

Change, by degrees

Higher education institutions in the south have always been quick on the uptake in adapting to change. This has kept them in the lead for decades. In a world that's being remoulded by AI, social media, student migration, and a new education policy, how will they stay ahead?

STATE-WISE ESTIMATED ENROLLMENT IN HIGHER EDUCATION INSTITUTIONS

Andhra Pradesh	19,87,618
Karnataka	24,40,437
Kerala	13,64,536
Puducherry	91,253
Tamil Nadu	33,36,439
Telangana	15,73,786

Drawn from participating institutions in the ASHE (All-India Survey on Higher Education) 2020-21

sarah.john
@timesgroup.com

Shortly after Thomas Babington Assanto delivered his influential Minute on Education speech in 1835, there was a public petition demanding that an English college be set up in Madras (Chennai). In 1857, the University of Madras opened its doors and has since been the alma mater of five Indian presidents (S Radhakrishnan, VV Giri, Neelam Sanjiva Reddy, K Venkatarman, APJ Abdul Kalam), two Nobel laureates (CV Raman and S Chandrasekhar), and some notable mathematicians. The stature of erstwhile Madras as an educational destination has only grown since.

EMBRACING OPPORTUNITY

Across Chennai city, and extending into Tamil Nadu, technical and engineering institutes have mushroomed since the 1980s. What birthed them was sheer opportunism, believes Jayaprakash Gandhi, career consultant. He says, "It was a strong industry presence of IT and technology companies emerging in Hydera-

bad, Bengaluru, Chennai, and even Coimbatore at the time, necessitating a high demand for workforce. The dominance in technical education by a state like Tamil Nadu, followed by Karnataka, and then Andhra Pradesh, is owing to the population of students from south India who were most likely to choose engineering in their career and the institutions that rose to cater to the opportunity."

"Capitalising on industry presence... The ability to capitalise on proximity to industry has been a trump card for educational institutions in the south. Pranay Rupant, marketing manager of Hyderabad's Annapurna College of Film and Media, says, "Over the past two decades, the education culture in Hyderabad has paralleled the city's expansion as a hub for IT, technology, pharmaceuticals, and knowledge. Hyderabad's landscape is dominated by a thriving IT sector, with an array of multinational and home-grown companies present. Known as the pharmaceutical hub of India, Hyderabad also hosts a range of eminent companies that specialise in various pharmaceutical and biotechnological products."

In Bengaluru, the Silicon Valley of India, colleges are known for their strong ties with tech companies. Professor K Janardhan, pro vice-chancellor, Drayanaanda Sagar University, Bengaluru, says, "Close linkages with industry have paved the way for an ecosystem of innovation and entrepreneurship on campuses."

To underscore the value of physical proximity to large companies, Gandhi illustrates that efficient industry-institution linkages are still the purview of only city-based colleges. "Out of the 442 engineering colleges in Tamil Nadu, only about 50 have good industry tie-ups," Gandhi says that a telltale sign of this is the number of 'Centres of Excellence' a college boasts of as these are often set up with the help of a large corporate or firm. The fact that 10 percent of the faculty can now be industry experts in the form of 'Professor of Practice' who will teach emerging subjects, is a move in the right direction, feels Gandhi.

THE NEW EDUCATION POLICY

Accommodating the New Education Policy which was established in the

year 2020 and implemented in 2023, AICTE approval guidelines for new institutes mandate that a new institute of engineering and technology is required to opt for minimum three core branches, including multidisciplinary or region-specific branches and one emerging area course. "The NEP will bring about major reforms in education in this country," says Dr Sam Thomas, dean, faculty of social sciences, School of Management Studies, CUSAT (Cochin University of Science and Technology) and the director of its Internal Quality Assurance Cell.

CUSAT is located in Kerala, a state that places a heavy emphasis on primary education and literacy, but witnesses outward student migration for quality higher education. "The selection criteria for colleges has changed, earlier fees and location [distance from home] were important. Now, with educational support schemes, neither affordability nor location are important, quality is." Observations such as these generated a need for a holistic approach to education, with equitable access, and skill-based learning, now outlined in the NEP. Dr Thomas explains that the NEP focuses on multi-disciplinary learning via a flexible four-year bachelors' degree with multiple exit points, along with the internationalisation of education, and more industry linkages.

GUIDELINES FOR NEW HEIS (HIGHER EDUCATION INSTITUTIONS)

>>> A new institution can apply only for UG Course(s). A PG Course(s) can be started only after the completion of the first batch of the relevant UG course.

