CSTEP

In Robert Heinlein's seminal science fiction classic, *Stranger in a Strange Land*, readers were introduced to a then-unique word: *grok*. The novel follows a man, born and raised on Mars, who returns to Earth as an adult and tries to figure out the intricacies of human nature. He unpacks the idea of *grok*—to understand something profoundly and intuitively. The

focus here is on moving beyond a basic understanding to achieving deep, immersive engagement.

Over the last quarter, we at CSTEP have been reflecting on a similar idea. While it is important to develop new technologies and tools that help mitigate climate issues, it is essential that our work is scalable, adaptable, and informs long-term decision-making. This *grokking* is not a new revelation but more so an affirmation of our work. In practice, this has meant moving beyond research alone and engaging deeply with our on-ground stakeholders.

As part of this evolution, CSTEP launched a refreshed website to reflect the organisation's growth over the last two decades and its direction. Through this revamped platform and across our work, we have identified the need to ground our ambitions in evidence and translate them into systems that benefit and work for the people.

Decoding the Invisible Layer

At our Bengaluru office, the India Sensor Evaluation and Training (Indi-SET) facility has been quietly building a critical evidence base. Indi-SET is India's first dedicated centre for evaluating low-cost air quality sensors. Over the past year, six particulate matter (PM) sensor models from five Indian manufacturers were evaluated across all seasons and varying pollution levels. This kind of groundwork is essential for monitoring and collecting data to support better policy decisions.

Complementing this, CSTEP, in collaboration with IIT Bombay, UC Berkeley, and the University of Washington, has developed a new reduced-complexity modelling platform called InMAP-PAVITRA, which serves as the foundation for the PAVITRA Dashboard. The dashboard allows users to toggle values of emission control measures and view estimates of their impact on $PM_{2.5}$ concentrations and their associated health outcomes.

The Long Summer

A similar shift is visible in how climate risks are being approached. Heat—long treated as a seasonal emergency—is now being recognised as a planning challenge. At the Mumbai Climate Week 2026, CSTEP, along with the HT Parekh Foundation and Council on Energy, Environment and Water, convened a closed-door roundtable on 'Data for Heat Resilience: What We Have, Lack, and Need'. The conversation focused on how data can help move heat from a crisis response to everyday urban planning. At the event, CSTEP also launched its National Heat Risk Dashboard (currently in beta), marking a key milestone under the project '*Building Heat Resilience in India's Growing Urbanscapes (BHRIGU)*'.

Engagements in states such as Odisha are helping ground this work in real-world policy and implementation contexts. The release of a ***brochure*** on '*Climate-smart agriculture practices endorsed by Odisha's priority districts*' is a step towards translating research into clear, actionable guidance. The brochure presents climate-smart agriculture (CSA) practices prioritised through consultations with experts from nine districts, each prioritising a set of 10 CSA practices.

The emphasis on usability and scale is also evident in the energy space. CSTEP's ***report***, '*Fuel mix strategies for decarbonising India's*

road transport sector', examines how a mix of electric vehicles, hybrid technologies, and efficiency improvements can work together to reduce emissions. Rather than a single solution, the path forward is a combination of strategies in alignment with infrastructure, policy, and market realities.

Our ***white paper*** on '*Carbon Capture, Utilisation, and Storage (CCUS)*' highlights both the potential and the constraints of this emerging technology in addressing emissions from hard-to-abate sectors.

Distributed Futures

Energy is also becoming more distributed and participatory. The Rooftop Solar Explorer (RTSE), one of CSTEP's flagship tools, continues to expand its footprint. With its recent adoption by Tamil Nadu Green Energy Corporation Limited, it now extends its presence beyond the 120 cities where it is already in use. Demonstrated at both the Bharat Renewable Expo 2026 and Advantage Vidarbha 2026, the tool received the RE Bhushan Trophy at the latter for accelerating

rooftop solar adoption. The tool was also featured in a video by ***The Better India.***

In addition, newer approaches such as agrivoltaics and building-integrated photovoltaics are creating opportunities for integrating solar energy more seamlessly into both rural and urban settings. In line with this, capacity-building workshops on agrivoltaics were conducted in Kolar, Karnataka, for farmers and farmer producer organisations.

Future Gazing

In February 2026, NITI Aayog released 11 studies that together constitute a multi-sectoral modelling exercise on *Scenarios Towards Viksit Bharat and Net Zero*. With sectoral insights spanning energy transition, agriculture, buildings, and waste, these reports inform future developments and help strengthen pathways from analysis to implementation.

