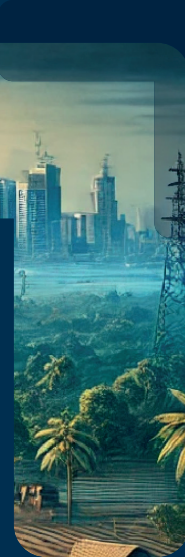


# The Road to Viksit Bharat @ 2047

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## From the President's Desk



As India advances towards the centenary celebration of its independence in 2047, Prime Minister Narendra Modi's visionary roadmap for Viksit Bharat sets the tone for a transformative journey. This ambitious blueprint articulates a national vision that integrates aspirations, goals, and actionable strategies, focusing on economic growth, advancing Sustainable Development Goals (SDGs), improving ease of living and doing business, strengthening infrastructure, and enhancing social welfare.

India's target of becoming a \$30 trillion economy by 2047, with a per capita income of \$18,000 to \$20,000, is bold and transformative. Achieving this requires robust public finances, a resilient financial sector, and an unrelenting commitment to innovation and sustainable development. Encouragingly, the Indian economy, which grew by 7 percent in FY23 and 8.2 percent in FY24, remains the fastest-growing large economy globally despite challenges, backed by significant private sector investments. Bridging the technology gap and ensuring a successful energy transition will be pivotal for sustainable and inclusive growth, fostering energy independence and cost efficiency.

The Bombay Chamber of Commerce & Industry proudly supports this inspiring vision. This report, developed in partnership with Artha Global and supported by the Bombay Chamber of Commerce & Industry Trust for Economic & Management Studies (BCTEMS), reflects our dedication to India's journey towards Viksit Bharat.

The report outlines strategic pathways and actionable insights for critical areas, including urban reform, education and skilling, resilience and sustainable growth, innovation and technology, and public healthcare. It incorporates comparative analyses, drawing lessons from global best practices to guide our national efforts.

We are committed to sharing these findings with the Prime Minister's Office, relevant Ministries, and our members to foster collaboration and action. Together, we can contribute meaningfully to building a prosperous, inclusive, and resilient India by 2047.

Jai Hind!

**Pinky Mehta,**

President, Bombay Chamber and CFO, Aditya Birla Capital Ltd.

## **Credits**

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# Background and Context

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# Pathways for Growth

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Average incomes need to grow at a CAGR of 9.6% for India to meet the Viksit Bharat target by 2047

India has emerged from the global pandemic with its economic dynamism intact. It is now the fastest-growing major economy in the world. India has also managed to avoid the episodes of high inflation that many developed economies experienced during the recovery period as well as the balance of payments pressures faced by many developing economies. This welcome combination of robust growth and economic stability has led the International Monetary Fund (IMF) to describe India as a bright spot in the world economy.

The Indian economy is in good shape. This is an opportune moment to look beyond the immediate performance and raise the bar for what needs to be done in the future. Prime Minister Narendra Modi has outlined an aspirational goal for the country: India should strive to become a developed country, or Viksit Bharat, by 2047, the centenary year of India's independence. This goal is ambitious, but feasible, and will require hard work.

The aim of Viksit Bharat is to not only build a developed economy but also a cohesive society. Economic growth will have to be inclusive in the sense that every citizen gets a fair opportunity to improve his or her daily life. The basics of a good life such as access to quality education, healthcare, and infrastructure will have to be within reach of every Indian. The country will have to continue to make strides in technology, especially the digital infrastructure that it is pioneering. Economic activity will have to be sustainable and resilient given the reality of climate change. Yet, underlying all these changes is the absolute need for rapid economic growth.

What will the goal of Viksit Bharat entail in terms of hard economic numbers? There is no globally-accepted definition of a developed economy. The World Bank categorises countries into four groups based on their per capita income: low-income-countries (below \$1,145), lower-middle-income countries (\$1,146 - \$4,515), upper-middle-income countries (\$4,516 - \$14,005), and high-income countries (above \$14,005). The highest category in the World Bank's taxonomy can be used as a proxy for developed economy status.

India is currently a lower-middle-income country, with an estimated per capita income of \$2,730 in 2024. This means that India will have to increase average incomes by more than five times in the next 23 years to reach what the World Bank defines as upper income status *today*. India has done this before. Its per capita income quintupled in the previous 23 years — from \$544 in 2001 to \$2,730 in 2024.

A repeat of the sustained growth seen over the past 23 years will take India to a level on par with countries such as China, Russia, and Chile right now. The challenge is that these countries will not remain static in the next 23 years, and will expand their economies as well.

For a more realistic target, an assumption is that high-income countries grow at 2 percent a year from now to 2047. So the target for attaining high income status in the centenary year of India's independence will be a per capita income of \$22,506 rather than \$14,005.

The long road to achieving the status of a high-income country can be divided into two phases. The first is an upgrade from being a lower-middle-income country to an upper-middle-income country. That seems within reach by the end of this decade. The IMF estimates that India will have a per capita income of \$4,282 in 2029, the last year for which such an estimate is available. In other words, India's current economic momentum should take it into the league of upper-middle-income countries in the foreseeable future.

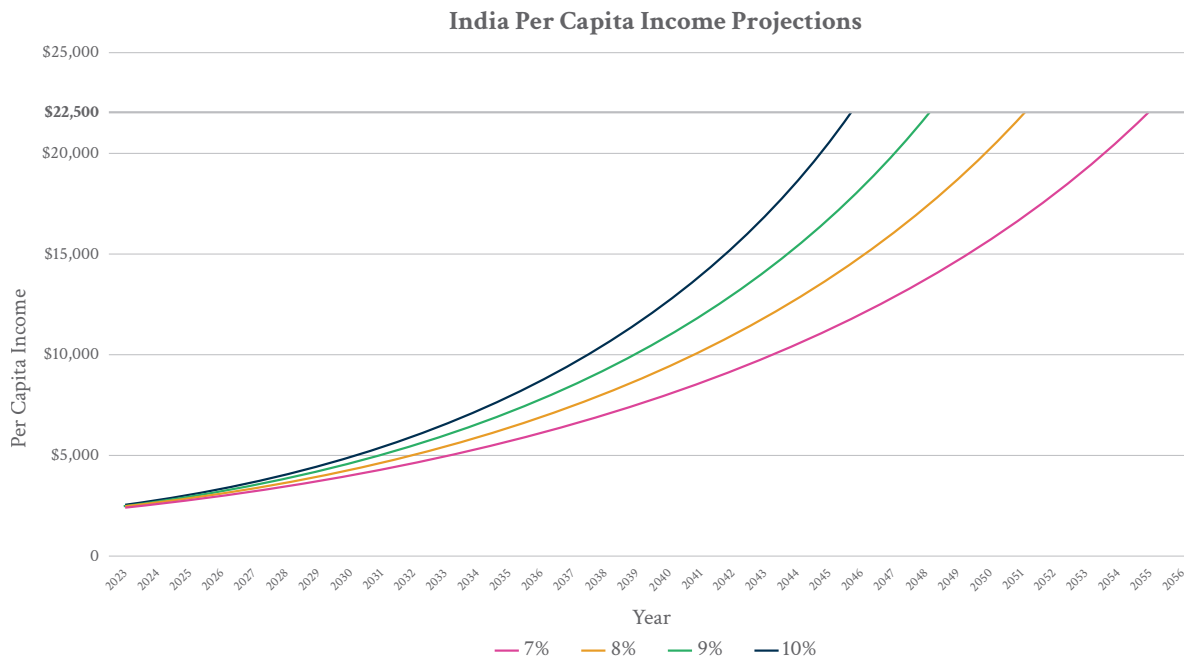
The road from there to Viksit Bharat is more hazy. Average incomes in India will have to grow at a sustained compounded annual growth rate of 9.6 percent a year from now to 2047, which implies that the economy has to expand at nearly a double-digit rate in US dollar terms. This entails a substantial acceleration in growth rates compared to what India has experienced in the past two decades on average. To be sure, these projections are sensitive to the international value of the Indian rupee, and we have assumed a stable exchange rate between now and 2047.

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## **Overcoming the middle-income trap will pave the way towards Viksit Bharat**

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## 1. Viksit Bharat: The Growth Imperative



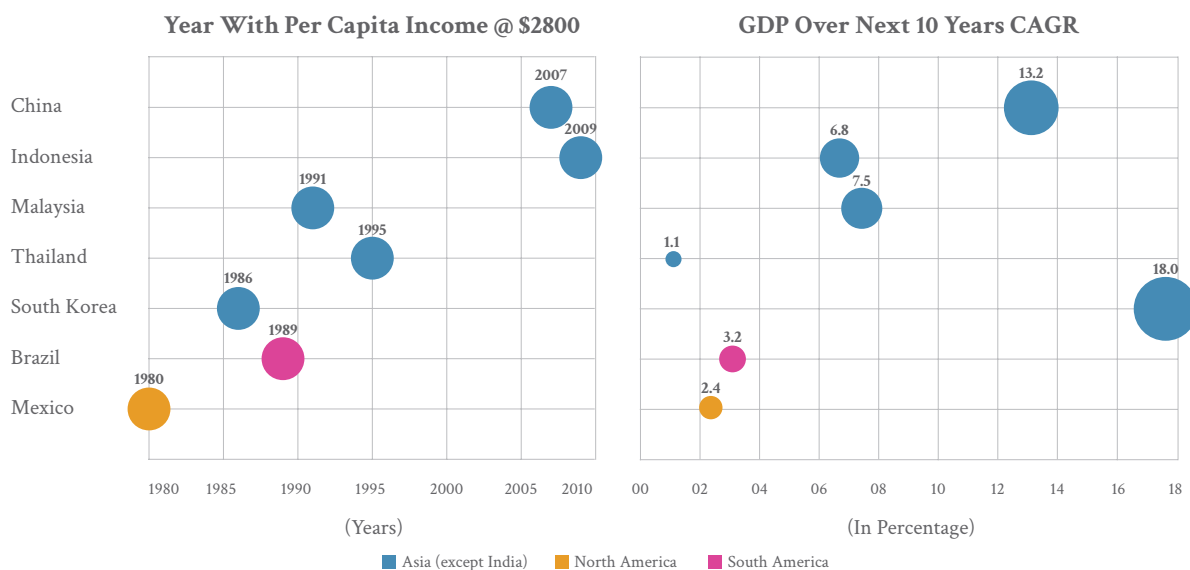
Note: The lines show the expansion path for the Indian economy at various rates of growth  
Source: IMF, Artha Global

The Indian economy has expanded at an average 8.1 percent a year in dollar terms between 2005 and 2024; per capita income has gone up by 7 percent every year on average. This rapid economic growth has been transformational. However, India will now have to substantially improve its economic performance by around 2 percentage points a year, or at a CAGR of 9.6 percent in order to become a developed economy by 2047.

This acceleration in economic growth will have to be achieved against a difficult global backdrop of rising protectionism, heightened geopolitical tensions, declining fertility, and climate change shocks. However, the rise of new technologies such as artificial intelligence has the potential to spur productivity growth in the same way that the earlier computer revolution did. Shifting geopolitical winds, especially the ongoing tussle between the US and China, can also benefit India as an alternative destination for global supply chains, knowledge, and consumer markets.

A look at the examples set by a few successful and unsuccessful economic transition stories around the world is instructive. Seven comparable economies give us a sense that some countries such as Brazil and Mexico find it difficult to maintain high economic growth, some countries such as Indonesia maintain an impressive rate of expansion, while a few star performers such as China and South Korea succeed in rapid economic transformation over a decade. India is definitely not in the first group. It seems to be headed for a decade and more of growth similar to what Indonesia delivered for the 10 years after it had a per capita income of around \$2,800. But the goal of Viksit Bharat demands that India move to a higher growth trajectory, accelerating its economic transformation over the next two decades.

## 2. Beyond \$2,800: Convergence, Divergence, and Stagnation



Source: IMF, World Bank

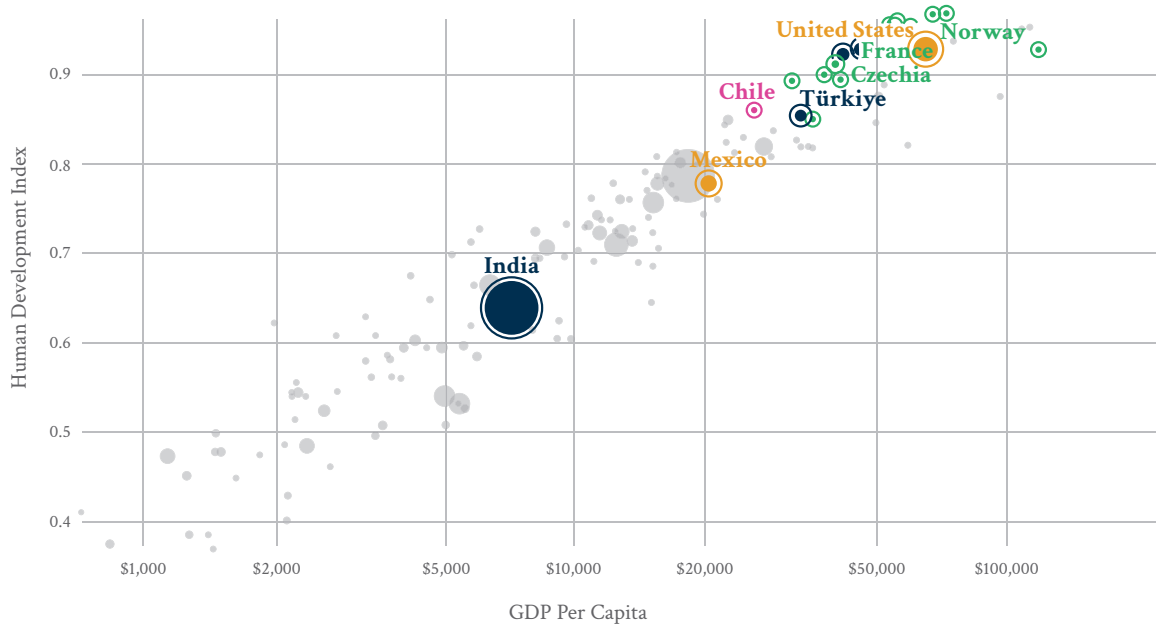
Rapid growth in average incomes is necessary for improvements on every development front — be it a decline in poverty, lower infant mortality rate, better public services, cleaner air, or more opportunities for all citizens. This is best encapsulated in the trends in the composite Human Development Index (HDI) created by the United Nations Development Programme. Countries with higher levels of income generally tend to have higher HDI rankings, as indicated in the two charts that follow.

The centrality of a dynamic economy for social progress is a point that deserves to be highlighted in the national conversation on Viksit Bharat. There can be quick wins on various development parameters through better implementation of government programmes on the ground, and these have undeniable value at any given point in time. However, better development outcomes over a longer sweep of time are usually driven by robust economic growth.

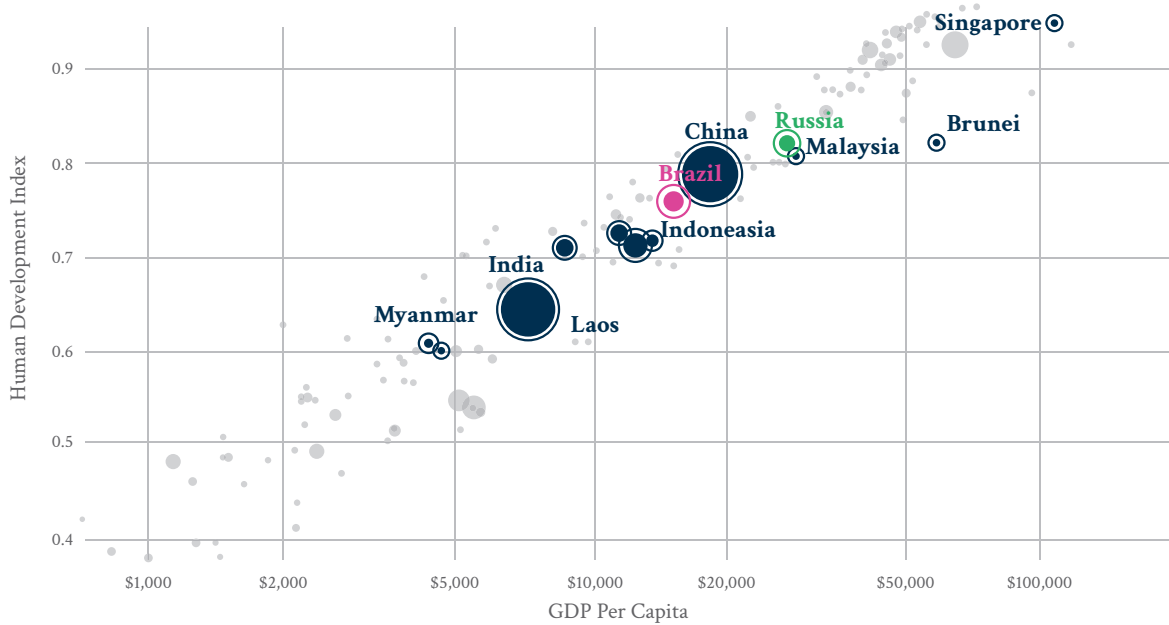
**Shifting geopolitical winds can benefit India  
as an alternative destination for supply  
chains, knowledge, and consumer markets**

### 3. Human Development Moves in Tandem With Economic Prosperity

3a. HDI and GDP per capita (India and OECD, 2022)



3b. HDI and GDP per capita (India, BRICS and ASEAN, 2022)












Notes: (1) The Human Development Index (HDI) is a summary measure of key dimensions of human development: a long and healthy life, a good education, and a decent standard of living. (2) GDP per capita is adjusted for inflation and differences in the cost of living between countries, and is expressed in international-\$ at 2017 prices.

Source: UNDP, Human Development Report (2024) – with minor processing by Our World in Data

Overcoming the middle-income trap will pave the way to Viksit Bharat. Too many countries lose momentum after becoming upper-middle-income economies, as the labour force begins to peak, the return on investment begins to moderate, and productivity growth tapers off. Only 34 middle-income countries, with a combined population of 250 million people, have been able to move to high-income status since 1990. The latter number can dramatically change if China and India manage to break through in the coming decades. The World Bank has argued that escaping the middle-income trap involves important changes in the underlying economic models of developing countries — from a singular focus on higher investment in the early stages of development to a mix of investment and infusion of advanced technology from abroad to an eventual combination of investment, infusion, and innovation.

### 4. The Growth Model Must Change With Economic Development

Income Classification	Investment	Infusion	Innovation
Low-income	 Higher priority	 Lower priority	 Lower priority
Lower-middle-income	 Higher priority	 Higher priority	 Lower priority
Upper-middle-income	 Higher priority	 Higher priority	 Higher priority

Source: World Bank

The key to becoming a developed economy by 2047 will thus depend heavily on productivity growth of individuals, firms, and regions. This in turn will depend on three transitions that will help maintain productivity growth across the Indian economy over the next 23 years — individuals should have ample opportunities to move from traditional agriculture to modern industry and services; enterprises in the formal sector with access to technology, credit and markets need to become more important in an economy currently dominated by informal firms; cities where talent, capital, and innovation combine most efficiently, need to improve their ability to manage growth. Policies on improving India’s human capital, helping firms formalise, and planning for efficient urbanisation will be important on the road to Viksit Bharat.

**The key to becoming a developed economy by 2047 will depend heavily on productivity growth of individuals, firms, and regions**

# Building Blocks

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# Education and Skilling

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Only 51% of India's graduates  
are employable

## From Classrooms to Workplaces

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Education can be a great equaliser in a country where opportunities for a better life are unevenly distributed. Education ignites innovation, strengthens institutions, and builds resilient communities. A well-educated, technically-qualified workforce enhances productivity, which is crucial for sustained economic growth.

India has made great strides in the past two decades in ensuring that almost every child goes to primary school, irrespective of gender. The groundwork was laid by the Sarva Shiksha Abhiyan, the flagship government programme that delivered universalisation of school education. Additional incentives such as free education for girls, access to bicycles, and mid-day meals in several states have helped as well.

India struggled to get children enrolled in schools in the first five decades after Independence. That particular challenge has been met. The country now faces a different challenge — the quality of education imparted to young Indians. Children are going to school but are not learning enough. The focus of education policy at the school level needs to shift from quantity to quality.

The other great paradox in Indian education is that enrolment rates drop as children climb the academic ladder. Almost a quarter of students drop out by the time they reach secondary school (2023 figures).<sup>1</sup> That number rises to 60 percent at the higher secondary stage.<sup>2</sup> Too many Indian children thus do not complete even their basic educational journey, leaving them handicapped in the job market.

The decision to leave school prematurely is an expensive one. World Bank research tells us that every additional year of schooling boosts hourly earnings by 9 percent for East Asia and Pacific Region and that globally, the returns to tertiary education are highest.<sup>3</sup> The high dropout rates in Indian schools are thus not just a human tragedy but also a drag on future economic growth.

