



Catalysing the National Infrastructure Pipeline

Project India

August 2020

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Foreword by Chairman and CEO – KPMG in India

Infrastructure spending is expected to have a multiplier effect on overall economic growth, primarily based on the Keynesian theory that aggregate demand can be reactivated by increasing public expenditure. In addition, improved infrastructure will enhance the overall productive capacity of the economy and its global competitiveness.

As India faces its deepest recession since independence, infrastructure spending can help spur economic activity and the involuntarily unemployed through job creation. The USD1.5 trillion (INR111 trillion) National Infrastructure Pipeline (NIP) built on Infrastructure Vision 2025 should provide a timely stimulus to the economy. Given the magnitude of the COVID-19 pandemic and consequent pressure on resources, it is imperative that stakeholders reassess the priority of sectors and projects outlined in Infrastructure Vision 2025.

Typically, infrastructure projects are characterised by high capital intensity and long gestation periods, often leading to a funding gap. Public investment is key to filling this gap. The

government should take stock of the project pipeline and review its expenditure and financing programmes to obtain optimal results and impacts.

Closing the infrastructure funding gap calls for developing financing solutions and placing more emphasis on collaboration and shared responsibilities across public, private and non-governmental organisations. A prerequisite to this is an enabling governance and policy framework that fosters business growth and investor confidence while rethinking innovative investment and funding models to encourage private sector participation.

I am delighted to present our report 'Catalysing the National Infrastructure Pipeline – Project India'. The approach and recommendations here are shaped by our deep infrastructure knowledge, broad sectoral experience, belief in high-impact solutions and technical expertise in project delivery and funding availabilities.

Arun Kumar
Chairman and CEO - KPMG in India

1. Task Force on National Infrastructure Pipeline presents its final report to Finance Minister Smt. Nirmala Sitharaman, Ministry of Finance, 29 April 2020

Foreword by IGH Partner and Head – KPMG in India

The disruptions caused by the COVID-19 crisis on the economy and on society have highlighted the criticality of fundamentally rethinking many aspects of human endeavour. Key amongst these is the need to revisit and refocus on the creation of robust and resilient infrastructure, which will not only serve to improve the quality of our lives but will also be a key factor in ensuring economic revival in the country.

Investments in infrastructure have a multi-layered spill over impact on the economy, affecting overall growth as well as the prospects of businesses and individuals. Investments in these areas improve production capacity at the macro level, besides facilitating lower input costs for manufacturing, boosting aggregate demand through jobs and income generation, and reducing process friction.

Given the pressing national imperative of getting the economy back on track, the government is focussing on various measures to provide a fillip to infrastructure creation as well as to attract domestic and foreign investments into this sector. The NIP task force has set an ambitious investment target of USD1.5 trillion (INR111 trillion) over fiscal years 2020-25 for the creation of reliable infrastructure with the objective of boosting economic growth. India, however, needs policy and regulatory reforms to support infrastructure investments

across sectors such as healthcare, transport and logistics, digital infrastructure, energy, agriculture and education - both in urban and rural India. Critical areas of focus include ways to ensure the viability and sustainability of infrastructure projects in order to attract new investments; revisiting the roles that the Government, private sector and NGOs can play; and facilitating greater collaboration across sectors and institutions.

In essence, robust infrastructure is a prerequisite to achieve the goal of becoming a USD5 trillion economy by FY2025, as it offers a well-acknowledged economic and social multiplier effect in enabling economic prosperity. At a time when COVID-19 has ravaged the economy and livelihoods, the NIP offers the opportunity to create significant impacts.

In this context, the report examines India's infrastructure needs driven by rapid urbanisation and the impact of COVID-19 on India's Infrastructure Vision 2025 and its goals. It also highlights key steps for mitigating adverse impacts, in addition to identifying the building blocks of success. I firmly believe this report will provide a much clearer understanding of India's evolving infrastructure landscape.

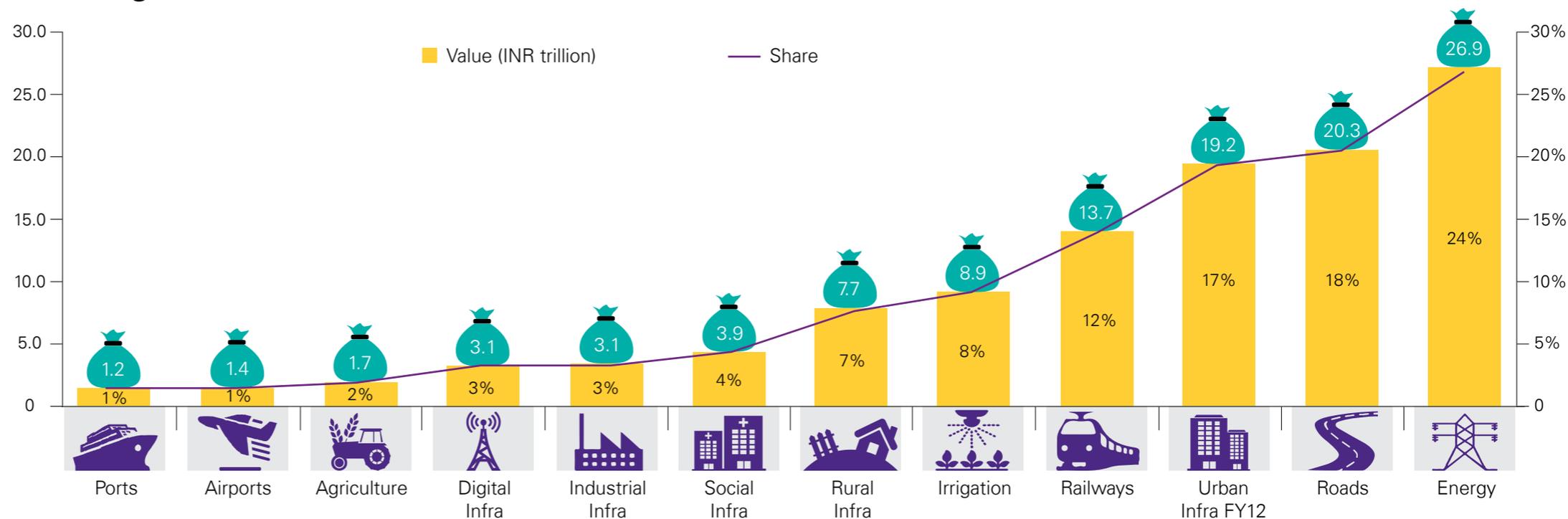
Elias George

IGH Partner and Head - KPMG in India

Executive summary

Infrastructure Vision 2025 is the cornerstone of India's infrastructure policy and is principally meant to improve the ease of living in India. To streamline project implementation and facilitate investments, the Indian government has integrated various infrastructure projects under the programme. To achieve the programme's goals, the government has also announced NIP projects worth USD1.5 trillion (INR111 trillion)¹ over FY 2020-2025

NIP budget allocation across sectors



Source: National Infrastructure Pipeline - Report of the Task Force Volume I, Department of Economic Affairs, 29 April 2020



