

EVA STALIN IAS ACADEMY - BEST IAS COACHING IN CHENNAI

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Propelling India's development the right way

'Aim for the moon' is a byword for any venture marked by extreme ambition bordering on the foolhardy. When India started space research in the 1960s, many thought it was being reckless: a struggling, young nation sinking some of its limited resources in a highly uncertain enterprise. Today, however, even the last of the naysayers must be convinced. In a matter of a few days, India became the first nation to land a rover on the south pole of the moon, followed up with a mission to study the sun. Yet, this is also the moment to revisit a nagging concern. How do such stellar achievements stand alongside the persistence of poverty and destitution for millions of Indians?

Even before the government set up the Indian Space Research Organization in 1969, the country was having a significant research programme in space science. It was then coordinated by the Department of Atomic Energy, which itself had been founded in the early 1950s. These were certainly not isolated initiatives. Between 1951 and 1961, India established five Indian Institutes of Technology, which in no time grew into globally respected academic centres. The first two Indian Institutes of Management were inaugurated in 1961. During the two decades of the 1950s and 1960s, a number of public sector units were established in diverse areas of industrial production that included steel, fertilizer, machine tools, electric machinery, drug production, and petrochemicals.

Technology to remedy underdevelopment

Taken together, these public investments show that India was determined to become a serious player in advanced technologies of the time despite the multifold challenges facing the young nation. New technologies, it was believed, would quicken the pace of development of the country, which had suffered from two centuries of colonialism. Vikram Sarabhai, the leader of India's space programme, had envisioned – this was in the early 1960s – that satellites could be used for building a nationwide telephone system and for providing agricultural and health education. In fact the momentous steps India had taken in the decades immediately after independence may be characterised as a 'moonshot' approach to development – deploying modern industrialisation to shake off the ills of the past.

However, India's moonshot development strategy was only partially successful. It has also been the subject of much criticism from certain quarters, over the years. One was for its heavy



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Giving India's masses the social and the human capabilities required for upward mobility will be the equivalent of a lunar takeoff in economic progress

reliance on public investment. Two, the investments were being 'misdirected', according to some economists. Being a labour surplus country, they argue, India should have stuck to its comparative advantages in labour-intensive industries, such as garments or footwear, rather than squandering the country's scarce savings in capital- and technology-intensive industries.

But the time needed for a new technology to come to fruition is too long, and the initial effort required is too steep, that it is unlikely to expect a private player to lead the moves to acquire it. There have been many misses for India's space mission, especially in the initial decades. A key factor behind the programme's eventual success has been public funding, which did not waver for lack of short-term commercial viability. It is not only that the benefits from a technology are long in coming, but they are also difficult to be kept exclusive for private profiteering. Consider, for instance, the Internet. It is precisely because of the 'public good' nature of technologies that public sector support becomes crucial for developing them. Needless to say, the Internet emerged from a research programme funded by the United States government, with military objectives, in the late 1950s.

In India, the technological capabilities built through state support provided the base for the flourishing of private enterprise in many sectors, including pharmaceuticals, information technology, and the space sector too (more of it likely in the years ahead). Professionals, who were earlier trained in India's public universities, have found leadership positions globally, which has deepened India's strategic importance.

Inequalities, a hurdle for progress

The lacklustre record for India's development strategy then was not on account of the government doing too much in the area of technology building. But, on the contrary, it was because the state or the government could not intervene effectively to reduce inequalities or ensure social development. Independent India did not implement a successful programme of land redistribution. Ownership of assets continues to be very low among the socially oppressed communities, including Dalits or the Scheduled Caste (SC) population. For the downtrodden, disadvantages due to the lack of assets translate into hurdles in acquiring education, given that India has consistently underinvested in basic education for the masses. As a result, the historically determined inequalities in the social spheres get replicated in

the labour market, with the better-paying jobs going more to the privileged groups who have had greater access to higher education. In 2021-22, 38.2% of all SC workers were 'casual', earning their livelihoods mostly out of hard manual labour; the corresponding proportion was 11.2% for workers belonging to the ('other') general category castes (Periodic Labour Force Survey data). The contrast with the East Asian countries, including Japan and China, is notable. There, by the 1950s itself, land reforms and other measures had created a relatively egalitarian social structure, which formed the basis for the progressive economic and social changes in the later years.

The persistence of inequalities has negatively impacted industrial and economic growth in India. Domestic demand has been lopsided, coming as it does largely from the upper income classes, who constitute only a small, though substantial in absolute numbers, segment of the population. This has slowed down the growth of manufacturing of high-quality, mass-consumption goods, including food products and garments. Entrepreneurship too has emerged from a narrow social base.

Reinstate state support

Looking forward, we need to have a clear recognition of what went wrong, and where we got it right, with the ambitious development strategy India launched immediately after independence. The audacious attempt to build technological and industrial capabilities with generous state support was the correct thing to do. The country must reinstate such efforts if it has to stand a chance in fast-growing economic fields, be it semiconductors or biotechnology. After 1991, India abandoned planning for industrial growth assuming, mistakenly, that there is no role for industrial policy in a globalised economy. It will be costly to continue with that error now, at a time when both the United States and China are lavishing government support for their industries.