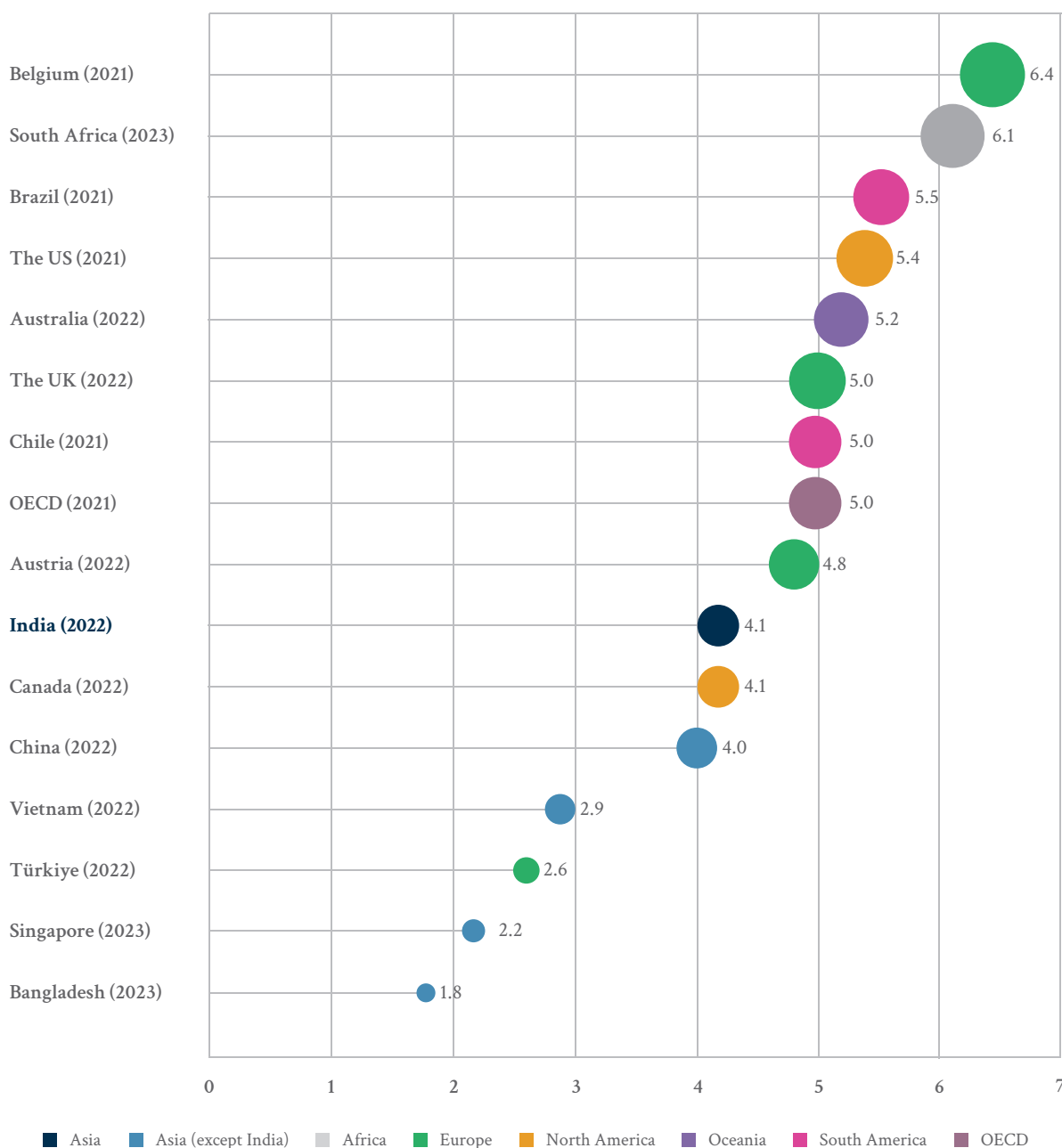
The situation behind classroom doors is also worrisome. Nearly one out of every twelve schools in the country operates with a single teacher. Teacher absenteeism continues. Only half the secondary schools have working science laboratories. Internet connectivity is not available in most government schools, especially in rural areas. Even some prestigious institutes work with suboptimal staff strength. However, there are welcome areas of progress as well, especially the rapid construction of toilets for girls in recent years to make it easier for them to access schooling.

However, the biggest challenge at the school level is inadequate learning. The test scores in foundational learning — reading and arithmetic — continue to be poor. These are a prerequisite for a good education. The Annual Status of Education Report shows that 25 percent of children between the ages of 14 and 18 cannot read a Standard II text fluently in their regional language.<sup>4</sup> The ability to read in English and later explain the meaning of what has been read is even worse. Nearly one out of every two children in the same age cohort cannot perform a simple division of a three-digit number by a one-digit number. It is in response to this that the new National Education Policy 2023 has set strengthening foundational literacy and numeracy by the third standard as one of its top priorities.

In a 2021 article summarising the global harmonised learning outcomes (HLO) data collated by the World Bank, it was noted that the gap between schooling and learning is acute in developing countries. In rural India, half of the students in grade 3 cannot solve a two-digit subtraction problem (such as  $46 - 17$ ). When learning scores were averaged between 2007 and 2017, India scored 368, performing on par with lower-performing sub-Saharan African countries such as Uganda at 369 (in comparison, East Asia and Pacific scored 445, Kenya 444, and Tanzania 416<sup>5</sup>).

Higher funding for the Indian education system is the first step towards reforming the sector. Successive government committees have since 1968 stated that public investment in education has to be taken to 6 percent of GDP; the UK, the US, Brazil, and Australia all spend 5 percent or more of their GDP towards education. Even the current education policy assumes that higher budgetary allocations to education is key to making quality, affordable, and equitable education available to every child. Government budgets will have to be restructured away from subsidies to create the financial space for higher allocations to education, at both the Central and state levels.

### 1. Government Spending on Education



Note: Figures expressed as percentage of GDP  
Source: World Bank

However, higher funding alone will not suffice, especially in case more money is poured into an unreformed education system. Three areas need particular attention — school infrastructure, teacher training, and curriculum reform. These are the supply side measures that India needs to pursue in the course of its transformation to adequately meet the growing demand for good education from an aspirational young population.

Indian schools suffer from a problem of scale. The success that India has had in reaching universal primary enrolment is partly because of the push to build a school in every small habitation so that it is easily accessible to children. However, this has meant that 40 percent of government schools had less than 50 students in 2016. And 10 percent had fewer than 20 students. Larger schools will allow authorities to aggregate infrastructure as well as teachers. However, that also means that children will need access to either school buses or bicycles to reach school.

School teachers are often poorly trained. The National Education Policy 2020 emphasises that teachers need to upskill to meet the evolving demands of education in the 21st century. Teachers must transition from their traditional roles of instructors to become facilitators, mentors, and guides in the learning process. Teacher training programmes are currently heavily skewed towards pedagogic theory. They need to add a strong element of practical training, including how to use digital technology to impart education to young children.

What children are taught in classrooms also needs to change. Indian public school education is focussed on rote learning rather than problem solving. This extends to the examination system as well. A reformed school curriculum system needs to address not just what is taught in classrooms but also how it is taught. That would entail a cultural change in the Indian school education system.

The new focus on foundational literacy and numeracy is a step in the right direction. The National Curriculum Framework (NCF) for School Education that was released in 2023 says it aims to “foster a school education system that builds character and enables learners to be well-rounded, healthy, ethical, creative, rational, compassionate and caring individuals”. It also seeks to prepare schoolchildren for higher education as well as gainful employment.

School education is thus a bridge to gainful employment via higher education. The reform of higher education is as important as the reform of school education, especially in providing young Indians with skills that are required by employers, big and small. The lack of adequate skills is one reason for the paradoxical situation where surveys show that young Indians rate availability of good jobs as their primary concern, while businesses complain about the inability to hire new workers in factories or projects due to inadequate skills.

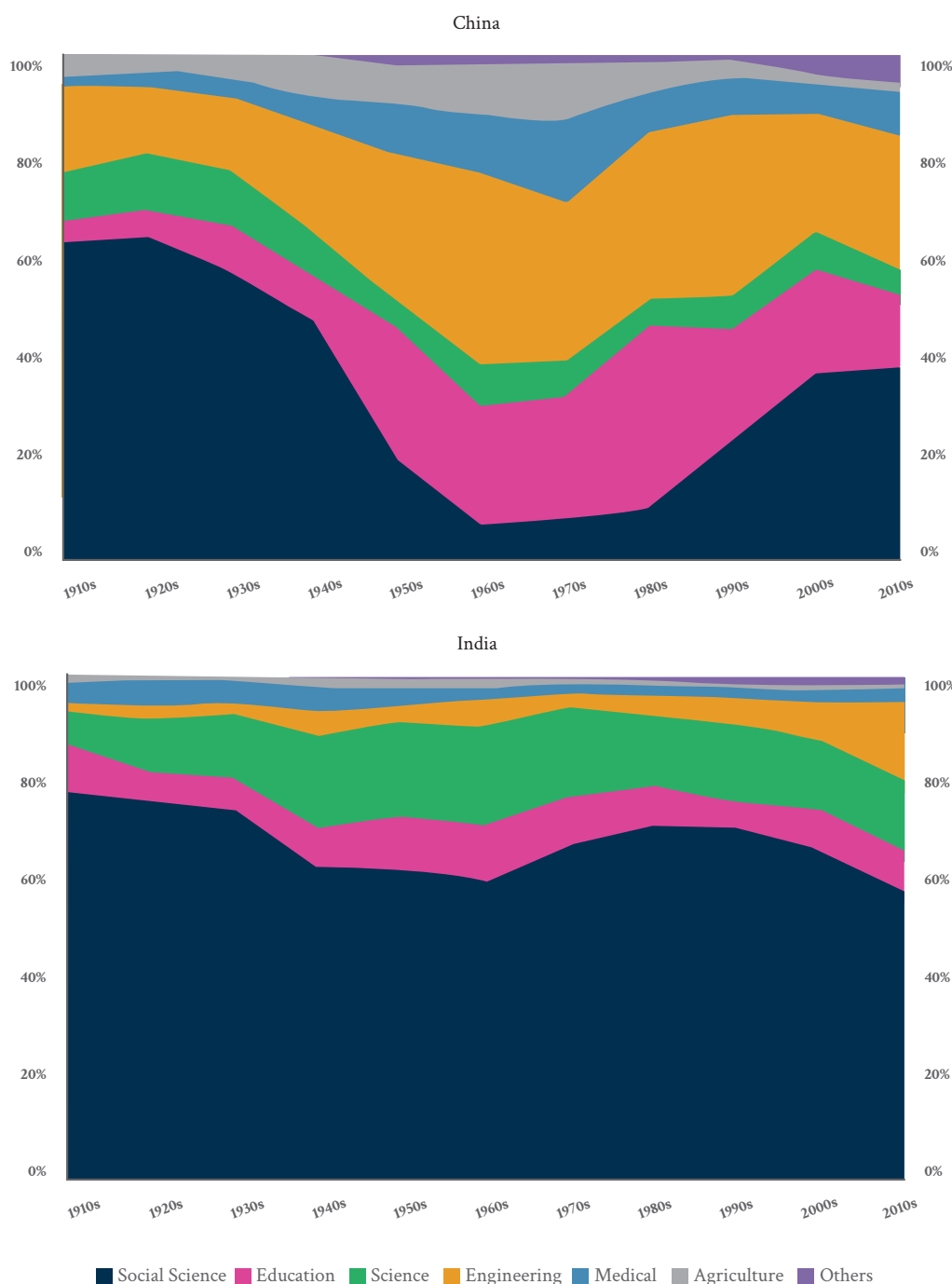
China has produced significantly more engineering graduates than India over the last 30 years, as shown in the following two charts. China’s educational development path has been more closely aligned with the goal of sustained economic growth.

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## **Three areas need particular attention — school infrastructure, teacher training, and curriculum reform**

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## 2. Who Studies What in India and China?



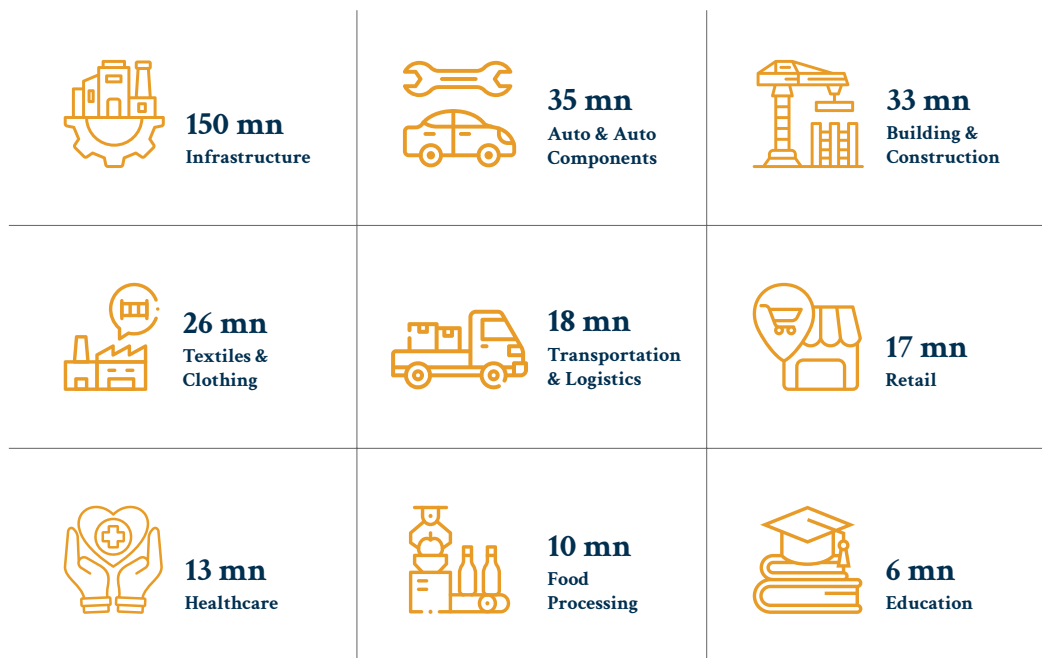
Note: Share of students across disciplines at the bachelor's level, decadal averages  
 Source: *The Making of China and India in 21st Century: Long-Run Human Capital Accumulation From 1900 to 2020*; by Nitin Kumar Bharti and Li Yang; 2024

India stands at a pivotal moment in its development journey. The country is blessed with a remarkable demographic advantage over many countries that are rapidly ageing. With 63 percent of the Indian population in the working-age category, the country possesses an enormous reservoir of human capital that could dramatically boost productivity across all sectors. However, this potential remains largely untapped due to a critical skills gap that threatens to undermine India's economic aspirations.

The scale of this challenge is stark: according to the Economic Survey 2023-24,<sup>6</sup> only 51.3 percent of graduates are considered employable, leaving nearly half of educated youth without viable job prospects. Even more concerning is that merely 2.3 percent of India's workforce has undergone formal skill training — a figure that pales in comparison with other major economies. To put this in perspective, formal skill training reaches 96 percent of the workforce in South Korea, 80 percent in Japan, 75 percent in Germany, 68 percent in the UK, and 52 percent in the US. This dramatic disparity highlights the magnitude of India's skill development challenge.

Research by staffing company TeamLease suggests that there is an opportunity to generate over 300 million additional jobs over the next 10 years, provided the right skills and infrastructure are in place. Skilling 150 million workers specifically for the infrastructure sector could act as a force multiplier, driving broader economic growth. A skilled workforce of this scale would not only support infrastructure development but also enable productivity gains across multiple industries.

### 3. Potential Job Opportunities Over the Next Decade



Source: TeamLease

Several fundamental issues underlie this skills gap. First and foremost is the persistent disconnect between educational outcomes and industry requirements. India's education system often fails to impart the practical skills and competencies necessary for the modern workforce. As industry requirements evolve rapidly, the education curriculum struggles to keep pace, creating a widening gap between what students learn and what employers need. This misalignment highlights the urgent need for greater agility in educational programming and closer collaboration between academia and industry to ensure graduates possess relevant skills and vocational training.

Another critical challenge is India's supply-driven vocational skilling ecosystem. The current approach has resulted in a population that is educated but not necessarily skilled in the true sense. The country needs to transition to a demand-driven vocational skilling system that is both informed

by and curated to industry requirements. Scaling up skill training efforts to globally comparable levels is essential for creating a more productive workforce that can drive economic growth across sectors.

Regional disparities add another layer of complexity to this challenge. A targeted approach to skill development is particularly crucial in states with lagging industrial growth, viz. Bihar, Uttar Pradesh, and West Bengal, amongst India's most populous states. Tailoring skill development initiatives to address specific regional economic conditions is essential not only for stimulating local job creation but also for contributing to overall national economic growth.

The government has recognised these challenges and responded through initiatives such as the Skill India Mission, led by the Ministry of Skill Development and Entrepreneurship (MSDE). Working collaboratively with industry bodies, training providers, and state governments, this programme aims to deliver comprehensive skilling courses. In the 2024 budget speech, the Union finance minister said that 14 million individuals had been trained under the Skill India Mission, including the upskilling and reskilling of 5.4 million people.

Addressing India's skill gap has become an urgent priority. While the country possesses abundant human capital, the lack of requisite skills prevents the workforce from securing employment and making optimal contributions to productivity across sectors. The stakes are high: without immediate and effective action to enhance skills development and align educational outcomes with market needs, India risks squandering its demographic dividend and compromising its economic progress. The path forward requires concerted effort from all stakeholders — government, industry, and academia — working together to create a more skilled, employable, and productive workforce.

The German dual vocational education and training system represents one of the world's most successful models for workforce development, combining practical work experience with theoretical learning. Apprentices divide their week between on-the-job training at a company and attending vocational school to master theory. Employers play a central role in developing curricula to ensure skills match industry needs. Companies bear the majority of training costs, viewing it as a long-term investment in their workforce.


South Korea has adapted the German model to its own needs. Its Meister schools focus on developing highly skilled technicians in strategic industries such as semiconductor manufacturing, energy management, medical devices, and automotive technology. The curriculum is developed in direct partnership with major companies. The Meister schools have elevated the prestige of vocational education, challenging the traditional preference for university education.

India can therefore build on such learnings from other countries with successful skilling programmes. For this to be relevant, Indian business organisations will need to collaborate with governments to design curricula, provide funding support for vocational schools, offer internships to students, map the demand for skills to specific regions of the country, and also provide pathways to integrate informal enterprises into the system of practical training.

As we look to the future, one thing becomes clear: Viksit Bharat begins in our classrooms across schools, colleges, universities, and vocational training institutes. While the challenges are significant, they're dwarfed by the potential of 250 million aspirational young minds ready to learn, innovate, and lead India into its next stage of development.

# Good Jobs

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India needs to create **8 million** non-farm jobs every year over the next decade

## Dynamic Firms Are the Answer

---

The creation of jobs that pay well is central to the goal of an inclusive India, because income redistribution at that scale is neither practicable nor financially viable. The government has already begun to provide incentives to companies to hire more people, but the challenge is not an easy one. New jobs have to be created to take into account three factors: growth in the Indian labour force, people seeking to move out of traditional farming, and more women taking up work outside the home.

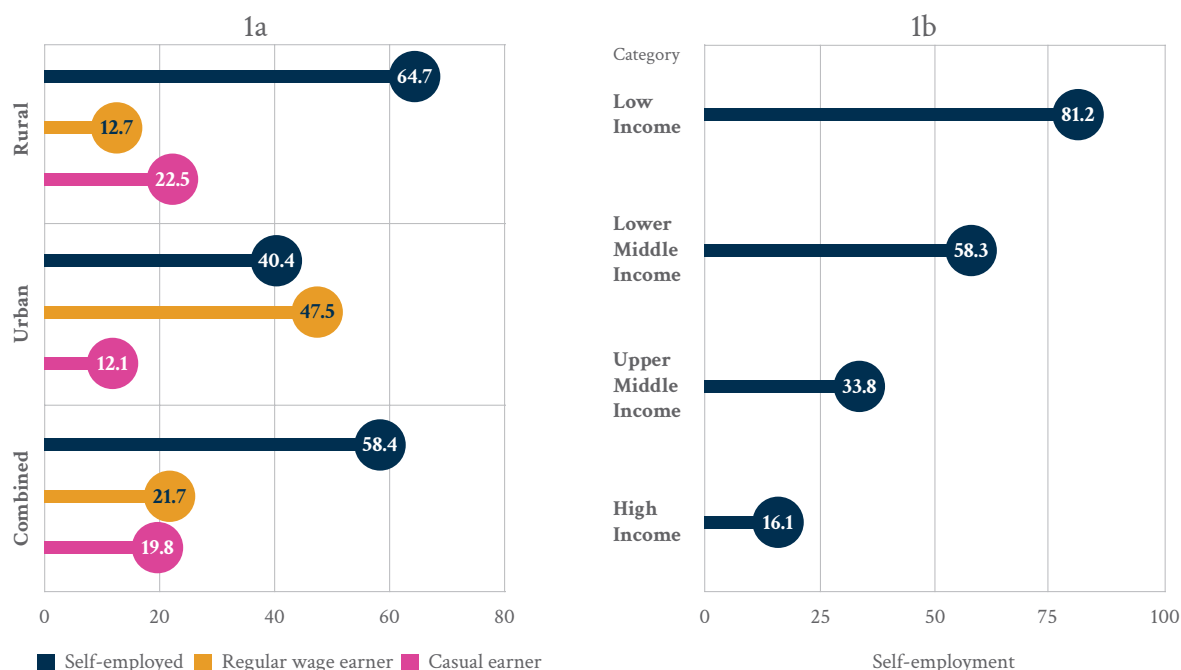
The Economic Survey 2023-24<sup>1</sup> estimates that India needs to create about 8 million new non-farm jobs every year till 2030. A focus on job creation should mean a focus on job creators — or firms that can hire new workers with access to machines, technology, management, credit, and markets. Unless we create more good jobs, an economy with many informal jobs will not advance from low/middle income to developed. India therefore needs more young, dynamic, and growing firms if the aspirations of an expanding labour force are to be met. Policy reforms that ease constraints on firm growth are thus central to the challenge of job creation.

