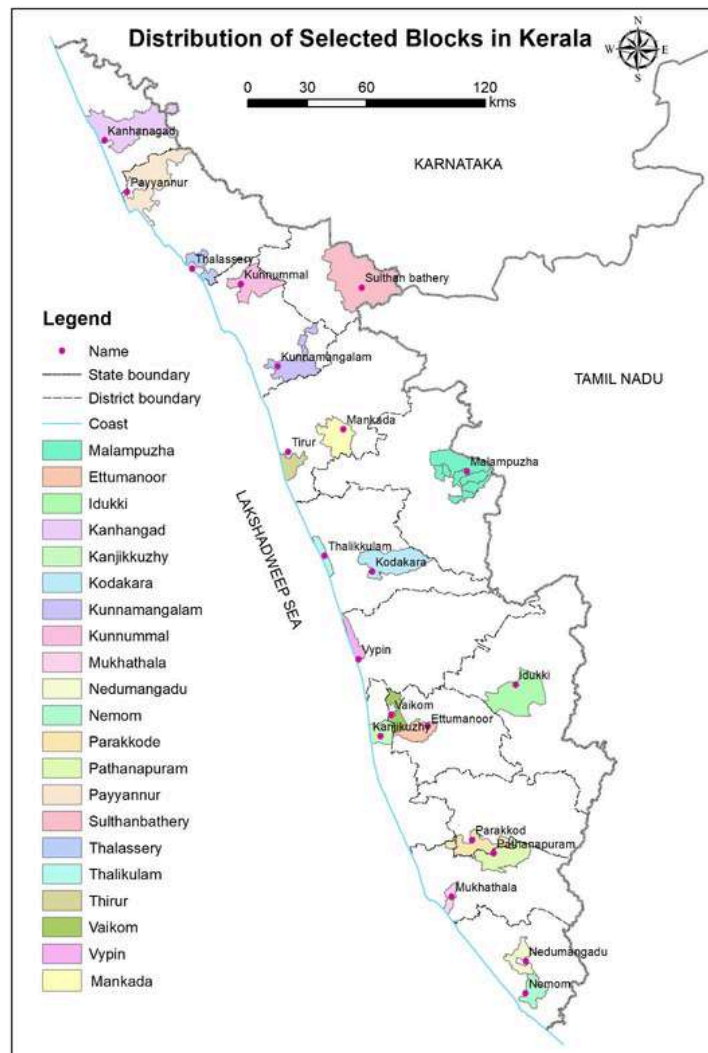


Fig . 5.1 Map showing Block Innovation Clusters Implemented by K-DISC under OLOI

KEY ACCOMPLISHMENTS OF 2025-26



Fig. 5.2 35KLD decentralized STPs using biofilter & electrochemical technologies installed for 110 fisher families at Vizhinjam

Block Innovation Clusters (BICs) have been initiated in 21 Block Panchayats across 14 districts. Within these clusters, **36 pilot projects** have been taken up, covering a wide range of local development domains, from climate-resilient agriculture, waste management, and aquifer recharge to livelihood diversification, geriatric care, and digital governance.

OBJECTIVES

OLOI's approach to innovation aims at addressing complex challenges faced by Kerala's society and driving local economic development through value creation within a quadruple helix model. Consequently, the innovation life cycle—identifying challenges, problem curation, selecting the best solutions, adapting them to local needs, assessing its community readiness and technology readiness, and integrating them effectively into the development process—is specifically tailored to meet Kerala's unique requirements.

The Problem–Solution Implementation Life Cycle (PSILC) approach under OLOI provides a structured pathway for innovation. It commences with the identification and curation of locally relevant problems that necessitate innovative interventions. LSGIs upload their challenges to the K-DISC online portal, supported by field teams from KILA and K-DISC.

Workshops involving domain experts and LSGI representatives ensure that the problems are refined, well-defined, and actionable. Problem curation is undertaken primarily by academic and research institutions with expertise in relevant domains, with the support of the Community of Practices (CoP). The CoP refers to groups of people informally bound together by shared expertise and passion for a joint enterprise. The members of the CoP engage pro bono in the process of collective learning in a shared domain, facilitating the transfer of knowledge and promotion of innovative solutions.

The process involves collecting detailed contextual information, analysing existing solutions and their limitations, profiling beneficiaries, and assessing scalability potential. Each curated problem is developed into a problem canvas, integrating elements such as root cause analysis, focus group discussions, viability and feasibility assessments, and feature–benefit mapping.

This process helps establish a clear and comprehensive understanding of each problem, enabling the design of solutions that are user-centred, inclusive, and aligned with local priorities. Throughout the process, both Technology Readiness Levels (TRLs),

Community Readiness Levels (CRLs) assessments are applied to ascertain that proposed solutions are technically feasible and socially acceptable. By following this systematic and iterative life cycle, the OLOI programme ensures that innovations evolve from problem identification to scalable implementation in a manner that is evidence-based, participatory, and oriented towards sustainable local impact.

OUTCOMES

PHASE 1

The OLOI first phase was rolled out in three specific tracks: i) Problem curation, scoping, and solution finding by academic-research institutions entrusted with this, ii) Solution aggregation hackathons for the problems submitted by the majority of LSGIs, and iii) Solution aggregation hackathons for problem statements addressing climate action and sustainable urban transitions.

The projects, such as **the Clam Depuration and Value Addition Unit at Muhamma, the Hydraulic Isolation Structure-based Drinking Water Project at Elakamon, and the Strategic Managed Aquifer Recharge Project at Paivalike, climate resilience initiatives such as flood management projects at Kumarakom, Mulakuzha, and Maravanthuruth, and social innovation projects such as the Time Bank for Elderly Care at Elikkulam**, showcase the innovative solutions of the OLOI programme.

The **Zero Waste Hackathon** and **Human-Animal Conflict Hackathon** were aimed at aggregating solutions to address critical challenges faced by local governments. **Urban transition pilots** in partnership with Social Alpha and the University of Toronto have introduced decentralised STPs, energy-efficient HVAC retrofits, and electric waste-collection vehicles in Thiruvananthapuram Corporation.



Fig. 5.3 Time Bank platform is being implemented in Elikkulam Panchayath, Kottayam, enabling service exchange between elderly citizens and community volunteers

PHASE 2

In the second phase of OLOI, the Block Innovation Cluster model involving block panchayats, academic-research organisations, civil society organisations, and block-level startups has been developed as one of the vehicles for innovation-led development.

BIC will facilitate local economic development following a holistic approach and addressing ecological, economic, and social issues in tandem.

As a pilot program, the system has been implemented in 21 block panchayats across 14 districts. 35 pilot projects have been identified and mapped with academic research institutions in these clusters. Academic research institutions, including NIT Kozhikode, CWRDM, IIM Kozhikode, KUFOS, MG University, TKM College of Engineering, CTCRI, and NIIST, are participating in this effort.

The basic function of BIC is to provide various types of academic and technical support to

the local self-government bodies and to create an ecosystem where innovative ideas generated by local entrepreneurs and those interested in new developments can be brought to fruition.

Along with this, Block Innovation Clusters can also act as a support mechanism for local self-government bodies and local entrepreneurs to find solutions to problems that they cannot solve on their own.

FUTURE ASPIRATIONS

Interfacing of R&D institutions, University Departments, and Engineering Colleges with Panchayats and Block officials open a new arena for transdisciplinary interactions. There is also a de-schooling experience both for professionals and academicians, as business-as-usual linear solutions are not adequate to address real-world problems. As we move into the next phase of transforming the emerging networks into a dynamic innovation ecosystem, the OLOI programme will be focusing on the following key activities.

- Formulation of comprehensive innovation frameworks that establish an effective interface between local governance and scientific-technological ecosystems.
 - Development of a structured mechanism for creating a problem canvas that connects contextual understanding with the innovation cycle, grounded in participatory and human-centred approaches.
 - Design of a scaffolding mechanism to support and guide the actors of the quadruple helix throughout the PSILC of innovation.
- Establishment of objective frameworks and indicators to evaluate innovation outcomes, covering TRLs, CRLs, business models, cost-benefit analysis, risk assessment, and ecological impact.
- Orientation to academic, research, and industry partners toward contextualised, problem-driven collaboration, moving away from straight-jacketed solution-first approaches.
- Strengthening of the Communities of Practice (CoPs) mechanism by developing a core group of Innovation Fellows or champions responsible for mentoring, handholding, and scaling up innovative solutions.
- Activation of District Innovation Councils (DICs) and development of a mechanism to ensure active engagement of all district-level functionaries in the innovation ecosystem.
- Expanding the network beyond the state level to establish collaborations at national and international scales, strengthening knowledge exchange and innovation linkages.



Fig 5.4 Low-cost electric tricycles handed over to Haritha Karma Sena members of Thiruvananthapuram Municipal Corporation to ease the burden, increase efficiency and efficacy of household inorganic waste collection

- Development of structured capacity-building modules, playbooks, videos, and case studies for training all stakeholders, including elected representatives, LSGI officials, LSGD functionaries, and academia.

- Design models for Municipal Innovation Clusters to extend the innovation framework effectively to urban local bodies.
- Over time, Block Innovation Clusters, District Innovation Councils and Communities of Practice are meant to function as permanent public platforms for people-driven innovation embedded in decentralised planning, so that OLOI becomes a continuous system owned by LSGIs and communities rather than a time-bound scheme.

These activities are envisaged to strengthen OLOI as a continuous, evidence-based, and participatory innovation ecosystem. This inclusive approach not only strengthens ownership but also paves the way for long-term sustainability. Further, it helps build an inclusive innovation ecosystem, broad base the innovation process and contributes to empowered democratic decentralisation.





ONE DISTRICT ONE IDEA (ODOI)



The guiding principle towards the innovation cluster approach is that Micro, Small and Medium Scale Enterprises (MSMEs) can play a key role in local economic growth and equitable development. MSMEs represent a substantive contribution to employment generation, poverty reduction and wider distribution of wealth in most developing economies. However, the potential role of MSMEs is often not realised because of problems related to their size.

MSME growth strategies in the country are conventionally incremental, mainly focusing on common facility creation and market connections for minor improvements in performance. The objective of ODOI is to showcase a few clusters with non-linear growth. K-DISC provides technology support and support for innovation components as well as risk mitigation, in collaboration with the Department of Industries, Government of Kerala.

KEY ACTIVITIES

- In December 2020, K-DISC identified around 280 clusters across 14 districts using formal sources (MSME observatory, DIC, Kudumbasree, Panchayats, LSGDs) and local verification. Similar units were grouped into clusters across manufacturing, handicrafts, handloom, and Kudumbasree activities. By January 2021, District Innovation Councils (DICs) were formed, chaired by District Panchayat Presidents and District Collectors, supported by 140 Core Group professionals trained by the Digital University of Kerala (DUK).
- From 280, the clusters were reduced to 258, then 163 after reviews. Mentor Institutions (MIs) were selected through an EoI (63 chosen), trained by DUK, and supported by an IT portal from the ICT Academy to capture action plans. These clusters faced an Innovation Challenge. EDII was assigned evaluation duties, with a 1000-point framework approved by K-DISC and DUK.
- In this regard, 14 clusters submitted their revised draft DPRs to EDII. These DPRs were finalised and forwarded to K-DISC for further action. Furthermore, K-DISC, along with DUK, identified 6 clusters with strong potential for exponential growth, necessitating a revision of their DPRs.

The finalised 6 clusters are as follows:

- 1) Kerala Arts and Crafts Village
- 2) Kollam Cashew Processors Association (KCPA)
- 3) Venad Poultry Farmers Producer (VFPF) Company Ltd.
- 4) Kuthampully Handlooms, Thrissur
- 5) Shoranur Agricultural Implement Consortium (P) Ltd. (SAIC)
- 6) Kanhirode Weavers Cooperative Society Ltd. (KWCS)

- The DPR from Kanhirode Weavers Cooperative Society Ltd. (KWCS) cluster is under consideration by the Government.
- The Society has received Government of Kerala support for introducing a new product line of eco-friendly kids wear made from 100% organic cotton and natural dyes, aimed at enhancing competitiveness, sustainability, and revenue generation.

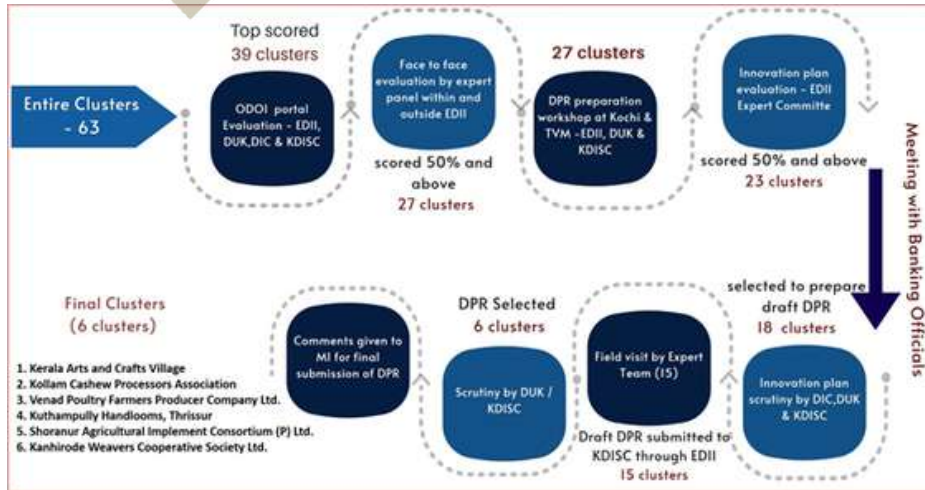


Fig. 6.1 Road map of clusters, reducing from 63 to 6

The initiative responds to growing consumer demand for safe, chemical-free children’s clothing and leverages the Society’s existing infrastructure, skilled workforce, traditional dyeing expertise, and institutional strengths. The project encompasses targeted investments in infrastructure development, advanced machinery and equipment, design and product development, branding, marketing, and digital outreach to ensure successful market entry and scalable growth under a dedicated brand initiative.

- The total project cost is estimated at ₹2.32 crore, covering building and interior works, machinery and equipment, fixed assets, preliminary and pre-operative expenses, and working capital.



Fig. 6.2 Kanhirode Weavers Cooperative Society Ltd. (KWCS)

ACCELERATING ADOPTION OF EMERGING TECHNOLOGY SOLUTIONS IN GOVERNMENT



K-DISC aims to encourage and facilitate the adoption of Emerging Technology Solutions in various Departments and public agencies under the Government of Kerala to enhance the efficiency and effectiveness of office systems and processes. Emerging Technologies typically include Artificial Intelligence (AI)/Machine Learning (ML), Blockchain, Internet of Things (IoT), Robotics, Robotic Process Automation (RPA), Big Data

K-DISC has so far undertaken 53 projects in the Emerging Technology Pilot initiative. out of which twenty-four projects are under various stages of implementation and 41 projects have been completed/closed. The details the major achievements of Emerging Technology Division during April 2025 - March 2026 are outlined below.



Figure 7.1 Project Life Cycle

Analytics, Augmented Reality (AR)/ Virtual Reality (VR), Electric Mobility and other cutting-edge Technologies.

K-DISC follows a well-defined, transparent approach in project management. Key stages in the Emerging Technology project life cycle as shown in above flowchart.

After the successful pilot implementation, the projects are handed over to the End User Departments after benefit evaluation. Based on the benefit evaluation, the end user Department may decide to scale up the project to the entire State of Kerala or a Phase 2 of the pilot project is initiated, with advanced benefits for the End User Department and Citizens.

KEY ACCOMPLISHMENT OF 2025-26

Status	Count
Projects Undergoing Scale-up	1
Completed Projects	4
Projects Awaiting Hand-over/ Handed Over to Department	3
Projects under Warranty Monitoring	4
Projects undergoing implementation	6
Projects awaiting Department approval	3
Ideation Stage	10
Innovation for Government with Emerging Technologies (IGNIET)	
Completed (i4G 2024)	1
Closed projects	2
Total	34

1. PROJECTS UNDERGOING SCALE-UP

Blood Bag Traceability Phase II

K-DISC has been functioning as the Programme Management Unit (PMU) for the statewide rollout, of this project. The Citizen Portal (Jeevadhara) was completed this year. Out of 98 identified centres, installation has been completed at 9 centres so far.

