CSTEP

# Gaining Ground

*Scaling Solutions, Informing Policy*



Annual Report
2025–2026

# Annual Report
# 2025–2026

Scaling Solutions, Informing Policy

Center for Study of Science, Technology and Policy (CSTEP)
November 2026

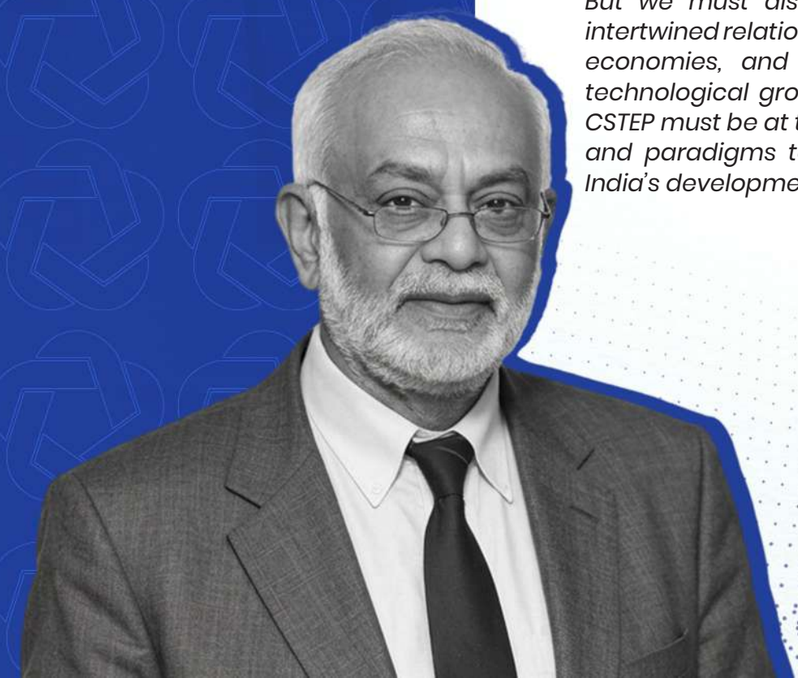
# Note From the **Chairman**

*My association with CSTEP began when initial thoughts underlying its genesis took shape through some fascinating discussions with Dr V S Arunachalam about his dreams of technology-inspired policymaking. I was then deeply engaged with my own professional activities and could only watch from the sidelines as the first baby steps were taken. My interactions grew, though informally, when I joined the Indian Institute of Science in 2010. CSTEP by then was well established. A more formal phase of interaction began when I joined the CSTEP Board in 2020.*

*With 20 years of CSTEP behind us, our belief that science and technology play a central role in shaping India's development journey has been fortified. As the country navigates the challenges of clean energy transition, air pollution, and sustainable urbanisation, the need for rigorous research and evidence-based policymaking has never been greater.*

*Over the past year, CSTEP's work has continued to progress across these sectors. The growing use of our models, frameworks, roadmaps, and analytical tools by policymakers and institutions reflects the value of sustained research in addressing complex developmental challenges. We remain committed to ensuring that our work continues to meet the highest standards of scientific rigour.*

*But we must also be mindful of the dynamics of deeply intertwined relationships between technology, social structures, economies, and behaviour in an era of unprecedented technological growth and its assimilation into our daily lives. CSTEP must be at the forefront of developing new perspectives and paradigms to fulfil Dr Arunachalam's vision of shaping India's development story towards a better future for all.*



**— Dr Dipankar Banerjee**

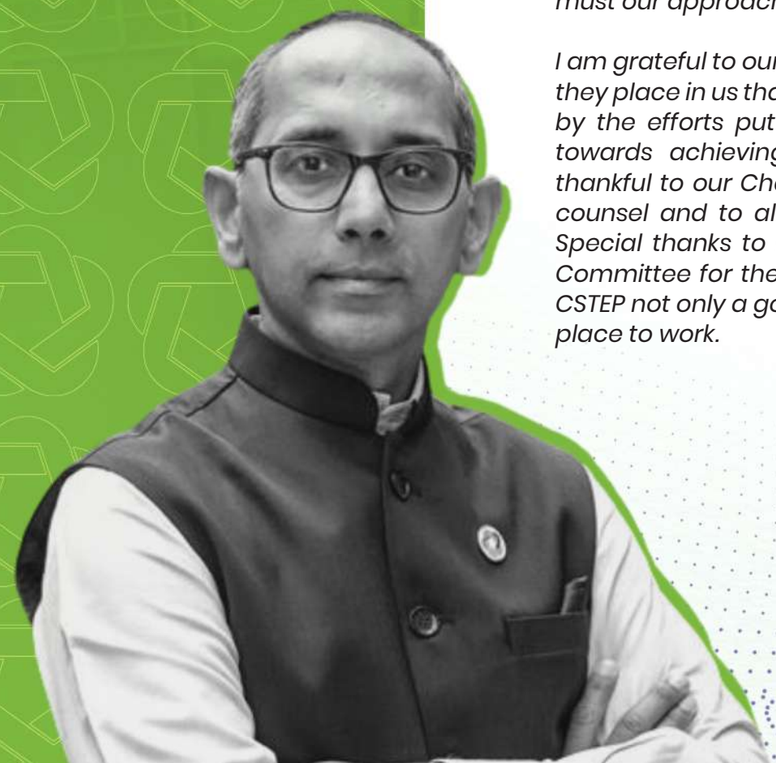
# Note From the **ED's Desk**

*The real value of research lies in its ability to inform decisions and facilitate action. Staying the course is particularly challenging in these uncertain and tumultuous times. This year, I am especially encouraged by how CSTEP has continued to build knowledge and support large-scale implementations. Across clean energy, clean air, and sustainable development, our work has expanded into new geographies, reached new audiences, and found application in a growing range of policy and decision-making processes.*