A snapshot of the Indian labour force shows that most workers are busy in tiny enterprises in the informal sector — be it farms, workshops, retail stores, or service outlets. Some of these are household enterprises that minimally hire workers from outside the family. Those that do

hire workers in the labour market cannot offer a work contract or steady employment or access to social protection. The lack of steady jobs has also led to the problem of footloose labour, as workers rapidly move between various types of temporary jobs. This in turn restricts their ability to specialise in specific tasks and build skills over the years.

The vast majority of Indians are currently trapped in work that is unable to provide them with a decent income for their families. The standard of living that is implicit in the goal of Viksit Bharat is possible only if more Indians can shift to work that is more productive, better paid, and with social security. Global experience shows that as countries move up the development ladder, the labour force becomes less dependent on self-employment, which is the dominant form of employment in India right now, and takes up paid jobs. India will have to follow the same path in the journey towards Viksit Bharat. That requires creation of formal sector jobs on a massive scale.

### 1. Indian Labour Market: Hard Work, Low Incomes



Note: Figures are in percentage  
 Source: PLFS Annual Report 2023-24 and *Tax Equity in Low and Middle Income Countries*, by Pierre Bachas, Anders Jensen, Lucie Gadenne

The recent record on job creation has been mixed. The impressive economic recovery after the pandemic has led to higher employment, including of women who have likely been freed from some household duties because of government welfare programmes that provide households with piped drinking water or cooking gas connections. The early success stories in areas such as the assembly of mobile phones offers hope that more industrial employment can be created in India in the years ahead.

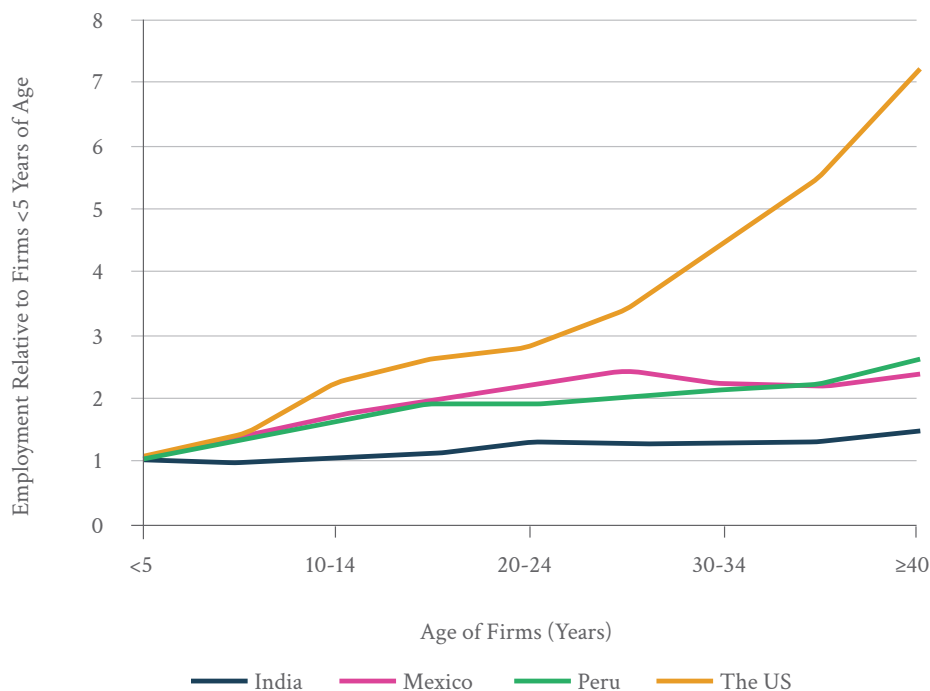
However, much of the recent rising employment curve is explained by an increase in self-employment, often in the form of distress entrepreneurship, in which the goal is economic survival rather than business expansion. There has also been an unusual migration of people

back into agriculture in recent years. The proportion of the Indian labour force in agriculture has increased by more than 3 percentage points since 2020. This needs to be reversed.

For robust job creation, what India needs is not small firms but growing firms. This important distinction needs to be kept in mind, so that there is no fetish about small enterprises as such. The question is whether firms that start small can grow quickly. A small firm in the US grows its labour force seven times over 40 years, in case it survives competitive pressure over that period. Firms in India barely increase their labour force in the same time frame, which is worse than even developing countries such as Mexico and Peru. Underlying this is the uncomfortable truth that informality allows too many tiny firms to survive, which is in effect a misallocation of labour and capital in India. Efficient firms need to grow. Inefficient firms need to exit.

## 2. Small — and Growing — Is Beautiful

“Flat and stay” versus “up or out”: Efficient firms do not expand, and inefficient firms do not exit the market in India, Mexico, and Peru



Source: World Bank

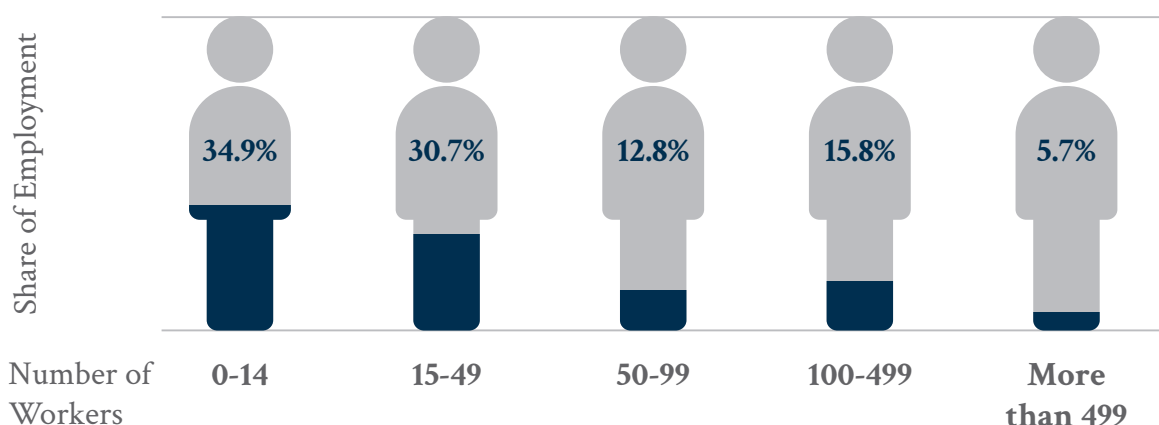
The distribution of Indian firms is skewed. We have some large firms, a disproportionate number of tiny firms, and too few firms in what is described as the 'missing middle'. Over 95 percent of industrial units in India belong to small companies, while 98 percent of micro, small, and medium enterprises (MSMEs) are categorised as micro enterprises. The problem is not of size but the inability to grow — or the distinction that has been made between firms that grow with help versus those that are unable to do so.

The problem of the missing middle needs to be addressed urgently. India requires more firms that employ between 100 and 500 workers, or a local form of the German Mittelstand model, which is the heart of that economy. Only one in six industrial workers are employed in such mid-sized firms.

A thought experiment can explain the potential better. If 100,000 firms can scale up to employ 500 employees over the next 10 years, then that alone will create 50 million new jobs, in addition to the usual jobs created by large firms as well as tiny ones. Nurturing the growth of firms that can cover the gap in the middle of the Indian firm distribution requires policy to focus on three big constraints to firm growth in India: onerous business regulations, poor access to capital, and supply chain links to larger firms.

One way to strengthen the financial capabilities of smaller firms that struggle to raise capital is through the nurturing of the system of cash-flow-based lending, in which lending is done based on the cash flow generated by a business rather than its ability to offer assets as collateral. The system is still in its early days, and its success depends on its ability to leverage digital public goods such as the Goods and Services Tax (GST) network and the network of Account Aggregators that enables consent-based sharing of financial information. The system of cash-flow-based lending is based on a more secure commercial basis than the earlier approach based on regulatory diktats on priority sector lending quotas.

### 3. Wanted: More Employers With 100+ Workers



Note: Data shows distribution of factories by size of employment  
Source: Annual Survey of Industries 2022-23

The problem of suboptimal scale is endemic to the better organised parts of the Indian economy as well. In contrast, across advanced economies, employment in significant numbers has transitioned from micro to small and medium, and in some cases, even larger firms. Business dynamics such as acquisitions, mergers, scaling up, and timely exits trigger increasing contributions to GDP. Studies from around the world show that it is in fact young firms that add to employment, job creation, and growth. Hence, reforms enabling and simplifying the establishment of startups are the need of the hour.

Informality of work status, usually indicative of little to no social protection and low wages, is another glaring problem in India's employment structure. The productivity gap between the formal and informal sectors is stark. Workers in the formal factory sector are far more productive than their peers in various informal activities. The gross value added per employee in a registered

Indian factory in 2022-23 was Rs 11,87,921, or around \$14,000. This suggests that India's per capita income would be more than double its current level, or close to where Thailand or Jamaica are right now, if only Indian workers on average were as productive as those working in registered factories. It also underlines the importance of promoting formalisation in the coming years.

India's complex business regulatory framework consists of 1,536 laws, 69,233 compliance requirements, and 6,632 filings at the Union and state levels cumulatively. Multiple layers of regulatory and administrative authority and decision making bodies further complicate the process. This enormous burden pushes firms to limit their size or operate in the informal sector to avoid compliance costs, thereby bifurcating the labour market into a small formal workforce and a large group left to the informal sector. India's labour laws are among the most rigid, contributing to jobless growth and increasing informality.<sup>2</sup> Additionally, the lengthy and bureaucratic business registration process is still notoriously tedious, in spite of India's rank having risen to 63 in the World Bank's Ease of Doing Business 2020 rankings.<sup>3</sup> Inconsistent taxation and inadequate intellectual property rights (IPR) protection further exacerbate the problem and reduce business investment, both from domestic as well as foreign sources.

There are two important social groups whose aspirations will need to be met in the coming years — youth and women. Sixty-five percent of India's growing population is under the age of 35. Many of them lack the skills needed in a modern economy.<sup>4</sup> The International Labour Organization estimated that young workers accounted for nearly 83 percent of the total unemployed in India in 2022.

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## **A focus on job creation should mean a focus on job creators — or firms that can hire new workers**

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Much of this unemployment is concentrated among those with higher levels of education. The unemployment rate among graduates is 29.3 percent while it is just 3.4 percent among those who are not graduates. This fact once again underlines the reality that quality jobs are not being created fast enough. The rush to get a stable government job is one result. The lack of a higher education system that provides skills training for the labour market means that young Indians often come out of college with generic degrees that fail to meet the requirements of employers.

The unemployment rate among women is also higher than the national average. However, a far more acute problem is that too few women are in the formal labour market. This is a social as well as an economic challenge. The female labour force participation rate is extremely low. Traditional gender roles often prioritise household chores and care work as women's primary responsibilities, limiting their opportunities for paid employment outside the home.

In 2023, India ranked 157 among 178 countries in female labour force participation rates. The World Bank estimated back in 2018 that India's GDP growth rate would climb above 9 percent provided women had an equitable share of jobs, and that India could boost its growth by 1.5 percentage points per year if just 50 percent of women joined the workforce. Women are also under-represented

in the higher echelons of the employment pyramid. Among India's senior officials and managers, women account for only 14 percent of leadership roles — putting India at 136th in WEF's Global Gender Gap Index<sup>5</sup> — and just 30 percent of professional and technical workers.

India needs to encourage the growth of firms — especially young and dynamic firms — to help them generate the formal jobs required to raise living standards. This is especially true in labour-intensive sectors such as electronics assembly, textiles, gems and jewellery, tourism, retail, and construction. This does not mean that large firms do not matter. Anchor investments by large firms will help catalyse job growth not just directly but also indirectly through the growth of domestic supply chains. India has to remain an economy open to international trade, investment, and technology for this reason.

The impact of new technologies such as artificial intelligence on jobs is still not clear, either in developed or developing countries. Digital technologies are automating older tasks as well as creating new ones. The balance between the two will determine whether new technologies will create or destroy jobs at an aggregate level. The recent rise of global capability centres in high-end services indicates that India can also benefit from global digitalisation trends as more work is moved offshore by companies in the developed world. However, much depends on whether the tasks are low-skilled or high-skilled, manual or cognitive. What is beyond doubt is that countries will have to be nimble in training their labour force to adapt to these new technologies, so that there is a net addition in jobs across the economy, and those who lose out are retrained to become eligible for newer types of work.

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**India could boost its growth by 1.5 percentage points per year if just 50 percent of women joined the workforce**

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# Urban Reforms

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Cities contribute an estimated **60%** of India's GDP



## A Tale of Many Cities

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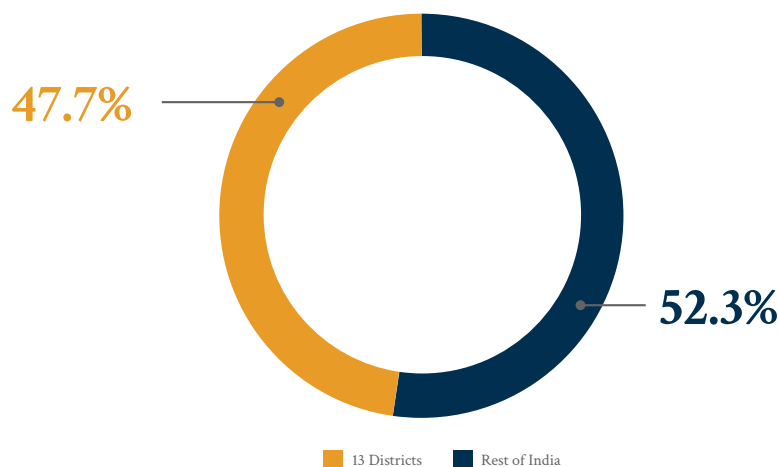
Cities are the engines of economic growth. They are the hotspots where capital, labour, and ideas come together to create value through dense commercial networks. No country has developed into a high-income one without rapid and planned urbanisation. As of 2021, just 13 districts contributed to nearly 50 percent of India's GDP<sup>1</sup> and by 2022, cities contributed an estimated 60 percent of India's GDP.<sup>2</sup> It is to be expected therefore that in the coming years, the urban sector will play a critical role in the structural transformation of the Indian economy and in contributing towards high growth rates.<sup>3</sup> The road to Viksit Bharat runs through its cities.

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**The road to Viksit Bharat  
runs through its cities**

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## 1. Nearly 50 Percent of India's GDP Comes From 13 Districts



Note: The 13 districts comprise Mumbai, Delhi, Kolkata, Bengaluru, Pune, Hyderabad, Ahmedabad, Chennai, Surat, Thane, Jaipur, Nagpur, and Nashik

Source: Ministry of Statistics and Programme Implementation, District Domestic Product Estimates 2020-21

Yet, there is a catch. The strong correlation between economic growth and urbanisation is breaking down, especially in developing countries, as congestion overwhelms the benefits of agglomeration. So, what matters is not just the quantum of urbanisation but also its quality. One of India's key policy priorities over the next decade must be to get urbanisation right.

The first step is properly identifying our urban areas. Official census statistics estimate that India is between 26 and 31 percent urbanised. However, alternative assessments suggest this figure significantly underestimates the reality. Research organisations such as Artha Global, the Indian Institute for Human Settlements (IIHS), and the World Bank estimate that more than half of the Indian population is already living in urban areas. These alternative estimates use different metrics, including satellite data, which provides a clearer picture of India's urban growth.

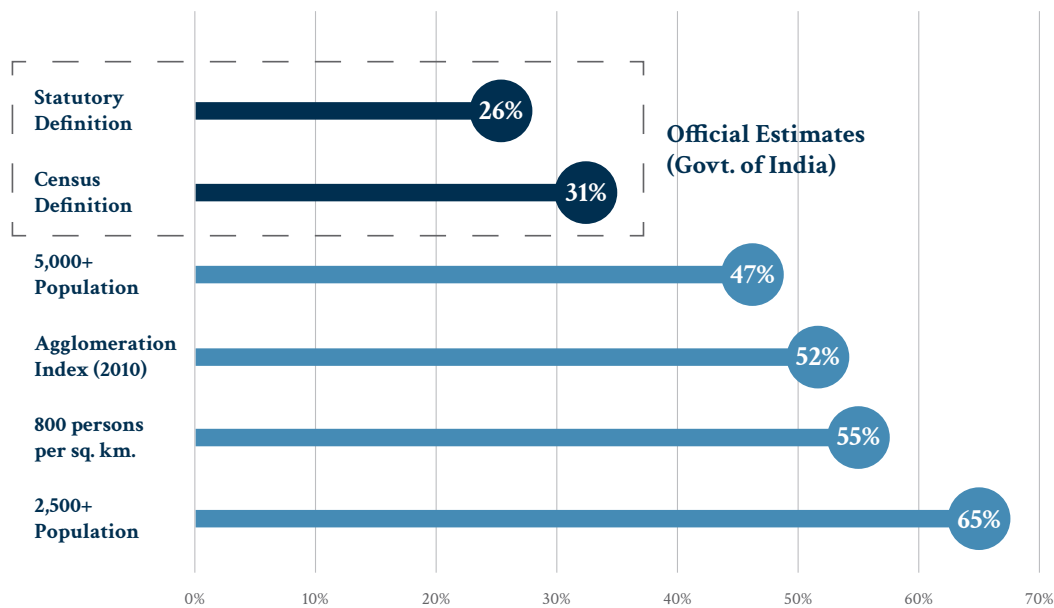
It is crucial to get the urban-rural classification right, to better inform policy design, development planning, governance systems, and finally the flow of funds to each region. Whether one accepts the official estimate of 31 percent or the more likely figure of over 50 percent, one thing is clear: urbanisation is no longer a future possibility for India, but a present imperative.

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**It is crucial to get the urban-rural classification right, to better inform policy design, development planning, governance systems, and finally the flow of funds to each region**

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## 2. India May Be More Urban Than Official Estimates Suggest



Note: 5,000+ Population and 2,500+ Population are estimates from Artha Global based on commonly used global definitions of urban  
Source: *Reforming Urban India*, Artha Global

The view from the sky, using satellite images, shows that many cities have spilled across their formal administrative boundaries and the adjoining peri-urban areas are part of an urban agglomeration even though they are counted in official statistics as villages. These regions often lack basic services such as roads, public transport, and sanitation, because rural local bodies do not have the mandate or capacity to provide them. This mismatch between governance structures and ground realities leaves millions of urban residents underserved. Ahmedabad is one important exception; it has managed urban growth on its outskirts better than most cities of its size.

Cities are fundamentally labour markets.<sup>4</sup> People move to cities in search of better opportunities. Businesses locate in cities in order to access talent pools. Silicon Valley in California, Bengaluru, Hong Kong and countless other urban areas around the world illustrate the innovation that comes from the co-location of talent and opportunities. Secondary opportunities — whether in retail or hospitality — then spring up to service these innovation superclusters. For India to achieve its goal of Viksit Bharat by 2047, it will need to further emphasise and equip its cities and urban areas as centres of innovation and drivers of growth.

If cities are labour markets, then real estate and transport are the means by which people access urban opportunities. In particular, cities need to provide a reliable supply of affordable, safe, well-connected housing and office space which is served by basic amenities. They also need to provide clean, efficient modes of transport, ideally public transport. Getting these two right can go a long way in ensuring urban productivity.