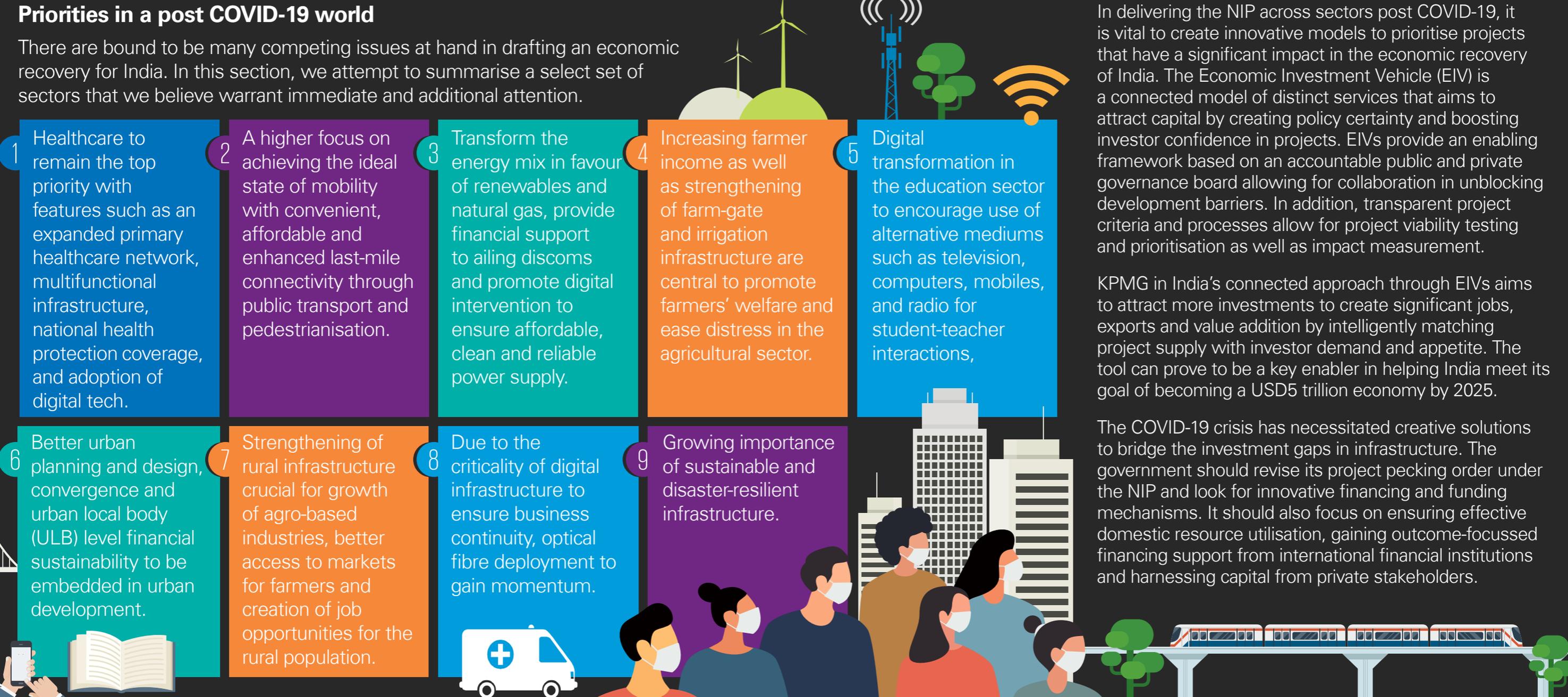
The ambitious vision for infrastructure must, however, be revisited in the context of the COVID-19 pandemic. Greater public-private collaboration in infrastructure delivery will be needed in a post COVID-19 scenario. The government will have to evaluate the pandemic's impact across sectors and reassess the priorities of the NIP's themes and projects. It

could consider reprioritising essential sectors and projects given their higher socio-economic impact. The Indian government has also recently introduced a USD266 billion (INR20 trillion)² COVID-19 stimulus package to address the associated economic issues by channelling India's strengths and building self-sufficiency.

1. Task Force on National Infrastructure Pipeline* presents its Final Report to Finance Minister Smt. Nirmala Sitharaman, Ministry of Finance, 29 April 2020 (1 USD = INR 75)
2. AtmaNirbhar Bharat Abhiyan, KPMG, 13 May 2020

Priorities in a post COVID-19 world

There are bound to be many competing issues at hand in drafting an economic recovery for India. In this section, we attempt to summarise a select set of sectors that we believe warrant immediate and additional attention.

- 1 Healthcare to remain the top priority with features such as an expanded primary healthcare network, multifunctional infrastructure, national health protection coverage, and adoption of digital tech.
 - 2 A higher focus on achieving the ideal state of mobility with convenient, affordable and enhanced last-mile connectivity through public transport and pedestrianisation.
 - 3 Transform the energy mix in favour of renewables and natural gas, provide financial support to ailing discoms and promote digital intervention to ensure affordable, clean and reliable power supply.
 - 4 Increasing farmer income as well as strengthening of farm-gate and irrigation infrastructure are central to promote farmers' welfare and ease distress in the agricultural sector.
 - 5 Digital transformation in the education sector to encourage use of alternative mediums such as television, computers, mobiles, and radio for student-teacher interactions,
 - 6 Better urban planning and design, convergence and urban local body (ULB) level financial sustainability to be embedded in urban development.
 - 7 Strengthening of rural infrastructure crucial for growth of agro-based industries, better access to markets for farmers and creation of job opportunities for the rural population.
 - 8 Due to the criticality of digital infrastructure to ensure business continuity, optical fibre deployment to gain momentum.
 - 9 Growing importance of sustainable and disaster-resilient infrastructure.
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In delivering the NIP across sectors post COVID-19, it is vital to create innovative models to prioritise projects that have a significant impact in the economic recovery of India. The Economic Investment Vehicle (EIV) is a connected model of distinct services that aims to attract capital by creating policy certainty and boosting investor confidence in projects. EIVs provide an enabling framework based on an accountable public and private governance board allowing for collaboration in unblocking development barriers. In addition, transparent project criteria and processes allow for project viability testing and prioritisation as well as impact measurement.

KPMG in India's connected approach through EIVs aims to attract more investments to create significant jobs, exports and value addition by intelligently matching project supply with investor demand and appetite. The tool can prove to be a key enabler in helping India meet its goal of becoming a USD5 trillion economy by 2025.

The COVID-19 crisis has necessitated creative solutions to bridge the investment gaps in infrastructure. The government should revise its project pecking order under the NIP and look for innovative financing and funding mechanisms. It should also focus on ensuring effective domestic resource utilisation, gaining outcome-focussed financing support from international financial institutions and harnessing capital from private stakeholders.

The precarious nature of today's economy post COVID-19



Beyond the human crisis, the COVID-19 crisis is striking societies at their core, creating widespread economic and social disruption. The most economically vulnerable sections are bearing the brunt of the impact of a loss in livelihoods on account of the associated lockdown. Their circumstances are compounded with many having little access to basic sanitation and safe water, adequate low-density accommodation or job opportunities. This inequity has become even more evident during this crisis as has the urgency to deliver effective social and economic infrastructure that is credible, sustainable and brings lasting change for all our communities.



Economic fallout post COVID-19

In 2020, global trade is expected to decline by between 13 per cent and 32 per cent¹. China's manufacturing slowdown has already started disrupting global supply chains, possibly resulting in a USD50 billion² decline in exports globally. India is among the top 15 economies most affected by China's manufacturing shutdown and a global trade slowdown. The trade impact of the pandemic on India is estimated at USD348 million³, with exports to COVID-19-infected nations taking a hit.

Suspended manufacturing disrupted supply chains

Shutdown in China resulted in supply constraints as it contributes 28 per cent to global output.⁴ Between March 17 and March 30, the lead times from input manufacturers rose by 200 per cent (222 per cent in China, 201 per cent in Europe and 200 per cent in the U.S.)⁵. As a result, global manufacturing output recorded a sharp drop of six per cent in Q1 2020.⁶

The purchasing managers' indices (PMIs) of many countries have also dropped below

50, indicating recessionary conditions⁷. The Indian PMI also witnessed a decline from 51.8 in March 2020⁸ to 30.8 in May 2020⁹. As the lockdown was extended till 31 May, multiple stress points emerged especially in the manufacturing sector¹⁰. Additionally, on the services front, the aviation and hospitality sectors have suffered a major setback. With deeper behavioural changes shaping the demography such as the virtual (digital) way of life, the shift towards remote work and reduced air travel, the aviation sector may not witness full revival for another 12-16 months.

1. Trade set to plunge as COVID-19 pandemic upends global economy, World Trade Organization, 08 April 2020
2. Trade impact of Coronavirus epidemic for India estimated at 348 million dollars: UN report, The Economic Times, 05 March 2020
3. Trade impact of Coronavirus epidemic for India estimated at 348 million dollars: UN report, The Economic Times, 05 March 2020
4. These are the top 10 manufacturing countries in the world, World Economic Forum, 25 February 2020
5. ISM: Lead times are up 200% or more across the world, Supply chain dive, 15 April 2020
6. Global manufacturing production drops sharply due to economic disruptions caused by COVID-19, UNIDO, Q1 2020
7. Global PMI Tracker, Bloomberg, Accessed on 13 April 2020
8. Manufacturing activity at 4-month low, PMI at 51.8, optimism low, The Economic Times, 03 April 2020
9. Manufacturing activity shrinks again in May, PMI at 30.8, The Economic Times, 01 June 2020
10. Extension of Lockdown up to May 31, 2020, Ministry of Home Affairs (PIB), 17 May 2020

Domino effect on other sectors

Interruptions in supply chain and logistics have already seeped into other sectors. Along with retail trade, wholesale trade and transportation, companies in sectors such as construction, automotive and certain manufacturing segments are facing a pile-up of their order books.

India has taken efforts to tackle the chaos resulting from the lockdown, enabling movement of essential goods to people across the country.

Reduction in discretionary spend: a revenue loss for businesses

Income loss, extreme social distancing and an abrupt stop of urban activities during the lockdown have sharply curtailed discretionary consumption. According to the Retailers Association of India, the retail business declined by 20-25 per cent in February 2020 and 15 per cent in March 2020¹¹. Spending has reduced significantly in categories such as apparel, jewellery, shoes and CDIT (Consumer Durables and Information Technology) and

telephones¹². As demand and revenue decline, organisations will face cash-flow problems thereby impairing their ability to pay employees and service their debts.