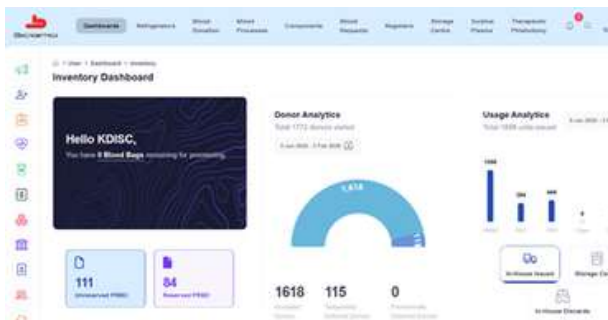


Fig. 7.2 Blood Bag Traceability Application

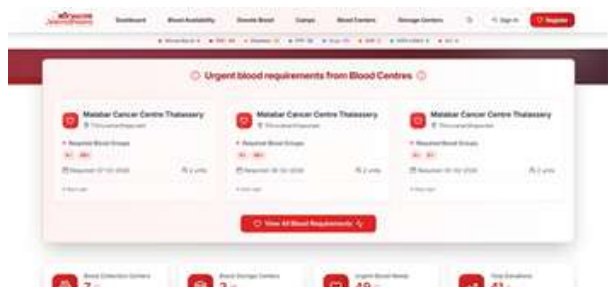


Fig. 7.3 Jeevadhaara - Citizen Portal



Fig. 7.4 Installation at Different Blood Centres



Fig. 7.5 Blood Tracker

2. COMPLETED PROJECTS

Mobile App to Connect the Beneficiaries of KASP-PMJAY Health Schemes

A mobile application for beneficiaries of the KASP-PMJAY health insurance scheme and a web portal for State Health Agency officials were developed. During 2025-26, K-DISC obtained UAT sign-off from the State Health Agency, and the application was officially launched by the Hon'ble Health Minister of Kerala on 29th October 2025.

An additional scope of work for both the mobile application and web portal was finalised, and development activities for the same were initiated in January 2026.



Fig. 7.6 Official Inauguration of KASP Health Mobile App by Hon'ble Health Minister of Kerala

Implementation of Hekaflo-IoT Enabled High Flow Nasal Oxygen Therapy Device at MCH Thrissur and SAT Thiruvananthapuram

As part of the project, IoT-enabled high flow nasal oxygen therapy devices were installed at two pilot locations: (1) Pediatric ICU, at SAT Hospital, Thiruvananthapuram in September 2025, and (2) Anesthesia Department ICU at Government Medical College, Thrissur in October 2025. Installation of both hardware and software components were successfully completed. Comprehensive training sessions were conducted for doctors and healthcare staff at both locations.

Automated Cervical Cancer Screening using Artificial Intelligence

During 2025-26, digitization of abnormal slides from additional sample collections were completed. The Technology Partner shared performance metrics of the trained AI models based on the annotated dataset. An AI Model Validation Workshop was conducted on 24 November 2025, with participation from pathologists from various medical colleges, to evaluate the performance of the AI model. The AI application and case-wise data, including corresponding images, were hosted at the State Data Centre (SDC) on 05 December 2025. Feedback received from the participating pathologists during the workshop was consolidated.



Fig. 7.7 Hekaflo Installation at SAT Thiruvananthapuram

AI-Based System for Automatic Screening of Diabetic Retinopathy (DR) Phase 2

Following completion of the DR model development, 17 Family Health Centres (FHCs) in Thiruvananthapuram district were evaluated for the field trial. Only FHC Pallichal was found suitable, as the remaining locations faced multiple operational challenges. User Acceptance Testing (UAT) was conducted during an eye camp at FHC Pallichal on 16 September 2025.

As part of the Remidio integration, the fundus application was revised by Remidio based on K-DISC's recommendations, and the updated Fundus DICOM application was released on the App Store on 21st January 2026. In parallel, the DR model was upgraded to a lesion-classification-based model and integrated into the production server. AI model validation was initiated on 4 February 2026 with the support of the Medical College Hospital, Parippally.

3. PROJECTS AWAITING HANDOVER/ HANDED OVER TO DEPARTMENT

ET Driven Continuous Drinking Water Supply Monitoring System for Pandalam Municipality Town

For integration with the KWA PRAVAHAAK portal, database analysis of the platform was completed, and the required APIs were shared with KWA. Further scaling up of the system to additional locations is presently under discussion with KWA.

Wireless Infusion Monitor with Dripo at Malabar Cancer Centre

The project was handed over to the Department of Health and Family Welfare.

Citizen Satisfaction Survey (Citz Happy)

The project was handed over to the Department of GST.

4. PROJECTS UNDER WARRANTY MONITORING

G-Gaiter- The Advanced Gait Rehabilitator

This project is under warranty monitoring until August 2028. For continued operator support of the device at the pilot location, a proposal has been drafted and submitted to the Department of Health & Family Welfare.

Mobile App to Connect the Beneficiaries of KASP-PMJAY Health Schemes

This project is under warranty period from 17 September 2025 to 16 September 2026.

5. PROJECTS UNDERGOING IMPLEMENTATION

Integrated Parking Management System (IPMS)

During 2025-26, development of Admin Web Portal and PoS Android mobile application were completed. Following successful VAPT, the applications were deployed at the SDC in November 2025. Installation and testing of all hardware components were completed at Gandhi Park, Thiruvananthapuram in December 2025. After a successful field trial, a system demonstration was conducted for Thiruvananthapuram Corporation in February, 2026. Integration of the applications with Smart City Thiruvananthapuram Limited is currently in progress.

Landslide Early Warning System

During 2025-26, multiple institutions, including the Indian Institute of Technology, Roorkee (IIT Roorkee), Council for Scientific and Industrial Research – Central Building Research Institute, Roorkee (CSIR-CBRI), and Augsenselab, were onboarded for project implementation. An electrical resistivity tomography (ERT) survey was completed at the pilot location, and borehole locations for installing ground sensors were finalised. Following extensive testing of the N-Sonde system at Ponmudi in May 2025 and at Bio 360 Life Sciences Park in December 2025, five radio occultation (N-Sonde) sensors were installed at the pilot locations in January 2026. Additionally, one N-Sonde sensor was installed at the K-DISC Head Office in February 2026 to enable continuous weather data monitoring.

AI Based OP Token Slot Prediction System for Hospitals

This system aims to estimate the waiting time against tokens issued to outpatients. By September 2025, the system study and documentation were completed, following which development was initiated. Development of the AI model and web application was completed in January 2026, and integration of the AI model with the live data stream was completed in February 2026. The Gastroenterology Department at Government Medical College, Thiruvananthapuram, has been identified as the new pilot implementation site.

Block Chain Powered Tissue Culture Traceability system for Biotechnology & Model Floriculture Centre (BMFC)

During 2025-26, development of mobile and web applications were completed. The applications successfully underwent VAPT and were deployed at the SDC. Temperature-humidity sensors, current sensors, and other required hardware were installed, and hands-on training sessions were conducted for BMFC officials.

AI Chatbot for eHealth

The technology partner was onboarded in July 2025. Preparation and finalisation of the Software Requirements Specification for Module 1 of the AI chatbot were completed, and development was initiated by November 2025. The system study and documentation for Module 2 were completed. Additionally, a patient assessment protocol was developed with the help of CMC Vellore and submitted to the Health Department in November 2025 for approval.

Kerala Bone Marrow Registry

Identification and onboarding of the implementation partner have been completed. The system study and system design were completed, and development was initiated by November 2025.

6. PROJECTS AWAITING DEPARTMENT APPROVAL

AI Based Knowledge Management System

A detailed site study of the problem statement was conducted by the Law Department in April 2025. Multiple ideation discussions were held with the Secretary, Law Department. Discussions were also conducted with NIC and KSITM in August 2025 to assess the feasibility of integrating the proposed system with e-Office. Based on these inputs, a detailed pilot project was designed and the project proposal was submitted to the department for approval in November 2025.

Integrated Healthcare Delivery System

A CSR Engagement Workshop was organized and conducted in April 2025 to explore partnerships for statewide scale-up of the Integrated Healthcare Delivery System. Based on the outcomes of the workshop, a comprehensive project proposal was developed and submitted to the Health Department for approval.

HistoTrack- Digital Workflow Management System for Histopathology Labs

HistoTrack is a web-based histopathology workflow management system designed to digitally track and monitor specimens from accession to archiving. It provides a centralized platform to ensure end-to-end traceability of specimens, slides, and blocks, while enabling seamless movement across various workflow stages. The system also supports inventory management of laboratory consumables and offers AI-based analytics and reporting to monitor operational performance.

A feasibility study was conducted during September 2025, followed by a detailed site study in October 2025 at the Histopathology Laboratory, Malabar Cancer Centre. Based on these studies, detailed requirements were documented and a pilot project was designed. A proposal was submitted to Malabar Cancer Centre for approval in January 2026.

7. PROJECTS IN THE IDEATION STAGE

Integrated Healthcare Delivery System

The Integrated Healthcare Delivery System (IHCD) is a government-approved, patient-centric digital health initiative aimed at improving healthcare delivery across Kerala. It integrates consultation, diagnostics, medicine, emergency service, and consent-based Electronic Health Record, and is aligned with the Ayushman Bharat Digital Mission. Following the successful pilot in Thiruvananthapuram district, K-DISC, in collaboration with the Department of Health & Family Welfare, conducted a CSR Engagement Meet-up to explore partnerships for statewide scale-up.

The outcomes of this engagement informed the development of a comprehensive Kerala Digital Health System (KDHS) proposal, which has been submitted to the Health Department to support phased expansion and statewide rollout.

Problem Statements from Malabar Cancer Centre

23 Problem statements were received from MCC. The problems statements were evaluated by the domain experts from MCC and K-DISC and 4 of the problem statements have undergone feasibility study.

Digital Patient Feedback System

The Digital Patient Feedback System was envisaged as a solution for hospitals to collect structured feedback from patients. The system also aimed to provide analytics on patient feedback and support corrective and preventive actions. A feasibility and market study was conducted. However, as the solution does not involve a significant emerging technology component and similar cost-effective solutions are already available in the market, it was decided not to pursue the project further.

AI Based Organ at Risk Contouring System

With the objective of reducing the time required for manual contouring, the AI-Based Organ-at-Risk contouring system was proposed as a solution for use in radiotherapy treatment planning by automatically undertaking contour of organ at risk from CT scan images. A feasibility and market study was conducted. However, as no suitable expert technology provider was available in the market, the project was not pursued further.

Wireless Vital Monitoring System

The Wireless Vital Monitoring System was proposed to enable centralized monitoring of patient vitals using wearable sensors. By reducing reliance on bedside monitors in ICUs, the solution had the potential to lower infrastructure and maintenance costs while ensuring continuous patient monitoring. Discussions were conducted with multiple technology providers offering similar solutions. However, as the product costs did not align with project requirements, the project was not pursued further.

ET interventions to enhance KMSCL's IT systems

Kerala Medical Services Corporation Limited (KMSCL) requested to assess potential emerging technology interventions for its IT systems. A business process study was conducted across various departments of KMSCL. Based on the findings, possible technology solutions were discussed with KMSCL, and requirement finalisation for these solutions is currently underway.

AI-Assisted HER2 IHC Scoring System

This project aims to develop an AI-assisted decision support system to help pathologists standardize and improve HER2 immunohistochemistry scoring in breast cancer. The solution is intended to reduce inter-observer variability, optimize confirmatory testing, and support accurate treatment decisions, particularly in high-volume public cancer centres.

Blood Bag Traceability Phase 3

The project aims to incorporate advanced analytics and predictive capabilities into the Blood Bag Traceability application, along with integration with Hospital Management Systems (HMS) and other relevant state- and national-level portals. Detailed requirement analysis and documentation are underway.

8. INNOVATION FOR GOVERNMENT WITH EMERGING TECHNOLOGIES (IGNIET)

IGNIET 2026 – Innovation for Government with Emerging Technologies is a structured, year-long innovation program led by the Emerging Technologies Division to help government departments address real operational challenges using modern technologies such as AI, Blockchain, IoT, RPA, Big Data, and AR/VR.

The program follows a “problem-first” approach, where departments are trained to identify, refine, and standardize their core governance challenges into technology-ready problem statements. These are then taken up by startups, researchers, and technology partners to develop Proof of Concepts (PoCs), which can progress into pilots and statewide scale-up.

IGNIET 2026 runs from January to December 2026 and is structured into four phases:

1. Stakeholder Connect – Department nominations, design thinking workshop, and identification of innovation catalysts.
2. Problem Statement Curation– Refinement, validation, and approval of high-impact departmental challenges.
3. Proof of Concept– Development of rapid, low-code/no-code PoCs by startups within a 3–6-month timeline.
4. Evaluation & Conclusion– Assessment, recognition of innovation champions, and recommendations for pilot and scale-up.

The program involves six departments, training 12 Innovation Catalysts, and aims to create a live “Problem Shelf” of validated governance challenges. Successful PoCs move into pilot implementation hosted in the State Data Centre and may be recommended for statewide rollout.

The long-term goal is to build a sustainable innovation culture in government, improve service delivery, and establish a continuous, transparent pathway from problem identification to technology-driven solutions.

9. OTHER INITIATIVE

i4G 2024

The Innovation for Government (I4G) 2024 edition was concluded during this period. Shortlisted products and solutions were demonstrated to six departments/institutions under the Government of Kerala. One solution attracted interest and was implemented at the Kerala Infrastructure Investment Fund Board (KIIFB)—a SaaS-based platform providing Environmental, Social, and Governance (ESG) risk assessment and predictive analytics



Fig. 7.8 IGNIET Launch Event

10. CLOSED PROJECTS

Smart Crop Insurance using Block Chain Technology

Maintenance of the weather stations installed at the pilot locations was halted due to uncertainty from the department regarding project takeover. Based on the recommendations of K-DISC's Technical Committee, the project has been officially concluded, and decommissioning of the weather stations is currently underway.

Indoor Navigation System in Hospitals for the Public to Track and Use

As suitable solution providers with effective technology were not available, the project was closed.

STRIDE – SOCIAL TECHNOLOGY & RESEARCH FOR INCLUSIVE DESIGN EXCELLENCE



STRIDE is an inclusive innovation initiative of K-DISC aimed at improving the quality of life of persons with disabilities through locally designed assistive, adaptive, and cognitive solutions. By integrating research, maker studios, innovation challenges, and ecosystem partnerships, STRIDE bridges grassroots needs with scalable technological solutions while embedding inclusion, skilling, and entrepreneurship into Kerala's innovation ecosystem.

KEY ACCOMPLISHMENTS OF 2025-26

During 2025–26, STRIDE successfully established **three functional Maker Studios** and initiated assistive device distribution across Kerala, laying the foundation for a decentralised, community-driven, inclusive innovation infrastructure anchored at Adarsh Charitable Society, Sarvodaya Grandhashala Valakkayam, and in K-DISC.

OBJECTIVES

Despite Kerala's strong social indicators, persons with disabilities continue to face limited access to affordable, context-appropriate assistive solutions. STRIDE addresses this challenge by institutionalising inclusive, user-centric innovation through research, maker ecosystems, and participatory design. The Quadruple Helix model involving Government, Academia, Industry, and Civil Society supports the programme. Further, the programme facilitates persons with disabilities to also participate and enable Kerala's transition to a Knowledge Economy .



Fig. 8.1 STRIDE Assistive Designathon and Website Launch by Hon' ble Chief Minister

OUTPUTS AND OUTCOMES

- STRIDE conducted the Inclusive Innovation Summit, where 31 teams presented solutions, and 8 teams were selected as top winners. A Makethon was conducted before the summit with 32 teams undergoing mentoring and evaluation. The programme received over 2,500 student registrations across Kerala.
- A national-level Maker Studio Design Competition was conducted with the DC School of Architecture & Design, and around 82 teams from various Design and Architecture institutions participated.
- STRIDE devices were showcased at the Work Near Home inaugural event, Savishesha by the Social Justice Department, and Purple Fest Goa and also before the Executive Committee of K-DISC.
- Eight sessions of the STRIDE Forward Talk Series were successfully organised, with expert speakers drawn from various domains delivering lectures focused on inclusivity, accessibility, and assistive technology, attracting approximately 500 participants in total.

