

Riding global winds to build India's future

- Amitabh Kant*

The two big opportunities, we have today are that of the permeation of digital technologies and the green transition. Digital technologies, such as AI-ML, big data, quantum computing, amongst others are sector agnostic, and will give rise to new business models and use-cases. Digital technologies hold the promise of increasing productivity and efficiency. A just energy transition can help create new jobs, preserve our ecosystems, and save us from the worst effects of climate change.

And India stands poised to capitalise on these trends. India's approach to technology has been to leverage tech to narrow inequalities, rather than widen them. We have seen this in the case of our digital public infrastructure, which helped us make decades worth of progress in financial inclusion in just a few years. Or how it helped us rollout 2 bn+ doses of the COVID-19 vaccine. The government is also actively looking at futuristic technologies that can be leveraged in government programmes and schemes.

We have our eye set on the future. For instance, take the India Artificial Intelligence (AI) Mission, with 10,372 crores allocated, or the National Quantum Mission with 6000 crores allocated. Semiconductors today are essential to the economic security of a country. The India Semiconductor Mission with outlays of Rs. 76,000 crores, is a huge step in this direction. These missions will enable India to technologically leapfrog and play an integral role in accelerating the pace of our economic growth to become a \$35 trillion economy in the *Amrit Kaal*, as envisaged by PM Modi.

In the past, we have seen how geopolitical events have led to sustained spikes in energy prices, particularly oil and gas. India being an oil dependent country, has seen spikes in inflation, current account deficits, and fiscal deficits (when prices were controlled) when oil prices rise. Furthermore, India's crude oil imports stood at ~ \$160 billion in FY23, accounting for 22% of our import bill. Periods of rising oil prices not only lead to inflation, but also lead to volatility in the value of the Rupee.

We have made significant strides in increasing the mix of renewables in our electric installed capacity, and by 2030, this mix will rise even further. However, in order to address emissions from the industrial and transport sectors, different strategies were required. Furthermore, economic security was also high on the agenda. With geopolitical events dictating the price of energy, our strategy had to ensure the resilience of our economy to such shocks.

It is in this context that India launched the Green Hydrogen Mission with an outlay of Rs. 19,744 crores. Green hydrogen has the potential to address emissions from both the industrial and transport sectors, while also enhancing India's economic security, putting us on the path of energy independence.

Our strategy to decarbonise the transport sector is realistic and pragmatic – we recognise the role various technologies will have to play. Apart from GH₂, we are also positioning India as a hub for electric vehicles (EVs). Whether it is the Production Linked Incentive (PLI) for advanced chemistry cell (ACC) batteries with outlays of Rs.

18,000 crores, or PLI for Advanced Automotive Technology, with outlays of Rs. 25,938 crores, the entire EV ecosystem is being addressed. Recently, manufacturing of electric four wheelers has also been boosted, with global manufacturers incentivised to setup local manufacturing. The experience in aggregating demand to drive down prices (as in the case of LEDs) was also adapted for public transport. Under the GCC model, discovered prices of electric buses were found to be lower than those of diesel buses. Based on the success of the early models, the PM eBus Sewa scheme has been rolled out, with allocations of Rs. 57,613 crores. 10,000 electric buses are targeted to be rolled out over 169 cities, with adequate payment security mechanisms. Taken together, these moves will make India a global champion in adoption of EVs and EV manufacturing, serving not just domestic, but also global markets.

Strong foundations have been set for India to technologically leapfrog. To make this a reality, we are devising strategies to boost our R&D expenditure as a % of GDP. Currently, our expenditure is behind countries that are ahead on the technological curve. And in these countries, most of the R&D expenditure comes from the private sector, with the government playing an enabling role. So, it is the private sector that must take the lead. Corporates and startups must partner with academic and research institutes to drive the R&D agenda. Recognising the need for long-term funding, Rs. 1 lakh crores for R&D was announced in the interim budget. India's startups, corporates, and research institutes must come together to leverage these funds. While this addresses the funding gap, we must continue to work to bridge the manpower gap. First, we must improve educational outcomes at the school level in mission-mode. Ensuring curricula are up to date, and designed in consultation in industry is another area. Making research a more attractive career option through better pay in progression in government jobs is one avenue. Raising PhD stipends in public universities another. Attracting global scientists to India or tapping into our diaspora are further avenues to pursue.

On technology, India has till recently, played catchup. However, we are now poised to capitalise on these global shifts and emerge as a technological leader. Strong foundations have been set, and backed by strong political will, there is every reason to believe that we will succeed.

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