Elevated debt to exacerbate the problem

Debt has more than doubled in many countries since the 2008 financial crisis¹³. The pandemic could further aggravate the debt crisis as government efforts to extend credit terms for households and businesses may not come in time to avoid significant debt defaults.

In India, too, the crisis began when the country's credit environment was already fragile, and the economy was slowing down. India's banks and shadow lenders may face a further surge in bad debt with a higher number of corporate defaults.

Focus diverted towards health, public finance and public distribution

With the world facing a health crisis of immense magnitude, COVID-19 impacted countries around the globe have begun

diverting their focus from other sectors and initiatives towards healthcare, public finance and distribution.

The U.S. has announced a USD8.3 billion emergency fund¹⁴ for the healthcare sector and a USD2.2 trillion economic rescue package¹⁵. The U.K. has allocated GBP6.6 billion¹⁶ to its National Health Service while India, too, has allotted USD2 billion (INR150 billion)¹⁷ for developing healthcare infrastructure in the country.



11. Coronavirus impact: 30% modern retail stores face closure if lockdown prolongs, Business Today, 28 March 2020

12. Coronavirus impact: 30% modern retail stores face closure if lockdown prolongs, Business Today, 28 March 2020

13. Potential impact of COVID-19 on the Indian economy, KPMG, April 2020

14. Where That \$8.3 Billion In U.S. Coronavirus Funding Will And Won't Go, NPR, 06 March 2020

15. US Senate passes coronavirus rescue package on unanimous vote, The Hindu Business Line, 26 March 2020

16. NHS to receive £6.6bn covid-19 funding, HSJ, 13 April 2020

17. Rs 15,000 crore allotted for healthcare to fight coronavirus, Business Today, 24 March 2020

The need for a social protection net

The economic fallout is expected to create substantial societal impact, particularly in countries with large informal sectors, where often social protection systems do not exist or are limited.

Social impact^{18, 19, 20, 21}

The unorganised sector representing over 90 per cent of the Indian workforce along with a large migrant workforce has been bereft of income support or home comfort during the lockdown.



Disproportionate negative impact on the poorest communities



Loss of income compelling consumers and businesses into cash-conversation mode

Around 37 per cent of regular-wage or salaried employees in urban India are informal workers (non-agriculture), who would face uncertain income following the stalling of urban activity.

In India, the urban unemployment rate has soared to 30.9 per cent, with overall unemployment reaching 23.4 per cent. About 50 million people might have lost jobs in just two weeks of the lockdown.



Rising unemployment leading to income loss



Reverse migration pose challenges

The high risk of job and income losses in urban areas has resulted in a massive reverse migration. Within India, 470 million migrant workers are stuck in places away from their homes.

The COVID-19 pandemic has placed an enormous strain on the existing resources and infrastructure globally, highlighting the lack of planning and mitigation strategies across the world for such an event.

Other major impacts

To contain the spread of the pandemic, schools and universities have been closed. students are enduring a substantial learning loss and forgone human interaction, stalling their social and behavioural development.



Education on pause



Recreational facilities on mandatory hiatus

Adoption of social distancing norms is having an adverse impact on revenues generated by gyms, swimming pools, movie theatres, malls, multiplexes, and public parks, leading to job losses, particularly in the short term.

Decreasing pollution across continents has emerged as a pleasant but brief impact of the lockdown across countries. stakeholders at all levels could seize the opportunity to transform the society and economy by prioritising SDGs.



A wake-up call for the sustainable development goals



Immense pressure on existing infrastructure

For India, COVID-19 has brought a sense of urgency to fix the inadequate healthcare infrastructure and work force. Telecom and digital infrastructure is under pressure as less than a fourth of the total cell towers are currently fiberised in the country.

Source: Telcos' network roll out costs may rise a tad on fibre duty hike, The Economic Times, 05 July 2019

18. Covid-19 lockdown impact: Unemployment rate rises to 23.4%, Livemint, 07 April 2020

19. Rebuilding India after COVID-19, KPMG, 1 May 2020

20. Potential impact of COVID-19 on the Indian economy, KPMG, April 2020

21. In locked down India, poor migrants are on a long march back home, Quartz, 27 March 2020

Moving towards an integrated approach

Even before the COVID-19 crisis, India had promulgated various schemes for critical sectors. For example, it launched the Bharatmala Pariyojana and SagarMala schemes, Power for All, the National Smart Cities Mission and the Swachh Bharat Mission, to develop infrastructure. Managing these complex projects has been challenging as they are long term in nature, have multiple stakeholders, require new technology and face resource constraints.

The government introduced a framework for India's growth and development during the same period. Despite the country's non-performing assets (NPAs) burgeoning in the last decade, the 2016 Insolvency and Bankruptcy Code (IBC) made significant progress in addressing the logjams with its purpose being faster recovery of stressed assets and quicker resolution timelines. The government also introduced demonetisation and Goods and Service Taxes (GST) to achieve economic reforms.

In December 2019, the government integrated these schemes into an umbrella vision and launched the USD1.5 trillion (INR111 trillion)²² NIP project, possibly its most ambitious project till date. The NIP aims to develop projects that promote inclusive growth and job creation alongside equitable access to the said infrastructure being created.

The case for resilient, sustainable infrastructure

Natural disasters are not necessarily going to remain one-off events given the deteriorating state of our environment²³ and planet. Transportation and logistics services that ensure global and regional connectivity, consumer utility services and a reliable healthcare system are critical during any catastrophe. According to the 2019 Economic and Social Survey of Asia and the Pacific, the APAC region will need an additional investment of USD434 billion per year to make infrastructure resilient to multiple disasters and climate change²⁴. Clearly, sustainable and reliable infrastructure is the need of the hour now more than ever.



22.Task Force on National Infrastructure Pipeline presents its Final Report to Finance Minister Smt. Nirmala Sitharaman, Ministry of Finance, 29 April 2020 (1 USD = INR 75)

23.Where the Virus and Climate Intersect, The New York Times, 18 March 2020

24.Economic and Social Survey of Asia and the Pacific 2019: Ambitions beyond growth, United Nations ESCAP, 04 April 2019

Rapid urbanisation has been diverting focus from sustainable growth



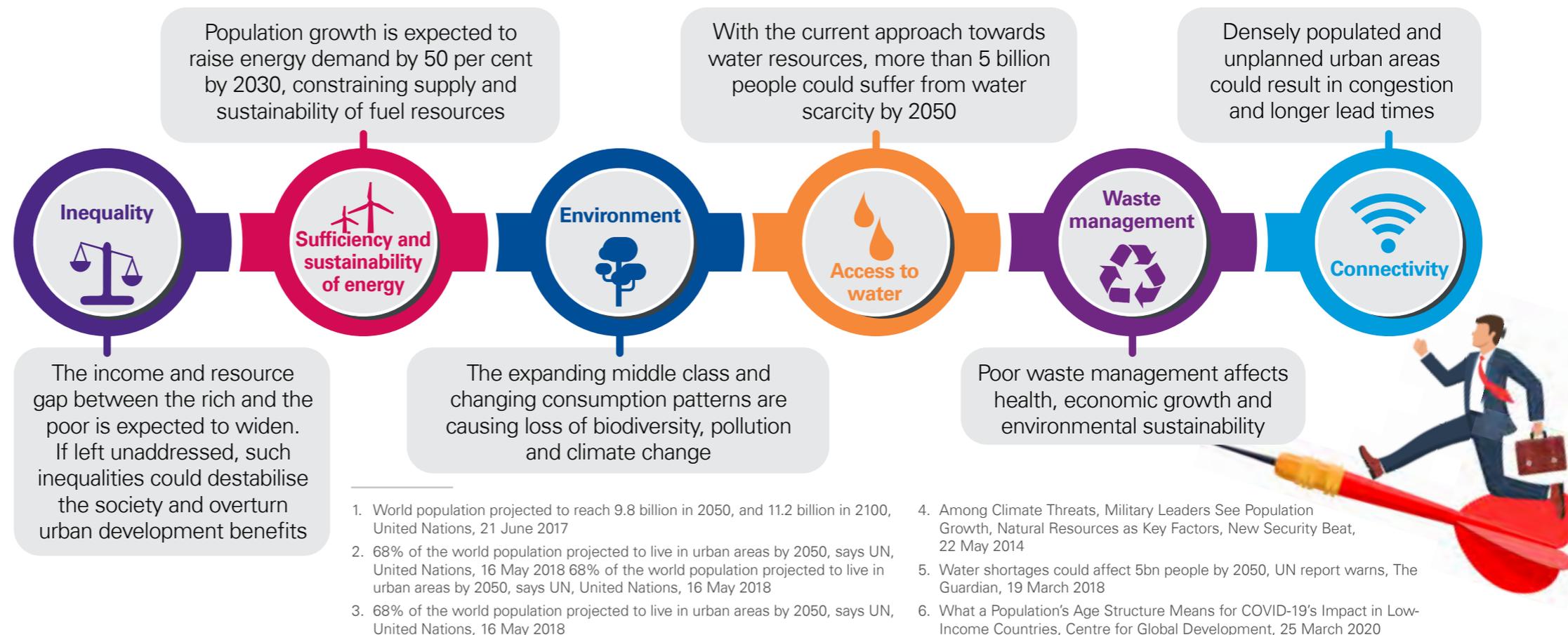
By 2050, the world's population is estimated to grow to almost 10 billion from the current eight billion¹, with over two-thirds expected to live in urban areas². With cities expanding, this should translate into another 2.5 billion people moving to urban centres³. Over 2018-2050, India, China and

Nigeria are together expected to constitute nearly 35 per cent of the projected global urban population growth, with India accounting for 416 million urban dwellers⁴.