At the same time, India must redouble efforts to make economic growth more inclusive and broad-based. Education, especially higher education, should be accessible to all, including the dispossessed.

India's mission to use technology to propel itself to a higher level of development is half won. Now if the country's billion-strong masses acquire the social and the human capabilities required for upward mobility, that will be the equivalent of a lunar takeoff in economic progress.

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A light-bulb moment for the Indian fan market

Even in the humid weather of August and September, as in the dry heat of May, the ceiling fan continues to provide comfort to many in India. The ceiling fan market is undergoing a churn too, driven by policy imperatives and a regulation change. But the fan market must learn from the successes and hiccups of the light-emitting diode (LED) bulb story. The policy imperative driving the change in the fan market is energy transition in a world that must grow sustainably with changing climate. India's goal of reducing harmful emissions per unit of GDP, by 45% by 2030, relative to 2005, requires a sharp reduction in the energy consumed for economic activity. Households account for nearly a third of all electricity consumed in India, and ceiling fans, used by 90% of households, as per a Council on Energy, Environment and Water (CEEW) survey of 2020, represent about a quarter of household electricity consumption. The India Cooling Action Plan projects that the number of fans in use in India could grow to a billion by 2038, from about 500 million now, as incomes grow along with average temperatures.

The 'star rating' programme

Given the importance of fans, the Bureau of Energy Efficiency (BEE), India's energy efficiency regulator under the Union Ministry of Power, made the Standards and Labelling (S&L) programme, popularly known as the 'star-rating' programme, mandatory for ceiling fans in May 2022. This was a long-awaited shift from the voluntary programme implemented in 2009. But '5-star' fans (the star rating) cost twice as much as typical unrated fans – not a small barrier to adoption in India's price-sensitive market. To tackle this, Energy Efficiency Services Limited (EESL) is planning a demand aggregation programme to sell 10 million '5-star' ceiling fans. The programme hopes to transform the fans market much like it did for LED lamps under the famous Unnat Jyoti by Affordable LEDs for All (UJALA) programme. The UJALA programme,



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The lessons from India's LED revolution can help the country's growing ceiling fan market

launched in 2015, helped reduce the price of LED lamps from ₹400 to ₹90 in a span of three to four years. But ceiling fans are a more complex appliance than LEDs. Here are four measures for a sustainable and beneficial transformation of the fans market.

Steps to a transformation

First, maintain a technology-agnostic policy. Demand aggregation is most effective when a single technology specification is procured in bulk. In the case of LEDs, it was the nine-watt white light LED bulb. But fans have a wider spectrum of technology, each with its own trade-offs. A policy that covers more than one specification would be more cost-effective in the long run. A typical ceiling fan uses the time-tested induction motor, which is rugged but may have limits on energy performance. The newer kid on the block, the brushless DC (BLDC) motor, is the only commercially available technology so far that meets the '5-star' performance benchmark. But it has a high import dependency for components. Other motor designs are either underdeveloped, too costly, or have an even higher import dependence. As BEE's regulation change kickstarts innovation, demand aggregation under a technology-agnostic policy must let manufacturers offer different technologies to consumers so that they can compete and market transformation is cost-effective. EESL's intent to create a platform for demand aggregation is a welcome step in this direction.

Second, manage the balance between price reduction and quality. The intense pressure on price on LEDs during the UJALA programme led to lower-quality products entering the market, with higher failure rates. A 2019 study found that half the LED brands were non-compliant with safety standards. While replacing a bulb is easy and cheap, replacing a ceiling fan is inconvenient and costly. Low-quality products could lead to a deficit of consumers' trust in the new technology, prompting them to revert to the old. To make the

transition more sustainable, demand aggregation programmes must let the market actors determine the trajectory of price reduction rather than enforcing it.

Boosting domestic manufacture

Third, foster high-quality domestic manufacturing capacity for high-efficiency fans. While the growth of the LED market spawned new manufacturers and brands, India arguably missed the bus on maintaining the quality of local manufacturing and reducing import dependence for components. India can leverage its massive domestic market to achieve economies of scale for finished products and components, and expand into the export market. India already exported about five million fans in 2021, primarily to the United Arab Emirates, Nepal, Ghana, Sri Lanka, Sudan and Iraq. As more countries enforce minimum energy performance standards for fans, Indian quality and performance standards must be updated to align with international ones to ensure that manufacturers are competitive.

And, finally, dedicate resources to strengthening the standard and labelling programme. At least 30% of India's ceiling fans market may be unorganised. This segment is likely to be a late adopter of new technologies and will keep selling cheaper, inefficient fans to price-sensitive or unassuming consumers in the meantime. BEE and its State designated agencies must use their market monitoring powers to ensure that products with authentic energy performance labels reach consumers, non-compliant models are taken out of the market, and barriers to selling new energy-efficient models are lowered.

Fans are undergoing their first major phase of disruption in decades. Energy-efficient fans can not only help the vulnerable population get access to a critical service for coping with events of extreme heat with lower electricity bills, but are also central to India's clean energy transition and can play a part in its economic growth.