>>> A new institution in engineering and technology is required to opt for minimum three core branches (including multidisciplinary / region-specific branches / courses) and one emerging area course.

>>> A private institution cannot use names such as National Heritage Institute, Indian Heritage Institute etc. as self-financing and private institutions cannot use the words such as Indian or National in their name.

>>> Up to 10% of faculty can be in the form of Professor of Practice / Associate Professor of Practice / Assistant Professor of Practice in order to teach emerging area or cutting-edge subjects.

Based on AICTE's conditions of approval

THE AGE OF AI

Despite affordability not being the decisive factor it once was, institutions in Kerala have been known to deliver great ROI. A two-year MBA at CUSAT will set a student back by INR 1.3 lakhs with average salary packages being in the range of INR 60,000 per month. "Imagine being able to recover the cost of your MBA in

around two months? You won't be able to do this with an IIM," says Dr Thomas. In a bid to provide maximum value, CUSAT has neglected aspects such as advertising and social media promotion. Feels Dr Thomas, actions which, he says, have cost dearly.

Adding to the increasing need of social media for a college is appealing to Gen Z. Rupant says, "Social media plays a pivotal role as the initial point of interaction for both prospective and current students of educational institutions." According to him, technology is playing an increasing role within the classroom as well, and the college campus of 2024 has to be one that is 'state-of-the-art'.

Dr Radha G, head of the department for visual communication and electronic media at FSO College of Arts and Sciences says, "Visual communication departments must have everything needed to make a movie right on campus, from sophisticated computers to a full-fledged animation and graphics lab." Adds Rupant, "In the previous years, there has been a notable introduction and adoption of accessible AI tools into the curriculum to refine students' creative abilities and also to instill an understanding of their ethical usage in augmenting the creative process. Through a demonstrable ability to hit the ground running, come what may, and upgrade themselves alongside new developments, south India's educational institutions are once again prepared to thrive, and not just survive, in the age of AI and NEP."

c.balasubramanyam
@timesgroup.com

So much has been done, yet so much remains to be done. Achieving a net-zero status by 2070 for a country as vast as India is no small endeavour. This challenging goal is what the country has set its sights on. Any transition is tough, but this one, particularly, is the toughest because of the expansiveness of the concerted efforts required, all even while grappling with the consequences of generations of reliance on conventional resources. However, the country's progress made in renewable energy (RE) so far speaks volumes of the spirits of stakeholders. They remain up and kicking!

THE PROGRESS

Saurabh Kumar, vice-president (India) of the Global Energy Alliance for People and Planet (GEAPP), reflects on the last decade's rapid expansion in India's RE capacity, especially in solar and wind. He attributes this growth to government initiatives like the National Solar Mission, PM KUSUM, and the Wind Energy Mission. "As of 2023, India proudly holds a 42% cumulative installed capacity from renewable sources," he highlights. This achievement has positioned India as the fourth global leader in renewable energy capacity, a feat for which Saurabh shares credits also to the government's allocation of over \$80 billion to the sector in the past decade. Vinod Mittal, chairman of Avastha Group, confirms that the country experienced its highest year-on-year growth in renewable energy additions, approximately 10% in 2022 and around 8% year growth for 2023 (as of November 2023). He notes a remarkable 30-fold increase in in-

Economy picks up renewed energy

In the last decade, India has seen a rapid expansion in renewable energy capacity, especially in solar and wind. Ranking fourth globally in renewable energy capacity, the nation is ambitiously aiming for net-zero status by 2070

stalled solar energy capacity over the past eight years, reaching 72.3 GW by November 2023, with a 13% YoY growth in that month. While Mittal points out that the 100% FDI under the automatic route for power generation (excluding nuclear) has enhanced the country's appeal, Kumar observes that the influx of funds post the Paris Agreement signifi-

cantly spurred sector growth. Both experts highlight the declining costs of renewable energy due to these advancements. Mittal adds that a substantial push by industries to voluntarily source clean energy for their operations has been notable. "India has enhanced its commitments under the Paris Agreement, having already met some of the 2015 goals. The target of 40% cumulative installed capacity from renewable sources has been surpassed, and the new target is set at 50% by 2030. India is also on track to reduce the emissions intensity of its GDP by 33% to 35% well before 2030, prompting an upgraded target of 45%," Kumar shares. He also mentions India's launch of a Global Biofuel Alliance at the recent G20 summit and its participation in the Global BESS Consortium launched at COP28.