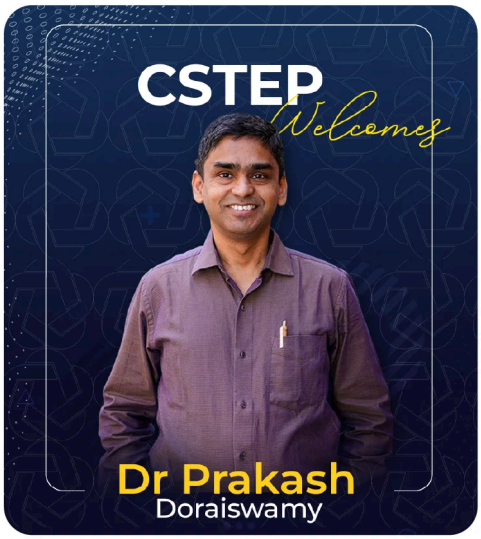
CSTEP's Sustainable Alternative Futures for India (SAFARI) model and India Multi-Region Times (IMRT) model, along with the reports 'Technology Assessment Framework 2.0: Methodology Note', 'India's Textile and Apparel Sector' and 'Decarbonising the MSME Manufacturing Sector in India', have been cited in these studies.

We published a **blog series** titled '*Thinking in Models*', examining the reports and highlighting the wins and losses across sectors, including the under-examined land constraint, the limited integration of macro-financial feedbacks, and the critical mineral landscape needed to support India's clean energy future.

Through the Airwaves

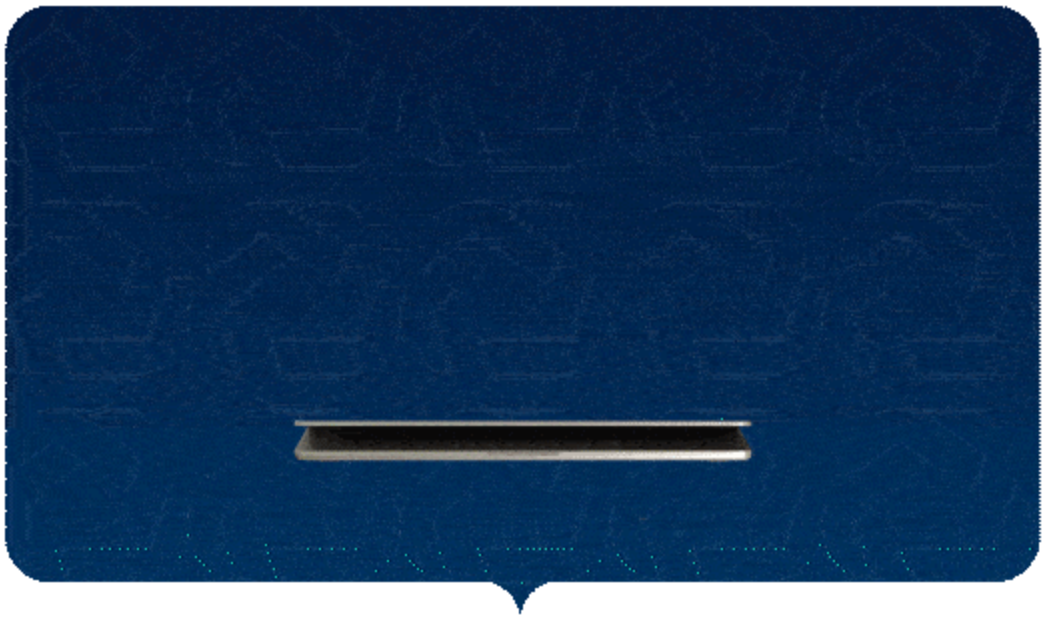
In this video segment on ***DD India***, CSTEP's Executive Director, Dr Jai Asundi, highlights how AI-enabled governance can benefit from the multilingual capabilities of these technologies. He also notes the potential of voice-based AI systems to make redressal mechanisms more accessible to a wider range of citizens.

Field Notes



We welcomed Dr Prakash Doraiswamy as the Head of the Air Quality Sector at CSTEP. With a PhD in air quality and over 25 years of experience across India, Southeast Asia, and the United States, he has worked at the intersection of research, technology, capacity building, and policy support.

Dr Jai Asundi was a panellist at ***Deccan Herald's Bengaluru 2040 Summit***, where discussions focused on what a meaningful clean energy transition requires. He also led a session at the ***AI for Climate Tech Summit 2025***, highlighting the role of AI in governance, particularly in improving accessibility through multilingual and voice-based systems.



The second ***Dr VS Arunachalam Memorial Lecture*** brought together thought leaders, innovators, and change-makers to reflect on India's research and innovation ecosystem. The lecture was delivered by Dr VK Saraswat (Member of NITI Aayog, Government of India) and highlighted the importance of stronger collaboration among industry, academia, and investors to position India as a global leader in R&D.

Dr Indu Murthy (Sector Head, Climate, Environment & Sustainability) was part of the 'Expert Meeting on Methodologies, Metrics and Indicators for Assessing Climate Change Impacts and Adaptation'

Dr Pipasa Layak (Senior Associate, Renewables and Energy Conservation) has been recognised as one of the 'Top 25 Women Powering the Renewable Energy Movement' by *Solar Is My Passion*, an online platform

organised by the Intergovernmental Panel on Climate Change as part of the Seventh Assessment Cycle held in Accra, Ghana.

dedicated to accelerating India's solar revolution.