Over the next 10 years, India's urban population will likely increase by 140 million<sup>5</sup> — a figure comparable to the population of countries such as Mexico or Japan. The scale of urban migration in India means that cities, which are already gridlocked and stretched, need to be prepared to absorb new residents. The benefits of agglomeration — where the co-location of firms and

workers boosts productivity and innovation — are increasingly overwhelmed by the costs of overcrowding and inefficiency. There is thus an urgent need to reform how India plans and manages its cities, which with better housing and transport, will attract more talent and create greater opportunities.

Reaching the goal of Viksit Bharat through an acceleration in the rate of economic expansion, the growth of firms, and the rapid creation of jobs in the formal sector has an important spatial angle. Indian manufacturing is moving away from cities with very high density to areas that are less congested.<sup>6</sup> The big cities are now becoming centres for service sector activity. India will thus have to focus its urban strategy on not just the biggest cities but also the smaller ones that will increasingly attract industrial investments.

Indian cities occupy a mere 3 percent of the country's land even as they account for 60 percent of GDP, an indication of urban overcrowding.<sup>7</sup> India needs more cities with scale. In 2011, India had 46 cities with more than a million residents. China had 113 such cities as of 2020. Attention needs to be directed towards better planning and resource utilisation in the other cities of India for them to achieve similar economic output, which will aid the vision of attaining Viksit Bharat by 2047.

India will thus have to pay more attention to the growth in Tier II and Tier III cities.<sup>8</sup> The share of manufacturing in output, employment, and number of enterprises has declined in urban India and increased in smaller places, both peri-urban and rural. Conglomerates and large-scale manufacturing enterprises are moving from urban to rural areas due to a combination of factors including the search for cheaper land, lower pollution restrictions, less congestion, and other spatial considerations. The 2011 Census showed that Tier II and Tier III towns were seeing the highest population growth rates. India needs to invest in these rapidly growing urban areas, and invest early.

By building compact cities which offer multiple benefits, there will be a reduction in the reliance on private vehicles, lowering of infrastructure costs, and creation of vibrant public spaces that enhance quality of life. By focusing on sustainable urban forms, India can position itself as a global leader in climate-friendly urbanisation.

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**Manufacturing is moving towards smaller cities, while the bigger cities are now becoming centres for service sector activity**

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### 3. Urban Spread: Growth Hubs and Cities With Million-Plus People



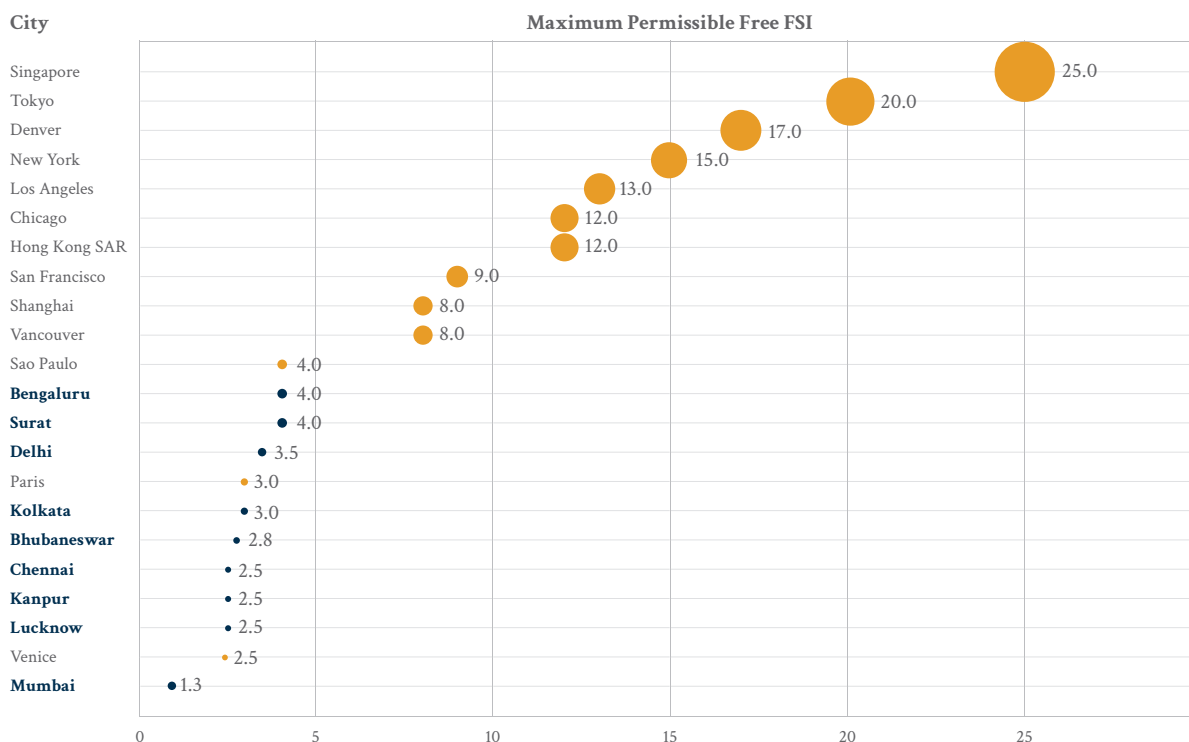
Source: Census of India, 2011 and NITI Aayog, 2023

**India’s urban growth is concentrated, with MMR and NCR alone contributing 16 percent of GDP in 2021. In contrast, China’s 113 cities drive 80 percent of GDP, showcasing balanced growth and higher productivity**

NITI Aayog’s strategy of nurturing growth hubs is truly transformative in this context. These growth hubs — Varanasi, Visakhapatnam, Surat and the Mumbai Metropolitan Region (MMR) — have been conceived as clusters of cities and towns that are adjacent to each other and are economically interlinked. While these cities were selected based on geographic spread, size and scale, they are well-established centres of economic activity and trade, as opposed to being set up from scratch. The focus on growth hubs will necessarily require better municipal and regional coordination. Satellite data also shows that newer regions are evolving into urban agglomerations. This energy and direction have to be harnessed through early investments on the ground.

India has traditionally underplayed its cities, a reflection of the fact that it was a predominantly rural country till recent decades. The management of cities has also been suboptimal. Millions of people moving to existing cities and towns has further increased pressure on urban systems. The challenge is to ease constraints on supply through investments rather than manage demand through restrictions. One stark example is the housing market. Indian cities have some of the most onerous caps on Floor Space Index (FSI). By capping formal built space policy makers thought they could control congestion, but in reality people just crowded into less and less space, often in slums, to take advantage of locational benefits.

### 4. Maximum Free FSI Permissible for Indian and Global Cities, 2018



Note: Mumbai’s maximum free FSI value has since increased  
 Source: *Making Housing Affordable*, Artha Global

Many major cities are gridlocked, imposing extra costs on businesses, citizens, and the environment. The wider metropolitan areas of Bengaluru, Mumbai and Pune have some of the worst traffic congestion in the world.<sup>9</sup> Outside of Mumbai and a handful of other cities, there has been limited investment in public transportation, which allows people to move around with ease. The situation in smaller cities is especially stark. The recent investments in Metro systems in 17 large cities is welcome. However, smaller cities are better served by bus systems, which can have more flexible routes than Metros. Buses remain important for mobility in larger cities, as an alternative to Metros as well as for last-mile connectivity to homes and workplaces. The Indian government's initiative to deploy 10,000 electric buses across the country could also provide a fillip to domestic production.

Outdated planning practices waste valuable land. In global cities such as San Francisco or London, around 60 percent of urban land is allocated to building footprints and 40 percent to streets and public spaces. In contrast, Indian cities allocate just 20 percent to streets and 25 percent to buildings, with the remaining 55 percent wasted in inefficient layouts like private compounds or unused space between buildings.<sup>10</sup> This not only reduces the amount of usable urban land but also makes cities less walkable and less connected.

Reforming land use and efficiently utilising land will improve supply and lower costs, especially in existing land-starved cities. This would address the misconception that cities invite people to share an already deficient and immutable infrastructure. Investing in public transit can open up new parcels of land for development. The rental housing sector plays a crucial role in providing affordable housing options and meeting the diverse needs of a growing urban population. As more floor space gets built, there will be a need to combine it with greater investments in public transport, wider roads and better infrastructure.

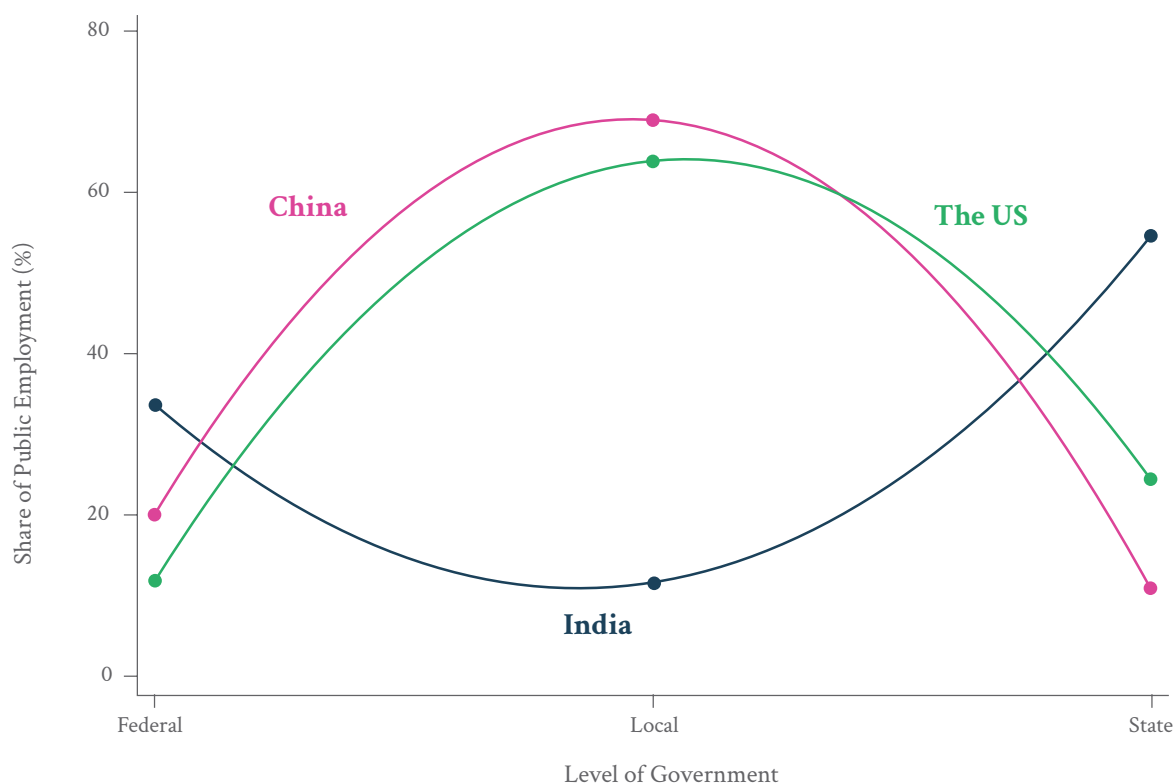
The example of London's use of transportation as the bedrock of its economic revitalisation strategy, when it was losing competitiveness to other European cities in the 1980s, is an important one. Transport for London, an integrated authority that has control over everything from the underground rail to buses to cycling paths, has focussed on moving people, not vehicles. The resulting positive impact on its economy has been considerable.

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**The bodies responsible for administering  
cities generate only about 15 percent of  
their revenue from local sources**

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## 5. India Has Too Few Public Employees at the Local Level



Source: *Why Does the Indian State Both Fail and Succeed?* Devesh Kapur, 2020

Cities need organisational heft to manage rapid growth. The capacity of functionaries within urban local bodies is often inadequate; many local bodies lack trained personnel with updated skills and technical knowledge to effectively manage urban development projects. This lack of domain expertise leads to poor project execution and management, further straining already limited resources.

Ultimately, without a radically transformative approach that empowers local bodies with adequate resources, skilled personnel, clear authority and accountability, and concerted coordination efforts, new and old Indian cities will continue to face challenges and potentially miss the opportunity to evolve into vibrant hubs of innovation and growth.

The bodies responsible for administering cities generate only about 15 percent of their revenue from local sources. One option is to carve out a small slice of national tax collections that can be handed over directly to the major cities through the Finance Commission process, rather than depend on tax devolution from their respective state governments. However, city governments also have to increase their own fiscal capacity through higher property taxes, user charges and rents, complemented with a municipal bond market that can fund specific projects.

Our current city codes lock us into building more and more car-dependent cities like Los Angeles and New Delhi. Instead, we need to build compact, dense cities like New York. City form — or how buildings, roads, neighbourhoods, business hubs, and open spaces are arranged — has largely been left out of the global conversation on climate change because the West has already built their cities. India is still developing its city form and can adapt it to the realities of climate change. In doing so, India can also be the leader in showing how developing countries should build the cities of tomorrow.

Walkable cities can significantly reduce emissions while improving quality of life. Barcelona, for example, has far lower per capita emissions than the Spanish average, thanks to its dense, transit-oriented urban form. Indian cities can replicate this success by integrating climate considerations into urban planning. They need to craft their own plans to adapt to climate change, in sync with national commitments. This includes designing energy-efficient buildings, investing in renewable energy, and creating green public spaces. The Mumbai Climate Action Plan, which seeks to make it a net zero city by 2050, is an example other cities can emulate.<sup>11</sup>

India stands at a crossroads. The choices made today will determine whether Indian cities surge forward as areas of opportunity and growth or continue to struggle under the weight of congestion and inefficiency. The development of cities like Seoul, Shanghai, Hong Kong, and Singapore prove that with the right policy and management, cities can grow rapidly while constantly improving their infrastructure and their environment. Adopting relevant learnings is necessary for Indian cities to improve their livability and enhance productivity — key measures for India's journey to becoming Viksit.

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**Adopting relevant learnings is necessary for  
Indian cities to improve their livability and  
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India's journey to becoming Viksit**

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# Health Systems

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India's healthcare industry has the potential to accelerate tenfold to approximately **\$37 billion** by 2030

## Looking After India

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Public health systems involve far more than hospitals and physicians, whose work often focuses on tertiary prevention (averting complications among patients with known disease). Both public health and clinical medicine are also concerned with primary and secondary prevention. The World Health Organization (WHO) recommends that most (90 percent) of the essential interventions for universal health coverage (UHC) can be delivered through a primary health care (PHC) approach, potentially saving 60 million lives and increasing average global life expectancy by 3.7 years by 2030.

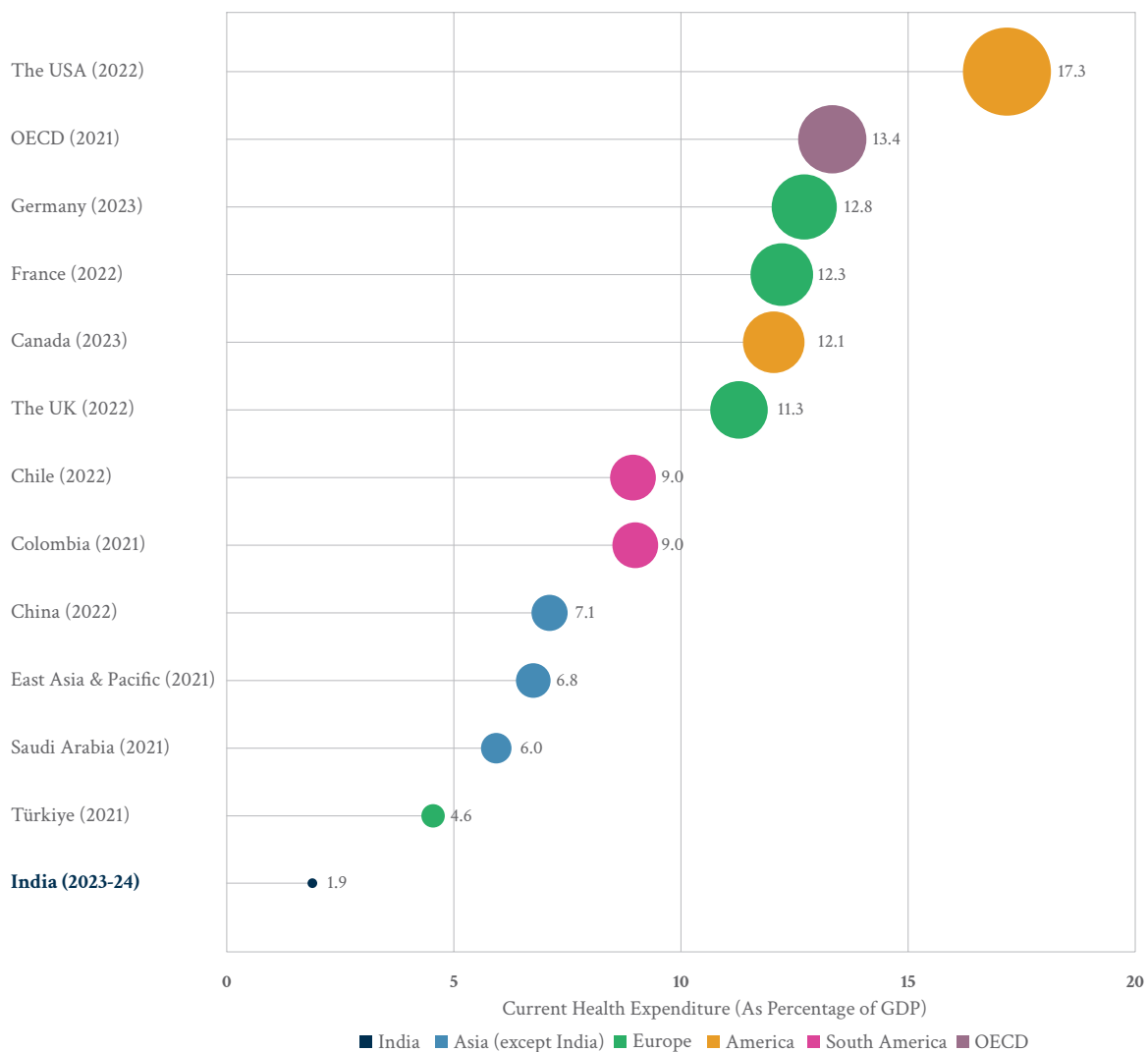
WHO defines UHC as all persons, irrespective of origin, having access to a full range of health services — from health promotion to prevention, protection, treatment, emergency interventions, rehabilitation, and palliative care — without financial difficulty. UHC is one of the 17 UN Sustainable Development Goals (SDGs), offered in some form by 73 countries, including India, as of 2024. Notably, all developed countries, except the US, offer UHC.

Since Independence, India has greatly improved on key health indicators such as infant and neonatal mortality, under-five mortality, and maternal mortality. The sex ratio now stands at 1,020 women for 1,000 men<sup>1</sup> and average life expectancy for males and females is 70 years,<sup>2</sup> a sharp contrast from the 1947 figure of 31 years. However, India has transformed radically since

Independence and newer challenges have emerged, and therefore much more needs to be done quickly in order to provide affordable, quality healthcare services to 1.4 billion people. Ramping up the provision of quality healthcare to the public is significantly hampered by inadequate medical infrastructure, a shortage of qualified healthcare professionals, urban-rural disparities, very limited health insurance coverage, insufficient funding, and a complex, fragmented healthcare system.

Healthcare delivery systems across nations — developed, developing, and underdeveloped — differ on two main points: resources which include funding, and basic health infrastructure.<sup>3</sup> The Indian government spends a mere \$74 per capita on healthcare (India ranked 77 in 2024); in comparison the UK spends over \$5,000 per capita. Healthcare expenditure in India stands at merely 1.9 percent of GDP in FY2024. In comparison, the UK spends over 10 percent and the US healthcare expenditure is nearly 17 percent of GDP. The Fifteenth Finance Commission proposed that Union and state governments’ spending should be increased progressively to reach 2.5 percent of GDP by 2025, focusing on improving infrastructure, human resources, and public health programmes.














### 1. India’s Healthcare Allocation Needs a Shot in the Arm



Source: World Bank

India’s healthcare system is organised into primary, secondary and tertiary levels and is characterised by a network of public and private providers. India has numerous publicly funded healthcare programmes and schemes, both at the Central and state levels, to cover people under various socio-economic categories. Three million more hospital beds are required to raise the hospital bed-to-population ratio from the current 1.6 beds / 1,000 people, amongst the lowest in the world, to 3 beds / 1,000 people by 2025. <sup>4</sup>

## 2. India’s Hospital Bed-to-Population Ratio Is Amongst the Lowest

Countries	Hospital Beds (Per 1,000 People)
China (2020)	5 
Sri Lanka (2020)	4 
Norway (2020)	3.4 
World (2020)	3.3 
Netherlands (2020)	2.9 
Finland (2020)	2.8 
The US (2020)	2.7 
Singapore (2021)	2.6 
Canada (2020)	2.6 
The UK (2021)	2.4 
Bhutan (2021)	2.2 
Sweden (2020)	2 
India (2021)	1.6 

■ India ■ Asia (except India) ■ Europe ■ America ■ World

Source: World Bank

Much of the public healthcare sector caters to non-urban regions and poor standards arise from the reluctance of experienced healthcare providers to visit these areas. Issues such as insufficient medical equipment, lack of basic supplies, and poor working conditions contribute to the reluctance of healthcare workers to remain in or move to rural areas. Many rural facilities do not have robust recruitment and retention strategies in place, which can lead to prolonged vacancies. Understaffing leads to increased workloads and longer shifts for existing staff, resulting in burnout, low productivity and eventually decline in care provided to those in need.