*We have focused on expanding our reach by making data accessible through our analytical frameworks, digital tools, and capacity-building initiatives. CSTEP's modelling frameworks and sectoral studies have contributed to national work on pathways towards Viksit Bharat and Net Zero. At the state level, our engagements have supported long-term transmission planning, climate-resilient urban development, air quality governance, and renewable energy deployment.*

*From training government officials and practitioners to working directly with farming communities, we have sought to ensure that research translates into local capability. Yet gaining ground is not the same as reaching our destination. The challenges we work on are evolving continuously and so must our approaches.*

*I am grateful to our supporters and collaborators for the trust they place in us that makes our work possible. I am heartened by the efforts put in by the CSTEP team working tirelessly towards achieving impact at all levels. I am especially thankful to our Chairman, Dr Dipankar Banerjee, for his wise counsel and to all the Board Members for their guidance. Special thanks to my fellow members of the Management Committee for their continued support and efforts to make CSTEP not only a go-to institution for analysis but also a great place to work.*

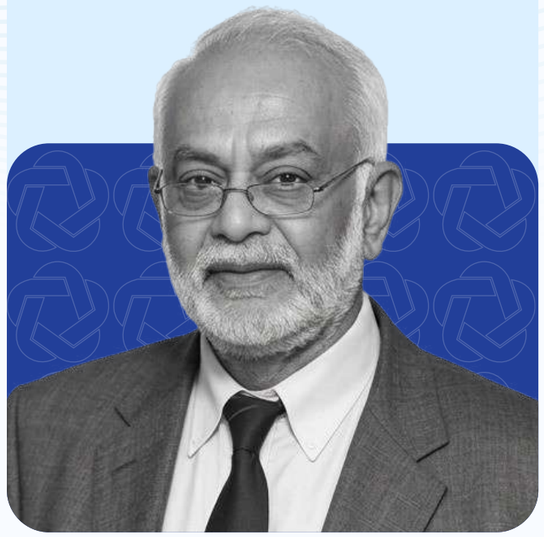


— *Dr Jai Asundi*

# Board of Directors

## Dr Dipankar Banerjee

Chairman,
CSTEP



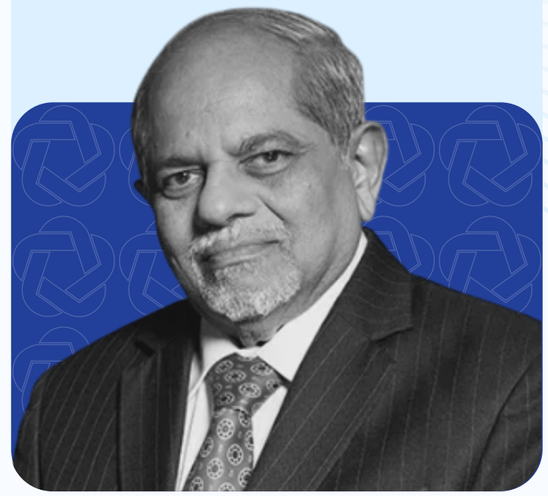
## Dr Harini Nagendra

Director, School of Climate Change and Sustainability, Azim Premji University



## Shri Ashank Desai

Founder and Chairman,
Mastek



## Shri Suresh Prabhu

Former Union Cabinet Minister, Member of Parliament, and G20 & G7 Sherpa



## Shri Rajat Gupta

Senior Partner,
McKinsey & Company



## Ms Soumya Rajan

Founder and CEO,
Waterfield Advisors



## Dr Jai Asundi

Executive Director,
CSTEP



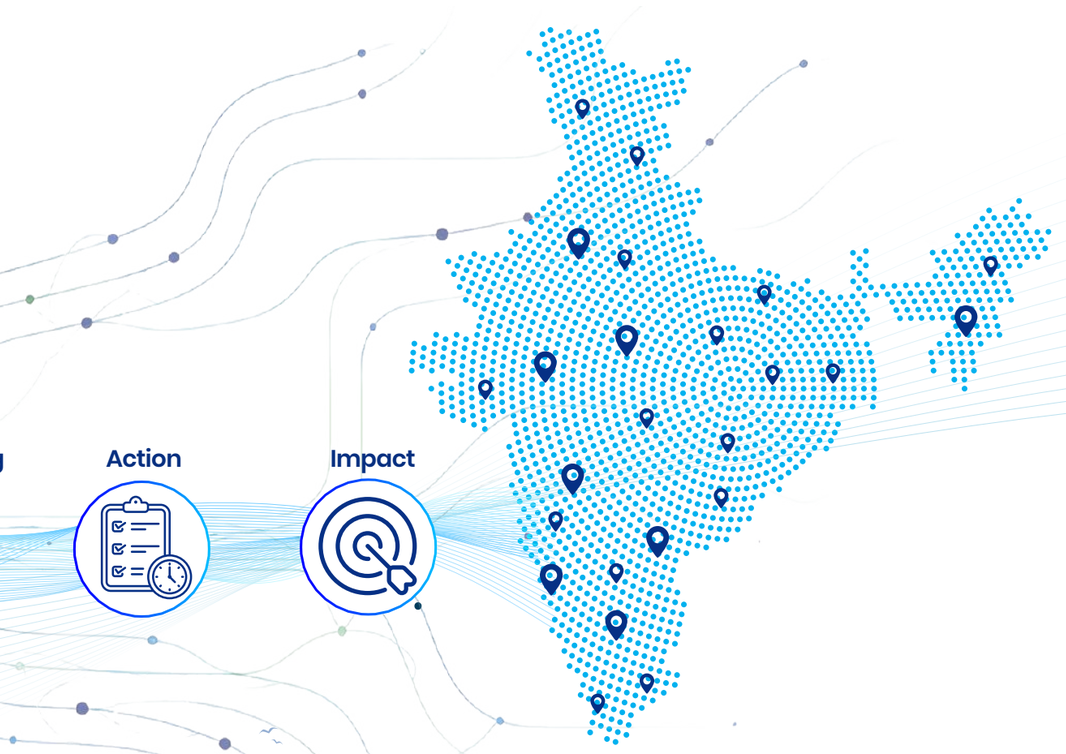
# Ideas to Impact

***Knowledge is the foundation of every decision we seek to influence.***

At CSTEP, research is not produced simply to expand academic understanding; it is created to equip governments, industries, and communities with evidence that informs action. This year, our research gained ground through publications, analytical frameworks, roadmaps, and digital tools that deepen understanding across climate, energy, and air quality. Our work grew at multiple scales, from cities to states and from evidence to applications shaping real-world decisions.