In this process, proper urban planning has taken a backseat, with an inequitable

distribution of infrastructure and resources, resulting in large concentration of urban slums. Now, with COVID-19 creating far-reaching economic and socio-demographic ripples across the globe, challenges related to urbanisation may get exacerbated.

Urbanisation challenges weigh on infrastructure requirements^{5,6}



A one per cent dip in the global economic growth may push additional 14 to 22 million people into extreme poverty⁷.

The consequences are anticipated to be far more severe and long lasting for low-income countries.

India's changing demographics to shape future infrastructure requirements^{8, 9, 10, 11}

Rapid urbanisation

India's urban population is expanding rapidly at 11-12 million per annum and would account for 40 per cent of the population by 2030. However, 29 per cent urban population still resides in slums.

Growing working-age population

India's working-age population is expected to grow 1.2x (almost 68 per cent of the total population) by 2030 with a median age of 31 years.

A service-based economy

India is transitioning from an agrarian economy towards a service-based economy. The share of services in GDP is likely to rise from 54 per cent in 2018 to 58 per cent in 2030.

Climate change

Climate change is weighing on infrastructure. Moreover, resources and disaster resilience are becoming increasingly important.



Out-of-the-box thinking necessary to bridge investment gaps

Before the COVID-19 outbreak, India needed a cumulative investment of USD4.5 trillion in infrastructure by 2040¹². The country, however, currently spends USD100-110 billion on infrastructure annually¹³, which adds up to USD3.9 trillion by 2040, thus falling short by USD526 billion¹⁴. These investment requirements are likely to change after factoring in the COVID-19 impact on the economy. India would have to adopt innovative ways to secure financing to bridge the investment gaps.

Over FY08 to FY17, India spent INR1.1 trillion¹⁵ on infrastructure development across several schemes, including Bharatmala Pariyojana, SagarMala, Pradhan Mantri Awas Yojana (PMAY), Digital India and Smart Cities Mission. However, these schemes were being implemented in silos. Moreover, with the dissolution of the Planning Commission in 2014, it became challenging to obtain periodic and frequent updates on the projects' goals, implementation status, progress, timeline and outcomes.

To overcome the current infrastructure challenges and cater to its changing demographic profile, the government announced an integrated USD1.5 trillion (INR111 trillion)¹⁶ investment plan to ensure that the economy sustains its growth trajectory. Infrastructure Vision 2025 encapsulates allocation across sectors, charts long-term targets and increases transparency. Industry stakeholders have lauded this launch as it brings clarity to how the government plans to cater to investment requirements and address the investment gap.

7. What a Population's Age Structure Means for COVID-19's Impact in Low-Income Countries, Centre for Global Development, 25 March 2020
 8. Task Force for creating National Infrastructure Pipeline, Department of Economic Affairs, 31 December 2019
 9. Urban Indian real estate, KPMG and NAREDCO, August 2016
 10. India: Redefining its growth path, KPMG, August 2019
 11. India Urban Infrastructure Report, Knight Frank, 2020
 12. Global Infrastructure Outlook, G20 Initiative, 2019
 13. Budget 2019: India must spend \$200 billion on infra annually; harnessing private investment a challenge, says Economic Survey, The Economic Times, 04 July 2019; Budget 2019: India must spend \$200 billion on infra annually; harnessing private investment a challenge, says Economic Survey, The Economic Times, 04 July 2019
 14. Global Infrastructure Outlook, G20 Initiative, 2019
 15. Finance Minister Smt Nirmala Sitharaman releases Report of the Task Force on National Infrastructure Pipeline for 2019-2025, Press Information Bureau, 31 December 2019
 16. Task Force on National Infrastructure Pipeline presents its Final Report to Finance Minister Smt. Nirmala Sitharaman, Ministry of Finance, 29 April 2020 (1 USD = INR 75)

Infrastructure Vision 2025: setting the path for equitable growth

The government has integrated various infrastructure projects under Infrastructure Vision 2025, thus streamlining project implementation and facilitating investment. Infrastructure Vision 2025 is likely to equip the country with required infrastructure and make India globally competitive.



Vision

To build infrastructure services that improve the quality of life and the ease of living at par with global standards

Develop a five-year plan for infrastructure development in key sectors

Facilitate design, delivery and maintenance of public infrastructure at par with global standards

Implement generic and sectoral reforms to regulate and administrate public infrastructure services in line with global best practices

Boost India's public infrastructure rankings

Source: Task Force for creating National Infrastructure Pipeline, Department of Economic Affairs, 31 December 2019

Strategic goals - Infrastructure aligned with sustainability

Infrastructure Vision 2025's strategic goals are aligned with those of the UN's 2030 SDGs to improve the living standards of people. The

government now needs to focus on creating the conditions needed to secure funding for Infrastructure Vision 2025's delivery, thus helping India cater to urbanisation-led requirements.



Infrastructure goals, strategies and standards



Affordable and clean energy

- 24x7 power availability for all reliable transmission and distribution infrastructure
- Reduce pollution through clean energy



Convenient and efficient transportation and logistics

- Enhanced road connectivity and infrastructure for electric vehicles
- World-class stations and fully integrated rail network
- Airports in accordance with NCAP 2016
- Ports and waterways as per Sagarmala 2016



Doubling farmer income

- Increased irrigation and micro-irrigation coverage
- Integrated agro-logistics systems from farms to end-consumers
- Enhanced access to quality inputs
- Pumping investments in R&D
- Integrated quality assaying infrastructure (soil, water, MRL, commodities / output)
- Farm gate infrastructure for primary processing activities
- Digitally connected agri value-chain eco-system with solid market intelligence platform
- Digitization of agri-land records & credit systems



Quality education

- World-class educational institutes for teaching and research
- Technology-driven learning to meet the GER target of 50 per cent by 2035 in accordance with the draft National Education Policy 2020



Sustainable and smart cities

- Waste water collection, treatment/recycling meeting national standards in all towns across India
- Smart city infrastructure for mobility, entertainment, business, safety and resilience



Leverage technology for public good

- Leverage data from infra services and technology to enhance cost efficiency, access, durability and resilience of public infrastructure services and projects



Digital services access for all

- Providing telecom and high-quality broadband coverage to all citizens
- Facilitating digital payments and e-governance infrastructure for banking and public services



Housing and water supply

- Providing housing for all by 2022 and minimising slum population
- Supplying piped water in line with national standards to all households by 2024

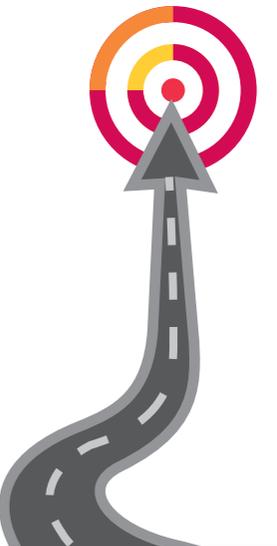


Good health and well-being

- Superior accessible healthcare infrastructure facilities to meet NHP 2017 goals
- Medical, para-medical education infrastructure to meet manpower needs by 2020 and CHVs by 2025 in accordance with the IPHS norms

Disaster resilience

- Design and construct public infrastructure to meet disaster resilience standards in infrastructure