Recognising the need to address the lack of basic healthcare infrastructure, such as PHCs and hospitals,<sup>5</sup> concerted efforts were made by Central and state governments to raise the number of sub-centres (SCs), PHCs, and community health centres (CHCs) in India by 85 percent, 61 percent, and 120 percent, respectively, between 2005 and 2023. As a result, the percentage of rural population covered by PHCs increased from 68 percent in 2005 to 86 percent in 2023.<sup>6</sup> However, longstanding quality-of-care issues, delays in receiving services, and other reasons such as unhygienic conditions of state-run medical facilities often deter the middle and upper class from using them.

Access to healthcare is also hampered by the very low insurance penetration across the country. A 2023 paper<sup>7</sup> noted that only 40 percent of households in India had insurance coverage for at least one of its members, with vast geographic variation, emphasising the need for aggressive expansion and coverage. Of these about 15.5 percent were covered by national schemes, 47.1 percent by state health schemes, and 13.2 percent by employer-provided health insurance. In addition, 3.3 percent had purchased health insurance privately and 25.6 percent were covered by other health insurance schemes (not covered above).

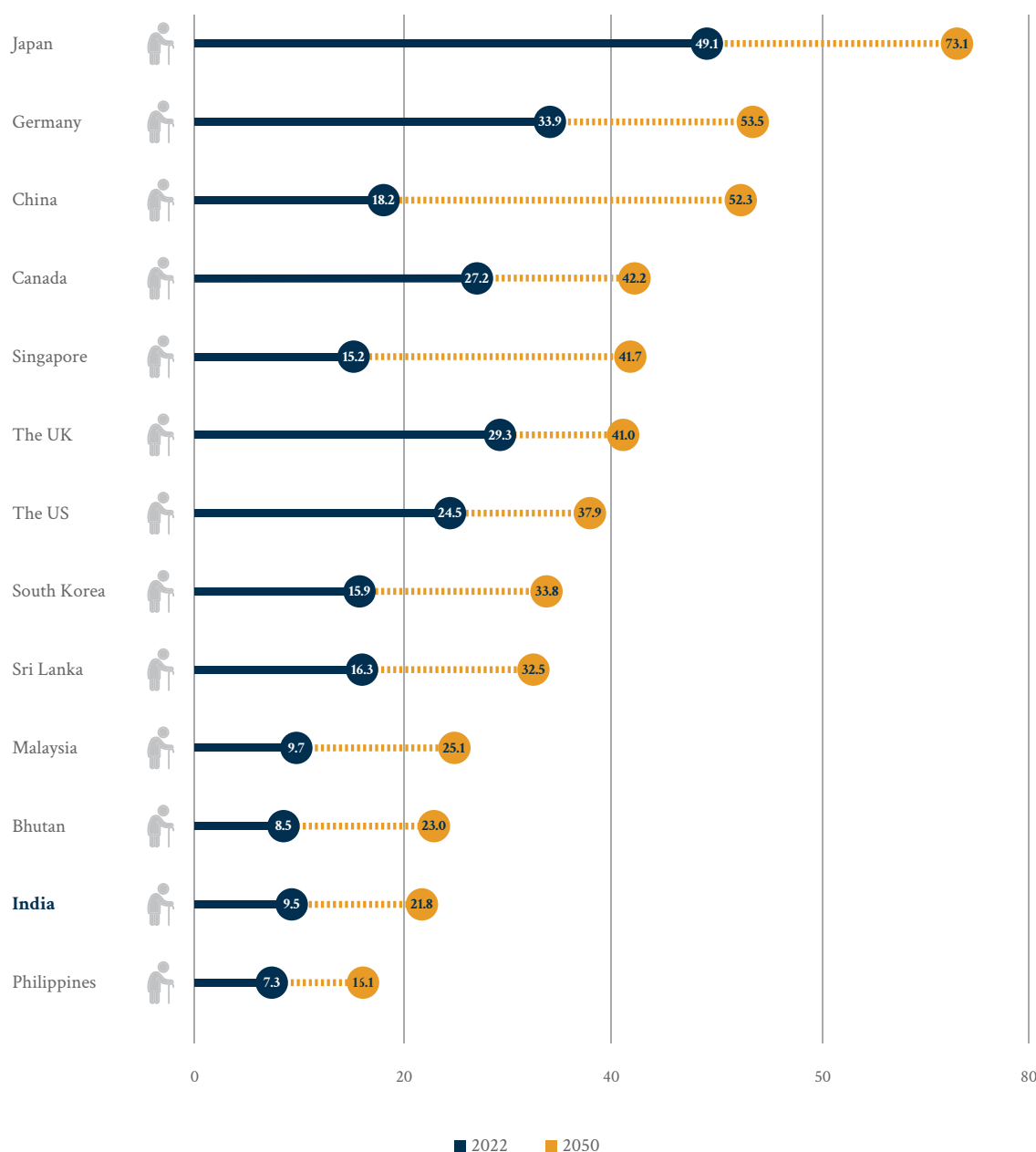
India's old-age dependency ratio, which was around 9.5 percent in 2022, is expected to reach nearly 22 percent by 2050.<sup>8</sup> (Old-age dependency ratio is the population in the old-age group, defined as 60+, over the population aged 15–59.) With declining fertility rates and people living longer, this increases the burden of care work and associated costs for the working age population.

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**Only 40 percent of households in India had insurance coverage for at least one of its members, with vast geographic variation, emphasising the need for aggressive expansion and coverage**

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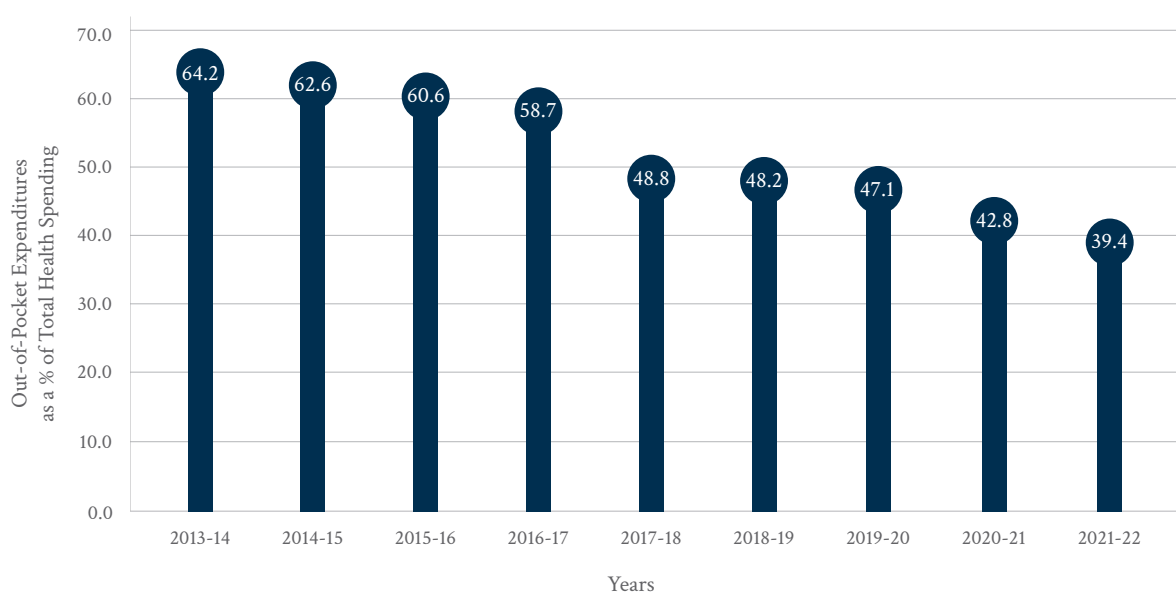
### 3. Old-Age Dependency Ratios



Source: World Population Prospects 2024

In an effort to make safe, effective, and quality healthcare more accessible, all Indian citizens aged 70 and older (approximately 60 million individuals across 45 million families) are now eligible for medical cover under the government’s Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY),<sup>9</sup> for expenses up to \$5,922 (Rs 500,000) per year. While the extension of coverage to all seniors is a widely welcomed policy, the scheme’s implementation remains far from smooth. Hospitals face serious cash flow and operational issues owing to delays in reimbursements, leading them to opt out of AB PM-JAY. It is therefore imperative to bring in more healthcare facilities under the ambit of AB PM-JAY. To make PM-JAY more inclusive, it should also include outpatient care, medicines, and preventive care, which are significant sources of out-of-pocket expenditure. The average Indian household spent Rs 3,638 on healthcare-related expenditure in FY2022.<sup>10</sup>

## 4. The Cost of Care



Source: National Health Accounts (NHA) estimates, Government of India

Sri Lanka's healthcare system has garnered attention for its effective practices that can serve as models for other countries. The country provides universal free public healthcare, funded through general revenue taxation. This model ensures that all citizens have access to essential health services without financial barriers.<sup>11</sup> Sri Lanka's supply-side health initiatives have achieved notable success in two of the three main areas of service delivery. First, maternal and child health, along with infectious disease control, is prioritised due to ethical considerations and the acute nature of these services, which drives community demand. Second, inpatient hospital care is critical for protecting economically vulnerable households from potentially catastrophic costs — and the implementation challenges are more manageable as the number of hospitals is limited compared to primary care units.<sup>12</sup>

Scandinavian countries are recognised for their effective healthcare systems, which are characterised by universal access, public funding, and a strong emphasis on equity and quality. In a recent report from U.S. News & World Report, Sweden ranked first on their list of the Top 10 Countries With the Best Healthcare Systems, and Finland ranked third.<sup>13</sup> The Ministry of Health and Social Affairs, Sweden, and the Ministry of Health and Family Welfare, India, signed a Memorandum of Understanding in February 2009 to promote bilateral co-operation in the area of healthcare and public health.

In Brazil, any citizen, tourist, even a refugee, or an undocumented immigrant, is eligible to receive free and immediate medical care in whatever form they need, from primary care to surgery to prescription medications, with no previous application or paperwork necessary. This is a model to emulate.

UHC, which acts as a catalyst for sustainable growth and development, is vital to improving the well-being of a country's population and is a crucial element of investing in human capital. There are learnings for India from all these and other global examples of successfully managed public health programmes and initiatives. UHC reduces the risk of people falling into the medical poverty trap — a cycle of poverty and poor health brought on when savings are wiped out and people take on debt to pay for health services, and eventually receive insufficient treatment. UHC will further stabilise their future and that of their children.

There is a rise in the incidence of non-communicable diseases (NCDs) due to environmental factors (pollution, water-borne ailments) and lifestyle-related issues (sedentary jobs, lack of exercise, over consumption of unhealthy foods). A majority of them are preventable and/or manageable with early detection and modifications to diet and habits. Currently, NCDs are responsible for over two-third of the deaths in the country. In the long run, prevention is more cost-effective and vital for reducing the burden of disease.

One out of every nine people in India is expected to be diagnosed with cancer during their lifetime. With 1.4 million people diagnosed with cancer in 2022, India has the third-highest burden of cancer globally — in terms of cases — after the US and China. With limited insurance coverage, many are forced into distress financing — borrowing money, pawning jewellery, depleting savings, or selling assets.<sup>14</sup>

Undernourishment and malnutrition remains a major problem in India, even in affluent urban households. Poshan Tracker's data for June 2024 revealed that 35 percent of children under five years old were stunted (too short for their age), 17 percent were underweight, and 6 percent were wasted (too thin for their height). These figures indicate recent weight loss in children, typically due to inadequate nutrition or (frequent) illness / low immunity. Studies reveal that India loses up to 4 percent of its GDP and up to 8 percent of its productivity due to child malnutrition.<sup>15</sup> WHO, UNICEF and the World Bank have intensified efforts to emphasise the importance of adequate nutrition for all children in the first three years of life, however, protein and iron deficiencies are widespread, as is maternal malnutrition. Targeted supply of fortified and indigenous foods and tracking of health parameters of the vulnerable population on a large scale can go a long way in overcoming this deficit.

Conversely, approximately 45 percent of India's population is dangerously close to being classified as unhealthy,<sup>16</sup> stemming from an overreliance on cheap, widely available, packaged snacks and a growing market for ready-to-eat meals (both categories being low in nutritional content and high in fat content and calories). It is therefore critical to improve supply and lower food inflation, making a wider variety of fresh fruits and vegetables available all year around.

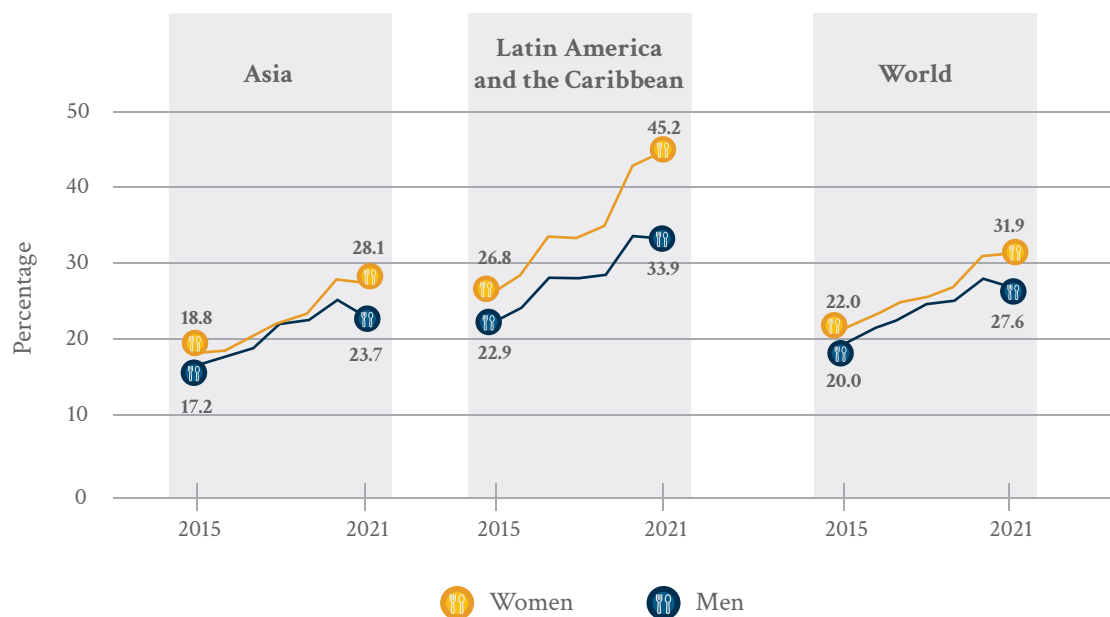
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**Targeted supply of fortified and indigenous foods  
and tracking of health parameters of the vulnerable  
population on a large scale can go a long way**

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Studies show that women are disproportionately affected by food insecurity in all regions, which further exacerbates existing gender inequalities. This highlights structural barriers, such as unequal access to resources (land, education, employment), and systemic issues in societies where women often have to bear the brunt of poverty. This increased food insecurity has long-term consequences on their health and well-being, which, in turn, has economic repercussions. Food insecurity in women can lead to reduced labour productivity and participation, particularly in regions where women play a key role in agriculture and informal labour markets. This can slow economic growth and development and must be addressed early.

## 5. The Gender Gap in Food Insecurity



Source: *The State of Food Security and Nutrition in the World 2022*, FAO

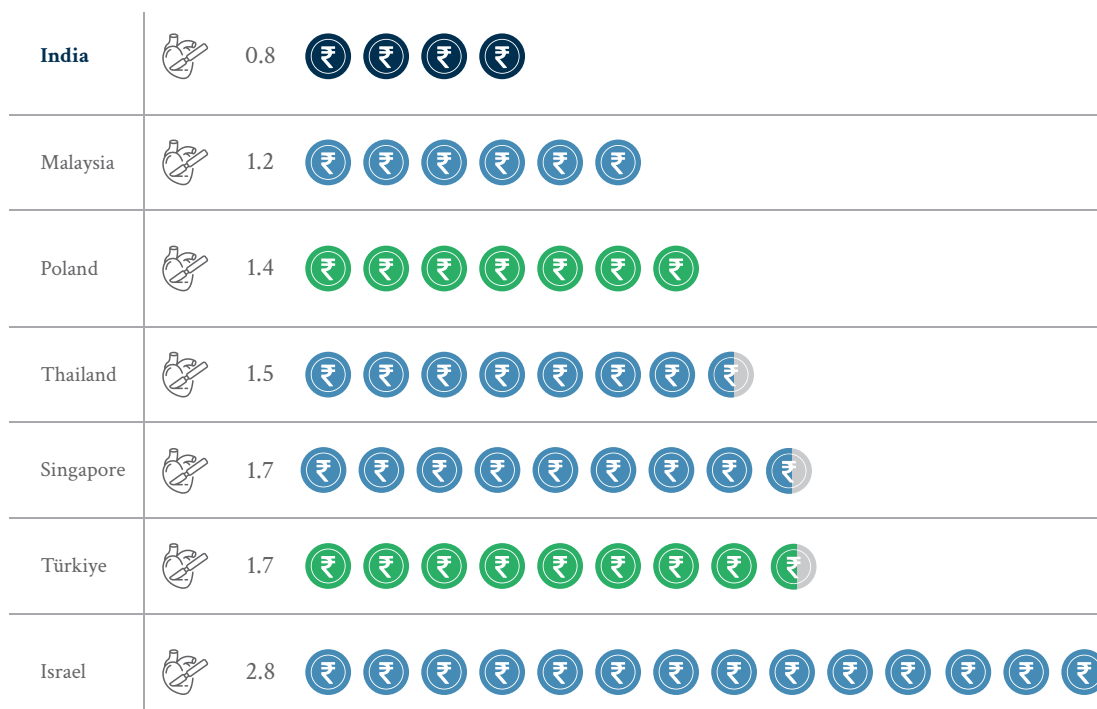
Nevertheless, against all of these challenges, India has tremendous potential to develop as a leading healthcare destination and supplier in two main avenues: medical value travel and manufacturing of pharmaceutical products.

### 1. Medical Value Travel (Elective Procedures and Wellness)

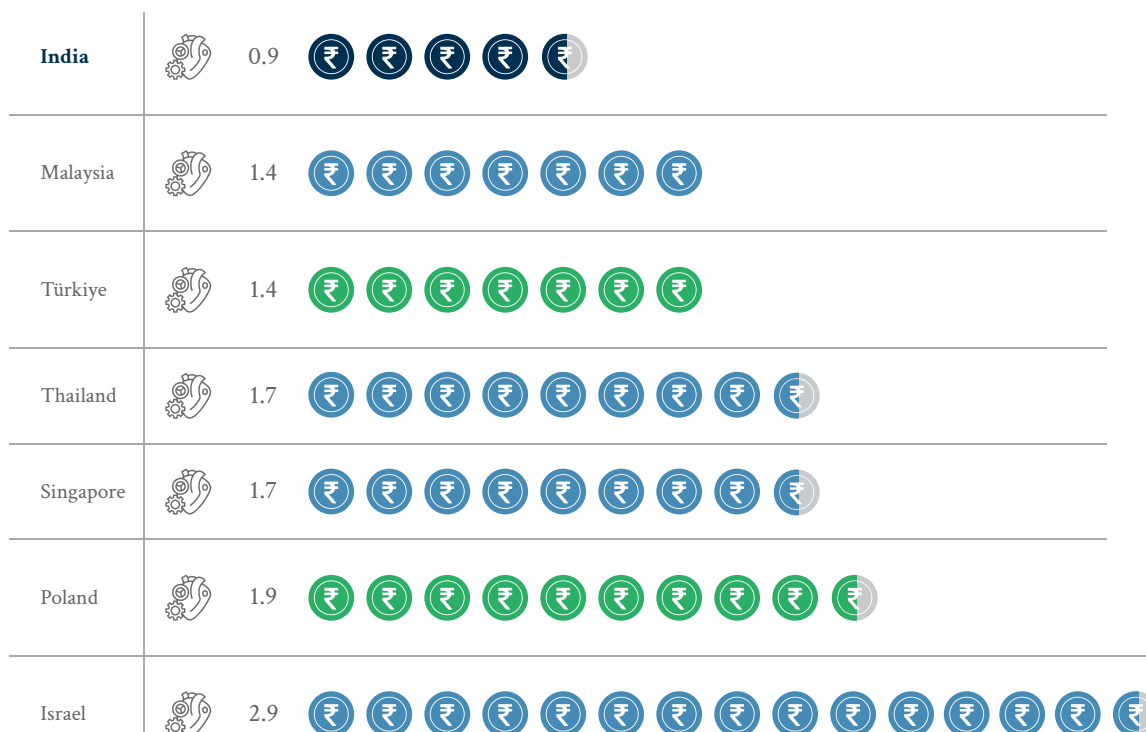
India ranked 10th in the Medical Tourism Index (MTI) for 2020-21 out of 46 destinations in the world.<sup>17</sup> Income from medical tourism was approximately \$7.4 billion between 2012 and 2022, and the figure is expected to rise to \$43.5 billion by 2033.<sup>18</sup>

According to Crisil, an estimated 7.3 million medical tourists are expected to visit India in 2024, driven by factors such as top-notch healthcare infrastructure, skilled medical professionals, and cost-effective treatment options.<sup>19</sup> India offers medical procedures at significantly lower rates, ranging from 60 to 90 percent lower than those in Western countries. The affordability of care in renowned private hospitals, coupled with minimal waiting periods, availability of state-of-the-art medical and diagnostic equipment from global international conglomerates, and English-speaking medical professionals greatly influences patients' decision-making processes in favour of inward medical tourism.

