India on the **cusp of transformation**

At 75, India is defined by her resilience. And while the nation has moved the needle significantly on multiple fronts, there are challenges ahead and new ground to cover

By Venkata Peri

A resilient India in 2022 stands on the cusp of massive transformation. External and internal impediments notwithstanding, India's democratic foundations remain strong and economic fundamentals robust to face challenges and black swan events. The country, despite initial hiccups and challenges in managing COVID-19, has administered more than 2 billion vaccines and delivered another 140 million doses[9] to other countries. It continues to strengthen its infrastructure by building national highways, enhancing the speed and safety of railways, and expanding ports and airports.

India's free-market credentials received a boost with the country moving aggressively to privatise the public sector – (Air India and Life Insurance Corporation being two cases in point) – and embracing the private sector as a key partner in areas such as national defence, transportation and healthcare. Thanks to its rapid digitisation and ease of doing business, 'Destination India' has picked up momentum. The country's efforts to offer credit lines and life-saving supplies to other nations make it a trustworthy ally and partner on the global stage.

9 https://www.wto.org/english/tratop_e/covid19_e/vaccine_trade_tracker_e.htm

These vectors of progress have given India the confidence to assert its point of view while defending its national interests. India's progress – both as a pluralist democracy and as a progressive free-market economy – deserves even more plaudits when viewed from the prism of its geopolitical existence amongst neighbours that, for the most part, have been driven by military and dictatorial caudillos.

While the progress of India is laudable, it must also be acknowledged that the nation still remains a work in progress. Climate crisis and access to clean water, increasing income asymmetry, inadequate healthcare infrastructure, skilling and educating India's youth, making India's defence and security self-reliant and building an effective tax regime are some of the crucial fault lines that can hinder India's progress.

As India attempts to become a USD 5 trillion economy, it is bound to face headwinds – both anticipated and sudden – of various kinds. It therefore needs to strengthen its societal foundations and proactively address some of these fault lines to have enough horsepower to not only navigate the headwinds but also remain resilient and self-reliant.

Provide water security

More than 600 million Indians face extreme water shortages. More than 2 lakh people die every year due to lack of access to safe drinking water[10] and water pollution results in losses worth USD 80 billion (circa 3%) of the GDP annually. NITI Aayog underlines that by 2030, the water demand in India is projected to be twice the supply.[11]

Water scarcity across some states is a major fault line which could have a debilitating impact on the country's health, food security and national security, with inter-state fights looming large over water resources. Equally concerning is India's dependence on groundwater as the most vital source of water, with more than 60% of irrigated agriculture and 85% of drinking water supplies being dependent on it.[12] With Indian farmers using three to five times more water for producing the same amount of crops compared to Chinese, American and Israeli farmers, the country's irrigation efficiency is among the lowest in the world.[13]

India's ability to productively capture just 18%[14] of the received precipitation forces both citizens and farmers to exploit groundwater sources. Inadequate regulatory control over the use of groundwater, distorted water pricing and heavy subsidisation of electricity (often priced at a flat tariff) makes groundwater overuse rampant among farmers. In addition, distribution losses of 35–50% (vis-à-vis 4% in the Netherlands, 6% in Denmark, 7% in Japan, 8% in Germany and 9% in Israel[15]) indicate the dismal state of water supply management. It is evident that while water resources themselves are at risk, there is an urgent need to improve water management to reduce losses and improve efficiencies.

Various Government subsidy programmes have been launched over the years to boost adoption of more efficient technologies such as micro irrigation. The Pradhan Mantri Krishi Sinchayee Yojana which was launched last year for 2021–26 with an outlay of INR 93,068 crore[16] also includes such components. Management of used water is another solution in view of such water resource challenges. The guidelines released recently by the Government under the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) scheme for making Indian cities water secure specify 'used water' instead of 'waste water'. This indicates a change in approach to this water source. But there is a long way to go with only 30%[17] of India's waste water being treated.