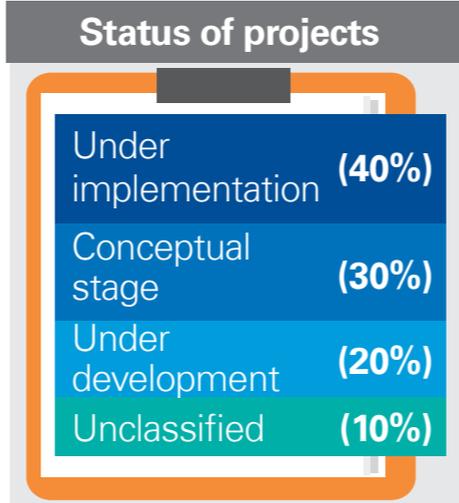
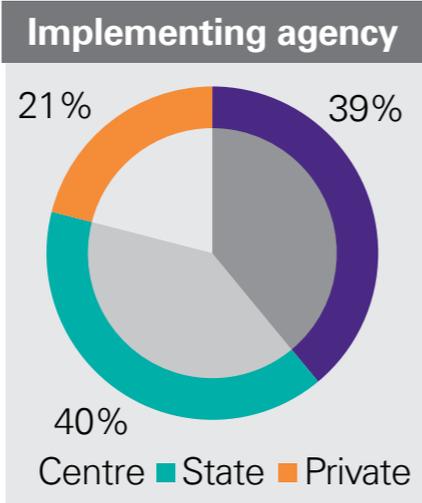
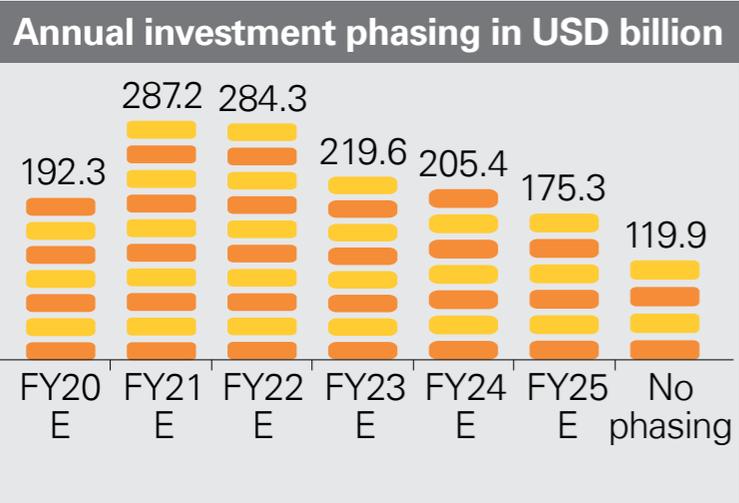
Source: Task Force for creating National Infrastructure Pipeline, Department of Economic Affairs, 31 December 2019

Note: NCAP - National Civil Aviation Policy, GER - gross enrolment ratio, NHP - National Health Policy, CHVs - community health volunteers, IPHS - Indian Public Health Standards

NIP – An investment plan to achieve infra vision

The Indian government has launched the NIP to invest USD1.5 trillion (INR111 trillion)¹ in infrastructure by 2025. A well-planned pipeline and well-developed infrastructure can lead to the creation of valuable assets, build investor

Overview of NIP

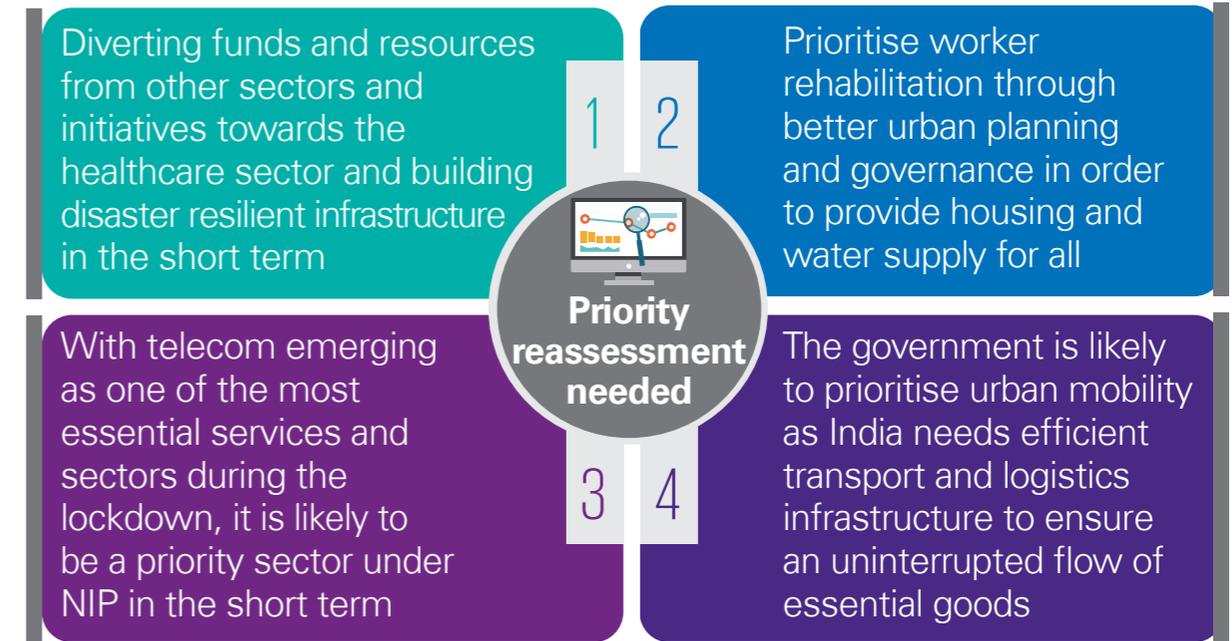


confidence, increase revenue and finance sources, grow businesses, generate employment, improve ease of living and enable inclusive growth. The plan comes at an opportune time, i.e. when the Indian economy is witnessing a slowdown, as investment in infrastructure would enhance economic activity and revive the economy.

COVID-19 likely to have a short-term impact

Due to the COVID-19 outbreak, the government would need to dynamically reassess the priorities

of NIP's themes and projects in the short term. Moreover, it could consider deferring certain projects in FY21 as it would assign higher priority to essential sectors and projects.



Although its investment priorities may change in the short term, the government plans to continue implementing projects over the long term under themes, such as 'Doubling farmer income',

'Sustainable and smart cities', 'Affordable and clean energy', 'Quality education' and 'Leveraging technology for public good' as they remain crucial for reigniting India's growth trajectory.

Source: Task Force on National Infrastructure Pipeline presents its Final Report to Finance Minister Smt. Nirmala Sitharaman, Ministry of Finance, 29 April 2020 (1 USD = INR 75)

1. Task Force on National Infrastructure Pipeline presents its Final Report to Finance Minister Smt. Nirmala Sitharaman, Ministry of Finance, 29 April 2020 (1 USD = INR 75)

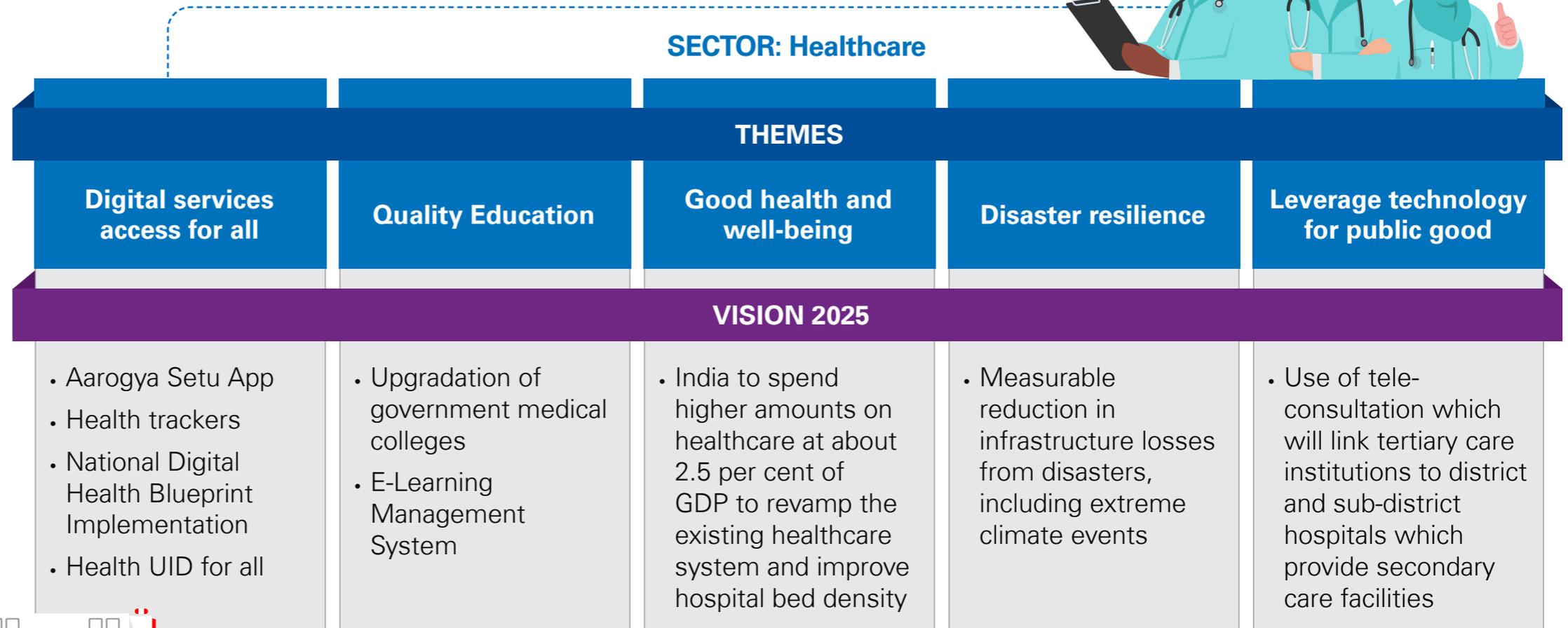
Understanding the strategic goals of the Infrastructure Vision 2025