## 6. Cost of Medical Procedures: India's Comparative Advantage



Note: Cost of treatments for heart bypass in India and elsewhere (in Rs. mn)



 = 0.2 Rs. mn

■ India ■ Asia (except India) ■ Europe

Note: Cost of treatment for heart valve replacement in India and elsewhere (in Rs. mn)

Source: Government of India, Ministry of Tourism, 2023

## 2. Leadership in Manufacturing Pharmaceutical Products

India now ranks third globally by volume of production and 14th by value, thereby accounting for around 10 percent of world's production by volume and 1.5 percent by value. The pharmaceutical industry in India is currently valued at \$50 billion and is expected to reach \$130 billion by 2030, driven by factors like a strong export market, low cost of production, low R&D costs, highly educated, specialised scientists, among others.<sup>20</sup> To ramp up, India needs to invest in manufacturing more sustainable medicinal products, promoting local sourcing, identifying critical suppliers, de-risking, and decarbonising the supply chain.

Of late however, instances of spurious drugs being exported and being made available in the domestic market have been uncovered. Therefore, India's pharmaceutical industry faces a serious reputational risk and must strongly emphasise adherence to international standards and meeting stringent quality benchmarks, which are crucial for maintaining its global reputation as a leading quality supplier of generic medicines and low-cost, safe vaccines.

To summarise, the Indian health system will benefit from interventions in the following areas, starting with a focus on detection and prevention. Significantly ramping up awareness programmes, organising screening drives and funding diagnostic testing tools are essential for India's changing demographics. Second, set up a functional medical college (and hospital) in every district of the country and create regional clusters for specialties to reduce regional inequality of access to care and overcrowding in existing centres. Third, rapidly increase the number of trained medical professionals. As of 2020, there were 1.7 nurses and midwives per 1,000 people in India, while the world average is 3.8 per 1,000.<sup>21</sup> Meanwhile, there were 0.7 physicians per 1,000 people as of 2020, while the corresponding world average was 1.7 as of 2019. Next, to reduce out-of-pocket expenses, cover medication and tests. Of course, India needs to substantially expand health cover — eliminating taxation on premiums is one step to aid this. Improving terms of trade and setting up efficient supply chains of medical devices and equipment will go a long way towards improving access to upgraded facilities and technologies. Finally, the use of digital technology such as telemedicine, mobile apps and platforms to port and store medical records, integrate them across health networks, and AI to assist physicians and caregivers will further streamline processes and make them less time consuming and more efficient.

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**Food insecurity in women can lead to reduced labour productivity and participation, particularly in regions where women play a key role in agriculture and informal labour markets**

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# Technology and Innovation

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India's spending on R&D as a percentage of GDP needs to **treble** from the current 0.6%

## The Power of New Ideas

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Innovation is the beating heart of an advanced economy. One of the stylised facts about economic growth through the ages is that it is initially driven by the use of more inputs but is later dominated by the smarter use of these inputs, or innovation. India's path from lower middle income to upper middle income to high income will necessarily involve a similar transition from economic growth led by investment to economic growth led by innovation. We already see China making that transition, with its dominating position in areas such as solar energy, electric vehicles, and new materials. This dominance comes in the wake of at least ten years of policy focus on building an innovation ecosystem in that country, spanning universities, laboratories, and companies.

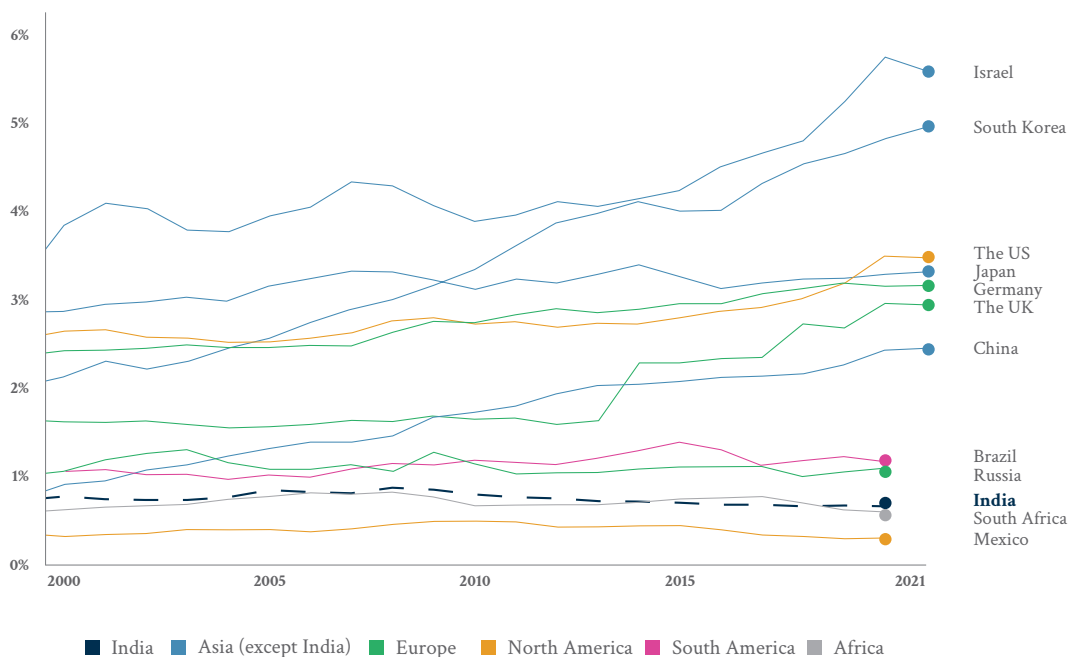
India has a more innovative economy than is predicted by its average income level alone. It is the only lower-middle-income country among the top 40 in the annual Global Innovation Index created by the World Intellectual Property Organization, INSEAD and *World Business*, a British magazine.<sup>1</sup> The index evaluates the innovation performance of around 133 global economies, showcasing their strengths and weaknesses in fostering innovation. In other words, India is not dominated by a few economic activities, often in commodities or low-end manufacturing, that many other lower-middle-income countries depend on. It has a sophisticated economy with a mix

of low-skill and high-skill sectors. The Indian economy is also more diversified than its peers in terms of the Economic Complexity Index created at MIT and Harvard University.<sup>2</sup> This diversity of background leads to diversity of thought, thus creating a fertile ground for innovation.

Yet, for India to fully leverage this position, it must establish “innovation superclusters.” The ingredients for such clusters include talent, funding, and knowledge — meaning a coalition of entrepreneurs, venture capitalists, and universities, combined with conducive government policy. History offers compelling examples of this synergy. Florence during the Renaissance, with its thriving workshops and patronage networks, and Silicon Valley in the US, with its deep ties between academia, industry, and investment, show how concentrated efforts can produce far-reaching innovation. There is much for India to learn and implement in this regard — specifically about building similar cross-sectoral links. By breaking away from the culture of working in silos, India can transform its innovation potential into sustainable economic growth built on the twin engines of creativity and disruption.

However, to lay the groundwork for this transition, India needs to address one critical issue: research and development (R&D) funding — the prerequisite for a successful innovation ecosystem. Globally, the average R&D expenditure is 1.8 percent of GDP, with the highest levels in Israel and South Korea. India, in contrast, spends a modest 0.6 – 0.7 percent of its GDP on R&D — a figure that has stagnated for over two decades and trails behind every other BRICS nation.<sup>3</sup> This limited investment constrains India’s ability to access cutting-edge technology necessary to further the scientific temperament in the country.

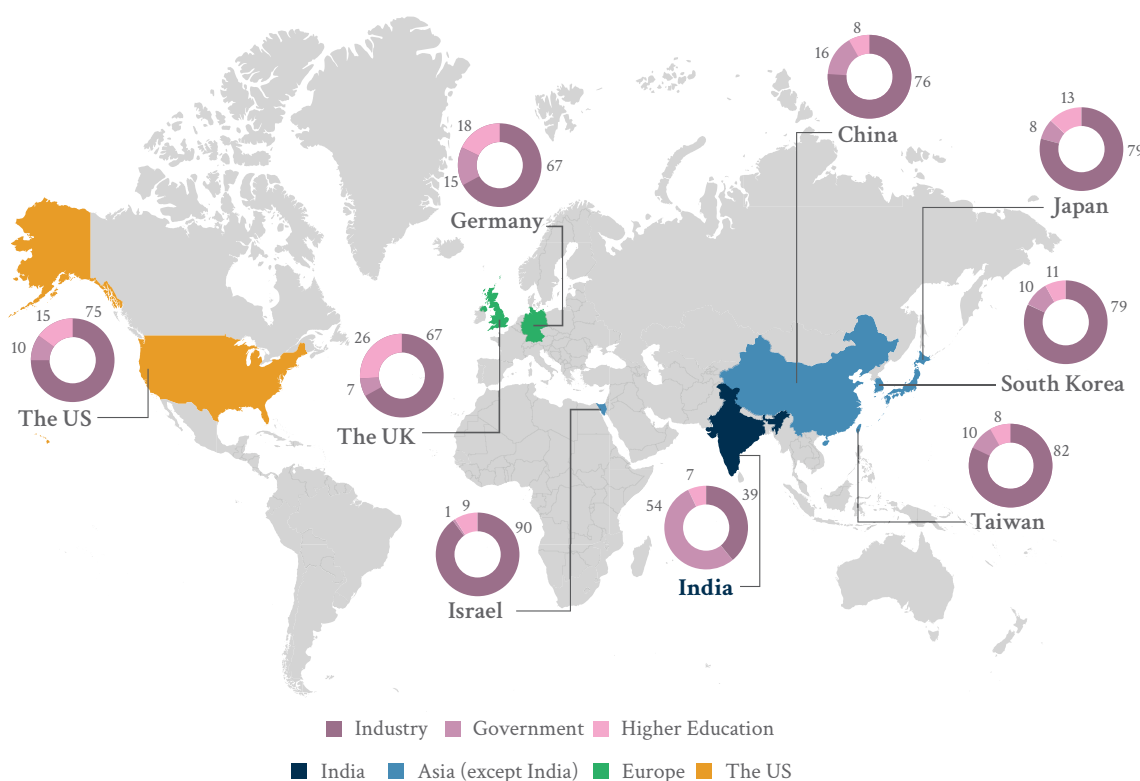
### 1. India’s R&D Funding Needs to Catch Up to Meet the Country’s Aspirations



Note: Percentage of GDP spent on R&D by the BRICS nations: Brazil (1.2 percent), Russia (1.1 percent), China (2 percent), and South Africa (0.8 percent)  
 Source: Multiple sources compiled by World Bank (2024) – processed by Our World in Data

India's R&D funding structure also deviates from global best practices. The country's R&D funding relies heavily on public spending, with the government shouldering 60 percent of the investment and the rest coming from the private sector. This is an inverse of the more effective 30–70 public-private split seen in advanced economies. With industry taking the lead in financing and conducting R&D, it provides the benefit of shortening the distance between where technology is developed and where it is commercialised.<sup>4</sup> To achieve a similar structure in India and enhance economic growth, a concerted effort is required to bring industry into a larger role. In other words, the curve of R&D spending by businesses needs to intersect that of the government, and rise, only then can India be at par with developed countries.

## 2. Breaking Down the R&D Pie: Share of Industry, Government, and Higher Education



Source: CTIER Handbook 2023

Currently, much of India's public research is conducted in autonomous government labs, isolated from both academia and industry. This disconnect is a structural inefficiency that limits the real-world applicability of research, preventing it from reaching a commercial scale. In contrast, globally, state-funded R&D is directed at the higher education sector and technological research in industry. This practice of situating public research in educational institutes leads to the generation of expertise — something that is missing across much of India.

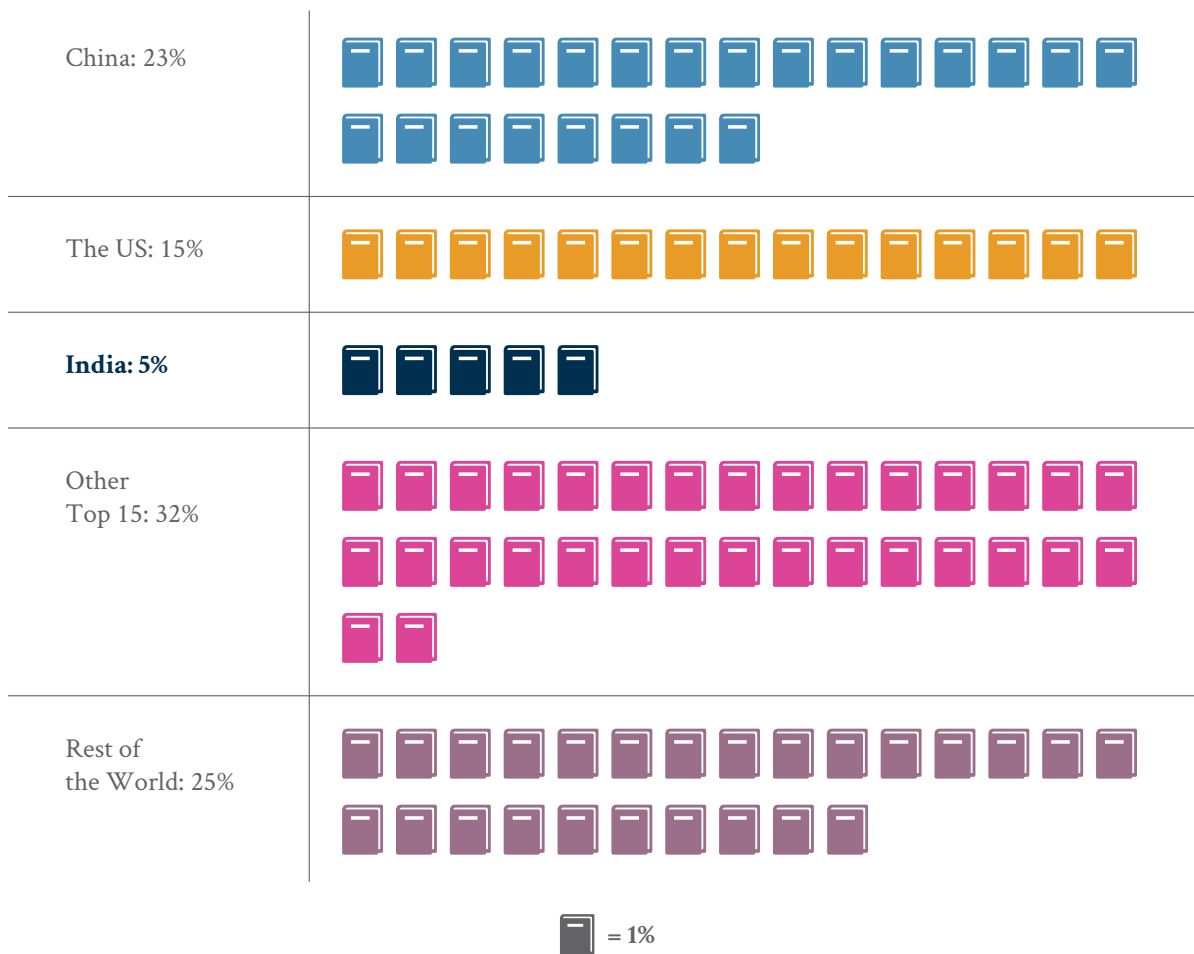
One of the ways to lead this change is by creating access to the expertise, facilities, and equipment that reside within the public-funded R&D laboratories. By opening these government labs to partnerships with universities, startups, and industry, India could foster greater synergy and

speed up the transformation of research into innovation with societal impact. By creating this culture of innovation through collaboration, the research in labs would find practical applications and accelerate the time needed to bring scientific advances from 'lab to land.'

This is not to say that the government's role in R&D should be reduced; rather, it must be recalibrated. India needs to become more innovative by doing things which, at present, are not done at all.<sup>5</sup> This would mean creating markets, sectors, technologies and economic landscapes that have not existed before. Historically, this has led to the birth of the Internet, nanotechnology, biotechnology, and clean energy — which would not have happened if the governments had not stepped up with the needed investment that the private sector has been shy of providing. The government needs to think big and interact closely with the private sector to expand the overall pie of the national output.

The limitations in the current R&D environment are also reflected in India's share of the science and engineering (S&E) publications. India's output stands at only 5 percent, behind China and the US which cumulatively account for one-third of the pie.<sup>6</sup> Despite ranking third, the lack of R&D funding stymies India's output in globally recognised peer-reviewed journals.

### 3. Worldwide Science and Engineering Publications, 2020



Note: Other top 15 comprises Germany, the UK, Japan, Russia, Italy, South Korea, Brazil, France, Canada, Spain, Australia, and Iran  
 Source: US National Science Foundation

To unlock the potential of innovation and R&D, India could learn from successful international models. The US has adopted the Advanced Research Projects Agency (ARPA) model, which funds and manages R&D with a high-risk, high-reward approach that has led to groundbreaking advancements in defence, energy, and technology. This model shows promise for addressing broader societal challenges as well. Meanwhile, China is focusing on strengthening its universities to build a knowledge-based economy by tightly integrating research with industry. By aligning education with economic strategy, China has accelerated its shift towards innovation-driven growth. These examples from the US and China illustrate different paths converging on a shared goal — centred on innovation. India could draw on insights from both to build a more cohesive and impact-oriented R&D ecosystem.

India has also introduced some noteworthy reforms. Recent initiatives are starting to encourage industry R&D investment and cross-sector partnerships. For instance, the 2019 amendment to India's Corporate Social Responsibility (CSR) Act allows companies to invest in publicly funded incubators, facilitating greater collaboration between industry and academia.<sup>7</sup> Meanwhile, global capability centres (GCCs) in India are evolving into R&D hubs, presenting a valuable opportunity to deepen India's integration into global value chains.

Another welcome development has been the establishment of the Indian National Research Foundation which will act as a bridge for the integration of public and private sectors including industry and academia.<sup>8</sup> As India continues on this path, it must also prioritise creating centres of excellence that are led by educational institutions working with industry partners and startups. These centres can act as innovation focal points to ensure that science, technology, and innovation propel India onto a sustained high-growth trajectory in the coming decades.

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**Given India's labour-intensive economy, AI  
should be used to complement and enhance labour  
productivity, rather than substituting it**

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A key test for India's R&D direction will be how it approaches artificial intelligence (AI). AI is transforming economies worldwide, and India faces a strategic decision: should it focus on developing core AI technologies or concentrate on creating unique applications tailored to its specific needs? Given India's labour-intensive economy, AI should be used to complement and enhance labour productivity, rather than substituting it. This approach not only aligns with the socio-economic realities of the country but also ensures that technological advancements contribute to broader economic inclusivity.

While AI applications are still at a nascent stage, estimates suggest that AI could add nearly \$957 billion, around 15 percent of India's gross value added, to the economy by 2035.<sup>9</sup> These figures illustrate that India has significant potential for growth through AI. Some applications are being witnessed across agriculture, industry and services.

In agriculture, early applications of AI are already improving farm productivity, demonstrating its capacity to optimise resource use and increase yields. These innovations hold particular promise in India, where agriculture remains a cornerstone of both the economy and employment.

AI's adoption within manufacturing, however, presents more complex challenges. Large enterprises have started integrating AI into their operations, but MSMEs, which contribute about one-third of India's GDP, are often slower to adopt new technologies. This digital divide indicates a critical gap in technological access and utilisation, one that could stymie economic growth and equity if left unaddressed.