# Informing Policy

CSTEP's Sustainable Alternative Futures for India (SAFARI) model and India Multi-Region Times (IMRT) model, along with our reports (see images on the right) were cited in a set of 11 studies released by **NITI Aayog in February 2026 as part of its multisectoral modelling exercise, *Scenarios Towards Viksit Bharat and Net Zero*.**

The models were listed among other Indian modelling approaches that helped NITI Aayog arrive at a suitable methodology for the energy demand estimation for the buildings, transport, power, and industry sectors.







Spanning energy transition, agriculture, buildings, and waste, CSTEP's analyses have contributed to national-level problem solving and long-term policy planning.



# Scaling Up Solar

From a pilot in Bengaluru to a nationally integrated platform, CSTEP's Rooftop Solar Explorer (RTSE) has transformed how rooftop solar potential is assessed across India. Using high-resolution aerial imagery (via drones or satellites) to map rooftops for 120+ cities across the country, RTSE helps users make informed decisions about installing rooftop solar systems on their premises.

## 2016

The idea for CSTEP's Rooftop Evaluation for Solar Tool (CREST) was pitched to Bengaluru authorities, and a tripartite agreement was signed between CSTEP, Karnataka Renewable Energy Development Limited, and Bengaluru Electricity Supply Company Limited.

## 2018

Light Detection and Ranging (LiDAR) technology was used to map Bengaluru's rooftops, a first-of-its-kind undertaking in India.

## 2021

Switching from LiDAR to high-resolution imagery using drones and satellites, the mapping exercise for RTSE was expanded to other cities including Bhopal, Indore, Jabalpur, and Odisha.

## 2022

CREST was renamed the Rooftop Solar Explorer (RTSE).




## 2025

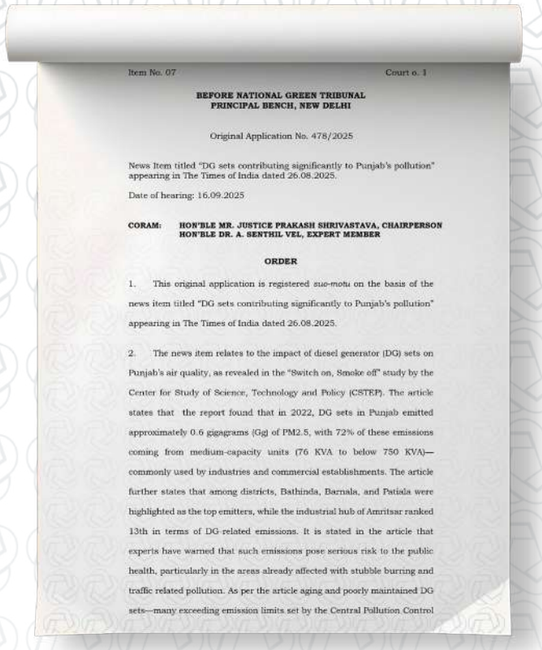
RTSE was expanded to 120+ cities across the country to aid informed decision-making on rooftop solar.

RTSE was integrated into the national portal for PM Surya Ghar: Muft Bijli Yojana and made accessible on the home page. With no login required, the analysis process has been democratised.

# Advancing Clean Air

CSTEP's report *Switch On, Smoke Off: Reducing Emissions From Diesel Generator Sets*, launched at the India Clean Air Summit (ICAS) 2025, put the spotlight on hyperlocal pollution from diesel generators.





Item No. 07 Court o. 1

**BEFORE NATIONAL GREEN TRIBUNAL**
**PRINCIPAL BENCH, NEW DELHI**

Original Application No. 478/2025

News Item titled "DG sets contributing significantly to Punjab's pollution" appearing in The Times of India dated 26.08.2025.

Date of hearing: 16.09.2025

**CORAM: HON'BLE MR. JUSTICE PRAKASH SHRIVASTAVA, CHAIRPERSON**
**HON'BLE DR. A. SENTHIL VEL, EXPERT MEMBER**

**ORDER**

1. This original application is registered *suo-motu* on the basis of the news item titled "DG sets contributing significantly to Punjab's pollution" appearing in The Times of India dated 26.08.2025.

2. The news item relates to the impact of diesel generator (DG) sets on Punjab's air quality, as revealed in the "Switch on, Smoke off" study by the Center for Study of Science, Technology and Policy (CSTEP). The article states that the report found that in 2022, DG sets in Punjab emitted approximately 0.6 gigagrams (Gg) of PM2.5, with 72% of these emissions coming from medium-capacity units (76 KVA to below 750 KVA)—commonly used by industries and commercial establishments. The article further states that among districts, Bathinda, Barnala, and Patiala were highlighted as the top emitters, while the industrial hub of Amritsar ranked 13th in terms of DG-related emissions. It is stated in the article that experts have warned that such emissions pose serious risk to the public health, particularly in the areas already affected with stubble burning and traffic related pollution. As per the article aging and poorly maintained DG sets—many exceeding emission limits set by the Central Pollution Control






THE TIMES OF INDIA

**DG sets contributing significantly to Punjab's pollution**

Aug 26, 2025, 19:00 IST

Select TOI as | Comments | Share | AA

Patiala: Punjab's reliance on diesel generator sets for power backup has become a growing contributor to air pollution, with new estimates indicating that the state's DG sets emitted approximately 0.6 gigagrams (Gg) of PM2.5 in 2022.