Product	Photo	Description
Palm Pen Holder		A hand-mounted writing aid that stabilizes a pen against the palm, enabling functional writing without active finger grasp.
Adaptive Pencil Grip / Holder		A structured writing aid designed to facilitate optimal finger alignment and stabilized grasp patterns during handwriting tasks. Enhances pencil control, promotes functional tripod grasp, and reduces compensatory movements and hand fatigue.
Utensil Holder		A hand-mounted holder that securely supports spoons or forks. Designed for users with limited grip strength, it promotes independence in eating and daily self-care activities.
Low Profile Switch		A pressure-sensitive switch that activates with minimal force. Enables easy access to electronic devices, communication aids, and digital learning tools for users with limited mobility.
Button Aid		A simple dressing tool that helps users fasten and unfasten buttons without fine finger control. Encourages independence in self-care and daily dressing routines.
Toothbrush Holder		An adaptive holder that stabilizes a toothbrush for users with weak grip or limited dexterity. Promotes safe, effective, and independent oral hygiene routines.
Maze		A shape-based learning tool that enhances visual-spatial skills, sequencing, and attention. Encourages structured thinking and cognitive flexibility in a calming, engaging format.
Braille		Tactile learning tools using raised dots to support reading and writing for visually impaired learners. Enable inclusive access to literacy and independent learning.
Reading Bar		A simple visual aid that highlights one line of text at a time. Reduces visual clutter and improves focus, reading accuracy, and comprehension.

Fig. 8.2 Assistive Devices 3D printed under STRIDE

CENTRE OF EXCELLENCE (COE) – RESEARCH & DATA COLLECTION

The STRIDE CoE serves as the research backbone of the programme. Research and validation were conducted in special schools and BUDS institutions. Phase-I data collection was completed for 498 children across 51 schools. Phase-II data collection has commenced. The STRIDE Assistive Designathon 2025 website was inaugurated by the Hon'ble Chief Minister of Kerala.

CHALLENGES & FUTURE ASPIRATIONS

STRIDE faced coordination and scaling challenges across institutions. The programme is now transitioning towards a sustainable, state-wide model through institutionalised Maker Studios and Innovation Centres.



Fig. 8.5 Honourable Ministers try the STRIDE devices



Fig. 8.6 Braille Device Distribution at Valakkayam



Fig. 8.3 Stride Assistive Designathon 2025



Fig. 8.7 ADARSH MAKERSTUDIO



Fig. 8.4 Stride Assistive Low Tech Device Training by Kudumbashree for BUDS School Teachers



FIG. 8.8 DC SCHOOL MAKERSPACE DESIGN COMPETITION



INNOVATION BY YOUTH WITH DISABILITIES (I-YWD)

Innovation by Youth with Disabilities (I-YwD) is an inclusive innovation programme implemented by K-DISC to enable youth with disabilities to ideate, develop, and pilot solutions rooted in lived experiences. The programme combines accessible entrepreneurship education, sustained mentorship, ecosystem partnerships, and seed support to nurture early-stage innovators and enable equitable participation in Kerala's innovation ecosystem.

KEY ACCOMPLISHMENTS OF 2025-26

A major achievement during 2025-26 was the successful pilot pitching and seed funding support extended to Mr. Zubin Mathew (Cohort 3) for his heritage carpentry innovation, marking a transition from ideation to on-ground implementation within the I-YwD framework.

OBJECTIVES

The project addresses the systemic exclusion of youth with disabilities from mainstream innovation and entrepreneurship ecosystems, a second-generation challenge in Kerala's development trajectory.

ALIGNMENT WITH STATE GOALS

The Quadruple Helix Model, integrating government, academia, industry, and civil society, supports I-YwD to foster inclusive innovation and directly facilitate youth with disabilities to participate in Kerala's transition to a Knowledge Economy.



Fig. 9.1 I-YwD Team with Dr. Arun Surendran



Fig. 9.2 I-YwD Team interaction

METHODOLOGY

The programme follows a cohort-based, accessibility-first methodology combining signed learning content, synchronous mentoring, milestone tracking, pilot pitching, and ecosystem integration.

ECOSYSTEM PARTNERSHIPS

Key partners include NISH (training, ISL expertise, participant support), CCMD (signed curriculum production), YIP ecosystem (district-level outreach), Kudumbashree (community linkages), and industry and academic experts who contribute mentorship and evaluation.



Fig. 9.3 Content Development for I-YwD



Fig. 9.4 Many minds, One Vision. The beginning of I-YwD

OUTPUTS AND OUTCOMES

Completion of 41 ISL-signed entrepreneurship curriculum videos, development of an 85-term ISL glossary, monthly synchronous review sessions for Cohorts 3 & 4, Training of Trainers (ToT), orientation of YIP district coordinators across all 14 districts, and participation in STRIDE 2025 and Savishesha.

KNOWLEDGE CREATION

Development of an accessible entrepreneurship curriculum, ISL glossary videos, and a comprehensive SOP for I-YwD 2.0 aligned with YIP.

SOCIAL INCLUSION

The programme ensured active participation of Deaf youth and youth with disabilities through ISL-based learning, accessible communication, and tailored mentoring.

TRANSITION TO SUSTAINABILITY

I-YwD is transitioning from a pilot to a scalable model through I-YwD 2.0, integration with YIP, standardized SOPs, and milestone-based seed funding, enabling state-wide reach and long-term sustainability.

ELECTRIC VEHICLE CONSORTIUM



The state is building an ecosystem for electric vehicles and clean energy, anchored around the Vizhinjam port and stretching inland. The core idea is straightforward: use minerals from Kerala's beach sands, leverage the port for export logistics, combine that with engineering talent already here, and build local manufacturing for EV components, batteries and green hydrogen. The timing is deliberate. India has committed to net zero by 2070, while Kerala has set itself a faster target of net zero emissions by 2050. This opens a window to build genuine manufacturing capacity rather than importing everything. That means not just assembling vehicles, but making the cells and battery packs that power them - work that creates skilled, well-paid jobs and keeps value in the state.

Engineers and researchers from TTPL, VSSC, C-DAC and TrEST Research Park work alongside government and industry. They're testing battery technologies (LTO and LFP cell types) at pilot production lines, proving that Kerala can make these indigenously. This is People's Innovation in action: researchers, technicians and workers solving real problems as they scale up.

KEY ACCOMPLISHMENTS

A commercial Electric Vehicle Drive Train Testing Lab facility is being established at the Energy Management Centre (EMC) in TrEST Research Park.

An Electrochemical Workstation Facility has been established at the Technopark Campus of C-DAC.

4Ah LTO-NCA coin cells and two 20Ah LTO-NCA cells have been assembled by VSSC as part of this programme.

A. EV Drivetrain Lab [TrEST Research Park]:

Establishment of a commercial Electric Vehicle Drive Train Testing Lab facility at the Energy Management Centre (EMC) in TrEST Research Park, funded by K-DISC, is currently in progress. This facility is intended to serve as a commercial testing facility, available for use by Drive Train Manufacturing Companies and Startups on a chargeable basis. The facility primarily includes setup for testing of motors and controllers of Electric Vehicles, including 2-wheelers, 3-wheelers, and 4-wheelers. Consequently, two separate testing facilities are going to be installed: a Low Voltage Test Facility for testing motors and controllers of 2 and 3-wheelers, featuring a 30 kW Dynamometer and a 30 kW Battery Emulator, and a High Voltage Test Facility for testing motors and controllers of cars, equipped with a 150 kW Dynamometer and a 150 kW Battery Emulator. Additionally, power electronics equipment for conducting development tests on the motors and controllers will also be installed in the lab.

EQUIPMENTS

The equipment procured for the lab includes:

The equipment procured for the lab includes:

Dynamometer (30 kW), Battery Emulator (30 kW) and associated Test bed equipment.

These equipments were procured for the Low Voltage Lab, which is expected to be used more by the EV startup companies.



Fig. 10.1: Dynamometer with Battery Emulator (30 kW)

- Dynamometer (150 kW) and Battery Emulator (150 kW) and associated test bed equipment:
- This equipment was procured for the High Voltage Lab.
- The equipment installation of the Drivetrain facility is progressing by M/s AVL India Pvt Ltd.



Fig. 10.2: Dynamometer with Battery Emulator (150 kW)

Social Media & Marketing: Advertisement and large-scale campaigning through social media and other print media needs to be planned to provide more visibility to the lab

across the country. Print media campaigns, including brochures and printed notices have been initiated.

Charging Model: Tata Elxsi has shown interest and approached with enquiries regarding the charging model for the EV Test Facility, which needs to be finalized.

Immediate Next Steps Planned

- Define a charging model for the usage of the lab
- Provide visibility to the EV Test Facility across the country, through print and social media

Next set of Activities

- Recruitment of manpower for the operations of the lab.

Battery Management System (BMS) [C-DAC]

The C-DAC team has successfully developed two new versions of BMS hardware, completed assembly, and performed initial functionality testing. Functional evaluations of the BMS were conducted using both LTO and LFP battery packs. The enclosure design for the latest BMS version has been finalized, and the development of the GUI for BMS testing and evaluation has also been completed.



Fig. 10.3 Protomodels of BMS

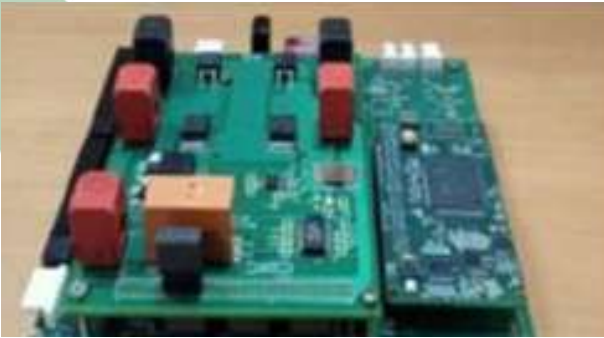


Fig. 10.4 Protomodels of BMS

Work on establishing communication between the BMS and the Vehicle ECU is currently in progress. Data exchange between the BMS and ECU is being implemented via the CAN bus. Firmware has been developed to enable the transfer of key parameters such as State of Charge, Pack Voltage, Battery Pack Status, and Temperature over the CAN network. The data transfer functionality has been validated using a CAN Analyzer.

The battery pack considered in the study consists of twenty-one LTO cells, thermal interface material, an aluminum box, and a fluid domain (air). Mesh was generated in ANSYS ICEM and structured mesh was considered for the required research work. Thermal losses associated with the charge/discharge control MOSFETs were estimated, and the corresponding heat sink requirements were calculated. Suitable heat sinks for the MOSFETs were identified to ensure effective heat dissipation during operation.

The battery pack was considered to be under constant current discharge, at a discharge rate of 3.75C (150A). The heat was generated only by the batteries and was calculated to be 56W, and the battery pack was discharged for 850s. For the design of the proposed BTMS, a single resistor model

is used, which uses a constant voltage source in series with a single resistor, whose resistance value is the internal resistance of the cell provided by the manufacturer. Twenty-one 40Ah cylindrical lithium-ion battery cells were individually modelled for this study.

PROPERTIES	SPECIFICATION
Nominal Capacity (Ah)	40
Nominal Voltage (V)	2.3
Operating Voltage (V)	1.5-2.9
Specific Heat (JKg ⁻¹ K ⁻¹)	1150
Thermal conductivity (Wm ⁻¹ K ⁻¹)	29 (axial), 2.6(radial)
Size (mm)	66 (diameter) X 160 (height)
Density (kgm ⁻³)	2284
Mass (kg)	1.2

Specifications of Battery Pack Tested

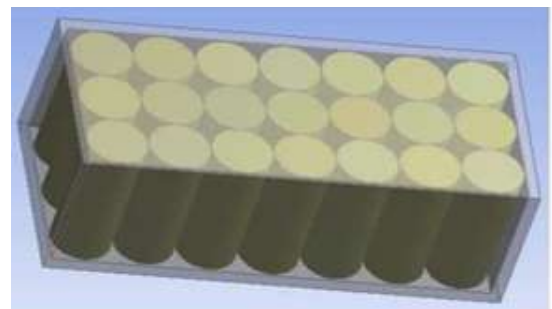


Fig. 10.5 Computational domain with 21 cells and enclosure

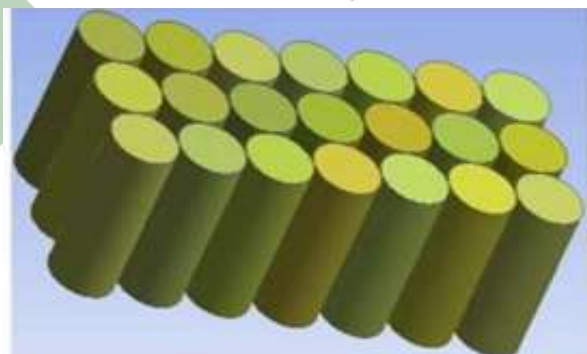


Fig. 10.6 Computational domain with 21 cells

Enclosure designed for LTO battery pack with prismatic cells using the dimension of prismatic cells obtained from VSSC as shown in the Fig. 9.7

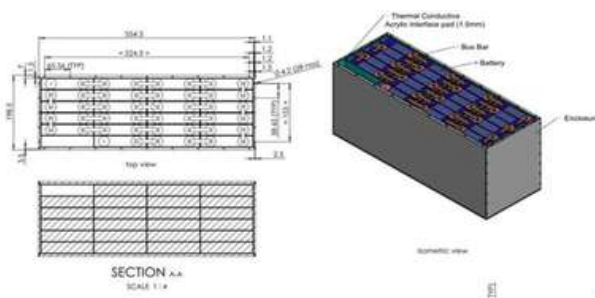


Fig. 10.7 Designed Enclosure for 40Ah, 48V Prismatic Cell Battery Pack

C-DAC T has successfully established an **Electrochemical Workstation Facility** at the Technopark Campus of C-DAC, to facilitate the cell characterisation of indigenized LTO cells for module realisation. The inauguration of the facility was held on 30th July 2025 by the Hon'ble Industries Minister P. Rajeeve, who released a white paper. This advanced facility plays a crucial role in analysing the electrochemical performance of LTO cells by enabling precise measurement and control of parameters such as charge-discharge behaviour, internal resistance, and impedance characteristics. The facility shall be used to validate the design and quality of indigenously developed LTO cells, aiding in the high-quality battery systems for electric vehicle applications.

This facility includes a set of instruments interfaced to study and control electrochemical reactions by applying and measuring electrical signals in battery systems, and can be extended to Fuel cells, supercapacitors, etc. It functions as a Potentiostat and Galvanostat, enabling techniques like cyclic voltammetry and electrochemical impedance spectroscopy (EIS) to analyse reaction kinetics, charge transfer, and material properties of various energy storage systems. By facilitating EIS, it helps to probe the dynamic behaviour of the cell across different frequencies, revealing



Fig. 10.8 Electrochemical Workstation Facility

information about its electrode kinetics & electrolyte conductivity. This also allows the researchers to apply controlled voltages or currents and measure the resulting current or voltage responses, providing insights into key cell parameters like capacity, efficiency, internal resistance, charge/discharge profiles, and degradation mechanisms.

LTO Electrode Material [TTPL]

Travancore Titanium Products Limited (TTPL) successfully manufactured LTO micronized material in accordance with the specifications provided by Vikram Sarabhai Space Centre (VSSC) for the development of LTO-NCA and LTO-NMC cells. The material was supplied as per VSSC's requirements to support ongoing research and development efforts in advanced battery technologies.

In addition to the material supply, 100 prismatic cans were also provided for the assembly of battery cells. These prismatic cans are intended for use in prototype fabrication and performance evaluation of LTO-based cells, ensuring compatibility with VSSC's cell design and testing protocols. This milestone marks a significant step in the collaborative efforts between TTPL and VSSC toward the advancement of high-performance lithium-ion battery technologies.

A pilot production facility for the manufacture of cells and batteries, prior to the establishment of K-EVIP at Vilappilsala, will be established at TTPL.

Characterisation & Performance Evaluation and Cell Development [VSSC]

As part of the collaborative activities under the EV Consortium Programme, VSSC has undertaken comprehensive characterization

and evaluation of the electrode-grade Lithium Titanium Oxide (LTO) raw material received from TTPL, for application in electric vehicle (EV) battery cells.

Vikram Sarabhai Space Centre (VSSC) plays a pivotal role in the consortium through its expertise in material characterization, cell design, cell assembling, cell testing involving quality control processes, and battery chemistry research for EV applications. In cell assembling, layers of anode, cathode, and separator are immersed in an electrolyte and sealed within protective packaging.