In the services sector, particularly in healthcare and education, AI has tremendous potential to drive socio-economic change. From improving diagnostic accuracy in healthcare to personalising educational experiences, AI can transform how services are delivered and accessed, ultimately enhancing efficiency and quality of life.


Globally, different countries have set benchmarks for AI applications that India could adopt. The US and China are advancing AI in agriculture; Germany and Japan lead in industrial AI applications; and the UK has become a hub for AI in services. India is still in the early stages of harnessing AI's potential and the country can unlock significant economic potential by scaling up and tailoring the use of AI to India's unique contexts and making it people-centric. This could ensure that technology makes labour a more robust contributor to productivity instead of replacing it.

Another key area for India to focus on is the R&D and manufacturing of semiconductors locally — which is the bedrock of AI development. As countries around the world are vying for a foothold in this critical sector, India needs to double down on its efforts to become a global semiconductor hub. The Indian government has launched several initiatives under the Make in India campaign to boost its semiconductor ecosystem. Further, three new commercial semiconductor chip manufacturing units have been inaugurated. These are all steps in the right direction and India needs to keep nurturing these efforts to supercharge its AI capabilities.

All of this points to a singular conclusion: India stands at a defining moment. The journey towards Viksit Bharat hinges on the country's ability to foster an ecosystem where innovation thrives. By reimagining its R&D landscape, supporting industry-academia partnerships, and deploying technology in ways that elevate productivity, India can chart a course from developing to developed. With strategic investments in innovation, research, and AI, India has a unique opportunity to shape its future to high-income status, driven by ingenuity and not imitation.

# Resilience and Sustainable Growth

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India aims to reduce a **billion tonnes** of CO<sub>2</sub> emissions by 2030

## Towards a Greener Economy

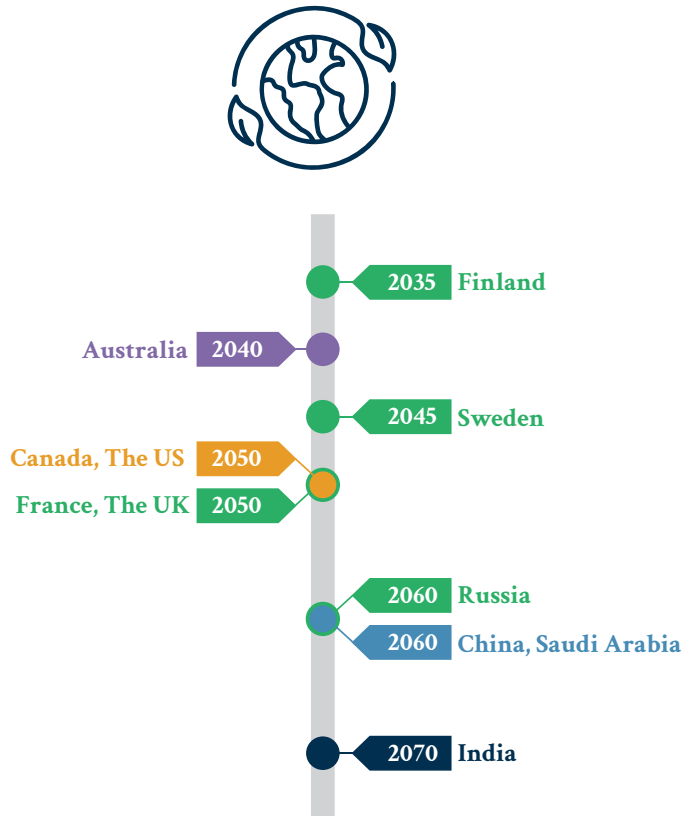
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The push towards Viksit Bharat is complicated by the realities of climate change. It is both a threat as well as an opportunity. The national response has to be crafted on three pillars: mitigation to limit damage over the long term, adaptation to manage change that is unavoidable, and innovation in the quest for a green future that will fundamentally reshape economic life for the better. Each of these three pillars will require the backing of adequate finance.

The World Economic Forum has described the Indian economy as one of the most nature-dependent ones in the world.<sup>1</sup> Around 170 million Indians live along the sea coast in both the mainland as well as the island territories of the country, including important urban centres such as Mumbai, Chennai, Kolkata, and Visakhapatnam. More than four out of every ten Indians work in agriculture. And nearly one out of every two works in the open under the hot sun, including farmers, farm labour, construction workers, gig workers, hawkers, and police officers. A large number of people also work indoors without proper cooling. Heat waves affect their ability to do their jobs well because of exhaustion or illness. A 2020 study by McKinsey & Company estimates that outdoor working hours lost to heat may cost India up to \$450 billion, or 4.5 percent of its GDP by 2030.<sup>2</sup>

India is committed to two goals — an immediate one to bring down its emissions-intensity of GDP in 2030 by 45 percent below the 2005 level and a long-term target to achieve net zero emissions by 2070.<sup>3</sup>

### 1. Target Net Zero



Countries That Aim to Become Net Zero in the Coming Decades

■ Asia ■ Asia (except India) ■ Europe ■ North America ■ Oceania

Source: Energy and Climate Intelligence Unit

This two-step strategy will allow India to increase energy consumption to support economic growth in the initial stage while keeping an eye on eventually converging to the global goal of net zero in later decades. Such a differentiated strategy makes sense within the framework of climate justice, so that developing countries are not penalised for the carbon pumped into the atmosphere by the rich countries of today during their respective development transitions.

Five key elements can help India meet its international climate change commitments. First, a renewable energy push that seeks to create 500 gigawatt (GW) of capacity by 2030, or around half the total installed capacity for electric power, through newer sources such as solar, wind, green hydrogen, and modular nuclear reactors. Second, an ambitious plan to ensure that 30 percent of the vehicles on Indian roads are electric by 2030. Third, increase forest cover to 33 percent of our total geographical area to create carbon sinks that absorb carbon dioxide from the atmosphere. Fourth, a Green Revolution 2.0 for a resilient agriculture based on new seeds, water conservation,

and crop diversification. Fifth, the progressive decarbonisation of manufacturing through energy efficiency, new fuels, process reengineering, and new technologies. These measures will cumulatively not just help national climate change goals but also help businesses meet emerging challenges such as the European Carbon Border Adjustment Mechanism.

Implicit in such a sectoral approach is the reality of the main sources of emissions in India. The power sector is the largest contributor to carbon emissions, primarily due to the centrality of thermal power plants that use coal as a fuel to generate electricity.<sup>4</sup> In the manufacturing sector, industries such as steel, cement, and chemicals are major emitters because of the inherent energy intensity of their processes. Transportation is also a major contributor to emissions, with rapidly growing ownership of personal vehicles that burn fossil fuels as well as the predominance of road transport to move goods around the country. Agriculture plays a notable role both directly in terms of burning of crop residue as well as indirectly from the use of fertilisers derived from petroleum. Finally, both residential and commercial structures that have to be heated or cooled add to the national carbon footprint.

## 2. The Largest Source of CO<sub>2</sub> Emissions In India, 2022



Source: International Energy Agency

India has substantial climate finance requirements to meet its ambitious climate goals. According to government estimates, India needs approximately \$2.5 trillion in climate finance between 2015 and 2030 for mitigation and adaptation. This includes investments in renewable energy infrastructure, sustainable transportation systems, energy-efficient industrial technologies, climate-resilient agriculture, and adaptation measures for vulnerable communities.

The climate finance requirements are not likely to be met from just one source. India will require a combination of domestic and international capital, government and private funding, debt and equity finance. Indian public finance is constrained by high fiscal deficits. The domestic funding pool is far larger given India's high savings rate. However, some international climate finance mechanisms will also need to be tapped. The Green Climate Fund that emerged from the Paris climate deal, multilateral development banks that have access to money of a longer tenure than is available in the Indian bond market, and bilateral deals for grants, soft loans, and guarantees are some sources of international capital for financing the green transition. Finally, there is private sector investment through instruments such as green bonds, sustainability-linked loans, and venture capital focussed on green technologies.

However, one important regulatory challenge is developing a taxonomy for climate finance that is rooted in Indian realities. Such a taxonomy will help investors allocate capital to green projects while also helping regulators track how the financing patterns fit into the national climate change goals. China published its first green finance taxonomy in 2015. While India has not yet established a comprehensive national green taxonomy like many other countries have, the Union Budget for 2024-25 included a commitment to develop a climate finance taxonomy in India that reflects the country's unique developmental context and climate priorities.

That does not mean there has been no supportive regulatory action. The 1,000 largest listed companies have been asked to report on their environmental, social, and governance (ESG) initiatives, loans to renewable energy projects are now part of priority sector lending, banks have been asked to develop climate risk assessment frameworks, and green bonds can be listed on the stock markets. The capital market regulator Securities and Exchange Board of India (SEBI) has a green debt securities framework that provides guidelines on eligible project categories including renewable energy, clean transportation, sustainable water management, and energy efficiency. This emerging taxonomy aims to prevent greenwashing, enhance transparency, and align financial flows with India's climate commitments while considering the country's economic transition needs.

The development of India's climate finance taxonomy faces several distinctive challenges and considerations. As with the broader roadmap for the green transition, the climate finance framework in India should seek a balance between environmental objectives and development goals, particularly the need to ensure energy access and industrial growth. The taxonomy needs to account for transition finance, recognising that certain carbon-intensive sectors, especially in the power sector, require substantial investment while keeping in mind the longer-term goal of transitioning to clean energy.

India has not yet established a nationwide carbon tax. However, it has initiated discussions on carbon pricing as part of its broader climate strategy. *The Asia-Pacific Climate Report 2024*<sup>5</sup> highlights that carbon pricing mechanisms, including taxes and emissions trading systems, are essential tools for mitigating climate change impacts. By putting a price on carbon emissions, India could encourage industries to adopt cleaner technologies and reduce their reliance on fossil fuels, thereby contributing to its global commitments. However, the introduction of a carbon tax also presents challenges. There is the technical task of identifying the optimum tax rate. There are concerns that a single carbon tax rate could hurt vulnerable populations as well as essential industries that rely heavily on fossil fuels.

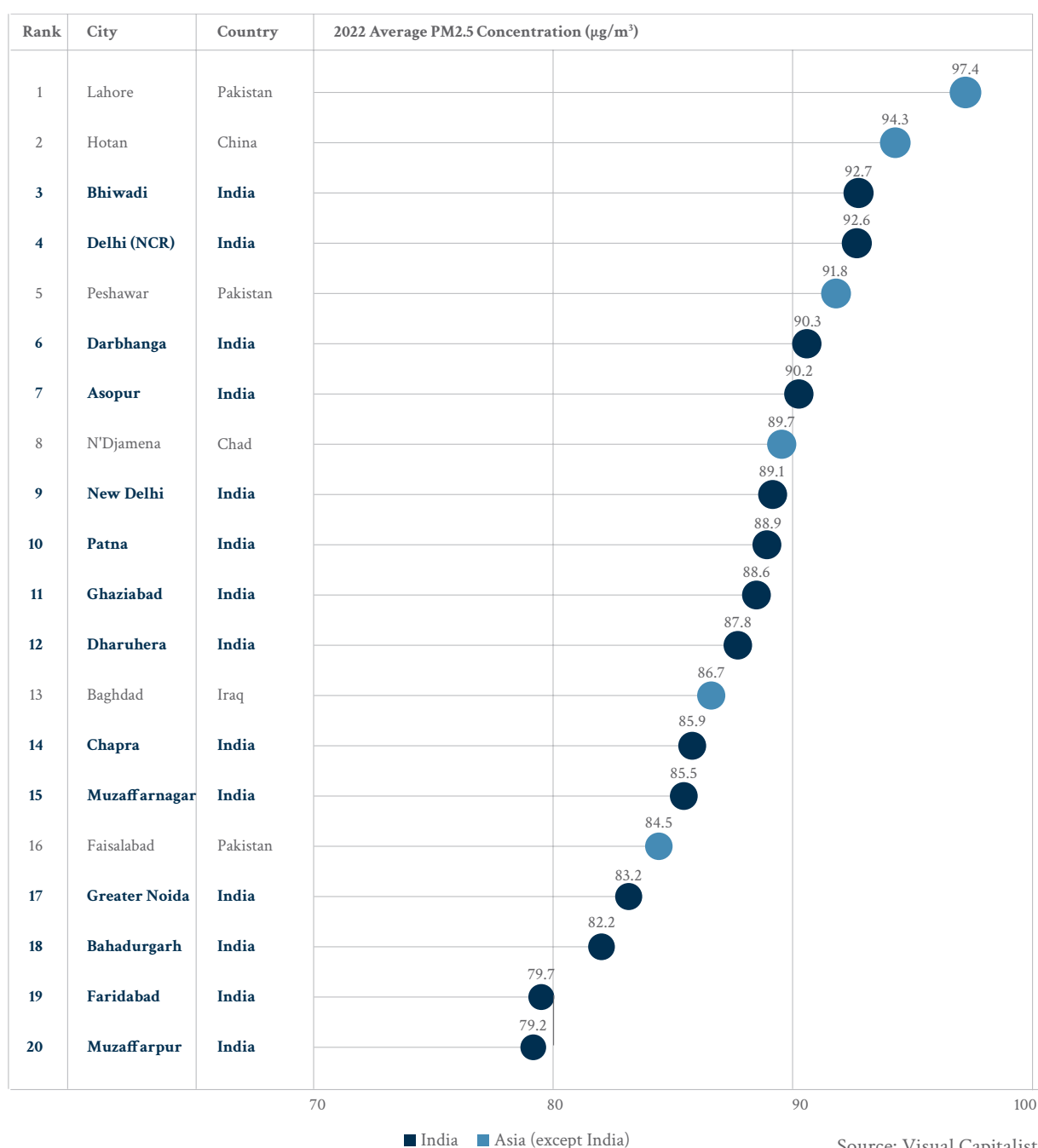
The transition to a green economy is more than a set of challenges. It offers unique opportunities as well. All countries are at the same starting point when it comes to frontier technologies, so India, with its strong technical skills, can become an important player in areas such as renewable energy, electric vehicles, storage batteries, and new materials. Though China has stolen an early march over other countries as of now yet, both knowledge as well as supply chains are still being built in these areas.

Policies to adapt to climate change can have positive effects on economic activity. For example, if the entire fleet of buses in the public transport systems of major Indian cities, followed by taxis, were to be converted to electric vehicles, the boost to the domestic production of electric

vehicles can support that segment in its early stages. The Chinese city of Shenzhen is a good role model. It decided in 2017 to green its transport infrastructure. By the end of 2021, Shenzhen had 20,000 electric buses, 24,000 electric taxis and over 60,000 electric vehicles owned by citizens, supported by a wide network of charging stations.<sup>6</sup>

The Indian government launched the India Cooling Action Plan in 2019, in anticipation of a higher frequency of debilitating heat waves that would likely hurt both labour productivity as well as food production. The World Bank estimates that a focus on new technologies to cool buildings, cold chains, and refrigerants can create an investment opportunity of \$1.6 trillion by 2040, and 3.7 million green jobs.<sup>7</sup> Programmes such as the Pradhan Mantri Awas Yojana and the solar rooftop programme can be integrated into such climate action plans to cool India.

### 3. Most Polluted Cities in the World



India is still in the process of building its physical infrastructure. It thus has less legacy technology than countries that have developed earlier. That is an opportunity to embrace a leapfrog strategy similar to what happened in the telecommunications sector over the past 25 years, when the country went to almost universal access to mobile telephony without having an intermediate stage of heavy dependence on fixed line phones. This logic is especially true for our cities, which are still being built or upgraded. Singapore's Green Building Master Plan seeks to make 80 percent of buildings in the city state green by 2030, based on criteria such as energy efficiency, water conservation, and rooftop gardens. Such goals should be integrated into Indian building codes at a time when new construction is dominating skylines.

The ultimate beneficiary of a green India should be the average citizen — her health, her ease of living, and her access to clean public spaces. The connection between citizens' well-being and environmental sustainability creates multiple reinforcing benefits that are essential for India's development journey. At the most fundamental level, environmental improvements directly enhance citizens' health by reducing air pollution-related respiratory diseases, cardiovascular problems, and healthcare costs.

Clean water access significantly reduces waterborne diseases, while green spaces improve mental health and reduce stress. These health benefits translate into higher productivity and lower medical expenses for families, creating a positive economic impact at the household level.

Improvements in quality of life form a crucial aspect of environmental benefits. Access to parks and green spaces provides essential recreational opportunities, while better tree cover makes cities more walkable. The reduction of urban heat island effect makes cities more livable, and clean rivers and water bodies become valuable community resources. These improvements in living conditions are essential for building the kind of urban environments that characterise developed nations. Building resilience through environmental measures is particularly important for India's long-term development since green infrastructure helps cities cope with climate extremes like floods and heatwaves, while urban forests act as carbon sinks and improve air quality. This is essential for protecting development gains from environmental shocks.

For India to achieve developed nation status, environmental sustainability must translate into tangible benefits for citizens. This will create a positive feedback loop where citizens value and protect environmental assets, leading to sustained development. This approach creates a strong foundation for India's transformation into a developed nation. It ensures that growth is not just sustainable but also inclusive, resilient, and focused on improving the lives of all citizens.

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**A focus on new technologies to cool buildings, cold chains and refrigerants can create an investment opportunity of \$1.6 trillion by 2040, and 3.7 million green jobs**

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# References

## General

1. Virmani, A. (2024, July). *Viksit Bharat: Unshackling Job Creators and Empowering Growth Drivers*. NITI Aayog  
[https://www.niti.gov.in/sites/default/files/2024-07/WP\\_Viksit\\_Bharat\\_2024-July-19.pdf](https://www.niti.gov.in/sites/default/files/2024-07/WP_Viksit_Bharat_2024-July-19.pdf)
2. *World Development Report 2024: The Middle-Income Trap*. World Bank Group.  
<https://www.worldbank.org/en/publication/wdr2024>
3. Cope, Z. (2021, July 21). *The Wealth of (Some) Nations*. Pluto Press.  
<https://www.plutobooks.com/9780745338859/the-wealth-of-some-nations/>
4. Sanyal, S., & Arora, A. (2024, September). Relative Economic Performance of Indian States: 1960-61. EAC-PM *Working Paper Series*  
[https://eacpm.gov.in/wp-content/uploads/2024/09/State-GDP-Working-Paper\\_Final.pdf](https://eacpm.gov.in/wp-content/uploads/2024/09/State-GDP-Working-Paper_Final.pdf)
5. Mishra, D., Kedia, M., Reddy, A., & Ramnath, K. (2024, March 8) *The State of India's Digital Economy Report 2024*. ICRIER.  
<https://icrier.org/publications/the-state-of-india-s-digital-economy-report-2024/>
6. Bhandari, B., Choudhuri, P., Sahu, A.K., Bandyopadhyay, S., Duggal, M., Prabhakar, J., Bhattacharjee, M., Rawat, P., Bhattacharya, T., Bhadury, S., Bahal, G., & Sanyal, R. (2023, March 10). *Skilling India: No Time to Lose*. NCAER.  
<https://www.ncaer.org/publication/skilling-india-no-time-to-lose>
7. *SDG India Index 2023-2024*. (2024, July). UNDP.  
<https://www.undp.org/india/publications/sdg-india-index-2023-2024>
8. *PLFS Quarterly Bulletin April to June 2024*. (2024, August 16). National Statistics Office, Ministry of Statistics and Programme Implementation, Government of India  
[https://mospi.gov.in/sites/default/files/publication\\_reports/Quarterly\\_Bulletin\\_PLFS\\_April\\_June\\_2024.pdf](https://mospi.gov.in/sites/default/files/publication_reports/Quarterly_Bulletin_PLFS_April_June_2024.pdf)
9. *National Strategy and Roadmap for Medical and Wellness Tourism*. (2022, January 27). Ministry of Tourism, Government of India.  
<https://tourism.gov.in/sites/default/files/2022-05/National%20Strategy%20and%20Roadmap%20for%20Medical%20and%20Wellness%20Tourism.pdf>
10. *Financing India's Aspirations*. RBI.  
<https://rbidocs.rbi.org.in/rdocs/Speeches/PDFs/CII0309202421C53C3724A94A5C8D98C064BEB97398.PDF>
11. Behera, H., Dhanya, V., Priyadarshi, K., & Goel, S. (2023, July). India @ 100. *RBI Bulletin*  
<https://rbidocs.rbi.org.in/rdocs/Bulletin/PDFs/05AR1707202339BA46A0B5484FEB973F0A550AE3050F.PDF>
12. Madgavkar, A., Piccitto, M., White, O., Ramírez, M. J., Mischke, J., & Chockalingam, K. (2024, May 2). *A Microscope on Small Businesses: Spotting Opportunities to Boost Productivity*. McKinsey & Company.  
<https://www.mckinsey.com/mgi/our-research/a-microscope-on-small-businesses-spotting-opportunities-to-boost-productivity>
13. India Needs Average Annual Growth of 7.6% to Become a Developed Nation by 2047: RBI Article. (2023, August 22). *Outlook Business*.  
<https://www.outlookbusiness.com/news/india-needs-average-annual-growth-of-7-6-to-become-developed-nation-by-2047-rbi-article-news-303635>