These findings are based on the recent "Switch on, Smoke off" study by the Center for Study of Science, Technology and Policy (CSTEP), which highlights the emission load of DG sets across India.

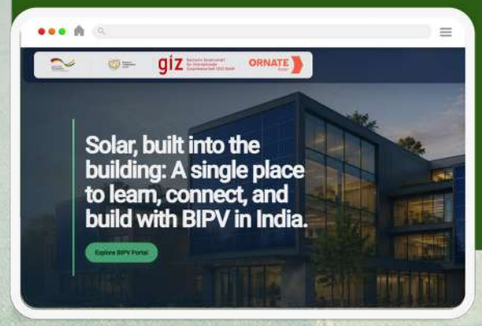
The analysis for Punjab revealed that 72% of PM2.5 emissions originated from medium-capacity DG sets – 76 KVA to below 750 KVA, commonly used in commercial establishments, industries, and large institutions. Smaller agricultural DG sets below 5 KVA were excluded from the estimate.

The issue gained regulatory attention in September 2025 when the National Green Tribunal (NGT) issued notices to the Punjab Pollution Control Board (PPCB) and the Central Pollution Control Board (CPCB). This followed CSTEP's findings, which were covered by *The Times of India*. PPCB's response was informed by the findings and recommendations of CSTEP's study.

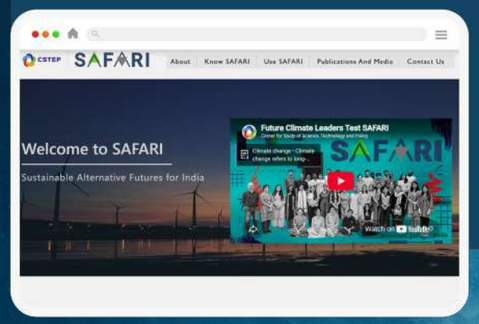
# Policy Toolkit

***Knowledge becomes valuable when it is translated into decision-support systems.***

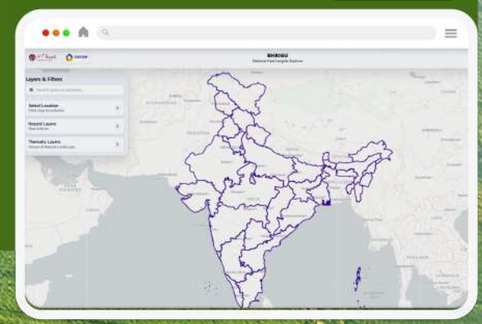
CSTEP advanced the Building-Integrated Photovoltaics (BIPV) Portal for India in January 2026, showcasing its feasibility assessment framework and design tools to policymakers, architects, developers, and financiers. The portal includes a **BIPV Ladder (a BIPV Feasibility Assessment Framework) that serves as a structured, multi-criteria evaluation framework,** enabling stakeholders to determine the overall viability of integrating BIPV into different building projects.



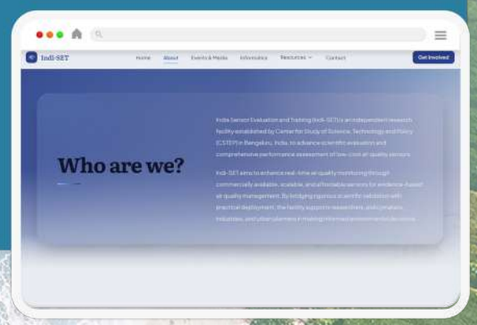

CSTEP's Sustainable Alternative Futures for India (SAFARI) model is used to explore the energy, emissions, resource, and macroeconomic implications of achieving key developmental goals in India through a systems thinking-Wbased approach up to 2050. **With a dedicated SAFARI module being incorporated into the MSc in Climate Change and Sustainability programme at Azim Premji University in August 2025,** we are helping prepare the next generation of climate practitioners.



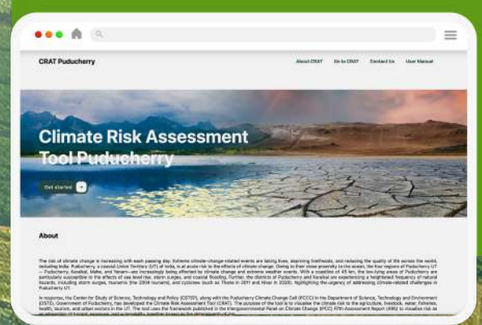

During the Mumbai Climate Week in February 2026, we introduced the beta version of the **National Heat Insights Explorer (NHIE)** developed under the Building Heat Resilience in India's Growing Urbanscapes (BHRIGU) initiative, demonstrating how data can support informed urban heat planning. Moving beyond temperature, **the tool seeks to understand how heat interacts with urban growth, land use, socioeconomic vulnerability, and environmental systems to shape local risk.**




CSTEP set up the **India Sensor Evaluation and Training (Indi-SET) facility, a first-of-its-kind initiative in the country for scientific evaluation of low-cost sensors (LCS).** Our guidance document on LCS, published in November 2025, used Indi-SET data to provide practical insights to regulators, builders, and policymakers for the deployment and use of sensors at construction sites.