Click on tabs to navigate

Healthcare in India is on the cusp of significant transformation, with its changing demographics, increasing consumer spending and rising lifestyle diseases driving the need to build better, accessible and inclusive healthcare infrastructure. Moreover, the COVID-19 pandemic has repositioned the healthcare sector on the top of the government's priority list.

Mapping NIP sectors with the Infrastructure Vision 2025 themes (illustrative)



Source: National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020

Sector overview

The Indian healthcare sector is an integral component towards achieving the government's vision of a quality life for all citizens and has emerged as one of its largest revenue and employment generators. Additionally, the Indian pharmaceutical sector has been instrumental in supplying generic drugs to the global market. India fulfils 20 per cent of the global demand for generic medicines in terms of volume and supplies over 60 per cent of the global demand for various vaccines and antiretroviral (ARV) drugs



Good health and well-being essential for social infrastructure development^{1,2,3,4}

- **Low bed density:** one government hospital bed per 1,844 population
- India spends **1.3 per cent of GDP** on healthcare
- **Immunisation level sub-optimal:** only 62 per cent children between 12 – 23 months immunised
- **80-90 per cent dependence on imported** medical devices and diagnostic equipment
- **Insufficient medical colleges:** shortage of 600,000 well qualified doctors and 2 million support healthcare staff

NIP 2020 extract and observations



- **Improve bed density**
- Increase healthcare spend **2.5 per cent of GDP**
- **Achieve objective of Mission Indradhanush:** attain full immunisation coverage
- **Make in India initiative:** scale up diagnostic and medical equipment manufacturing
- **Utilisation of teleconsultation:** link tertiary care institutions to district and sub-district hospitals
- **New medical colleges** on PPP basis

Vision 2025



The COVID-19 outbreak has tested the country's existing healthcare system to its maximum level and is also shaping the outlook of its citizens towards quality healthcare. It has brought to the forefront the immediate need for more capacity at hospitals, technology intervention in the form of telemedicine, demand for more skilled healthcare workers, accelerating development of medical manufacturing clusters and a future strategy to handle epidemics such as this one.

1. National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020
2. India facing shortage of 600,000 doctors, 2 million nurses: Study, The Economic Times, 14 April 2019
3. Just 1 doctor to treat 11,000 patients: The scary truth of India's govt healthcare, The Print, 23 June 2018
4. Industry hails 5% health cess on imports of medical devices, Outlook India, 01 February 2020

Healthcare sector is at the nucleus of the current pandemic challenge^{5,6,7}



Digital services access for all

Disruption in revenue flow due to a drop in outpatient and inpatient departments footfall, postponement of elective surgeries and other non-essential procedures



Supply disruption

Supply disruption for essential medicines and other consumables, such as active pharmaceutical ingredients and protective gears, may lead to a surge in prices in the near term



Downtrend in medical tourism

Precautionary travel bans due to COVID-19 to impact the influx of medical tourists in the short to medium term



Change in attitude towards health

People may show more inclination towards a healthier lifestyle, quality healthcare facilities, and healthcare insurance coverage



Adoption of digital health solutions

Technology adoption is gaining traction, as evident from rising adoption of telemedicine, digital health solutions and contact tracing apps

In the wake of the current pandemic situation, the Union Cabinet has approved additional USD2 billion⁸ (INR150 billion) of phased funding to the healthcare sector for diagnostics and COVID-19 dedicated treatment facilities, centralised procurement of essential drugs and medical equipment, strengthening the healthcare systems and bio-security preparedness and pandemic research.

5. COVID-19: Healthcare industry submits joint recommendations to deal with impact, FICCI, 27 March 2020

6. Potential impact of COVID-19 on the Indian economy, KPMG, April 2020

7. Coronavirus impact on healthcare sector, Economic Times, 14 April 2020

8. Coronavirus | Union Cabinet approves 15,000-crore package for COVID-19 emergency response, health system preparedness, The Hindu, 22 April 2020



Potential pipeline

An allocation of USD9.2 billion (INR690 billion)⁹ was made during the Union Budget 2020-21 announcement to the healthcare sector, with emphasis on developing healthcare infrastructure in Tier-I and Tier-II cities. Apart from this, the NIP has allocated nearly 1.4 per cent¹⁰ of the total budget to the healthcare sector.¹¹

The NIP vision would work in tandem with various government initiatives already in place such as Ayushman Bharat to set up more wellness institutes, Affordable Medicines and Reliable Implants for Treatment (AMRIT) to sell discounted medicines for cancer, PM Bhartiya Janaushadhi Pariyojana (PMBJP) and a collaboration with Asian Research and Training Institute to add one million skilled healthcare providers by 2022.¹²

A glance at the big opportunities (As of 29 April 2020)^{13,14}



Note: Only projects published on the India Investment Grid website (<https://indiainvestmentgrid.gov.in/>) as of 29 April 2020 and costing between USD10 million and USD500 million have been considered for arriving at key states. 1 USD = INR 75

9. Budget 2020: Healthcare sector allocation rises to INR69,000 crore, Business Standard, 1 February 2020

10. Task Force for creating National Infrastructure Pipeline, Department of Economic Affairs, 3 April 2020

11. Task Force for creating National Infrastructure Pipeline, Department of Economic Affairs, 31 December 2019

12. 1 mn skilled healthcare providers likely by 2022: Institute, Business Standard, 26 May 2017

13. India Investment Grid, National Investment Promotion & Facilitation Agency, Accessed on, 6 May 2020

14. National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020



Project prioritisation

Augmenting preventive primary healthcare, construction of medical colleges and digital health would continue to remain the top priority area post COVID-19. States as well as local bodies would take on a larger role in urban health¹⁵ by strengthening primary healthcare infrastructure and improving management systems for providing better affordability, accessibility and connectivity. Health and safety would get ingrained in the principle of infrastructure design such as adding accessways, paramedic equipment and making it operate multifunctionally.

Making the healthcare value chain self-sustainable would be key

Key action points

Short term

- Incentivise biotech firms for faster development of testing kits and vaccines
- Fast track healthcare screening through mobile testing booths
- Regular health monitoring and tracking of every individual
- Guidelines for managing biomedical waste and discharge protocols
- Creation of make-shift or modular hospitals with 1,000-1,500 beds for COVID-19 patients

Medium term

- Exhaustive health screening and management
- Develop framework for digital healthcare blueprint across states
- Operational assessment of district hospitals
- Boost domestic manufacturing of medical devices and pharmaceuticals through
 - Fiscal benefits
 - Supportive regulatory framework
 - Single window clearance

Long term

- New unique Aadhaar-based health ID based on basic health parameters
- Create mobile and modular healthcare infrastructure
- Enhance district hospitals as a part of secondary, tertiary and emergency medical response
- Improve medical supply chain logistics for effective emergency response and disaster management
- Stakeholders such as National Building Organisations, Ministry of Housing and PWD to validate projects from a healthcare perspective
- Incentivise R&D investments
- Improve collaboration between industry and academia

Source: National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020

15.KPMG in India analysis 2020

Building blocks of success

Going forward, infrastructure design across sectors would be undertaken from a multifunctional perspective that would enable it to function as an emergency response unit, whenever the requirement arises. Expanding health protection coverage, strengthening primary healthcare network and increased adoption of digital technologies would be key enablers for achieving the NIP vision for the healthcare sector.