10 https://www.niti.gov.in/sites/default/files/2019-06/Final%20Report%20of%20the%20Research%20Study%20on%20%20Composite%20Water%20Resources%20Management%20Index%20for%20Indian%20States%20conducted%20by%20Dalberg%20Global%20Development%20Advisors%20Pvt.%20Ltd_New%20Delhi.pdf

11 Composite Water Management Index (CWMI 2019)

12 https://www.worldbank.org/en/news/feature/2012/03/06/india-groundwater-critical-diminishing

13 Composite Water Resources Management 2018: Niti Aayog

14 Central Water Commission Report 2019 | The Financial Express

15 Water Loss In India - The Biggest Challenge 2020

16 Pradhan Mantri Krishi Sinchayee Yojana for 2021-26 | Government of India

17 Composite Water Resources Management 2018: Niti Aayog

As is evident from NITI Aayog's Composite Water Management Index, several states have undertaken laudable efforts both to conserve and make water accessible to common households. The Central Government too has acknowledged the issue of severe water scarcity in Union Budget 2022–23 by allocating INR 86,189 crore[18] to the Ministry of Jal Shakti to deliver water supply to more than 4,300 towns.

Initiatives such as revised guidelines for groundwater extraction, water reuse action plans requested by the National Green Tribunal (NGT) from all states and Zero Liquid Discharge (ZLD) compliance for industries (e.g. tanneries, paper, textile) are helping to improve the waste water treatment levels in India. These guidelines need to be enforced stringently with punitive damages for non-compliance. Further, India could adopt some of the best practices from Israel's[19] success story (producing more than 20% more water than its requirement) that adopts a multi-pronged strategy. This includes developing a national water conveyance system, extensive use of drip irrigation (with 75% of its crops using drip irrigation), significant water recovery through waste water treatment and usage of biofilter projects, along with the extensive use of large-scale water desalination projects, and use of aquifers for water storage.

Ensure people reach home safely, daily

Safe and efficient transport is an important part of the sustainable development goals. As a nation, India has an unenviable record of contributing to 11% of the world's road accidents, more than half of which involve vulnerable road users such as pedestrians, cyclists and two-wheelers.

The Government has acknowledged the imperative to make our roads safer, and the Motor Vehicle Safety Act (Amended) of 2019 is a major step in the right direction. The National Road Safety Policy sets policy initiatives to be undertaken for road safety improvements. However, these acts and policies alone can't have a major impact unless they are supplemented with comprehensive traffic reforms, including training and educating citizens on traffic rules and their enforcement, a world-class traffic police aided by the most advanced technologies to spot violators, real-time adjudication of traffic violations and recertification of driver permits across the entire nation.

In addition, linking insurance premiums to driver performance and punitive damages (such as loss of employment and jail time) for violators will help ensure that drivers take traffic laws seriously. These measures must be supplemented with institutional reforms to continuously train and equip urban planners, traffic engineers and the traffic police.

Traffic reforms and road safety require continuous improvement and transformation. Government agencies – federal and state traffic police – along with scientific bodies (to model the traffic patterns to recommend specific actions to optimise traffic flows) and citizenry must come together to fulfil their collective obligation to keep our roads safe so that people can get back to their homes safely, every day.

Educate and skill India

India has more than 500 million[20] people in the age group of 5–24 years. Their education and skilling should be one of the country's top priorities as education and skilling remain the catalysts for India's transformation. As of May 2022, India has close to 250 million school-going students and 38.5 million in higher education, more than any other country in the world. Indian students have access to 42,343 colleges and 981 universities.[21] Behind these massive numbers lie some of the more problematic statistics. As per NASSCOM (2019), 83% of our graduate engineers were unemployable (12.5 lakh from a pool of 15 lakh remained unemployed) and lack of job skills was identified as one of the primary reasons.

18 Budget 2022: Govt allocates Rs 86,189 crore to Jal Shakti ministry | Business Standard News.

19 https://www.israel21c.org/how-israel-used-innovation-to-beat-its-water-crisis/

20 https://www.ibef.org/industry/education-sector-india#

21 https://www.ibef.org/industry/education-sector-india

According to UNICEF,[22] 29% of students drop out before completing their elementary education and most of them are from the marginally weaker sections of society. Half of the students at the primary school level don't achieve their grade-appropriate learning levels (namely, basic maths, reading and writing). The National Education Policy, 2020 (NEP 2020), launched in July 2020, lays down a vision for comprehensive education reforms starting from early childhood education to higher education.