Raw Material Characterization and Electrode Preparation at VSSC

The LTO raw material received from TTPL has been characterized and processed for electrode preparation, for cell assembly at VSSC.

The LTO raw material procured from TTPL was subjected to a series of physicochemical and structural analyses to ensure its suitability for electrode synthesis. The characterization techniques employed include Fourier Transform Infrared Spectroscopy (FTIR), Scanning Electron Microscopy (SEM), and X-ray Diffraction (XRD) techniques.

FTIR is used to confirm the presence of functional groups in electrode materials, detect impurities in synthesized compounds, and monitor chemical bonding changes during synthesis or after cycling.

SEM, a high-resolution imaging technique is used to examine the surface morphology and microstructure of materials. It is crucial for analyzing particle size and shape (e.g., confirming micronization of LTO), observing surface texture and porosity, evaluating agglomeration or uniformity in electrode powders, and assessing electrode coatings on substrates after fabrication. SEM images of LTO material can reveal whether the particles are uniform and well-dispersed, which is critical for consistent electrochemical performance in lithium-ion cells.

XRD is used to determine the crystalline structure, phase purity, and lattice parameters of materials. It is essential for confirming phase identity (e.g., spinel structure of LTO or olivine structure of LFP), detecting secondary phases or impurities, estimating crystallite size using the Scherrer equation, and monitoring structural stability after synthesis or cycling. The successful synthesis of LTO is confirmed by matching the XRD pattern with standard JCPDS data for $\text{Li}_4\text{Ti}_5\text{O}_{12}$, ensuring the desired spinel phase is achieved.

These analyses validate the structural integrity and phase conformance of the LTO material.

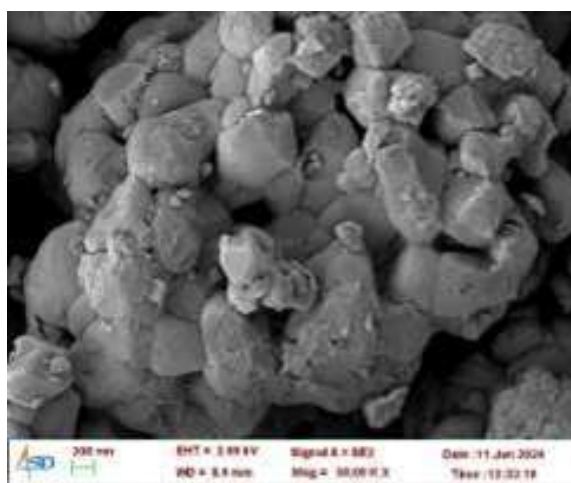


Fig. 10.9 SEM image of micronised LTO with 25,000x magnification

Fig. 9.9, the material consists of agglomerated spherical and irregular-shaped particles, in the sub-micron to $\sim 2 \mu\text{m}$ range. The rough surface and porous-looking agglomerates suggest a high surface area, which is beneficial for electrochemical reactivity and lithium-ion diffusion, for improving charge/discharge kinetics. Fig. 9.10, shows agglomerated clusters composed of smaller primary particles, with individual features in the 100–300 nm range (as seen from the 200 nm scale bar). These finer particles contribute to a high surface-to-volume ratio, favorable for fast lithium-ion intercalation. The surface is rough and granular, indicating a high specific surface area, enhancing electrochemical activity.

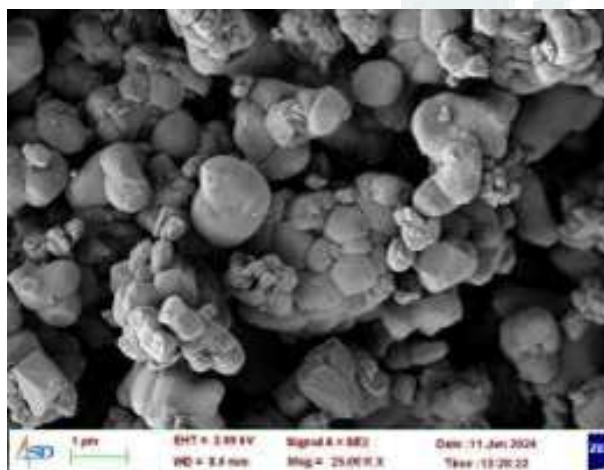


Fig. 10.10 Image of micronised LTO with High magnification 50,000x

No peaks corresponding to common impurities such as TiO_2 in rutile, anatase phase and Li_2TiO_3 as shown in the Fig. 9.11

This XRD pattern implies successful synthesis of a phase-pure, crystalline LTO material, suitable for further electrochemical testing

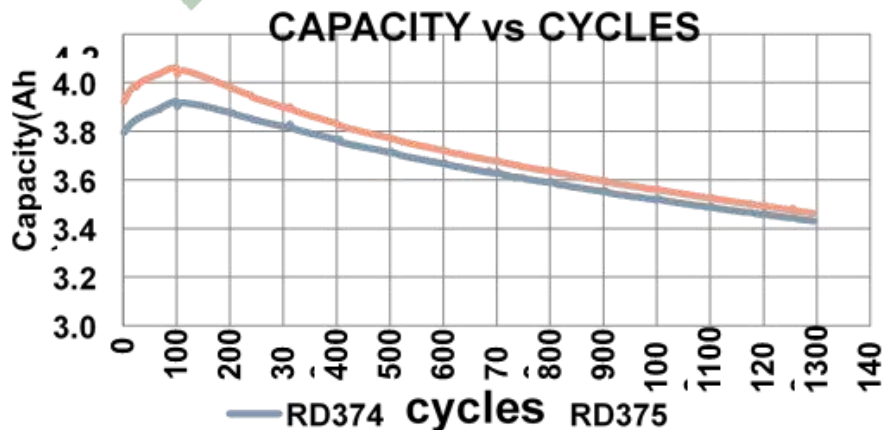


Fig 10.14 Capacity vs Cycles graph of 4Ah LTO-NCA cells

In 4Ah coin cells, up to 400 cycles, there is no drop in capacity observed compared to initial capacity.

The electrochemical evaluation of the coin cells indicated that the indigenously developed cells exhibited a relatively lower capacity drop, enabling VSSC to proceed with the development of higher-rated cells.

- **Development of 20Ah LTO-NCA and LTO-NMC cylindrical cells:**

Based on the findings, VSSC has assembled higher rating cells, i.e., two 20Ah LTO-NCA cells, and subjected them to charge-discharge cycling at a 1C-1C rate. These cells completed 3,000 cycles, demonstrating good capacity retention of approximately 86.4%, indicating promising long-term performance and stability.

Cycling Performance of 20Ah LTO-NMC Cells: Assembled one cell, in which, cycling was initiated and 840 cycles completed. No capacity drop observed.

- **Development of Prismatic LTO-NMC Cells with high rating:**

VSSC assembled two prismatic cells and activated, utilizing an NMC-811-based cathode and an LTO-based anode, optimized for higher capacity. The first prismatic cell achieved a capacity of approximately 48Ah with a mass of 1,556g, while the second cell exhibited a capacity of around 40Ah. Both cells have dimensions of 29 mm × 210 mm × 135 mm and were designed to enhance energy storage capabilities. The assembled, 40Ah LTO-NMC prismatic cell has completed 2,000 charge-discharge cycles, with no measurable capacity degradation observed.

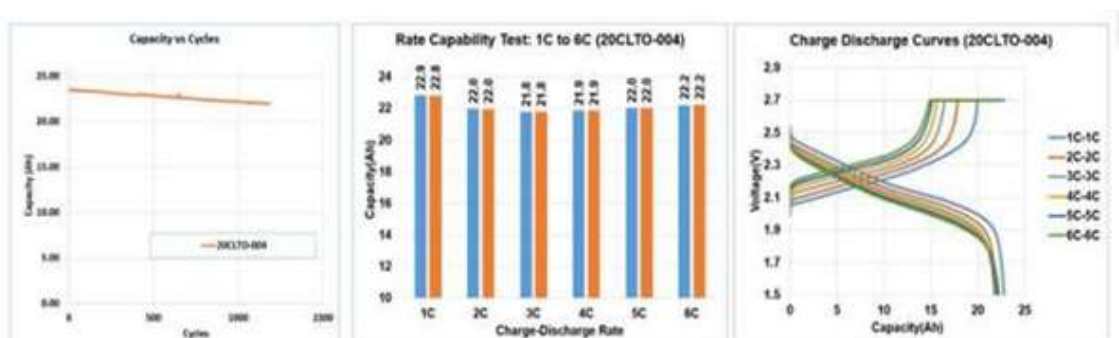


Fig 10.15 Charge-discharge cycling of 20Ah LTO-NCA cell

Electric Vehicle (EV) Park

Establishing an Electric Vehicle (EV) Park in the state holds significance in contributing to the broader goals of sustainability, economic development, and transportation efficiency. The EV Industrial Park will provide the complete ecosystem for the design and development, manufacturing, R&D, and testing of EV Components which includes batteries, motors, controllers, and charging systems. K-DISC is the facilitator for the establishment of the EV Park. The State EV Consortium, along with KSIDC and the Industries Department, is involved in the establishment of an EV Park in Kerala.

The facilities to be established in the EV Park are:

1. Product Design Centres
2. Testing Facilities
3. Research and Development Wing
4. Incubation Centre
5. Innovation Wing
6. Space Allocation for Companies, Startups and OEMs
7. Academic Interface Cell
8. Related Industries
9. Certification Facilities

Way Forward

The Kerala Development and Innovation Strategic Council (K-DISC) conducts monthly review meetings under the EV Consortium program to assess progress and implement strategic measures for the project's successful execution. During these meetings, experts emphasised the advantages of LTO-NMC (Lithium Titanium Oxide - Nickel Manganese Cobalt) cell chemistry over conventional lithium-ion batteries, particularly in the context of Electric Vehicle (EV) applications. The discussions highlighted the enhanced safety, extended cycle life, and superior high-rate performance of LTO-NMC cells, positioning them as a promising alternative for next-generation EV battery technologies. K-DISC also drafted an RFP for the selection of manufacturers/startups for the pilot production facility of cells /batteries at TTPL. Several levels of Expert Meetings were conducted for the evaluation of the RFP, and it was circulated among the consortium partners for their comments. K-DISC through TrEST Park (SPV for the implementation of EV Park) has issued an RFP for Pilot Production.

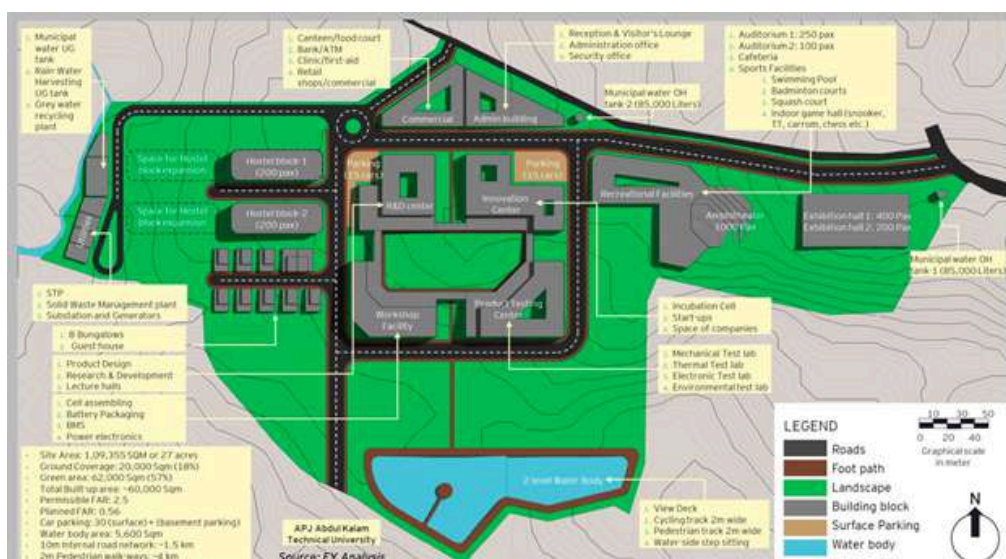


Fig. 10.16 Draft Master Plan

KERALA GENOME DATA CENTRE (KGDC)



Kerala Genome Data Centre (KGDC) is a significant initiative of K-DISC to establish Kerala's first integrated genomics and bioinformatics infrastructure. The project aims to leverage high-performance computing, genomic sequencing, and data science to strengthen healthcare, agriculture, biodiversity conservation, and biosecurity. KGDC enables precision public health, supports research ecosystems, and positions Kerala as a genomics-enabled knowledge economy hub.

KEY ACCOMPLISHMENTS OF 2025-26

KGDC Phase-I secured ₹100 Crore KIIFB funding, followed by MoU execution with Digital University of Kerala, completion of HPC hardware tendering, and entry into final installation. These milestones culminated in the inauguration of KGDC, marking Kerala's formal entry into large-scale genomics, including Plant, Animal, and Microbial genomics.

OBJECTIVES

Kerala faces rising chronic diseases, emerging infectious threats, fragmented biological data systems, and limited integration of genomics into public health. KGDC addresses this by creating a unified genomic infrastructure to support early disease detection, precision medicine, biodiversity protection, and evidence-based policymaking.

ALIGNMENT WITH STATE GOALS

KGDC directly advances Kerala's Knowledge Economy by integrating:

- Government (Health Dept)
- Academia (Digital University of Kerala, 125 research institutions)
- Industry (sequencing labs, bioinformatics vendors)
- Society (public health programs, researchers)

This Quadruple Helix model enables translational genomics—from lab to policy to population.



Fig. 11.1 KGDC Workshop At Kannur University

UNIQUE METHODOLOGY

KGDC adopts a phased execution model combining:

- Centralized High Performance Computing
- Distributed sequencing networks
- Open bioinformatics pipelines
- Disease-focused pilot programs (Dengue, Sickle Cell)
- Ecosystem-based partnerships
- Government-backed infrastructure with startup-style execution style

OUTPUTS AND OUTCOMES

- ₹100 Crore Phase-I funding operationalised
- MoU executed with Digital University of Kerala
- PMU formed with governance framework

- Technical Sanction + Tender Acceptance Committees constituted
- HPC tender issued, restructured, and re-launched
- Scientific Advisory Board meetings completed
- 22 sequencing labs mapped for empanelment
- KGDC Data Portal architecture initiated
- Tender process for Hardware completed

KNOWLEDGE CREATION

- Draft Genomics Standard Operating Procedures.
- Bioinformatics pipeline benchmarking
- Technical architecture for hospital genomics.

ECONOMIC IMPACT

- Foundation laid for genomics-driven startups
- Vendor ecosystem activated
- Creation of specialized roles in bioinformatics, sequencing, data science
- Positioning Kerala as an emerging genomics investment destination



Fig. 11.2 KGDC Workshop at CUSAT University

SOCIAL INCLUSION

- Public health genomics pilots targeting dengue-prone districts
- Future Sickle Cell genomics program for tribal populations
- Capacity building for young researchers across Kerala institutions

SUCCESS STORIES

- Scientific seminars were conducted at Kannur, Kochi and Trivandrum to create awareness of the program
- Panel discussions at Kerala Literature Fest in Jan 2025 and Jan 2026

CHALLENGES & LEARNINGS

- Tender restructuring highlighted need for vendor-neutral technical frameworks
- Multi-agency coordination required adaptive governance
- Building genomics from scratch demanded continuous scientific administrative translation

These experiences shaped KGDC's phased, ecosystem-first strategy.