14. *India Skills Report 2024*. Wheebox.  
[https://wheebox.com/assets/pdf/ISR\\_Report\\_2024.pdf](https://wheebox.com/assets/pdf/ISR_Report_2024.pdf)
15. *India Forward: Emerging Perspectives*. S&P Global.  
<https://www.spglobal.com/en/research-insights/special-reports/india-forward/india-forward-volume-1>
16. *India Employment Report 2024: Youth Employment, Education and Skills*. (2024, August 27). International Labour Organization.  
<https://www.ilo.org/publications/india-employment-report-2024-youth-employment-education-and-skills>
17. Crawford, L., Hares, S., Le, T., Sandefur, J., How to Fix Global Education: *A Survey of National Policymakers in Developing Countries*. Center for Global Development  
<https://www.cgdev.org/sites/default/files/how-fix-global-education-survey-national-policymakers-developing-countries.pdf>
18. Mortlock, A. M. *Global Lessons Learned for Urban Resilience and Regeneration Projects: Informing Turkey's Urban Transformation Process*. World Bank Group.  
<http://documents.worldbank.org/curated/en/347121625066734390/Global-Lessons-Learned-for-Urban-Resilience-and-Regeneration-Projects-Informing-Turkey-s-Urban-Transformation-Process>
19. Singh, J., Kay, C., & Reed, J. (2024, October 2). India's Economic Mismatch: Not Enough Jobs and Not Enough Workers. *Financial Times*.  
<https://www.ft.com/content/14fc147e-8f11-45d7-9e7f-2ee97f899eea>
20. INDIA@100: *Realizing the Potential of a \$26 Trillion Economy*. EY  
[https://www.ey.com/en\\_in/insights/india-at-100](https://www.ey.com/en_in/insights/india-at-100)
21. Economic Survey (2023-24)  
<https://www.indiabudget.gov.in/economicsurvey/>
22. *Ease of Doing Business: An Enterprise Survey of Indian States*. Artha Global.  
<https://artha.global/reports/ease-of-doing-business/>
23. Veenhoven, Ruut. (2006). *Apparent Quality-of-Life in Nations: How Long and Happy People Live*. 10.1007/1-4020-3602-7\_3.  
[https://www.researchgate.net/publication/226125920\\_Apparent\\_Quality-of-Life\\_in\\_Nations\\_How\\_Long\\_and\\_Happy\\_People\\_Live](https://www.researchgate.net/publication/226125920_Apparent_Quality-of-Life_in_Nations_How_Long_and_Happy_People_Live)
24. Kapoor, M., Ravi, S., Rajan, S, Dhamija, G., & Sareen, N. Changes in India's Food Consumption and Policy. *EAC-PM Working Paper Series EAC-PM/WP/30/2024*  
<https://eacpm.gov.in/wp-content/uploads/2024/09/Comprehensive-Nutrition-Report-Final-1.pdf>
25. Budget 2024-2025: Speech of Nirmala Sitharaman, Minister of Finance.  
[https://www.indiabudget.gov.in/doc/budget\\_speech.pdf](https://www.indiabudget.gov.in/doc/budget_speech.pdf)
26. *Full Version: Are Manufacturing Jobs Growing or Declining? Here's What the Data Shows*. (2024, October 29). Centre for Economic Data & Analysis, Ashoka University.  
<https://ceda.ashoka.edu.in/full-version-are-manufacturing-jobs-growing-or-declining-heres-what-the-data-shows/>
27. ASI Schedule 2022-23.  
[https://mospi.gov.in/sites/default/files/publication\\_reports/ASI/ASI\\_schedule\\_2022-23.pdf](https://mospi.gov.in/sites/default/files/publication_reports/ASI/ASI_schedule_2022-23.pdf)
28. *Female Labor Force Participation by Country, Around the World*.  
[https://www.theglobaleconomy.com/rankings/female\\_labor\\_force\\_participation/](https://www.theglobaleconomy.com/rankings/female_labor_force_participation/)
29. Boosting India's GDP with *More Women in the Workforce*. TeamLease Foundation  
<https://teamleasefoundation.org/blog/boosting-indias-gdp-with-more-women-in-the-workforce-3.html>
30. *Global Gender Gap Report 2022*. World Economic Forum  
[https://www3.weforum.org/docs/WEF\\_GGGR\\_2022.pdf](https://www3.weforum.org/docs/WEF_GGGR_2022.pdf)

31. *Decoding India's Healthcare Landscape*. EY  
[https://assets.ey.com/content/dam/ey-sites/ey-com/en\\_in/topics/health/2024/ey-decoding-india-s-healthcare-landscape.pdf](https://assets.ey.com/content/dam/ey-sites/ey-com/en_in/topics/health/2024/ey-decoding-india-s-healthcare-landscape.pdf)
32. Joe, W. *Health Insurance Coverage in India: Insights for National Health Protection Scheme*  
<https://prc.mohfw.gov.in/fileDownload?fileName=Health%20Insurance%20Coverage%20in%20India%20Insights%20for%20National%20Health%20Protection%20Scheme.pdf>
33. *Emissions Gap Report 2023: Broken Record – Temperatures Hit New Highs, Yet the World Fails to Cut Emissions (Again)*. (2023). United Nations Environment Programme  
<https://wedocs.unep.org/20.500.11822/43922>
34. *Jobs at Your Doorstep: A Jobs Diagnostics for Young People in Six States* (2024, November 22). World Bank Group.  
<http://documents.worldbank.org/curated/en/099607111222440625/IDU151d177441627114e3a19d10184fbd3e185a1>
35. *South Asia Development Update Economic Outlook*. (2024, October). World Bank Group  
<https://www.worldbank.org/en/region/sar/publication/south-asia-development-update>
36. *Female Labour Utilization in India*, (2023, April). Directorate of General employment, Ministry of Labour and Employment, Government of India  
[https://dge.gov.in/dge/sites/default/files/2023-05/Female\\_Labour\\_Utilization\\_in\\_India\\_April\\_2023\\_final\\_1\\_-\\_pages-1-2-merged\\_1\\_.pdf](https://dge.gov.in/dge/sites/default/files/2023-05/Female_Labour_Utilization_in_India_April_2023_final_1_-_pages-1-2-merged_1_.pdf)
37. Bishnoi, A., Dash, R., Garg, B., & Sahoo, P. (2024, September 2). Boosting the Labour-Intensive Manufacturing in India. *Economic and Political Weekly*  
<https://www.epw.in/journal/2024/34/indias-industrial-transformation/boosting-labour-intensive-manufacturing-india.html>
38. Fernandez, C. (2023, December 1). *A Statistical Portrait of the Indian Female Labor Force*. Asian Development Bank.  
<https://www.adb.org/publications/a-statistical-portrait-of-the-indian-female-labor-force>
39. *Reforms in Urban Planning Capacity in India*. (2021, September). NITI Aayog.  
<https://www.niti.gov.in/sites/default/files/2021-09/UrbanPlanningCapacity-in-India-16092021.pdf>
40. Mukherjee, A., Dasgupta, S., Kumar, A., Jain, A., & Khurana, I. (2022, November, 11). *The Policy Lab Series on Affordable Rental Housing*. Centre for Policy Research.  
[https://cprindia.org/wp-content/uploads/2022/01/Policy-Lab-Series-on-Affordable-Rental-Housing\\_Summary-of-Discussions.pdf](https://cprindia.org/wp-content/uploads/2022/01/Policy-Lab-Series-on-Affordable-Rental-Housing_Summary-of-Discussions.pdf)
41. Hingorani, P., Tandel, V., Pachisia, H., Shah, K., Agrawal, H., Srinivasan, S., & Das, M. (2019, July 18). *Reforming Urban India*. IDFC Institute.  
<https://artha.global/reports/reforming-urban-india/>
42. Raheja, N., & Baijal, S. (2024). *India Real Estate: A Decade from Now*. Knight Frank (India) Pvt. Ltd.  
<https://content.knightfrank.com/research/2818/documents/en/india-real-estate-a-decade-from-now-2024-11102.pdf>
43. Revi, A., Koduganti, J., & Anand, S. (2014). *Cities as Engines of Inclusive Development: IIHS-RF Paper on Indian Urban Economy*,
44. *Working on a Warmer Planet: The Impact of Heat Stress on Labour Productivity and Decent Work*. (2019). ILO
45. Subudhi, S., Bakliwal, S., & Bilgrami, S. (2023, February). *Cities of the Future: Reimagining and Rejuvenating India's Top 50 Urban Ecosystems*. Boston Consulting Group  
<https://www.bcg.com/publications/2023/india-cities-of-the-future>

## Background and Context

1. *World Development Report 2024: The Middle-Income Trap*.  
<https://openknowledge.worldbank.org/entities/publication/7c5cd962-11ae-4101-8f3f-e15b-86135f0e>

## Education and Skilling

1. 2023 figures based on Patrinos, H. A. (2016, July 1). Estimating the Return to Schooling Using the Mincer Equation. IZA World of Labor  
<https://wol.iza.org/articles/estimating-return-to-schooling-using-mincer-equation/long>
2. *Report on Unified District Information System for Education Plus (UDISE+): 2021-22 Flash Statistics*.  
Department of School Education and Literacy, Ministry of Education, Government of India.  
[https://www.education.gov.in/sites/upload\\_files/mhrd/files/statistics-new/udise\\_21\\_22.pdf](https://www.education.gov.in/sites/upload_files/mhrd/files/statistics-new/udise_21_22.pdf)
3. *Education: Overview*. World Bank  
<https://www.worldbank.org/en/topic/education/overview#1>
4. *Annual Status of Education Report 2023: Beyond Basics*. ASER Centre.  
<https://asercentre.org/aser-2023-beyond-basics/>
5. Angrist, N., Djankov, S., Goldberg, P. K., & Patrinos, H. A. (2021, March 10). *Measuring Human Capital Using Global Learning Data*. Nature News.  
<https://www.nature.com/articles/s41586-021-03323-7#ref-CR1>
6. Chapter 8: Employment and Skill Development: Towards Quality

## Good Jobs

1. Economic Survey (2023-24), Employment and Skill Development: Towards Quality.  
<https://www.indiabudget.gov.in/economicsurvey/>
2. Rajagopalan, S., & Mathur, K. (2024). *Why Indian firms don't scale: Labor Edition. The 1991 Project*.  
<https://the1991project.com/writing/papers/why-indian-firms-dont-scale-labor-edition#policy-recommendations>
3. *Doing Business 2020*. World Bank Group  
<https://documents1.worldbank.org/curated/fr/688761571934946384/pdf/Doing-Business-2020-Comparing-Business-Regulation-in-190-Economies.pdf>
4. Economic Survey (2023-24).  
<https://www.indiabudget.gov.in/economicsurvey/>
5. *Global Gender Gap Report 2022*. World Economic Forum.  
<https://www.weforum.org/publications/global-gender-gap-report-2022/>

## Urban Reforms

1. Ministry of Statistics and Programme Implementation, Government of India.  
<https://www.mospi.gov.in/>
2. *Cities as Engines of Growth (May 2022)*. NITI Aayog and Asian Development Bank  
[https://www.niti.gov.in/sites/default/files/2022-05/Mod\\_CEOG\\_Executive\\_Summary\\_18052022.pdf](https://www.niti.gov.in/sites/default/files/2022-05/Mod_CEOG_Executive_Summary_18052022.pdf)
3. Vaidya, H. & Agarwal, O.P. (2024, February 25). India's "Viksit Bharat" Dream: Building the Cities of Tomorrow. *The Sunday Guardian*.  
<https://sundayguardianlive.com/business/indias-viksit-bharat-dream-building-the-cities-of-tomorrow>
4. Bertaud, A. (2024, June 18) *Order without Design: How Markets Shape Cities*. MIT Press.  
<https://mitpress.mit.edu/9780262550970/order-without-design/>
5. The present urban population is 519 million and the projected urban population 2024 is 660 million (Artha Global Calculations)
6. Desmet K., Ghani E., Hansberg E., & O'Connell S.D.  
*India's Spatial Disparities: Have Big Cities Become Too Congested?* Ideas For India  
<https://www.ideasforindia.in/topics/urbanisation/indias-spatial-disparities-have-big-cities-become-too-congested.html>
7. *Cities as Engines of Growth (May 2022)*. NITI Aayog and Asian Development Bank.  
[https://www.niti.gov.in/sites/default/files/2022-05/Mod\\_CEOG\\_Executive\\_Summary\\_18052022.pdf](https://www.niti.gov.in/sites/default/files/2022-05/Mod_CEOG_Executive_Summary_18052022.pdf)
8. The Reserve Bank of India (RBI) uses population thresholds as the primary determinant tier-wise and centre-wise  
<https://m.rbi.org.in/scripts/AnnualPublications.aspx?head=Report+on+Municipal+Finances>
9. Traffic Index Ranking: Tomtom Traffic Index (2024, September 30).  
<https://www.tomtom.com/traffic-index/ranking/>
10. *Reforming Urban India. (2019)*. Artha Global.  
<https://artha.global/reports/reforming-urban-india/>
11. Mumbai Climate Action Plan.  
<https://mcap.mcg.gov.in/>

## Health Systems

1. *National Family Health Survey (NFHS-5) 2019-21*. Ministry of Health and Family Welfare, Government of India.  
[https://mohfw.gov.in/sites/default/files/NFHS-5\\_Phase-II\\_0.pdf](https://mohfw.gov.in/sites/default/files/NFHS-5_Phase-II_0.pdf)
2. World Health Organization Data, 2021
3. Giplaye, H. (2019). *Healthcare delivery system in developed, developing and underdeveloped countries / Texila Journal*.  
<https://www.texilajournal.com/nursing/article/1235-healthcare-delivery-system>
4. World Bank Open Data, 2023
5. PHC IPHS Guidelines - 2022.  
[https://nhm.gov.in/images/pdf/guidelines/iphs/iphs-revised-guidelines-2022/03\\_PHC\\_IPHS\\_Guidelines-2022.pdf](https://nhm.gov.in/images/pdf/guidelines/iphs/iphs-revised-guidelines-2022/03_PHC_IPHS_Guidelines-2022.pdf)
6. *Healthcare Challenges in Rural India*. (2023, October 5).  
<https://iihmrdelhi.edu.in/blog/healthcare-challenges-in-rural-india/>

7. Ambade, M., Rajpal, S., Kim, R., & Subramanian, S.V. (2023, July 10). *Socioeconomic and Geographic Variation in Coverage of Health Insurance across India*. *Frontiers in Public Health*.  
<https://pmc.ncbi.nlm.nih.gov/articles/PMC10365087/>
8. World Population Prospects 2024 Data  
<https://population.un.org/wpp/>
9. National Health Authority.  
<https://nha.gov.in/PM-JAY>
10. Chawla, A. (2024, October 17). *How much do Indian households spend on healthcare every month?* CEDA.  
<https://ceda.ashoka.edu.in/how-much-do-indian-households-spend-on-healthcare-every-month/>
11. Smith, O. *Sri Lanka: Achieving Pro-Poor Universal Health Coverage without Health Financing Reforms*. World Bank Group <https://documents1.worldbank.org/curated/en/138941516179080537/pdf/Sri-Lanka-Achieving-pro-poor-universal-health-coverage-without-health-financing-reforms.pdf>
12. Rannan-Eliya, R. P., Ghaffoor, A., Amarasinghe, S., Nirmani, M. D., Wijemunige, N., Perera, S., Samarage, S., Dalpatadu, K., Wisidagama, N., Fonseka, S., Kumara, N., Selvaratnam, A., & Dananjana, T. (2024, January 18). *Sri Lanka's COVID-19 Response and Maintaining Health Services: Implications for Future Pandemics*. *BMJ Global Health*.  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10846852/>
13. 2024 Quality of Life Sub-Ranking Attribute
14. *India's Cancer Burden Drives Generational Poverty: Think Global Health*. Council on Foreign Relations.  
<https://www.thinkglobalhealth.org/article/indias-cancer-burden-drives-generational-poverty>
15. ASSOCHAM-EY Joint Paper 2018
16. *India Fit Report*. GOQii  
<https://www.indiafit.org/>
17. *Update on Improving Medical Tourism in the Country*. Ministry of Health and Family Welfare, Government of India.  
<https://pib.gov.in/PressReleasePage.aspx?PRID=1909087>
18. *Number of Medical Tourists in India to Exceed Pre-Pandemic Levels in CY24*. India Brand Equity Foundation.  
<https://www.ibef.org/news/number-of-medical-tourists-in-india-to-exceed-pre-pandemic-levels-in-cy24>
19. CRISIL Ratings, 2024
20. *Pharmaceutical Industry in India: Invest in Pharma Sector*.  
<https://www.investindia.gov.in/sector/pharmaceuticals>
21. Key Health, Nutrition and Population Statistics: World Bank Group DataBank

## Technology and Innovation

1. *Global Innovation Index 2024*. World Intellectual Property Organization. <https://www.wipo.int/web-publications/global-innovation-index-2024/en/>
2. Hidalgo, C. A., & Hausmann, R. (2014b). *The Atlas of Economic Complexity: Mapping Paths to Prosperity*. MIT Press.
3. *Research & Development Statistics at a Glance, 2019-20*. Department of Science and Technology, Ministry of Science and Technology, Government of India <https://dst.gov.in/sites/default/files/R&D%20Statistics%20at%20a%20Glance%202019-20.pdf>
4. Arcuri, G. (2023, June, 16). *Innovation Lightbulb: A Trend in U.S. Research and Development Expenditure*. Center for Strategic and International Studies. <https://www.csis.org/analysis/innovation-lightbulb-trend-us-research-and-development-expenditure>
5. Mazzucato, M. (2023, July 13). The Innovative State. *Foreign Affairs*. <https://www.foreignaffairs.com/articles/americas/2014-12-15/innovative-state>
6. *Publications Output: U.S. Trends and International Comparisons. (2020)*. US National Science Foundation. <https://nces.nsf.gov/pubs/nsb20214/publication-output-by-country-region-or-economy-and-scientific-field>
7. Reddy, P., Singh, S., & Garg, V. (2024). *CSR & Corporate Philanthropy for Innovation in India*. <https://aim.gov.in/pdf/AIM-CSR-Guidebook.pdf>
8. India to Have a Robust National Research Foundation (Anusadhan NRF) Which, Once Fully Functional, Will Be Huge Transformation in Research and Development, Also to Act as a Bridge for Integration of Public and Private Sector Including Industry and Academia, Says Union Minister Dr. Jitendra Singh. Press Information Bureau. <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=2027677>
9. Menon, R., Vazirani, M., & Roy, P. (2021, April, 26). *AI-Driven Economic Growth in India*. Accenture. <https://www.accenture.com/content/dam/accenture/final/a-com-migration/r3-3/pdf/pdf-153/accenture-ai-for-economic-growth-india.pdf>

## Resilience and Sustainable Growth

1. Willige, A. (2024, August, 5). *A Third of India's Economy Relies on Nature: Here's Why Corporates Need to Invest More in Natural Climate Solutions*. World Economic Forum. <https://www.weforum.org/stories/2024/08/india-economy-natural-climate-solutions/>
2. Woetzel, J., Pinner, D., Samandari, H., Gupta, R., Engel, H., Krishnan, M., & Powis, C. (2020, November). *Will India Get Too Hot to Work?* McKinsey Global Institute. <https://www.mckinsey.com/~media/mckinsey/business-functions/sustainability/our-insights/will-india-get-too-hot-to-work/will-india-get-too-hot-to-work-vf.pdf>
3. CAT Rating Methodology. Climate Action Tracker. <https://climateactiontracker.org/methodology/cat-rating-methodology/>
4. Alvarez, C.F. (2021, October, 19). *Key Lessons for Phasing Out CO<sub>2</sub>-Emitting Coal Plants from Electricity Sectors – Analysis*. IEA. <https://www.iea.org/commentaries/key-lessons-for-phasing-out-co2-emitting-coal-plants-from-electricity-sectors>

5. *Asia-Pacific Climate Report 2024*. Asian Development Bank.  
<https://www.adb.org/sites/default/files/publication/1008086/asia-pacific-climate-report-2024.pdf>
6. *Shenzhen: The City of Green Future*. IAA MOBILITY.  
<https://www.iaa-mobility.com/en/newsroom/news/sustainability/shenzen-the-city-of-green-future>
7. Jha, A. & Jain, M, (2023, July 7). *A Greener Cooling Pathway Can Create a \$1.6 Trillion Investment Opportunity in India*, World Bank Group.  
<https://www.worldbank.org/en/news/press-release/2022/11/30/a-greener-cooling-pathway-can-create-a-1-6-trillion-investment-opportunity-in-india-says-world-bank-report>



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