The NEP 2020 is driven by a focus on teacher training and technology enablement, large-scale onboarding of trained teachers, revamping the curriculum at all levels. This is aimed at introducing a fine balance between academics, life lessons and practical exposure, multidisciplinary higher education and finally, effective triaging at the secondary school level between more formal higher education and vocational training. Similarly, the Skill India initiative launched seven years ago has the Ministry of Skill Development and Entrepreneurship working with its various arms.

India must strengthen vocational and life skills by tapping into the innate and latent vocational talent in India's heartland. From carpentry to masonry, plumbing to electrical works – communities in India are ripe with such pockets of expertise. Formal nurturing and accreditation of their skills can make them a global powerhouse of talent. State and Central governments must work closely to establish regional hubs of vocational training to not only hone and certify the innate vocational skills but also impart a set of language skills to accelerate their productive use globally. These measures will allow India to become the hub for accredited experts of vocational skills amidst an unprecedented phase of global infrastructure expansion.

The formal education sector covering secondary, graduate and postgraduate training also needs a reboot. NEP 2020 is a step in the right direction but needs to be supported with flawless execution of curriculum revamp to reflect the contemporary advancements in science and technology; interdisciplinary training; industry-academia collaborations for more practical exposure and apprenticeship; and a strong culture of innovation and entrepreneurship to encourage and motivate passionate students to solve some of the most pressing societal challenges.

The Indian higher education scene also needs a change. College owners and administrators must be held accountable for at least the basic hygiene – trained faculty, equipped laboratories, strong practical exposure and imparting of life lessons. Failure to comply must attract stringent punishment. The Government should also deploy more research grants and incentives to encourage a strong culture of research, innovation and entrepreneurship amongst the faculty and students; institutes of higher education and learning, on their part, need to transform themselves into cradles of innovation rather than remain conduits of placement to check the flow of talent to Western institutes for higher education and learning.

22 https://www.unicef.org/india/what-we-do/education

Make healthcare affordable and accessible

The pandemic, especially the second wave, exposed India's fault lines in the health sector. Access to healthcare services for those in the rural and remote areas has always been far more challenging than it is for those residing in urban areas, and the pandemic revealed such disparities yet again. While India can draw lessons from other countries, it will need healthcare solutions to address its unique challenges of complexity and diversity.

In rural India, on an average, a sub-centre (SC) covers 5,734 people, a primary health centre (PHC) covers 35,602 people and a community health centre (CHC) covers 163,298 people. In terms of geographic coverage, a CHC typically covers 563 sq km of area encompassing 121 villages, and a patient typically covers 13.3 km to reach a CHC.[23] To address these disparities in healthcare services, the Government launched the Pradhan Mantri Jan Arogya Yojana (PM-JAY) scheme – popularly known as Ayushman Bharat – as part of the National Health Protection Scheme to provide cashless secondary and tertiary care at private facilities.

The dual programmes of PM-JAY (wherein hospital admissions to the tune of over INR 37,000 crore have been authorised to date[24]) and the Aatmanirbhar Bharat Abhiyaan launched several measures for the health system, including Production-Linked Incentive (PLI) schemes for boosting the domestic manufacturing of pharmaceuticals and medical devices have been timely interventions. However, this area needs more attention, investment and innovation.

The country currently has 1.3 hospital beds per 1,000 population. There is also a shortage of skilled health workers, with 0.65 physicians per 1,000 people (the World Health Organisation standard is 1 per 1,000 people) and 1.3 nurses per 1,000 people. An additional 3 million beds will be needed for India to achieve the target of 3 beds per 1,000 people by 2025. Further, another 1.54 million doctors and 2.4 million nurses will be required to meet the growing demand for healthcare in India.[25]

As it is difficult for the Government to bridge the resource and healthcare infrastructure gap on its own steam, it needs to embrace the public-private partnership (PPP) model to support logistics, infrastructure and skilling, among other areas, to meet the demand. PPP models can bring down costs of care (both at the macro level as well as the cost of episode) by scaling up more aggressively and by bringing more skilled labour into the healthcare system.