TRANSITION TO SUSTAINABILITY

KGDC will transition from infrastructure creation to:

- Service-based revenue (data + analytics)
- Hospital genomics partnerships
- Research grants
- Bioinformatics platforms (PaaS)
- Industry collaborations



Fig. 11.3 KGDC Facility at Digital University, Kerala

Kerala Medical Technology Consortium (KMTC)



CATALYSING KERALA'S MEDTECH FUTURE

KMTC is a high-priority program to establish Kerala as India's leading MedTech innovation and manufacturing hub by 2032. By convening industry, startups, research and academic institutions, healthcare providers and government, it operationalises a cluster model pipeline from unmet clinical needs to R&D, validation, manufacturing scale-up and market access. KMTC is a cross-cutting lever—strengthening healthcare quality and affordability while catalysing high-value jobs, investments and export-oriented industrial growth

KEY ACCOMPLISHMENT OF 2025-26

This year, KMTC accelerated Kerala's MedTech industrial growth by facilitating eight Medical Devices/ MedTech investment projects with a cumulative committed investment of **₹271.96 Cr.**

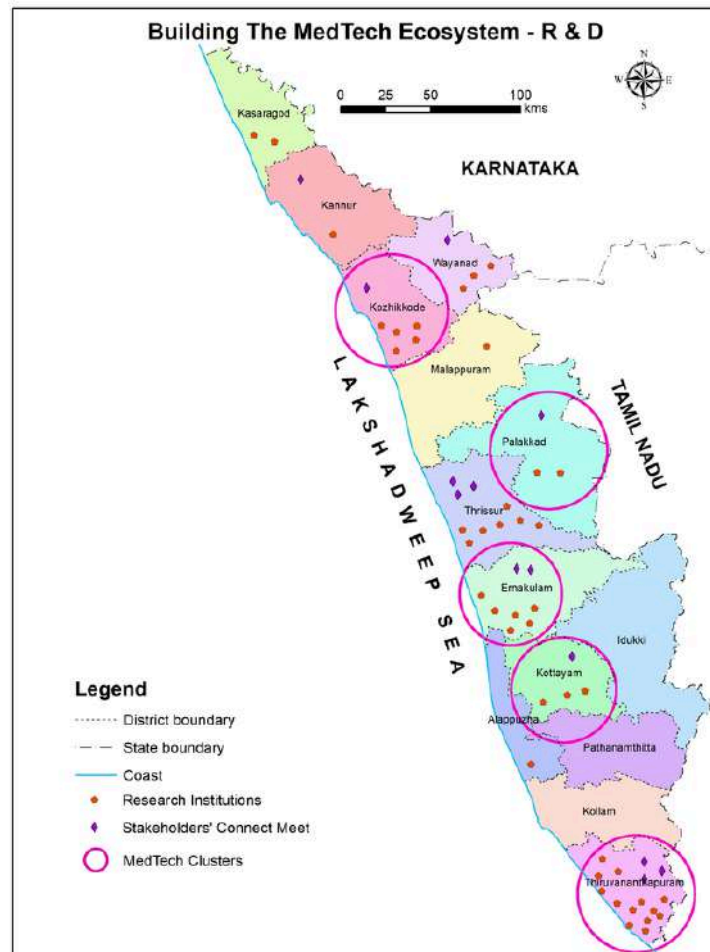


Fig. 12.1 KMTC Focus Regions

VISION & KEY OBJECTIVES

- **Investment Mobilisation:** attract domestic and international investments into Kerala’s MedTech sector across manufacturing, R&D, and enabling services.
- **Manufacturing scale-up:** expand capacity and supplier ecosystems, especially in Medical Electronics and Medical Rubber, and build production-ready Assistive Technology (AT) capabilities.
- **R&D-to-market conversion:** strengthen translation pathways (clinical validation, productisation support, regulatory readiness) to increase Kerala’s high-value IP, products, and commercial outputs.
- **Entrepreneurship and enterprise growth:** support MedTech entrepreneurs and MSMEs through ecosystem access, partnerships, and market enablement.
- **Quality employment:** create well-paying roles across engineering, quality/regulatory, manufacturing operations, product management, and clinical/validation functions.
- **Healthcare dividend (secondary):** improved affordability and access to quality health technologies as a downstream benefit of stronger local innovation and manufacturing capacity.

ALIGNING WITH KERALA ‘S LONG TERM VISION

KMTC operationalises Kerala’s Knowledge Economy agenda through a cluster-based, quadruple-helix model, integrating government, industry, academia/research, healthcare delivery, and startups, designed to translate capability into measurable industrial outcomes: investments secured, R&D programs anchored, products commercialised, manufacturing lines commissioned, exports scaled, and quality employment created.

STRATEGY & METHODOLOGY

Focused Differentiation Strategy Framework: The program executes a clear, sequenced playbook — policy and incentives enablement, ecosystem mapping, investment / outcome targets (including a phased growth pathway), and global R&D connectivity—so Kerala’s MedTech proposition is investment-ready and globally benchmarked.

Cluster-model execution focused on Translation/ Conversion: KMTC runs a structured innovation-to-industry pipeline concept → validation → manufacturing scale-up → market access across three priority segments: Medical Electronics, Medical Rubber, and Assistive Technology (AT), with every convening and roadmap designed to unlock measurable industrial outcomes.

Two-pronged execution approach:

- Extensive Marketing & Business Development to reposition Kerala as a preferred investment destination for MedTech.
- Building interactions between stakeholders by systematically strengthening collaboration across industry, startups, academia/research, healthcare delivery and government through structured platforms, cross-sector collaboration and partnership formation.

ECOSYSTEM PARTNERS

Partners	Count
Government Department	4
Regulators	2
State Public Sector Undertakings	6
Government Medical Colleges & allied health education institutions (under DME network)	30
University	1
Institution of National Importance	1
Others	5

OUTPUTS AND OUTCOMES

1. BRINGING IN INVESTMENTS: GROWING KERALA INDUSTRY

During FY 2025–26, KMTC facilitated eight Medical Devices / MedTech investment projects, amounting to a cumulative investment of ₹271.96 Cr.

2. EXTENSIVE MARKETING: PUTTING KERALA MEDTECH ON THE GLOBAL RADAR

KMTC has embarked on extensive marketing efforts to build and communicate a differentiated brand identity for Kerala's MedTech ecosystem, characterized by quality and excellence, both domestically and internationally. These strategic marketing efforts have significantly raised the profile of Kerala as a leading MedTech destination, attracting informed investors and industry professionals.

KMTC Engagements During 2025-26

Events	Count
Major Global Engagements	5
Major National Engagements	5
Industry Interactions	4



Fig. 12.2 Kerala–Germany Engagement: “Synergies in Motion” (German Industry Delegation Visit)

STRATEGIC ROADMAP: CHARTING KERALA’S JOURNEY TO BECOMING INDIA’S PREMIER MEDTECH HUB

KMTC has meticulously developed a comprehensive strategic roadmap designed to firmly position Kerala as India's leading MedTech destination over the next decade. This roadmap sets out clear, quantifiable targets aligned closely with KMTC's vision and mission. It strategically emphasises three critical segments: Medical Electronics, Medical Rubber, and Assistive Technology, each capitalising on Kerala's unique strengths and capabilities.

CONTEXTUAL FOUNDATION & STRATEGIC SECTORS:

KMTC strategically chose to focus on sectors where Kerala possesses distinct competitive advantages:

1 Medical Rubber and Rubber-based Medical Devices: Leveraging Kerala's substantial natural rubber resources and strong rubber-industry heritage to create high-value medical products.

2 Medical Electronics: Capitalising on Kerala's robust electronics and IT infrastructure to drive innovation, precision manufacturing, and development of cutting-edge medical electronic solutions.

3 Assistive Technology: Focusing on inclusive, innovative, and user-centric solutions aimed at addressing critical healthcare and accessibility challenges, reflecting Kerala's commitment to social development and equity.

This strategic approach ensures targeted interventions, efficient resource utilisation, and maximises impact in areas with high growth potential.

MEDICAL RUBBER – STRATEGY & ROADMAP

The Medical Rubber Strategy proposed by the KMTTC, envisions transforming Kerala—responsible for 75% of India's natural rubber production—by channeling 50% of its output toward high-value, medical-grade applications by 2035. Aligned with the global medical devices market, which is expected to reach USD 800 billion by 2030, this strategy aims to generate INR 5,212 crores—approximately 15% of Kerala's medical device turnover—from rubber-based products. Core components of the plan include establishing five dedicated Medical Rubber Industrial Parks, modernizing rubber plantation practices, implementing FDA-compliant, traceable latex collection systems, and encouraging the tyre industry to invest in MedTech diversification. The initiative also targets the creation of 25,000 skilled jobs, certification of over 100 medical rubber products, and exporting 50% of the state's medical rubber output.

ASSISTIVE TECHNOLOGY – STRATEGY & ROADMAP

KMTTC is currently formulating an extensive study and strategic roadmap aimed specifically at accelerating the Assistive Technology (AT) sector in alignment with Kerala's broader transition towards a vibrant and inclusive knowledge economy. Recognizing that Assistive Technology represents a significantly underserved market, largely neglected by mainstream businesses and industries, KMTTC seeks to re-establish AT as an essential and high-potential sub-sector within the broader Medical Technology and Medical Devices ecosystem.

MEDICAL ELECTRONICS – STRATEGY & ROADMAP

KMTTC has formulated a focused strategy and roadmap for Medical Electronics based on comprehensive analysis of the global electronics value chain and Kerala's current positioning within it.



Fig. 12.3 MEDICA 2025 Düsseldorf, Germany



Fig. 12.4 Engagement with Amrita School of Nanosciences and Molecular Medicine



Fig. 12.5 Stakeholder Connect Meet

STRATEGIC PARTNERSHIPS & ALLIANCES

Over the past three years, KMTTC has strategically forged key partnerships to amplify its impact and facilitate comprehensive growth in the Medical Devices and MedTech ecosystem of Kerala. These alliances encompass a diverse spectrum of collaborators, including incubators, academic institutions, research centers, and industrial associations, each bringing unique expertise and resources to bolster KMTTC's mission.

Key highlights and significant partnerships include:

GLOBAL OUTREACH:

Explored opportunities for substantial collaborative efforts with Fogarty Innovation (USA), a globally recognized leader in medical technology innovation, and Fraunhofer Institute (Germany), the leading R&D player in Germany, among others.

ACADEMIC & RESEARCH INSTITUTIONS:

Strengthened translational and R&D partnerships with key anchors including Amrita School of Nanosciences and Molecular Medicine (ASNSMM), Amrita Vishwa Vidyapeetham, Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST), Kerala University of Health Sciences (KUHS), and Indian Institute of Technology Palakkad (IIT Palakkad) and National Research Development Corporation (NRDC)

INCUBATORS AND INNOVATION CENTERS:

Built close working collaboration with incubators and innovation platforms including MIINT, TIMed (Technology Incubation for Medical Devices), SCTIMST, and TECHIN – Technology Innovation Foundation, IIT Palakkad—strengthening venture-building, mentorship, prototyping-to-validation support, and startup readiness for regulatory and manufacturing scale-up.

INDUSTRY AND SECTOR-SPECIFIC COLLABORATIONS:

Deepened industry enablement partnerships with strategic manufacturing and sector anchors such as Kerala Rubber Limited (KRL) and Kerala State Electronics Development Corporation Limited (KELTRON), and strengthened technical collaboration pathways with domain institutions including the Rubber Research Institute of India (RRII).

These strategic partnerships have not only broadened KMTTC's capability and resource network but have also significantly contributed to the creation of a vibrant, integrated ecosystem, driving forward research, innovation, development, and commercialization within Kerala's thriving MedTech landscape.



Fig. 12.6 World MedTech Confluence 2025, Dubai, UAE

STAKEHOLDER ENGAGEMENT: BRINGING TOGETHER & BUILDING UP THE KERALA MEDTECH ECOSYSTEM

Several efforts and initiatives have been undertaken to “break-the-silos” between key stakeholder groups in the ecosystem, so that more meaningful interactions may open possibilities of collaboration and innovation.

The KERALA MEDICAL TECHNOLOGY CONSORTIUM (KMTC) STAKEHOLDERS CONNECT MEETS (SCMs) have emerged as an influential and unique platform, significantly advancing the Kerala MedTech ecosystem. Since its inception, KMTC has successfully organised thirteen (13) impactful SCM events across various districts of Kerala, addressing critical and diverse topics such as Assistive Technology innovation, opportunities for rubber cooperatives in medical device manufacturing, preclinical trials, clinical evaluations, and translational research. Each event has been meticulously designed to stimulate meaningful dialogue and actionable insights that drive forward innovation and commercialisation.



Fig. 12.7 Stakeholder Connect Meet

WORKING WITH FINANCIAL INSTITUTIONS

KMTC has actively collaborated with key financial institutions such as **Kerala State Industrial Development Corporation (KSIDC)**, **Kerala Financial Corporation (KFC)**, **National Board for Agricultural and Rural Development (NABARD)**, **State Bank of India (SBI)**, **National Small Industries Corporation (NSIC)**, and Small Industries Development Bank of India (SIDBI) to enhance the financial network within Kerala's MedTech ecosystem. These efforts focus on educating and raising awareness among financial stakeholders about the opportunities within the MedTech sector. In parallel, KMTC has worked to build a strong pipeline of deserving projects and startups, enabling them to access capital more effectively and drive growth within the state's MedTech industry.

SETTING UP INNOVATION & ENTREPRENEURSHIP DEVELOPMENT CELLS (IEDCs) IN MEDICAL INSTITUTIONS

KMTC has made considerable strides in establishing Innovation & Entrepreneurship Development Cells (IEDCs) in medical institutions across Kerala. The Government of Kerala has issued an order to implement IEDCs across all medical colleges in the state. This marks a pivotal milestone in fostering a robust entrepreneurial ecosystem within Kerala's medical institutions, significantly enhancing the innovation capabilities of medical professionals.

CHALLENGES

1. FRAGMENTATION AND SILOS ACROSS THE ECOSYSTEM

Challenge: Kerala's MedTech ecosystem spans hospitals, research institutions, universities, startups, MSMEs and large industry, often operating in parallel with limited structured interaction.

Strategic response: KMTC institutionalised the Stakeholder Connect Meet (SCM) platform as a structured, repeatable mechanism to convene the quadruple-helix ecosystem.

2. RESOURCE CONSTRAINTS AND THE NEED FOR STRATEGIC FOCUS

Challenge: Kerala competes with larger industrial states that have advantages in land availability, scale manufacturing, and risk capital. Attempting to cover the full MedTech value chain risks dilution of effort and poor ROI on scarce program resources.

Strategic response: KMTC adopted a focused differentiation strategy prioritising segments where Kerala has structural strengths and a credible right-to-win: Medical Rubber, Medical Electronics, and Assistive Technology.

3. GOVERNMENT DEPARTMENTAL SILOS AND COORDINATION COMPLEXITY

Challenge: Multiple departments - Industries, Health & Family Welfare, Electronics & IT, and Social Justice - have overlapping mandates relevant to MedTech, but coordination costs are high. This can slow decisions, blur accountability, and fragment execution.

Strategic response: KMTC uses SCM and strategic roadmaps as cross-departmental alignment tools, clarifying roles, interdependencies and shared outcomes

4. PERCEPTION GAP ON KERALA AS AN INDUSTRIAL INVESTMENT DESTINATION

Challenge: Despite progress, Kerala still faces a perception barrier in investment decisions—often framed around labour cost, regulatory rigidity and “industrial friendliness.” In practice, perception can be more constraining than reality.

Strategic response: KMTC treats perception as a market problem requiring professional, consistent, data-driven positioning. KMTC amplifies Kerala's MedTech strengths and success stories through sustained digital outreach and uses national and global platforms to signal credibility and readiness—supported by Kerala industry leaders serving as ecosystem ambassadors.

5. STRUCTURAL WEAKNESSES IN THE INDIAN MEDTECH MARKET

Challenge: The domestic market is marked by price pressure, uneven quality discipline, delayed payments (especially in public procurement), and thin margins—making scale-up commercially challenging for new manufacturers.

Strategic response: KMTC positions exports and global quality benchmarks as strategic priorities. Building products and manufacturing systems aligned to international standards (e.g., ISO 13485 and relevant global regulatory pathways) forces quality discipline, improves margins, strengthens brand credibility, and creates a stronger foundation for sustainable domestic market participation.

WAY FORWARD

Kerala’s MedTech opportunity will be won through focus, coordination, credibility and global benchmarking. The program’s strategic posture is to prioritise conversion—investment, capacity, productisation and exports—over activity volume, ensuring ecosystem-building translates into measurable industrial outcomes.

The Kerala Medical Technology Consortium has, in a remarkably short span of three years, moved from vision to impact. By bringing coherence to a fragmented ecosystem and aligning diverse stakeholders

toward a shared mission, KMTC has catalysed a paradigm shift in Kerala’s industrial development narrative, anchored in knowledge, innovation, and inclusivity.