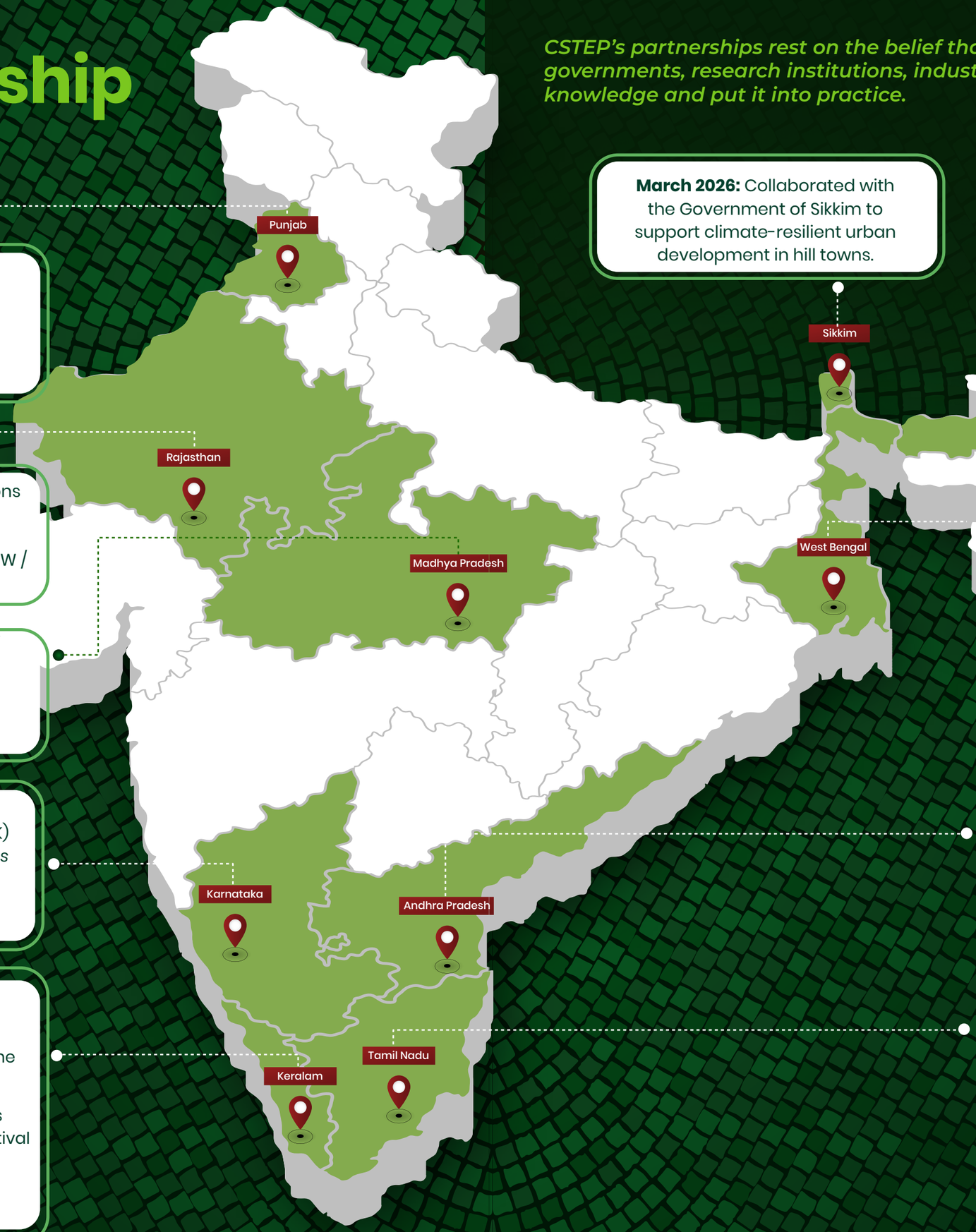



Launched by CSTEP in April 2025, the **Climate Risk Assessment Tool (CRAT) for Puducherry** is designed to assess climate risks across sectors such as agriculture, health, water, and urban infrastructure using the IPCC AR5 risk framework. **The tool supports evidence-based, climate-resilient planning** in the union territory through dynamic visualisations and sectoral insights.



# Statesmanship

*CSTEP's partnerships rest on the belief that lasting solutions emerge when governments, research institutions, industry, and communities jointly create knowledge and put it into practice.*




**August 2025:** Strengthened air quality governance in the state through partnership with the Punjab Pollution Control Board.

**November 2025:** CSTEP's recommendations on performance requirements and proportionate commissioning were incorporated into Rajasthan's Pugal 2.45 GW / 5.4 GWh solar-plus-storage tender.

**November 2025:** Provided technical recommendations for Madhya Pradesh's Morena 600 MWp solar-plus-storage project.

**December 2025:** Signed an MoU with Karnataka Rajya Nirmana Kendra (KARNIK) to assess the potential of *Nirmithi Kendras* and identify opportunities for wider adoption of low-carbon construction practices across the state.

**February 2026:**

- Contributed to the Vision 2031 exercise in Palakkad, helping explore pathways for the state's energy transition.
- The Rooftop Solar Explorer (RTSE) tool was launched at the International Energy Festival of Kerala held in Thiruvananthapuram, supporting data-driven assessment of Keralam's rooftop solar potential.

**March 2026:** Collaborated with the Government of Sikkim to support climate-resilient urban development in hill towns.

**March 2026:** Collaborated with the Government of Assam to support climate-resilient urban development.

**May 2025:** Strengthened air quality governance in West Bengal through partnership with the State Pollution Control Board.

**February 2026:** Working along with NITI Aayog and the Institute for Sustainability, Employment and Growth (ISEG) Foundation, CSTEP contributed to Andhra Pradesh's long-term transmission planning study and supported the state's clean energy transition.

**October 2025:** Signed an MoU with the Tamil Nadu Electricity Board to enable demand flexibility for a resilient and decarbonised power sector in the state and develop a web-based platform to identify feasible land parcels for solar deployment under the PM-KUSUM scheme.


VOLUNTEER
CSTEP






Tool Launch
Climate Risk
Assessment Tool for












Sponsored by
Climate Risk Assessment Tool fo
of Puducherry
Organised by the




are you wearing?