India also needs to embrace telemedicine to complete last-mile delivery. Telemedicine coupled with efficient triaging of risky populations will enable our healthcare system to be more efficient and proactive as such efforts can help optimise care and capacity.

23 Rural Health Statistics 2020-21 | Ministry of Family and Health Welfare

24 https://economictimes.indiatimes.com/news/economy/indicators/ab-pmjay-successfully-contributed-in-curtailing-out-of-pocket-expenditure-in-country-govt/articleshow/90439800.cms

25 https://www.niti.gov.in/sites/default/files/2021-03/InvestmentOpportunities_HealthcareSector_0.pdf

Our healthcare system also needs to find ways to manage the elderly population. The World Health Organization estimates that 200 million of the 355 million people above 65 years of age are in the developing world.[26] Drawing lessons from the West in managing the pitfalls of expensive healthcare for ageing populations, India must adopt a radically different approach to ensure its own ageing population doesn't receive suboptimal care due to prohibitive costs. Radical innovations resulting in indigenous drug production, home-based and proactive care and timely treatment should be at the centre of our strategy to manage India's ageing population.

Healthcare and health services can be catalysts for economic growth in India. As per estimates by the National Skill Development Corporation (NSDC), healthcare can generate 2.7 million additional jobs in India and over 500,000 new jobs per year. And as a large percentage of nurses are often women, it can also factor in the diversity angle by increasing the ratio of women to men in this sector. In addition, with the right amount of policy changes (adoption of global healthcare protocols, regulatory scrutiny) and global partnerships (with commercial payers and governments globally), India's highly trained workforce of caregivers (doctors, nurses) can make the a country favoured destination for medical value travel.

Promote indigenous research and innovation

Indian policymakers had the foresight to acknowledge that pursuit of science and inquiry is key to a society's progress (the 42nd amendment to the Constitution in 1976 made scientific temper and human inquiry a fundamental duty). The pace at which the COVID-19 virus was detected, analysed, and vaccines developed and mass produced within less than two years since the first case was identified is a testament to human ingenuity and discoveries in fundamental sciences.

A key measure to assess a country's appetite for scientific pursuit is gross expenditure in R&D (GERD) as a portion of its GDP. The USA spends almost 3% of its GDP on R&D. China is aggressively investing in quantum computing and AI, and has spent more than USD 10 billion to build its first quantum computer. India's GERD stands at only 0.65% of its GDP, while the corresponding GERD percentage in Israel is 4.9%, in Korea it is 4.5%, in Japan 3.2%, in Switzerland 3.8%, in Spain 1.2%, in Singapore 1.9%, and in China 2.14%.[27] The lack of private investments in R&D is a cause for concern as the private sector contributes less than 40% compared to 70% in developed nations.

India's desire to be self-reliant is evident in almost every important policy initiative. Opening some of India's most strategic apparatus such as space exploration and defence to the private sector has been a major strategic decision. While these efforts are commendable, both the Indian private sector and academia continue to depend on external expertise for some of the most critical and sophisticated machinery, parts and skills. While our partnerships and purchasing power may permit technology transfer to us, it doesn't offer us the indigenous talent and skill to build them ourselves.

The Government has an important role to play in promoting a culture of innovation, research and discovery, which is critical to promote indigenous innovation and find solutions to India's unique challenges. Efforts of the USA post the Second World War to build agencies helmed by world-class scientists with massive allocation of budgets for scientific discovery and pursuits are good lessons to learn from. These investments helped build some of the finest academic institutions and established a rock-solid foundation for deep scientific pursuit and research.

Valuable scientific discoveries – from integrated circuits to vaccines to space exploration – are fruits of these efforts. India must draw upon such lessons to create the right policy framework to suit its needs. A national science foundation helmed by some of our brightest scientific talent, devoid of red tape and bureaucracy, and with access to funds and resources, will be a commendable

26 World Health Organisation. The world health report 1995: bridging the gaps. Geneva: WHO; 199513

27 https://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS

first step. In parallel, the top 50 to 100 institutions of higher learning and research must be transformed to work in collaboration with the foundation to drive substantial research and find innovative and practical solutions to India's problems. The private sector too needs to be brought in to participate with talent and financial resources to ensure the solutions may be scaled up and marketed.