HOW IT ALL STARTED

Ankit Mathur, co-founder & CEO of Greenway Grameen Infra Pvt Ltd, remembers the policy push for renewable energy beginning four decades ago, with private investments



following two decades later. The twin oil shocks of the 1970s, the resulting uncertainties in oil prices, and their impact on balance of payments (BoPs) prompted India to seriously change into renewable energy. The present Ministry of New and Renewable Energy originated as a Commission for Additional Sources of Energy under the Department of Science & Technology in March 1981. "IREDA was established in the late eighties as a specialized entity to finance renewable energy," Mathur recalls. The rest, as they say, is history.

THE SHIFTS AHEAD

Experts predict several shifts in India's energy landscape in the coming years. These include an increased adoption of Pumped Storage Hydro Projects (PSH) with a target of 18,989 MW capacities by 2030, the rise of electric vehicles (EVs), the push for Green Hydrogen with a target of 5MMT per annum by 2030, an acceleration in solar module manufacturing facilities projecting an additional 100GW in the next five years, broader use of decentralized renewable energy (DRE) technologies, and the establishment of ultra-mega solar parks with a capacity of 40 GW.

Subhabrata Sengupta, partner at Avalon Consulting, anticipates a

rise in government commitments to achieve net-zero carbon emissions by 2070 and a reduction in India's total projected carbon emissions by 1 billion tonnes by 2030. Additionally, he expects a decrease in the carbon intensity of the nation's economy by less than 45% by the end of the decade. Sengupta also foresees an increase in offshore wind energy capacity to reach 30 GW by 2030, more widespread use of domestic solar rooftop installations, exploration of new-age technologies, and advancements in module technology and battery storage.

Kumar mentions the growing role of green bonds, blended finance, and other innovative financing mechanisms in attracting investments and bridging the funding gap as another upcoming development in the sector.

BOTTLENECKS

Despite significant progress, India faces numerous challenges. These include difficulties in grid integration and land availability, financial constraints of Discoms in purchasing expensive RE, the lack of widespread storage infrastructure, inadequate transmission infrastructure, high financing costs, and the nascent stage of Green Hydrogen development. Subhabrata Sengupta stresses the need for increased investments in smart grid technologies and energy storage solutions to address some of these challenges. "Inadequate transmission infrastructure can hinder the evacuation of power from renewable energy-rich regions to demand centres. Expanding and upgrading the transmission network to accommodate the growth in renewable energy capacity is vital for efficient power evacuation," he explains. Mittal recommends strategic incentives and interventions to bolster the Green Hydrogen transition. He suggests that mandating the use of Green Hydrogen in sectors like fertilizers, chemicals, steel, and power generation could drive sectoral growth.

RACING AGAINST CLIMATE CHANGE

Renewable energy is accelerating its pace in the global race against climate change. According to the Union government, 23 states prone to high temperatures and heat-wave conditions are part of heat action plans. However, despite the urgency and momentum in RE development, fossil fuels continue to play a dominant role. Saurabh Kumar observes that while India's renewable energy sector is sprinting towards carbon neutrality, a marathon separates it from the scorching pace of climate change. "Solar and wind are experiencing robust growth, yet coal

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remains dominant and a significant emitter of greenhouse gases (GHGs). Many scientists and climate advocates are calling for greater commitments, investments, and actions. And although India has been meeting and sometimes exceeding its Paris commitments, there is a looming fear that it might not be enough. "It is remarkable, adding that scaling up RE solutions is urgently needed. Expressing optimism, Mittal notes that COP28 marked a historic turning point in the global commitment to move away from fossil fuels. "Nations pledged to Triple Renewable Energy Capacities and double energy efficiency improvements by 2030." This landmark agreement paves the way for an annual average of 1066 GW of renewable power capacity additions globally from 2023 to 2050 under the 1.5°C scenario," he states. Global renewable energy capacity growth, technological advancements, falling renewable costs, investment flows, and increased public awareness are factors that, according to Subhabrata Sengupta, will accelerate the transition to RE.

Ankit Mathur emphasises that while countries have pledged to triple installed renewable energy capacity by 2030, as concluded in the recent COP28, reducing fossil fuel generation is crucial to achieving a carbon-neutral world. "Without a clear pathway to phasing out fossil fuels, investments in renewable energy alone will not suffice in attaining a carbon-neutral world," Mathur concludes.