Through data-driven strategy, cross-sector partnerships, and hands-on ecosystem activation, KMTC has demonstrated what targeted, collaborative public programs can achieve. With strong foundations in place and a growing community of committed stakeholders, KMTC is poised to lead Kerala’s transition into a globally recognised MedTech powerhouse.

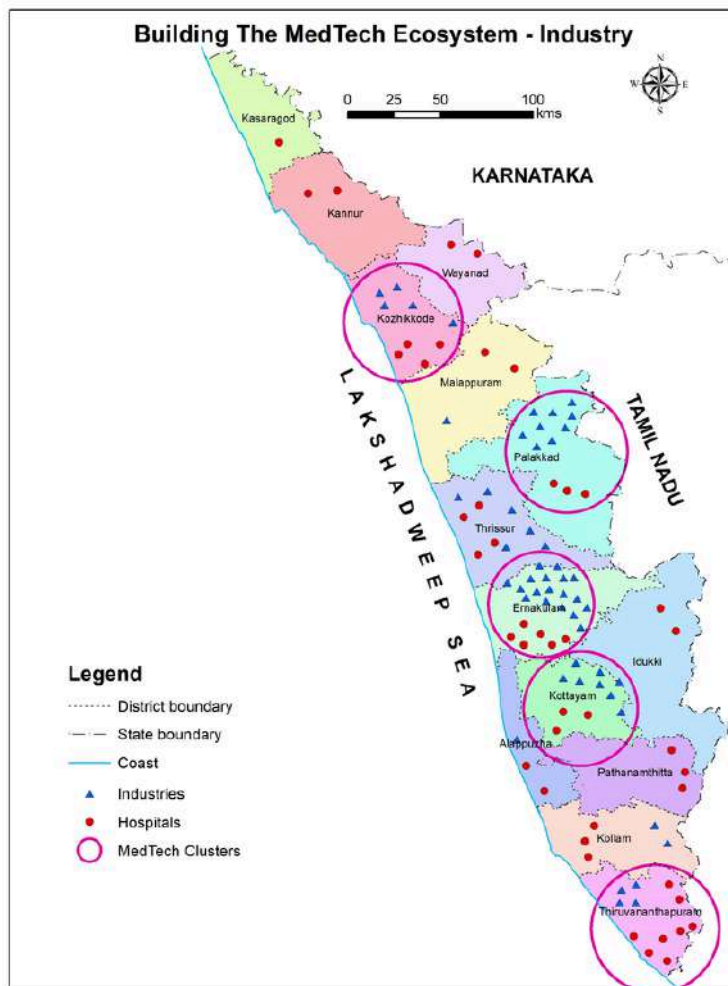


Fig. 12.8 Map Showing the Building of MedTech Ecosystem for Kerala

CLIMATE SMART COFFEE PROJECT



The Climate Smart Coffee Project is a flagship initiative of the Government of Kerala, implemented by Kerala Coffee Limited with knowledge support from K-DISC, to enhance climate resilience, farmer incomes, and sustainability in Wayanad—an ecologically significant district forming part of the Western Ghats biodiversity hotspot. Anchored by the proposed Carbon Neutral Village Coffee Park, the project integrates commercial agroforestry, digital agriculture, carbon accounting, quality upgrading, and institutional convergence to reposition GI-tagged Wayanad Robusta in premium domestic and export markets

KEY ACCOMPLISHMENTS OF 2025-26

The Key accomplishment in 2025-26 consists of mobilising coffee farmers and helping them improve productivity through understanding soil fertility. This was done by creating a database of soil test samples from over 100 locations in Wayanad, facilitating the distribution of 85,000 of high quality coffee seedlings, distributing 280 tonnes of dolomite to farmers to correct the acidity in the soil and providing calcium and magnesium that were found deficient. 3,000 Broca traps were provided to protect crops from pests without the risk of chemical pesticides.

The Digital E-Crop methodology developed by CTCRI Trivandrum was introduced to coffee farmers. A trial is proceeding to establish the efficacy of this technology in the field.

SECOND-GENERATION CHALLENGE ADDRESSED

Climate vulnerability in an ecologically fragile biodiversity hotspot, declining soil health, pest pressure, fragmented post-harvest systems, weak price discovery for GI-tagged Wayanad Robusta, and the absence of scalable carbon certification frameworks threaten the long-term viability of the region's predominantly smallholder coffee economy.

During 2025-26, the project directly responded to these constraints through district-wide soil-health restoration programmes (280 tonnes of dolomite supplied to 560 farmers), pesticide-free Integrated Pest Management (IPM) roll-outs (3,000 Broca traps), SOP-based post-harvest training, Digital E-Crop pilots for traceability and climate advisories, and DPR finalisation for the Carbon Neutral Coffee Park to anchor certification-ready infrastructure.

ALIGNMENT WITH STATE GOALS

The project supports Kerala's transition to a Knowledge Economy and Quadruple Helix model by converging Government agencies, universities, cooperatives, technology firms and farmers to deploy digital agriculture, carbon MRV systems, innovation hubs and export-oriented quality infrastructure.

- Unique Methodology
- Hub-and-spoke Coffee Park and FPO network

- Commercial agroforestry integrating orchard crops rather than passive shade trees, based on IIM-Kozhikode recommendations Digital E-Crop and soil intelligence platforms
- Carbon MRV and certification systems
- Dairy-cooperative-anchored service delivery for smallholder outreach
- WIFR three-dimensional quality framework integrating product quality, product safety and sustainability
- Ecosystem Partnerships

OUTPUTS AND OUTCOMES

FARMER-LEVEL CLIMATE INTERVENTIONS

- **Institutional & Infrastructure Milestones**
 - Ministerial site visits and stakeholder reviews
 - KIIFB ESG appraisal of Coffee Park
 - CDA role for KCL under KERA agreed in principle
 - Participation in the Kerala Brand (Nanma) launch where Wayanad Robusta Coffee received the ODOP recognition
 - NABARD consultations for FPO formation
- **Digital & Innovation Initiatives**
 - Eight-panchayat Digital E-Crop feasibility survey
 - Pilot installation of two E-Crop systems
 - Proposal for carbon-neutral product certification software

KNOWLEDGE CREATION

- International workshop on climate-resilient coffee
- Carbon-credit capacity-building programmes
- Digital agriculture pilot frameworks
- Presentation of farmer aggregation and institutional convergence models at the Fifth International Congress on Kerala Studies, Idukki
- Research collaborations initiated with Groningen University, TU Delft, NIT, KAU, and CTCRI
- Carbon-neutral methodology document prepared for KIIFB ESG Wing

ECONOMIC IMPACT

- Reduced fertiliser requirement via soil amendment
- Pest losses curtailed through IPM
- Rejuvenation planting boosts medium-term yields
- FPO-driven aggregation and future premium branding under WIFR
- Promotion of WIFR positioning strengthens Wayanad's market identity, export readiness and premium-price discovery potential.
- Coffee Park positioned to unlock export-linked value chains



Fig. 13.1 KIIFB ESG Site Inspection



Fig. 13.2 Broca trap deployment programme

SOCIAL INCLUSION

- Focus on marginal & tribal farmers in input distribution
- Cooperative-based outreach
- Planned women-led clusters & FPO leadership
- Youth internships and training through PMU and Coffee Board

CHALLENGES & LEARNINGS

- Coordinating multiple departments and institutions
- Farmer adoption curves for digital tools
- Carbon accounting complexity
- Synchronising infrastructure and field pilots

These led to phased roll-out strategies, cooperative anchoring, and KIIFB-guided carbon governance frameworks.



Fig. 13.3 Distribution of dolomite to farmers

TRANSITION TO SUSTAINABILITY

The project will move from pilot to scale through:

- KIIFB-funded Carbon Neutral Coffee Park
- Taluk-wide carbon MRV roll-out
- Export-ready carbon-neutral certification
- Digital farm dashboards
- FPO-driven aggregation and revenue generation
- Commercial agroforestry-driven diversification of farm income streams through orchard crops
- Branding convergence through WIFR and ODOP platforms
- Cooperative-anchored aggregation to sustain scale beyond public funding



Fig. 13.4 Coffee Sapling distribution programme



Fig. 13.5 Digital E-Crop device field Demonstration



VIJNANA KERALAM



In 2024, the Kerala Government launched the **Vijnana Keralam** initiative, based on the evaluation of the achievements of the Kerala Knowledge Economy Mission (KKEM) programme, with the following critical changes.

- 1) Employer mobilization was reorganized under the leadership of local self-government institutions (LSGIs).
- 2) Job fairs were organized locally in partnership with LSGIs.
- 3) The skill development program was reorganized with the participation of community mentors.
- 4) The employer system and skill development program was revamped.
- 5) Job seekers were prepared for interviews prior to job fairs. Special trainings were designed for those shortlisted for interviews as well as those rejected at the fairs.

Vijnana Keralam is being implemented under the leadership of local self-government institutions with the participation of volunteers in a popular manner. The Vijnana keralam project works by continuously assessing national and international labour market trends based on the trends understood in the Global Skill Summit. The spread of artificial intelligence and data analytics in the IT sector and the changes at the global level have significantly affected the growth of traditional IT job opportunities in India. At the same time, high-skill job opportunities are emerging in the Global Capability Center (GCC) sector, replacing many jobs in the ITES/BPO sectors. The Economic Survey has indicated that the number of highly skilled blue-collar jobs is increasing as part of the Production Linked Incentive (PLI) and Make in India schemes implemented by the Central Government.

Keeping in view these changing employment trends, Vijnana Keralam has taken steps to attract new job opportunities to Kerala in collaboration with the industries. As part of this, efforts have been strengthened to coordinate industries and industry associations in collaboration with the Confederation of Indian Industries (CII) and the ICT Academy of Kerala. A major limitation is the limited resources available for skill development. The Skill Ecosystem programmes implemented with the assistance of KIIFB aim to address these shortcomings.

1. Mobilisation of job seekers and conduct of job fairs

The first track is mobilising job seekers and conducting job fairs. A participatory approach has been adopted by ensuring the active participation of local self-government bodies and voluntary organisations in order to make the efforts to find job seekers more effective. As part of this, Job Stations have been set up in 144 Blocks, 54 Municipalities and 3 Corporations, and Job Facilitation Centres have been started in 217 Gram Panchayats and 9 Municipalities.

Partnerships have been strengthened with industry organisations like CII, SAIK, and ACFI to increase the availability of job opportunities. Through this, more than 40 lakh job opportunities have been coordinated on the platform.

Job opportunities are being created through industry-academic partnerships under the Recruit-Train-Deploy (RTD) model to ensure quality employment. Special agreements have been signed with Kannur University and A.P.J. Abdul Kalam Technological University (KTU) as part of the Vijnana Keralam project, and this will be extended to other universities as well.

The Skills Delivery platform (SDPK) network has been expanded and the scope of job fairs has been increased. Virtual job fairs were organized at 45 SDPK centers on 31.01.2026. In addition, hyperlocal job fairs are also being implemented. Vijnana Keralam has been able to coordinate about 4 lakh RTD and Non-RTD jobs for job seekers through job fairs this year.

2. Skill Development Activities

The second track is skill development linked to the jobs needed in today's world. The aim is to provide job-oriented skill training to two lakh college, polytechnic and ITI students in the next year in addition to the curriculum. Recruit Train and Deploy (RTD), internship and apprenticeship programmes will be integrated with this.

The curriculum implemented today, including in higher educational institutions, requires a skill development training program that links their basic subjects with employment and the production process. In technical educational institutions, students need training or internships in the exact skills required by the industries. We should be able to provide skill training to students in arts and humanities subjects to enable them to engage in the jobs needed in the new world. In this way, a comprehensive program is also aimed to be implemented as part of Vijnana Keralam, which will provide skill training to final year students studying in engineering colleges, polytechnics, ITIs and other higher educational institutions and ensure that they get employment at the end of their studies. Skill training is planned with special consideration for the marginalised sections.

The participation of public educational institutions has been ensured to strengthen skilling activities. The Back to Campus program has been implemented targeting those who graduated in previous years from engineering colleges and polytechnic institutions.

This project is being continued in collaboration with universities as campus skilling programs for current students and in collaboration with campus skill centers. In view of future employment trends, activities have been initiated to target opportunities in the Global Capability Centres (GCC) region. As part of this, a comprehensive capacity development program including Higher Order Thinking Skills (HOTS) has been launched this year.

3. Hyper-Local Job Creation

The third track is hyper-local job creation. Hyper-local jobs are jobs in small and micro enterprises in each area. These can only be mobilized locally. Jobs in medium and large employers' establishments in the area can also be mobilized locally.

4. Recruitment of Skilled Workers To The Gulf and Other International Recruitment

The fourth track is the recruitment of skilled workers for International Jobs. The number of Malayali workers in the Gulf is decreasing. At the same time, although not as much as in the past, there are still many skilled workers who are ready for Gulf jobs. Vijnana Keralam is taking on the task of providing them with skill training and making them employable. Special efforts are being made in collaboration with NORKA and international agencies to increase overseas employment opportunities. In addition to the Middle East region, emphasis is being placed on employment opportunities in Europe and emerging economies.

The **Work Near Home (WNH)** facility is being expanded to provide more knowledge-based job opportunities in the state. As part of this, the first WNH center was inaugurated in Kottarakkara on 19.01.2026.

KEY ACCOMPLISHMENTS OF 2025-26

The Skill Kerala – Global Summit 2025 emerged as a landmark achievement, bringing together government, industry, academia, and global partners on a single platform to strengthen Kerala’s skill ecosystem. With over one lakh online participants and 2,700+ offline delegates, the Summit enabled strategic MoUs, industry-academia collaboration, future-skills dialogue, and generated more than 1.58 lakh job opportunities, reinforcing Kerala’s transition towards a future-ready, knowledge-driven workforce.



Fig . 14.1 Hon’ ble Chief Minister Inaugurating Skill Kerala – Global Summit 2025

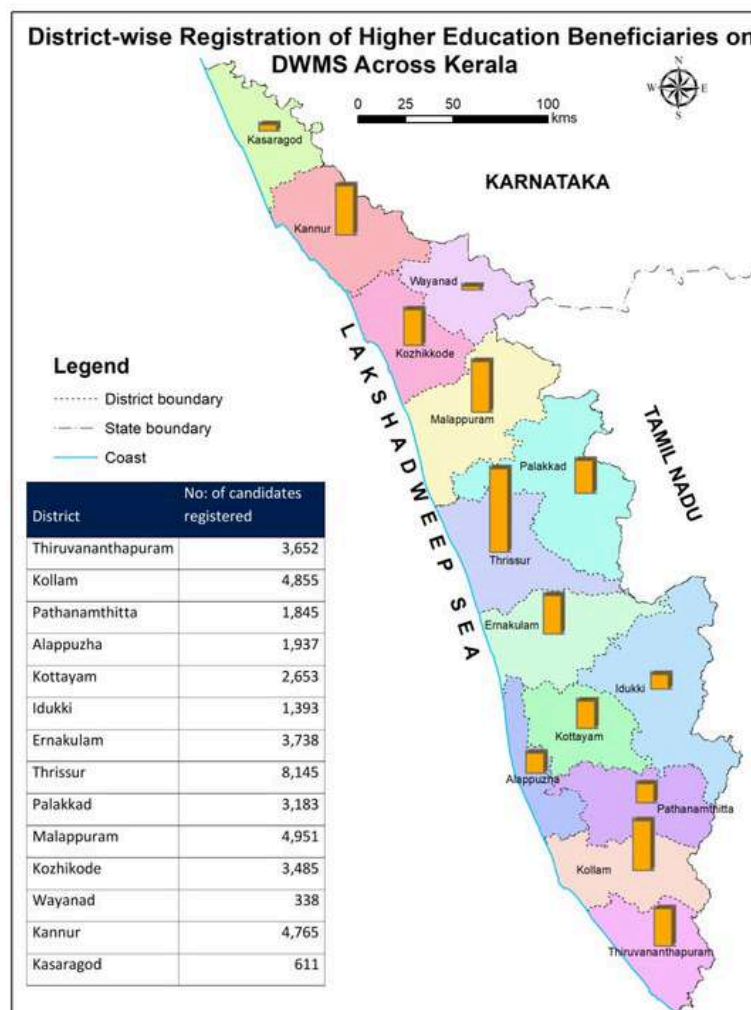


Fig. 14.2 Vijnana Keralam District Wise Registered Beneficiaries

Weekly Virtual Job Fairs: Conduct of 46+ weekly virtual job fairs in 45+ SDPK Centres across Kerala.