CSTEP





# Skilling for a Sustainable Tomorrow

Evidence only fulfils its purpose when it improves lives. Our work reflects our commitment to ensuring that research moves beyond reports and models to empower institutions, build capacities, and support informed decision-making where it matters most.

Throughout the year, CSTEP conducted various capacity-building programmes for government officials, practitioners, and farming communities.

Through collaborations with SEWA Cooperative Federation, we strengthened climate capacity among women farmers.

As part of the India Agrivoltaics Alliance, we equipped farmers with practical knowledge on combining agricultural land use with power generation.

CSTEP's Rooftop Solar Explorer (RTSE) exemplified the strength of sustained partnerships. Through multiple workshops with the Ministry of New and Renewable Energy, DISCOMs, and public sector undertakings, the tool reached government officials and practitioners across the country.

Along with the Climate Resilience Cell in Odisha, CSTEP trained district officials on climate science, sectoral impacts, and practical adaptation strategies.

Farmers in Karnataka participated in agrivoltaics workshops conducted by CSTEP at Krishi Vigyan Kendras, exploring new approaches to enhance productivity, diversify incomes, and improve energy access.

CSTEP supported officials from the Ministry of Road Transport and Highways through specialised training on electric bus planning and depot electrification using the E-DEPOT tool.

As knowledge partners for the Ministry of New and Renewable Energy's PM-KUSUM 2.0 stakeholder consultation, CSTEP helped facilitate a dialogue between state agencies and DISCOMs to ensure that lessons from implementation informed the scheme's next phase.



# Our Supporters

- *Incorporated under Section 25 of the Companies Act, 1956 (equivalent to Section 8 under Companies Act, 2013)*
- *Registered under the Foreign Contribution (Regulation) Act, 2010*
- *Approval under Section 80G of the Income Tax Act, 1961*
- *Recognised as a Scientific and Industrial Research Organization (SIRO) by the Ministry of Science and Technology*

# Our Collaborators

**Ministry of New and Renewable Energy**
Govt of India

**Department of Housing and Urban Affairs**
Govt of Assam

**Urban Development Department**
Govt of Sikkim

**ICARS, IIT Roorkee**
Centre of Excellence, DST, Govt of India

**Krishi Vigyan Kendras**
Odisha and Karnataka

**Odisha University of Agriculture and Technology**
Bhubaneswar, Odisha

**Department of Agriculture and Farmers' Empowerment**
Govt of Odisha

**Southern Voice**
Think tank network

**School of Planning and Architecture**
New Delhi

**Malaviya National Institute of Technology**
Jaipur, Rajasthan

**Centre for Mission on Energy Transition**
MANIT Bhopal

**Punjab Pollution Control Board**
Govt of Punjab

**GBA Climate Action Cell**
Bengaluru, Karnataka

**Karnataka Rajya Nirmana Kendra (KARNIK)**
Bengaluru, Karnataka

**Catalyst Management Services**
Bengaluru, Karnataka

**Indian Institute of Technology Madras**
Chennai, Tamil Nadu

**Indian Institute of Technology Bombay**
Mumbai, Maharashtra

**International Centre for Integrated Mountain Development**
Nepal

**International Institute for Sustainable Development**
Winnipeg, Manitoba, Canada

**Rajiv Gandhi Housing Corporation Limited**
Govt of Karnataka

**Centre for Energy, Environment and People**
Jaipur, Rajasthan

**Indicc Associates**
Jaipur, Rajasthan

**Transitions Research**
Goa

**West Bengal Pollution Control Board**
Govt of West Bengal

**Solar Quarter**
Media

**Tamil Nadu Electricity Board**
Chennai, Tamil Nadu

**The Sustainability Mafia**
Bengaluru, Karnataka

**Karnataka Solar Power Development Corporation Limited**
Govt of Karnataka

**Science Gallery Bengaluru**
Karnataka

**SEWA Cooperative Federation**
Ahmedabad, Gujarat

**Department of Science, Technology and Environment**
Govt of Puducherry

**Smart Freight Centre**
Amsterdam, Netherlands

# Audited Financials

CENTER FOR STUDY OF SCIENCE TECHNOLOGY AND POLICY
# 18,19 & 20, 10th Cross, Mayura Street Papanna Layout, Nagashettyhalli, RMV II StageBangalore-560094
CIN: U80302KA2005NPL036676

## BALANCE SHEET AS AT 31ST MARCH 2026

(Amount in '000 INR)

| PARTICULARS | Note No. | 31-Mar-26 | 31-Mar-25 |
|---|---|---|---|
| **I. EQUITY AND LIABILITIES** | | | |
| **(1) Shareholder's Funds** | | | |
| (a) Share Capital | 1 | 100 | 100 |
| (b) Reserves and Surplus | 2 | 3,69,211 | 3,43,814 |
| **(2) Non-Current Liabilities** | 3 | | |
| (a) Long-term borrowings | | - | - |
| (b) Deferred tax liabilities (Net) | | - | - |
| (c) Long Term Provisions | | 19,076 | - |
| **(3) Current Liabilities** | 4 | | |
| (a) Short-term borrowings | | - | - |
| (b) Trade payables | | | |
| Micro Enterprises & Small Enterprises | | | |
| Other than Micro enterprises & small enterprises | | 223 | 939 |
| (c) Other current liabilities | | 4,954 | 3,338 |
| (d) Short-term provisions | | 289 | 59 |
| TOTAL | | **3,93,853** | **3,48,250** |
| **II. ASSETS** | | | |
| **(1) Non-current assets** | | | |
| (a) Property, Plant & Equipment and intangible asset | 5 | | |
| (i) Property,Plant and Equipment | | 4,055 | 20,337 |
| (ii) Intangible Assets | | - | - |
| (b) Non-current investments | | - | - |
| (c) Long term loans and advances | 6 | 7,588 | 9,886 |
| (d) Other Non Current assets | 7 | 11,460 | - |
| **(2) Current assets** | | | |
| (a) Inventories | | - | - |
| (b) Trade receivables | 8 | 8,178 | 5,216 |
| (c) Cash and Bank Balances | 9 | 3,54,009 | 3,03,909 |
| (d) Other current assets | 10 | 8,563 | 8,901 |
| TOTAL | | **3,93,853** | **3,48,250** |
| Significant Accounting Policies & Other Notes to Accounts | 18 | | |