Achieving good health and well-being for all

Policy/regulations



- Universal health protection by expanding 'Ayushman Bharat' to every citizen through exhaustive health screening and management
- Incentives for medical device manufacturing

Institutions (Capacity)



- Need to upgrade existing healthcare infrastructure by adding more beds, equipment, staff, epidemic response management unit and healthcare educational institutions

Funding/financing



- State governments can induct a private firm to develop or manage healthcare units; investments to be recovered via availability-based payments
- Reaching out to institutions such as World Bank and ADB to expand the healthcare network

Data/technology



- Create National Health Stack
- Develop an integrated e-health system under the National Digital Health Blueprint (NDHB)
- Use of AI/ML to improve implementation of existing schemes

KPIs/outcomes



- Operational assessment for public health standards in line with district hospital maturity and readiness index
- Developing a healthcare facility readiness index

Source: KPMG in India analysis 2020

Understanding the strategic goals of the Infrastructure Vision 2025



Transportation and logistics



Healthcare



Energy



Agriculture and irrigation



Education and skilling



Urban and rural infrastructure



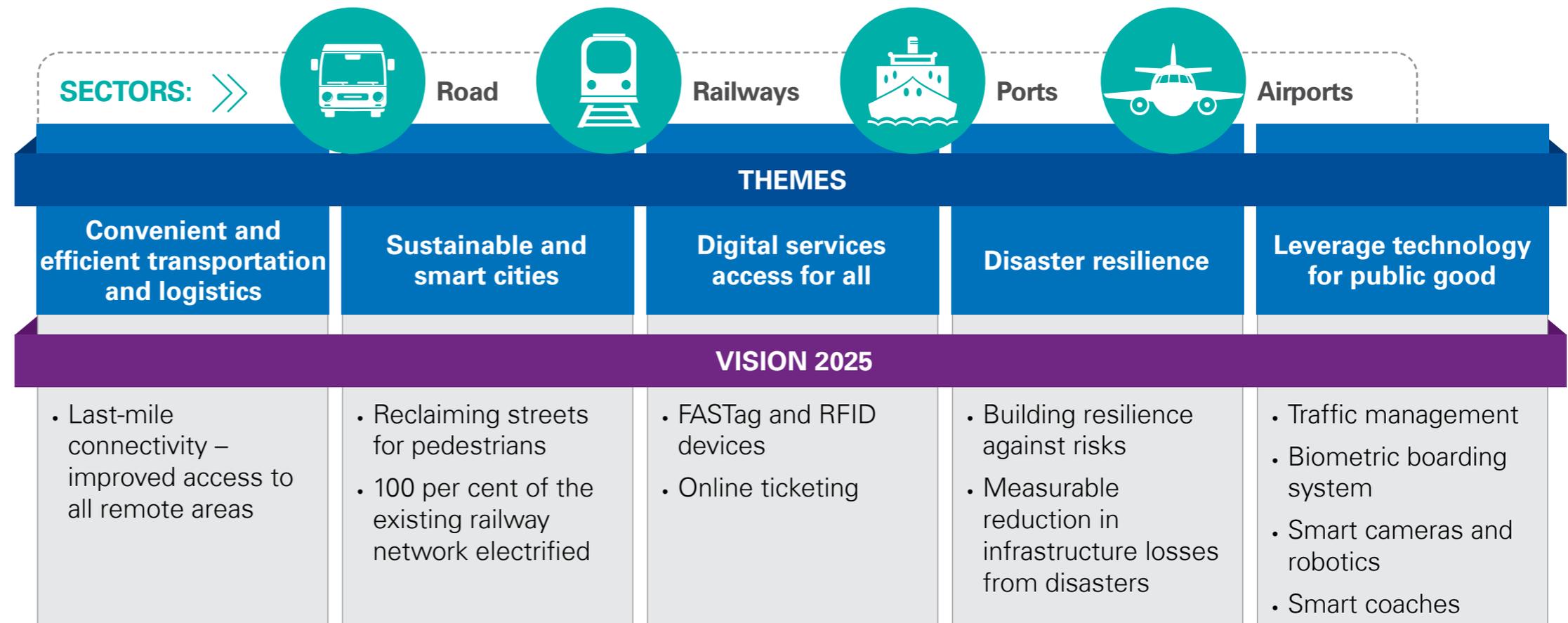
Digital infrastructure



Disaster resilience

Mobility is the backbone of any country's growth, as the ability to move people and goods efficiently and at minimum costs has a multiplier effect on the economy. India's transport and logistics sector has played a key role in essential and emergency passenger transport and supply of essential goods and drugs across the country amidst the COVID-19 related lockdown. Investment and technological adoption in transportation and logistics infrastructure would lead to higher convenience, affordability, last-mile connectivity and better urban space design for pedestrians and vehicles. This fundamental requirement remains in the post COVID-19 period too. Therefore, we need to move forward with an adaptive approach in the post COVID-19 situation -which is the new normal. .

Mapping NIP sectors with the Infrastructure Vision 2025 goals



Source: National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020

ROADS: Sector overview

Good health and well-being essential for social infrastructure development^{1,2}

- **5.89 million kms:** Second largest road network in the world
- **0.13 million kms:** National highways carrying 40 per cent road traffic
- **INR10.2 trillion:** Investment made into roads and highways FY16-FY20
- **Low private sector participation**
- **Cash collection** at toll plazas resulting in revenue leakages and congestion
- **Flat toll rate** irrespective of actual distance travelled
- **Limited use of technology in safety and security**

NIP 2020 extract and observations

- **0.19 million kms:** National highways
- **Higher share of private sector participation**
- **Last mile connectivity**
- **Increased used of FASTag and tolling based on 'pay per use' concept**
- **Higher penetration of technology** (automated traffic controllers, speed regulators, digital message boards)

Vision 2025



Potential pipeline

The roads and highways sector has received a significant push via government initiatives, such as Bharatmala Pariyojana, Pradhan Mantri Gram Sadak Yojana and multiple expressways.

A glance at the big opportunities (As of 29 April 2020)^{3,4,5}



Key states: Kerala, Uttar Pradesh, Tamil Nadu, Uttarakhand, Assam and Maharashtra

Major projects: Delhi-Mumbai Expressway, Chennai-Bengaluru Expressway, Amritsar-Jamnagar Expressway, Dwarka Expressway and Trans Haryana North-South Expressway

Note: Only projects published on the India Investment Grid website (<https://indiainvestmentgrid.gov.in/>) as of 29 April 2020 and costing between USD10 million and USD500 million have been considered for arriving at key states. 1 USD = INR 75

1. Roads and highways sector – Current trends and future roadmap, KPMG, September 2019
2. Task Force for creating National Infrastructure Pipeline, Department of Economic Affairs, 31 December 2019
3. National Infrastructure Pipeline - Report of the Task Force

4. India Investment Grid, National Investment Promotion & Facilitation Agency, Accessed on 29 April 2020
5. The government is prioritizing projects that are linked with industrial clusters, Construction Week Online, 21 April 2020

However, the recent pandemic has caused speed bumps along the path in the form of labour shortage, funding constraints, drop in revenue collection at tolls and lower asset utilisation.

It may be challenging to achieve the sector vision by its deadline considering the current shift in priorities towards healthcare, competing demands on budget funds and a projected growth rate of 4.8 per cent for FY21⁶. Infrastructure development targets, including roads, may be required to be extended by two to three years to align with moderated growth in the economy.

Post COVID-19, new smart cities would be designed with the core principle of increasing pedestrian footfall and use of public transport rather than private vehicles. This would involve expanded coverage of public transport, proper urban space planning, quality and depth of footpaths/pavements, higher number of

road crossings, street lighting and better traffic management through enhanced usage of digital interventions.

Private participation via hybrid annuity model (HAM) projects in state highways was on the rise prior to the pandemic, with Maharashtra leading the pack with USD0.43-0.45 billion (INR30 billion–35 billion) budget allocation per year towards HAM projects⁷. However, the private sector may witness financial pressure due to COVID-19 and there may be a decline in private participation in FY21. Therefore, there would be a requirement to look at alternate sources of funding and focus on enhancing multi-lateral funding.

The top nine states accounted for 70 per cent of total investments in state roads, with the largest investments being made in Uttar Pradesh, Maharashtra and Tamil Nadu⁸. However, the budgets are likely to get revised in FY21 driven by COVID-19.

Project prioritisation

The government is expected to prioritise highway projects based on parameters such as linkages with industrial clusters, completion timelines, ticket size, their economic importance and presence of labour at the project site. The National Highway Authority of India (NHAI) has announced that work would resume shortly on 50 to 60 per cent of the expressway and highway projects where labour is stationed at the local project sites⁹. With steel plants and refineries functioning, raw material would also be available.

The large stretches of uncongested national highways available currently offer reduced lead time for raw materials, better safety and less diversion issues. This can be leveraged to expedite last leg of completion of projects and contribute to higher construction rates in the short term.