Job Mobilisation: Mobilised a total of 40,77,635 jobs across domains by January 2026.

Establishment of Job Centres: Job Stations have been set up in 144 Blocks, 54 Municipalities and 3 Corporations, and Job Facilitation Centers have been started in 217 Gram Panchayats and 9 Municipalities.



Fig. 14.3 Vijnana Keralam: Meeting of Functionaries

Expansion and Strengthening of Virtual Job Fairs through SDPK Centres

In the evolving employment landscape, virtual job fairs have emerged as an effective and inclusive solution to bridge the gap between job seekers and employers. After carefully evaluating the effectiveness of the initial virtual job fair initiatives, it was decided to institutionalize the process by conducting virtual job fairs every Saturday. This decision marked a significant step towards creating a structured, consistent, and accessible recruitment ecosystem.

To ensure maximum participation and accessibility, candidates were encouraged to attend interviews through their nearest Skill Delivery Platform Kerala (SDPK) centres. These centres are equipped with the necessary infrastructure, including internet connectivity, digital devices, and technical support, to facilitate smooth participation in virtual interviews.

This approach ensures that even candidates who lack personal access to digital infrastructure can confidently attend interviews in a professional and supportive environment.

The initiative was initially launched with 14 SDPK centres, establishing one centre in each district. This district-level presence ensured equitable access across regions. Simultaneously, the digital platform was enhanced to support employer onboarding and integrated video conferencing facilities.

A key feature of the upgraded platform was the introduction of role-based dashboard access. SDPK centre in-charges, channel owners, channel managers, and employers were provided with dedicated dashboards to monitor and manage the process effectively. Employers were empowered to update the status of candidates immediately after each interview directly through their dashboards. This real-time status update mechanism significantly improved transparency and efficiency. As a result, job fair outcomes could be published immediately after the event with a high degree of accuracy. Encouraged by the positive response and operational success, the initiative was expanded further. By December 2025, the number of participating SDPK centres increased from 14 to 45. The platform was correspondingly modified to accommodate the increased scale of operations and ensure smooth functioning across the expanded network. The expansion demonstrated the scalability and adaptability of the virtual job fair model.

Looking ahead, the programme is expected to extend to 103 SDPK centres. This large-scale expansion reflects the commitment to making employment opportunities more accessible and decentralised. The continuous development of dashboards and reporting systems is currently in progress to further enhance monitoring, data analysis, and decision-making capabilities.

Strengthening Employment Pathways through RTD, Apprenticeship, and Internship Integration

In today's dynamic employment landscape, bridging the gap between education and employability requires structured,

skill-oriented, and outcome-driven initiatives. To enhance opportunities available through the portal, Recruit-Train-Deploy (RTD) programmes, apprenticeship opportunities, and internship opportunities were integrated into the system. The Recruit-Train-Deploy (RTD) model plays a crucial role in aligning industry requirements with candidate capabilities. Under this approach, candidates are first recruited based on industry demand, then provided with focused and customized training, and finally deployed into relevant job roles. This structured pathway ensures that employers receive job-ready candidates while applicants gain industry-relevant skills before placement. By incorporating RTD opportunities into the portal, the platform moves beyond simple job listings and becomes an active facilitator of skill development and assured employment.

In addition to RTD programmes, apprenticeship and internship opportunities were also brought onto the platform. Apprenticeships provide hands-on training within real workplace environments, allowing candidates to acquire practical skills while earning a stipend. Internships, on the other hand, offer valuable exposure to professional settings, helping students and young graduates understand workplace expectations, improve their technical competencies, and develop soft skills such as communication, teamwork, and time management. By hosting these opportunities on the portal, candidates gain access to experiential learning pathways that enhance their employability and career readiness.

OBJECTIVES

Problem Being Addressed

Kerala faces persistent challenges of educated unemployment, skill mismatch, delayed hiring cycles, and fragmentation between institutions, training systems, and employers. The project addresses the need for a coordinated mechanism that links demand, skilling, assessment, and



Fig. 14.4 Vijnana Keralaam - Mega Job Fair Organising Committee Meeting

placement in an accountable and scalable manner.

The project addresses a critical challenge in Kerala's employment ecosystem—educated unemployment caused by a persistent gap between academic qualifications and job readiness. While the State has expanded access to education and mobilised jobseekers from educational institutions and the wider community through the Digital Workforce Management System (DWMS) platform of KDISC, the recruitment processes continue to reveal significant gaps in essential employability skills, including soft skills, English communication, domain-specific competencies, and exposure to job-relevant technologies.

This represents a complex, second-generation challenge that cannot be addressed through isolated or one-time training interventions. It stems from fragmented skilling efforts, the lack of continuous skill-gap assessment, and weak alignment between education systems, industry expectations, and emerging job roles. The project responds by reimagining skilling as an affordable, accessible, and

inclusive ecosystem, integrating dynamic skill assessment, industry-aligned training, digital learning at scale, and community-driven mentoring to address structural employability gaps and support Kerala's transition to a knowledge-driven economy.

ALIGNMENT WITH STATE GOALS

The project strongly aligns with Kerala's vision of transitioning to a knowledge economy by repositioning skilling as a continuous, outcome-oriented process that converts educational attainment into productive employment and innovation. Through the Digital Workforce Management System (DWMS), the initiative creates a statewide digital backbone that integrates skill-gap assessment, Skill training, mentoring, and employment linkage on a single platform. This ensures that skill development is not supply-driven, but dynamically aligned with industry demand, emerging technologies, and future job roles, an essential requirement for a knowledge-driven economy where adaptability, digital fluency, and lifelong learning are critical.

The project also provides a practical, on-ground implementation of the Quadruple Helix Model, enabling sustained collaboration among government, academia, industry, and society. The government, through K-DISC, acts as the system integrator by setting policy direction, ensuring convergence across departments, and enabling access through affordable and inclusive digital infrastructure. Academic institutions function as key nodes in the ecosystem by hosting training programmes, contributing faculty as mentors, and embedding skill pathways alongside formal education. Industry partners play a central role in defining skill requirements, co-creating curricula, offering assessments, and facilitating recruitment, thereby ensuring relevance and employability. Society and the community are actively engaged through open-access skilling, volunteer mentor

networks, and peer-learning models that extend opportunities beyond formal institutions. By bringing together these multi-stakeholder linkages, the project transforms skilling from a fragmented intervention into a shared innovation ecosystem. It supports continuous up-skilling and re-skilling, improves workforce productivity, enhances employer confidence in Kerala's talent pool, and enables inclusive participation in high-value knowledge work. Collectively, these outcomes accelerate Kerala's transition towards a resilient, innovation-led knowledge economy grounded in collaboration, human capital development, and social inclusion.

ECOSYSTEM PARTNERSHIPS

Institution	Count
Online Skilling Partners	3
Offline Skilling Partners	35
Higher Education Institution	18
Skill Partner	
Skill Assessment Partners	3
Total Ecosystem Partners	59



Fig. 14.5 Vijnana Keralam Mega Job Fair Kannur

OUTPUTS AND OUTCOMES

During the year 2025–26, the project achieved significant scale and impact in enhancing employability, work readiness, and skill development among candidates across the state. The key quantitative outputs and qualitative outcomes are detailed below:

- 44,832 candidates were enrolled and are actively learning under the Coursera programme, gaining access to industry-relevant courses and certifications.
- 29,080 candidates were enrolled and are actively learning under the LinkedIn Learning programme, supporting continuous upskilling and professional development.
- 20,895 candidates were enrolled under the Employability Training Programme offered by the Wadhvani Foundation, strengthening job readiness and career competencies.
- Work Readiness Training was delivered to 30,799 candidates, enhancing their preparedness for workplace expectations, professional behaviour, and core employability skills.
- Personality Development Training was provided to 5,252 candidates, focusing on confidence building, communication skills, and overall professional personality enhancement.
- Learning circles were established in 11 colleges, enabling peer-based learning, collaboration, and sustained engagement among students.
- Alignment of KDISC courses in KTU Credit system of 2024 scheme candidates

Parameter	Total (on 30.01.2026)
Candidates Registered - DWMS	20,88,928
Vacancies Mobilised	40,77,635
Selection Details	
DWMS-Direct	60,623
Higher Education Institutions (Apprenticeship, Internship)	12,764
Campus Placement	13,270
Kudumbashree - Vijanana Keralam	77,450
Employment Exchange	25,651
NORKA	4,141
ODEPC	2,424
ASAP	6,319
Kudumbashree-DDUGKY	44,208
KASE	5,251
Total Placements	2,52,101

- Launch of IEDC Talent Accelerator Programme during IEDC Summit on 22 Dec 2025 at LBS College Kasargod in association with Kerala Startup Mission.
- The Soft Skill Master Mentor Workshop was successfully completed, training 24 trainers from across Kerala.

- 1,793 mentors from higher educational institutions across Kerala were trained to support, guide, and mentor learners, ensuring effective programme implementation of Coursera and LinkedIn programme and long-term impact through 10 offline workshops across the state.
- 539 mentors were oriented under Kerala Technological University (KTU) to support, guide, and mentor learners, ensuring effective implementation of the Coursera and LinkedIn Learning programmes under KTU.
- The Foundation Module Zonal Training was successfully completed at Thiruvananthapuram, Ernakulam, and Kozhikode, training 245 trainers across Kerala.
- The English Master Mentor Zonal Training was successfully completed at Thiruvananthapuram, Ernakulam, Kannur, and Kottayam, training 82 trainers from across Kerala.
- To strengthen mentor capacity for effective English language training, a decision was taken to create a statewide pool of trainers. As part of this initiative, trainings have been completed in Thrissur, Alappuzha, Kasaragod, and Kollam, with eight batches conducted and 206 trainers trained to date and the training at other districts mapped.
- A total of 547 mentor registrations were received for soft skill mentor pool, following which 8 mentor orientation programmes were conducted.
- Twenty-seven Industry Masterclasses were organised across the state for higher education institutions, covering 44 identified skill domains.
- The MITR Camp, a summer employability enhancement programme, was conducted during April–May 2025 to improve the employability of higher education students through structured, mentor-guided training focused on workplace readiness and professional competencies. The camp was delivered through a three-day Personality Development Training (PDT) module and a two-day Foundation Module emphasizing industry-relevant skills. 74 MITR Camp batches were conducted across 56 colleges, training 1,530 candidates and facilitating 346 job applications post-training.

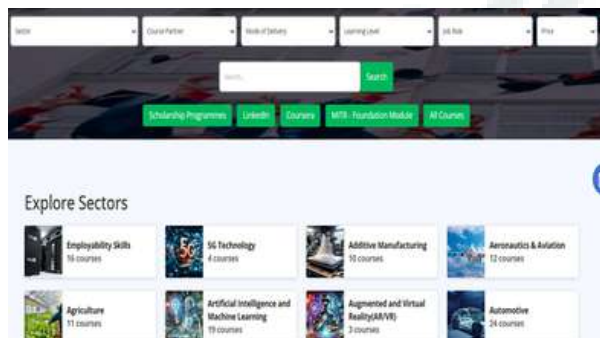


Fig. 14.6 Virtual Academic Courses

- Three soft skill modules were developed, Resume Building, Interview Readiness and Confidence Building 17 subject experts were engaged for module vetting. Two module development and vetting workshops were conducted.
- As part of the Skill Summit, best practices from higher education institutions were invited, shortlisted, and documented. A total of 158 videos were received from institutions, of which 46 best practice videos were shortlisted and screened, comprising 26 technical and 20 non-technical best practices.
- Conducted sectoral workshops for Arts and Science colleges in collaboration with Mahatma Gandhi University, covering six academic sectors.

- Developed three-hour modules on Resume Building, Confidence Building, and Interview Readiness as part of the soft skills training implementation.
- Developed 79 job role-based one-hour foundation modules to provide domain refresher training for job seekers. Training workshops were held between and for each of these 79 courses on 16 different dates.

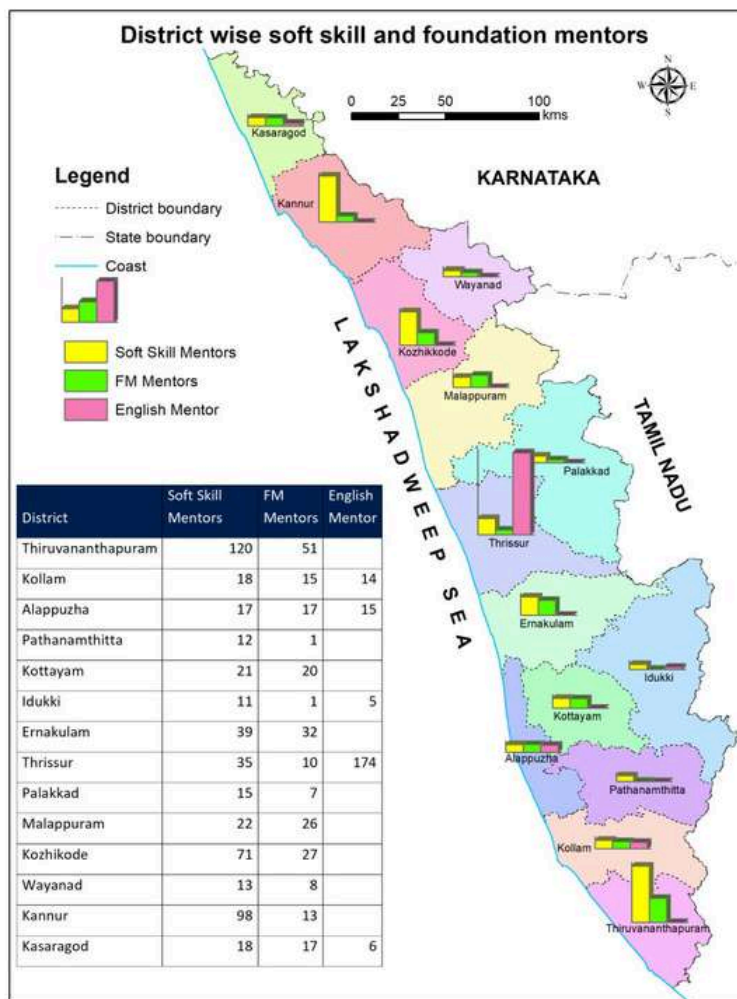


Fig. 14.7 Vijnana Keralam District wise Number of Mentors Across Districts

- Developed English language training modules, including a 100-hour comprehensive course and a 30-hour short-term course, to support users in improving their English proficiency.
- Developed a 100-hour training programme comprising 9 modules (Electrical Works, Electronics Repair,

Plumbing & Sanitary Works, Interior Design Support, Deep Cleaning & Pest Control, Painting, Gardening & Landscaping, Carpentry & Building Maintenance, Solar Panel Cleaning & Repair) under the Multitask Force Development Programme, aimed at ITI/Polytechnic women with career breaks, candidates who have completed DDUGKY/PMKY, and other interested participants.

- Developed a 12-hour Digital Skills module for Vijnana Keralam beneficiaries, designed as a pick-and-place model for flexible adoption and delivery for multiple stakeholders.
- Under the Nemom Block Panchayath Project, an amount of ₹2,00,000/- has been earmarked for the course Digital Marketing with AI, which has been formally selected for implementation.
- Under the Kanhangad Block Panchayath Project, Kasargode, an amount of ₹3,12,500/- has been earmarked for the initiative “Thozhilarengathekku She Turns – 24.” As part of this initiative, a six-month skill development programme - CWPDE (Certificate in Word Processing and Data Entry Operator) has been selected. The programme is designed for candidates with SSLC and above qualifications and specifically targets Kudumbashree members, with a total intake of 50 students. The project has been reconsidered for implementation in the current financial year, and the agreement process has been initiated,
- Under the Nedumangad Block Panchayath Project, an amount of ₹11,56,400/- has been earmarked for the course General Duty Assistant, covering 40 candidates. The course has been selected for implementation, and has been formally selected for implementation.
- An allocation of ₹6.25 lakh from the District Panchayath, Pathanamthitta, supported employability skill development programmes aimed at empowering local jobseekers and improving their workforce readiness.