India's self-reliance will depend squarely on its ability to make investments for the future. From quantum computing to Artificial Intelligence, from cyber security to novel drug discovery – India's investments and execution plans will be critical for its self-reliance and stability.

Tax effectively and uniformly

In March 2022, Union Finance Minister Nirmala Sitharaman announced that in FY 2019–20, only over 8 crore Indians (6.2%) paid taxes even after considerable efforts by the Government.[28] For India to achieve a USD 5 trillion economy, it needs massive investments in healthcare, education, infrastructure and national defence. India's investments must precede the growth trajectory to ensure that the core societal foundation (essentially education and healthcare) can sustain the weight and pace of growth. The tax collections must meet the aspirations of a young India to be clean and green. To be able to meet the investment obligations, India's tax base must increase; tax rates should be optimised (both for individuals and businesses); and fraud (of non-payment, under-payment and incorrect deductions) must be detected and managed.

A fundamental challenge that India faces in broadening the tax base is the low per capita income and the tax threshold having to be set at a significantly higher figure. For FY 2022–23, the tax threshold for incurring taxes is INR 2.5 lakh (~USD 3,205),[29] while India's per capita income is estimated as USD 2,277 for FY22.[30] Thus, a significant portion of India simply doesn't fall within the tax bracket.

It is important for India to embrace a comprehensive tax reform plan that must have, at its centre, a comprehensive tax awareness programme to make citizens aware of their tax obligations and realise that unless they fulfil their respective obligations, the nation will not be able to achieve its vision. The reform plan must also find ways to increase the tax base, optimise the tax brackets (lower tax brackets are correlated with higher compliance) to reduce the tax burden, detect and penalise tax fraud and non-compliance, and also recalibrate the indirect tax rate framework and structure. Enhancing the ease of doing business, simplifying procedures and reducing litigation will pave the way for greater tax compliance by both large as well as small entities.

Small enterprises, with a significant share of India's commerce, must be encouraged to report their income and fulfil their obligations. The MSME sector is the bulwark of our economy, contributing to about 30% of the GDP and 40% of exports, and providing employment to over 11 crore people across the urban-rural divide.[31] The expansion in the tax base of the MSME sector should, in fact, match this sector's vibrancy and growth potential. Tax filings for them need to be made even more simple and an environment of trust and transparency needs to be created. At the same time, Aadhar-like identification and verification capability could be brought in to map small businesses and ensure their incomes can be predicted and tax obligations assessed.

These concerted efforts should offer India an opportunity to bring the tax brackets to a level that enhances the tax base and compliance.

Entering the golden age or 'amrit kaal'

India's journey, it is evident, will not be over till the benefits of progress and development reach every Indian. Till that happens, collective work – to address the challenges ranging from the widening gap of income and wealth to making Indian roads safer to commute; from building a skilled workforce that drives the world's economic engines to providing clean water; from quality healthcare and enabling uniformity of taxation and compliance to building a nation driven by the purest, unbiased scientific thought and innovation – must persist.

75 years ago we made a tryst with destiny to progress 'substantially'. Our work will remain incomplete till such time that our economic, social and intellectual progress reaches and impacts every

28 https://www.financialexpress.com/economy/over-8-22-crore-taxpayers-in-fy20-nirmala-sitharaman-infor ms-rajya-sabha/2461832/

29 https://taxsummaries.pwc.com/india/individual/taxes-on-personal-income

30 https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=IN

31 https://prsindia.org/policy/report-summaries/strengthening-credit-flows-to-the-msme-sector

Indian. While acknowledging the progress we have made, the Government recently reaffirmed our commitment to fulfil the aspirations of every Indian.

While the Government must be the enabler, all the key stakeholders – corporates, non-governmental organisations and citizens – must come together as a community of solvers to build trust and deliver sustained outcomes driven by human-led tech enablement. It is only an empowered and informed citizenry that can help navigate reforms and innovate solutions for a better tomorrow.

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