For and on behalf of the Board of Directors of
CENTER FOR STUDY OF SCIENCE TECHNOLOGY AND POLICY

(Prof. Dipankar Banerjee)
Chairman & Director
DIN : 00043411

(Dr Jayatirtha Asundi)
Wholetime Director
DIN : 08765735

(Rajeshree S Menon)
Chief Financial Officer

Place: Bangalore
Date: 18.09.2026

As per our report of even date,
In terms of our report attached.
For Vasan & Sampath LLP

Unni Krishnan Menon
Partner
Membership No. 205703

Place: Bangalore
Date: 18.09.2026

CENTER FOR STUDY OF SCIENCE TECHNOLOGY AND POLICY
# 18,19 & 20, 10th Cross, Mayura Street Papanna Layout, Nagashettyhalli, RMV II StageBangalore-560094
CIN: U80302KA2005NPL036676

## INCOME AND EXPENDITURE FOR THE YEAR ENDED 31ST MARCH 2026

(Amount in '000 INR)

| | Particulars | Note No | 2025-26 | 2024-25 |
|---|---|---|---|---|
| I | **INCOME** | | | |
| | Core Grants | 11 | 1,63,775 | 88,056 |
| | Project Grants | 12 | 4,10,217 | 4,89,475 |
| | Other Income | 13 | 15,733 | 16,024 |
| | **Total Income** | | **5,89,726** | **5,93,554** |
| II | **EXPENSES :** | | | |
| | Research Expenses | 14 | 4,70,864 | 5,10,609 |
| | Administrative and Other Expense | 15 | 98,097 | 67,104 |
| | Finance Costs | 16 | 275 | 281 |
| | Depreciation and Amortization expense | 5 | 943 | 996 |
| | **Total Expenses** | | **5,70,179** | **5,78,991** |
| III | Surplus/(Deficit) before Exceptional and Extraordinary items | | **19,547** | **14,564** |
| | Exceptional and Extraordinary items | | | |
| | **-Loss on Derecognition of Capital Work-in-Progress** (refer Note No 7) | 17 | (3,879) | |
| IV | Surplus/(Deficit) before Tax | | 15,668 | 14,564 |
| | Tax Expense | | - | - |
| V | Surplus/(Deficit) For the Year | | 15,668 | 14,564 |
| | Significant Accounting Policies & Other Notes to Accounts | 18 | | |

For and on behalf of the Board of Directors of
CENTER FOR STUDY OF SCIENCE TECHNOLOGY AND POLICY

(Prof. Dipankar Banerjee)
Chairman & Director
DIN : 00043411

(Dr Jayatirtha Asundi)
Wholetime Director
DIN : 08765735

(Rajeshree S Menon)
Chief Financial Officer

Place: Bangalore
Date: 18.09.2026

As per our report of even date,
In terms of our report attached.
For Vasan & Sampath LLP