Fig. 14.8 Master Classes for Skill Academies

- The LinkedIn Talent Report, published as part of the Skill Summit, highlights skill trends and the talent landscape in Kerala over the past five years. With a special focus on the partnership between LinkedIn and KDISC, the report has been made available to higher education institutions in Kerala to developing special interventions in Higher education landscape.
- The “English Skills in Kerala: Three Years of Insight” report, published by the British Council, emphasizes the collaboration between LinkedIn and KDISC and has been disseminated to higher education institutions in Kerala for guiding skill development interventions.

Social Inclusion:

- Significant participation of marginalised Communities, Youth with Disabilities, and Women

- Skill development courses and opportunities were showcased during the She Power event held in Ernakulam on 18 December 2025, promoting women's participation in emerging skill sectors.
- Awareness sessions were conducted for members of the Queens Business Global Entrepreneurship Community and the Girls for Girls Community, highlighting KDISC's skilling interventions and pathways for women-led growth and entrepreneurship.
- Under a CSR initiative, specialized training in Diploma in Graphic Designing and Advertising was delivered to 20 selected women candidates, strengthening them

SUCCESS STORIES & CASE STUDIES

Empowering Women through Local Government-Led Skilling (Kasargode)

Under the Kanhangad Block Panchayath's Thozhilarengathekku She Turns – 24 initiative, Kudumbashree women gained access to structured digital skilling through the CWPDE programme. The intervention enhanced digital literacy, employability, and income-generation potential among women at the grassroots level, demonstrating the impact of local-body-driven skilling.

By aligning KDISC courses with the KTU 2024 credit system and establishing learning circles in colleges, students were able to pursue industry-recognised certifications alongside formal education. This reduced the gap between academic learning and job readiness, improving placement preparedness and employer confidence.

CSR-Led Skill Transformation for Women (Graphic Designing Programme)

With ₹4.97 lakh mobilised through Terumo Penpol CSR support, professional graphic design training was delivered to women candidates. Participants acquired market-relevant creative skills, enabling freelance opportunities and improved employability, highlighting the role of industry-supported skilling in inclusive workforce development.

Back to Campus – ITI & Polytechnic Alumni Programme (24.11.2025)

The Back to Campus Programme was conducted across ITIs and Polytechnics in Kerala to re-engage alumni and strengthen their career readiness through short-duration motivational and employability-focused training. A dedicated career readiness module was developed and delivered by trained mentors. A total of 54 sessions were conducted, reaching 2,969 participants, with feedback consolidated to inform future interventions.



Fig.14.9 Back to Campus Programme

CHALLENGES AND FUTURE ASPIRATIONS

Implementing a large-scale, multi-stakeholder skilling programme revealed several critical challenges that shaped the project's evolving strategy. One of the key challenges was the limited availability of scholarship or financial support for partner-led skilling programmes, particularly those offering high-quality, industry-recognised training. While demand for advanced and emerging skills was high, the cost of skilling remained a barrier for many learners, especially women, youth from low-income backgrounds, and jobseekers outside formal institutions.

Another challenge was reaching the right target audience with appropriate skill pathways. Despite strong platform capabilities, awareness gaps and misaligned expectations sometimes resulted in enrolments that did not fully match learner readiness or career goals. This highlighted the need for stronger pre-enrolment counselling, targeted outreach, and data-driven marketing strategies.



Fig. 14.10 Master Mentor ToT- Soft Skills

The programme also reinforced the learning that skilling is inherently resource-intensive, requiring sustained investment in content quality, mentoring, assessments, and learner engagement, particularly when delivered at scale and across diverse geographies.

These challenges have directly informed programme strategy by strengthening the focus on:

- Mobilising CSR, LSGI fund for skilling, and institutional funding to improve affordability
- Designing targeted communication and outreach to reach the right learner segments
- Enhancing counselling, diagnostics, and mentoring support within DWMS
- Leveraging DWMS platform as a single platform of the state to enable transparency, coordination, and real-time tracking
- Deepening industry partnerships to improve cost-sharing and employment outcomes

Overall, these learnings have helped transition Skill Kerala from a programme-centric approach to a more resilient, ecosystem-driven skilling model.



Fig. 14.11 Vijnana Keralam: Back to Campus

PUBLICATIONS & PRESENTATIONS

Since inception K-DISC has been striving to document the various learning emerging from the implementation of peoples innovation ecosystem and programmes in the form of various modes through different channels. The details of publications and presentations made by K-DISC functionaries so far are as follows:

Mode of Dissemination	Count
A. Publications	8
B. Conferences	
Paper Presentations	20
Poster Presentations	10
Total	38

- P. V. Unnikrishnan, V. Athira and Ajit Gerald, Electric Vehicles – Opportunities and Future for **35th Kerala, Kerala Science Congress**, 2022.
- K Chandra Shekar, P V Unnikrishnan, Building a Holistic Innovation Ecosystem - The Role of Kerala Development and Innovation Strategic Council, **EPW 2023**.
- P.V. Unnikrishnan, Sumitha T.S., Shaghna Nath R.U. Platform Cooperatives and Kerala's State-supported Knowledge Economy through the Realm of Sustainable Development Goals, **COOP-Dialogue**, International Cooperative Alliance Asia and Pacific, June 2024.
- Srikumar Chattopadhyay, P. V. Unnikrishnan, Biju Parameswaran, Vimal Ravi, Deepa P Gopinath Innovation: A key driver for sustainable development in Kerala, **Kerala Economy**, 2024, Vol. 5, No.2. pp 64-81.
- P. V. Unnikrishnan, Asok Kumar A., Jayan P. P., Prakash Matthew, Abilash A. K., Green Grid Kerala: Empowering Government Buildings Through Microgrid Innovation, **50th IECON** 2024.
- P. V. Unnikrishnan; Deepa Gopinath; Srikumar Chattopadhyay; A. Asok Kumar; Biju Parameswaran; A S Manoj; T. K. Subramanian; J.M. Prakash; R. U. Shaghnanath, A People's Innovation System for the transition of Kerala to a Knowledge Economy **18th ALL INDIA PEOPLE'S SCIENCE CONGRESS (AIPSC 18)**, 2024.
- P. V. Unnikrishnan, Vimal Ravi, Santhwana P. S., Vipin V. C., Josin John, Bhagya B. Anil, Asok Kumar, Deepa P Gopinath, J. M. Prakash, One Local Government One Idea' - building an innovation ecosystem to address the second-generation developmental challenges of Local Self Government Institutions, **IndiaLICS 2024**
- P. V. Unnikrishnan; Deepa Gopinath; Srikumar Chattopadhyay; Asok Kumar A.; Biju Parameswaran; Manoj A.S.; Subramanian T K; Vimal Ravi; Prakash Matthew; Shaghnanath R. U., A People's Innovation system for the Transition of Kerala to a Knowledge Economy, **IndiaLICS 2025**
- **37th Kerala Science Congress 2025**
- Athira V., Asok Kumar A., P. V. Unnikrishnan Developing an Innovation Ecosystem for EV Components in Kerala A Holistic Approach
- P. V. Unnikrishnan, P. M. Riyas, Shaghna Nath R. U. Triple Bottom Lines and Biophillic Design for Co-Working Spaces in Kerala - Developing A Model
- Saiprasanth K., Anju G., Midhila K. T., Anjana T. M., Shebeena K. K., Chikku Marin John, Adithya G. L., Sreevidya V., Amrutha C. S. Mazhavillu - A New Approach Towards Integrated Science Learning in Kerala

- Subramanian T. K., Srikumar Chattopadhyay, P. V. Unnikrishnan Creating An Innovation Ecosystem For Breaking Kerala's Redistribution And Sustainability Paradox
- Nikhil S. S., T K Subramanian, Biju Parameswaran, Asok Kumar A Building A Model for Blue Ocean Strategy for DUI Innovation in ODOI Clusters
- Manoj A. S., Biju Parameswaran, P. V. Unnikrishnan Nurturing An Innovation Ecosystem-Linked Model For Building Up Capabilities For Collaborative Real World Problem Solving (RWPS) Among Students
- Abilash A K, P. V. Unnikrishnan, Asok Kumar A., Prakash Jacob Matthew Building Microgrid Models in Highrise Buildings Towards an Approach in Kerala
- Amrutha C. S., Adithya G. L., Anju G., Chikku Marin John, Sreevidya V., Anjana T. M., Shebeena K. K., Midhila K. T., Saiprasanth K., Durgamalathi P. Mazhavillu: Revolutionizing Science Education in Kerala's Model Residential Schools – A Study on Its Impact
- Prakash Jacob Matthew, Vipin V C Dr Deepa P Gopinath OLOI - A Doing Using Interacting Innovation Model for Local Governments in Kerala
- Shaghna Nath R. U., Mr. Nipinraj S., P. V. Unnikrishnan Towards a New Model for Addressing Challenges in Kerala's Labour Market Leveraging Community Models for Empowerment and Demand Linked Skilling
- Raju M Rhee, Amjesh R, Prakash Mathew, P.V. Unnikrishnan Exploring the Soul of Kerala's Flora and Fauna Through an Indigenous Perspective: Harnessing Genomics as a Kerala Model

38th Kerala Science Congress 2026

Oral Presentation

- Santhwana P S, Josin John, P. V. Unnikrishnan, Solution Aggregation Hackathons for Sustainable Urban Transitions: A Case Study from Kerala
- Vipin V. C., Sreejith B J, Deepa P. Gopinath, Re-Imagining Block Panchayat in Kerala's Journey Towards Decentralised Development: Design Questions and Way Forward
- Santhwana P S, Anoop P, P. V. Unnikrishnan, Amphibious Housing for Kerala: Innovating for Flood-Prone Regions and Climate Resilience
- Binish George, Deepa P. Gopinath, P. V. Unnikrishnan, Higher Order Thinking Skills Through Industry Immersive Programmes (Hotsiip)
- R U Shaghna Nath, Binish George, Ashmi Stanly, P. V. Unnikrishnan, Digital Transformation of Employment Facilitation in Kerala
- P. V. Unnikrishnan, Harshit Bhardwaj, T. K. Subramanian, Hyperlocal Employment Opportunities for Women: Bridging the Gap for Career-Break Women in Kerala
- Vrinda V. Nair, Anoop P., P.V. Unnikrishnan, Recruit-Train-Deploy (RTD) Models for Demand-Driven Skilling: A Way Forward for Vijnana Keralam in Kerala
- Aswathy V. Gopal, K. K. Sivadasan, Manchadi: A Peoples Innovation Framework for Community-Based Mathematical Literacies in Kerala
- Chikku Marin John, Adithya G L, Amrutha C S, Nikita Surendran, Effectiveness of Mazhavillu in Promoting Integrated-Thematic Science Learning in Kerala

- Jinto Sebastian, P. V. Unnikrishnan, Biju Parameswaran, Kiran dev M, Innovation Clubs: From Theory to Practice
- P. V. Unnikrishnan, Developing Block Innovation Plans for Kerala: Towards A Contextual Quadruple Helix-Based Framework
- Radhesh R, P.V. Unnikrishnan, From Tenders to Challenges: Embedding Innovation-Oriented Procurement in Kerala's Peoples Innovation Plan
- Deepa P Gopinath, Srikumar Chattopadhyay, P. V. Unnikrishnan, Urban Innovation Cluster: Kerala's Challenge Ahead
- V. Santhosh, Vipin V. C., Deepa P. Gopinath, P. V. Unnikrishnan, One Local Government One Idea (OLOI) Programme: The Way Forward for Innovation-Led Local Economic Development

38th Kerala Science Congress 2026 Poster Presentation

- Sherin Sam Jose, P.V. Unnikrishnan, V Santhosh, Asok Kumar A, Human-Animal Conflict in Kerala: In Search of Innovative Solutions
- Athira V., P. V. Unnikrishnan, Asok Kumar A., Evolution of Rechargeable Battery Technologies and Their Strategic Relevance for Kerala's Energy Transition
- R U Shaghna Nath, P. V. Unnikrishnan, Expanding Horizons: Exploring Vijnanakeralam's Campus Skilling and Back To Campus Initiatives Through Insights From The Skill Kerala Global Summit 2025
- Prakash Jacob Matthew, Deepa P. Gopinath, P. V. Unnikrishnan, Srikumar Chattopadhyay, K-Disc: An Experimental Regional Innovation System
- Raju Rhee, Amjesh, P. V. Unnikrishnan, Prakash Matthew, Kerala Genome Data Centre: A Mission-Oriented One Health and Human Development Framework for State-Led Genomics Transformation
- T. K. Subramanian, P. V. Unnikrishnan & Srikumar Chattopadhyay, Kerala's Local Economic Development Challenges – Community Based K-Disc Initiatives



K-DISC: FUTURE ACTIVITIES

In line with the Government of Kerala's several successful initiatives, K-DISC has succeeded in creating a holistic innovation ecosystem to address various challenges. Many of K-DISC's experiments/ initiatives have matured and, to some extent, could be upscaled with a wide spatial spread and covering citizens of all age groups. The foregoing chapters dealt with the status of each programme, accomplishments and future activities. While continuing with these activities, as a future initiative, K-DISC proposes to link these programmes with broader development questions and propel the state toward sustainability.

Sustainability and resilience go together. Development can not be sustainable if it is not resilient. Kerala has demonstrated its resiliency in the face of catastrophes like the 2018 flood, landslides, Pandemic and incidences of zoonotic diseases, and this has been acknowledged at the international level.

K-DISC's vision for the next five years is 'Building Resilient Kerala through Innovation-led development'. The Kerala society is undergoing fast changes. The investment that the state made in human resource development and social infrastructure has paid its dividends. The state had achieved first-world human development by developing world's physical infrastructure.

Presently, there are perceptible social ecological changes explicitly across the state. Along with the transformation, there is modernisation and growing aspirations. The disruptions and crises brought by catastrophic events like the 2018 flood or pandemic, or tension in the Gulf countries, sprouting from time to time, also open new challenges and opportunities. Kerala's development is now negotiated as issues in various social spaces in which different

groups of actors compete and try to articulate their visions and interpretations of the social ecological crisis in different ways. Given the resource constraint, the traditional science and technology approach is not sufficient. Along with science and technology, innovation will be the core area for intervention. Innovative solutions can be developed to address social disparities and promote inclusive growth by focusing on the specific requirements of different sections of society. Creation of an enabling environment for innovation that fosters collaboration between different stakeholders and that provides opportunities for all sections of society to participate in and contribute to the innovation process is crucial. The transformation of ideas into innovation requires a flow of information, technology and experience among the various stakeholders, necessitating an innovation ecosystem.

Three dominant perspectives will guide the future activities: (i) plurality of social relations to the environment (nature); (ii) ecological emergencies and socio-economic situations exacerbating existing inequalities and bringing new power hierarchies; (iii) prefiguration in the backdrop of increasing catastrophes.

Technological progress, institutional change and environmental governance are three interplaying critical aspects on which the sustainability and resilience of Social Ecological Systems (SES) fundamentally hinge. Working synergistically, they can enable SES to withstand shocks and disturbances and also to recover and adapt, thus ensuring both long-term sustainability and resilience. Enhancing SES resilience is a strategy and is especially relevant in the Anthropocene, considering the rate and scale of change.

Conditions that enable general resilience include diversity, modularity, openness, reserves, feedback, nestedness, monitoring, leadership and trust. There are seven principles for building the resilience of SES. These are: i) Maintain diversity and redundancy; ii) Manage connectivity; iii) Manage slow variables and feedbacks; iv) Foster complete adaptive system thinking; v) Encourage learning; vi) Broaden participation; and vii) Promote polycentric governance.

The future K-DISC programme will adhere to these principles and will help the state to develop a strategy for rebuilding Kerala following knowledge based development path.



Notes





Kerala Development and Innovation Strategic Council is a strategic think tank and advisory body established by the Government of Kerala, registered as an independent Society under the Travancore-Cochin Literary, Scientific and Charitable Societies Act, 1955

K-DISC Vision

- A competitive and inclusive Kerala through the creation of a healthy, conducive ecosystem for transformative and bold innovations through new directions in technology, product, and process innovations.

Mission

- Holistic and Quality Human Development in Kerala
- A Knowledge-centered Technology Based Local Economy with Global Connect
- Enhanced inclusion, participation, and self-reliance through cutting-edge knowledge and technology.
- Seeding new knowledge-based industries through coordinated projects with the participation of multiple stakeholders.



KERALA DEVELOPMENT AND INNOVATION STRATEGIC COUNCIL

India Heights, Govt. Women's College Road
Vazhuthacaud, Thiruvananthapuram