Unni Krishnan Menon
Partner
Membership No. 205703

Place: Bangalore
Date: 18.09.2026

# The Year in Numbers

**287**
Press Citations

**50**
Opinion Articles

**17**
Blogs

**11**
Videos

**7**
Explainers

**3**
Podcasts

**13**
Reports

- 1 Guidance Document
- 1 Training Report
- 1 White Paper

**4**
Journal Articles

- 2 Conference Papers
- 1 Book Chapter
- 1 Position Paper



**19**
Events

**12**
MoUs

**9**
Stakeholder and Capacity-Building Workshops

**9**
National- and State-Level Committee Memberships















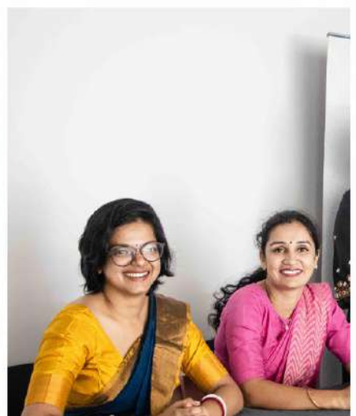








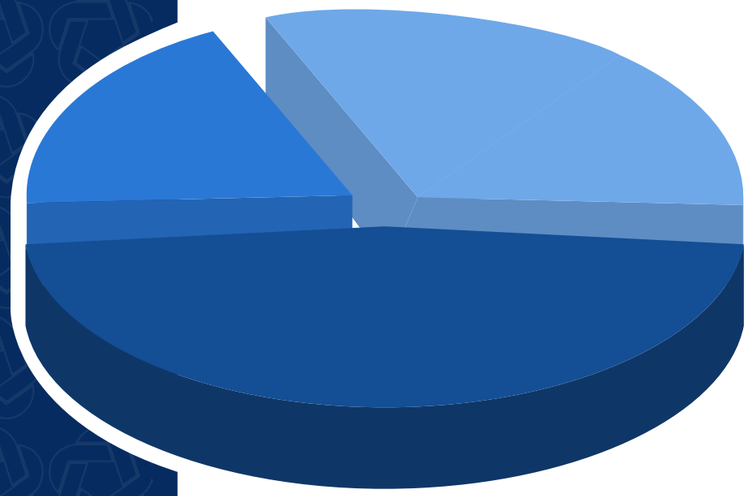




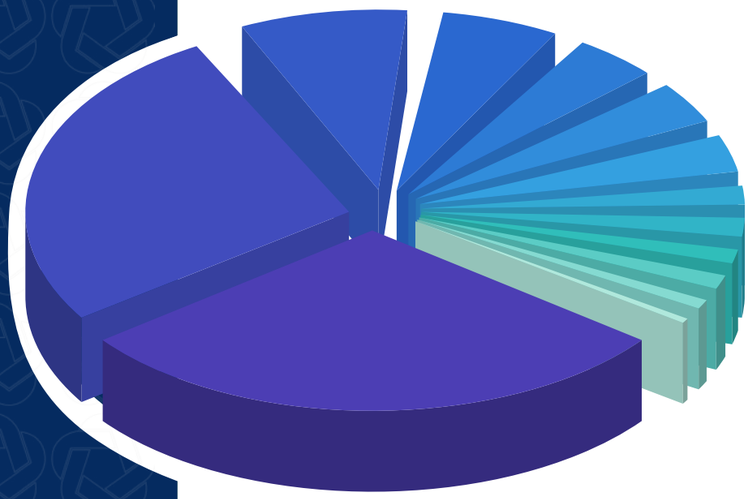

# Those Who Make It Happen

## Staff qualifications



- PhD: 17%
- Master's Degree: 49%
- Bachelor's Degree: 34%

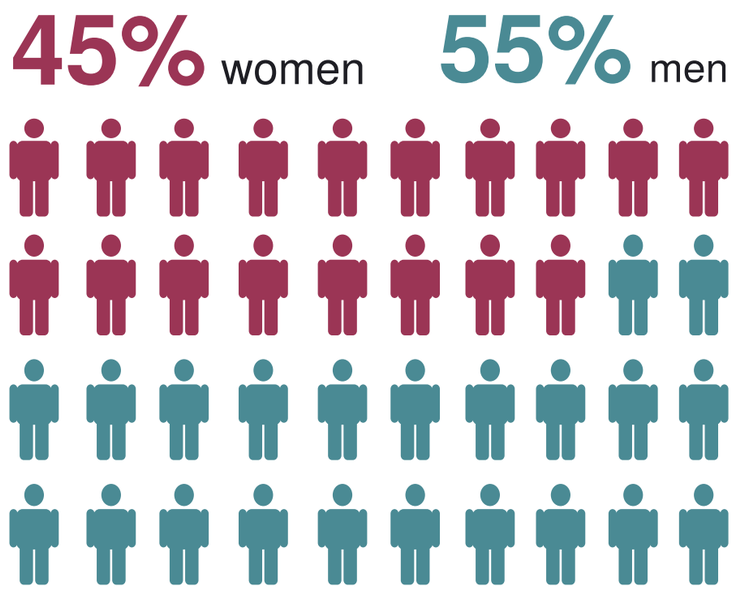
## Staff background



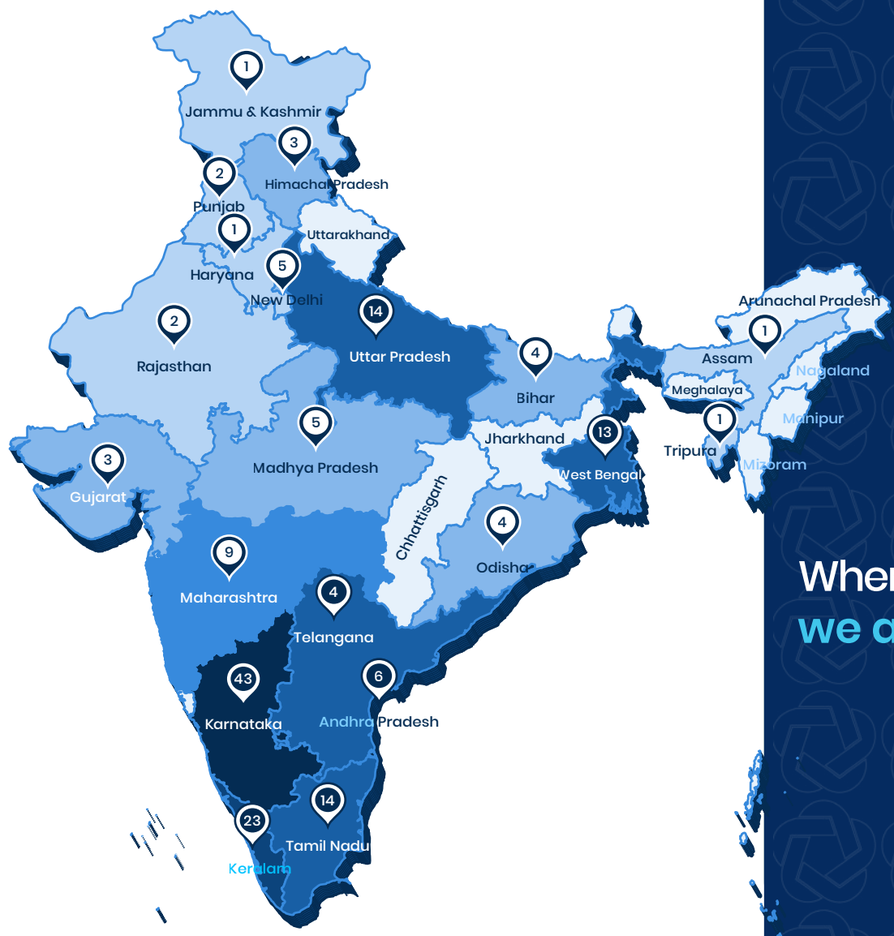
- Engineering: 33%
- Science: 30%
- IT: 9%
- Communication & Policy Engagement: 7%
- Social Science: 5%
- Public Policy: 4%
- Admin: 4%
- Economics: 2%
- Finance & Accounting: 2%
- Executive Leadership: 1%
- HRM: 1%
- Management: 1%
- Housekeeping: 1%

## Our workforce

Each icon represents 2.5% of the workforce




## Where we are from





CSTEP

Center for Study of Science, Technology and Policy


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