Construction could pick up pace in the second half of FY21 as the roadway sector continues to remain a key focus area for the government due to its linkages to other sectors and ability to generate employment and income.



6. India's GDP for FY21 projected at 4.8%: UN report, Livemint, 09 April 2020

7. CRISIL Research, Accessed on 21 February 2020

8. CRISIL Research, Accessed on 21 February 2020

9. The government is prioritizing projects that are linked with industrial clusters, Construction Week Online, 21 April 2020

Prioritisation of projects and funding to increase rate of project completion

Key action points

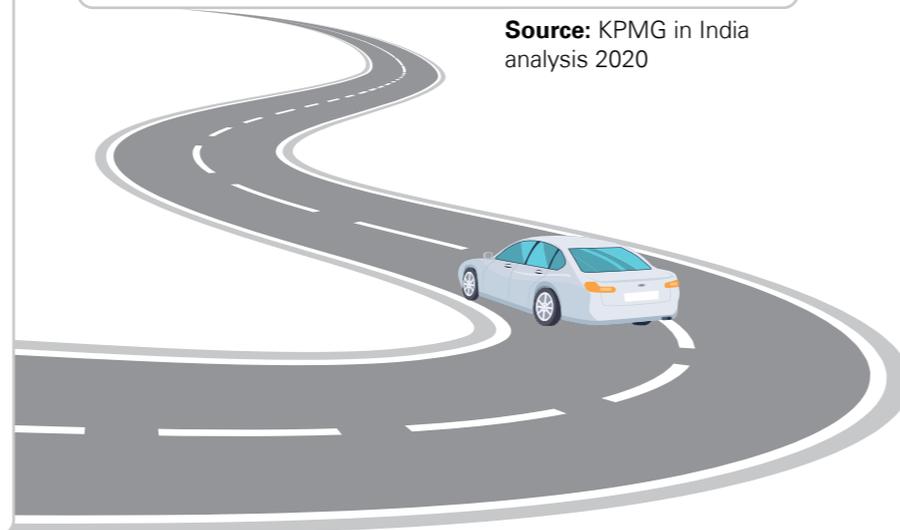
Short term

- Prioritise on-going/ brownfield projects as allowed by district authorities
 - Complete last leg projects on priority
- Big ticket projects with labour at site
- Leverage low traffic/diversion on NH to work on brownfield/urban stretches, seamless movement of workers, heavy vehicles, raw material and pre-cast units
- Authorities to utilise time for dispute resolution to expedite on-going projects
- Prioritised usage of available funds
- Stranded migrant workers to be given jobs in nearest NH projects
- Improve toll collections at NH and SH for priority fund allocation from the Ministry of Finance

Long term

- Complete on-going projects
- Structure plans and protocols to face pandemics in future
- Implement high impact, low capital intensive projects under PPP model
- Promote multi-laterally funded projects
- Optimise use of cess
- Focus on multi-modal transport

Source: KPMG in India analysis 2020



The country can also undertake a phased resumption of public transport services.

Key phases

PHASE I

During lockdown

The lockdown period can be utilised to prepare and ready the system to resume operations as soon as the lockdown ends

1. Temporary use of vehicles/ coaches as make-shift treatment facilities and storage of medical equipment and supplies
2. Proper overhaul of unutilised transport vehicles/coaches to keep them ready to join service
3. Plan for having operational staff in place while keeping in mind the social distancing and health safety norms

PHASE II

Just after lockdown

- Step-wise resumption
- Ensuring protection from pandemic
- Managing one-time issues

1. Limited operationalisation of public transport in terms of privatised, safe and high demand routes in the urban transport ambit
2. To be later extended to intra- and inter-state movements
3. Safety norms

Source: KPMG in India analysis 2020

The apprehensions of daily passengers to use public transport post COVID-19 can be addressed through the following measures:

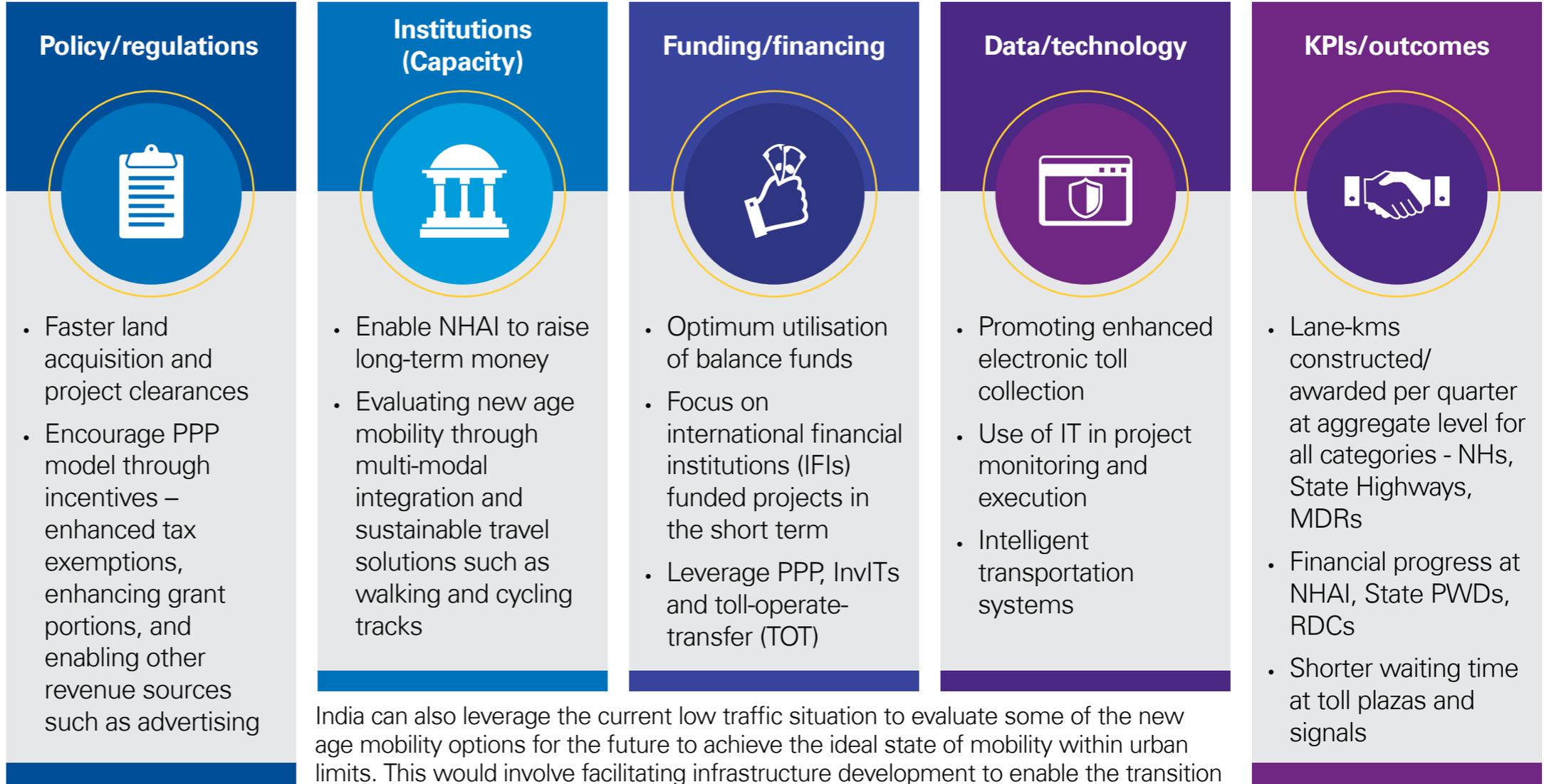
- Standardisation and enforcement of a set protocols in terms of the allowable limit for the number of people in the public transport coaches, periodic sanitation of the public transport system and management of the stoppage/terminal facilities;
- Immediate retrofit solutions such as sanitiser dispensers and thermal scanners on public transport;
- Technology-enabled usage of current public transport systems to provide dedicated shuttle services to establish the emotional well-being of travellers by offering them a safer environment; and
- Broaden public transport to include access to cycles and the development of cycle routes and the pedestrianisation of streets but through active consultation with local communities and NGOs.
- Public awareness programmes through public broadcasts, use of variable message signs (VMS) and other measures in key areas with high foot fall.

10. National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs Ministry of Finance, Government of India,

29 April 2020

11. KPMG in India analysis 2020

Building blocks of success - Extending road infrastructure^{10,11}



India can also leverage the current low traffic situation to evaluate some of the new age mobility options for the future to achieve the ideal state of mobility within urban limits. This would involve facilitating infrastructure development to enable the transition from private transport to public transport; multi-modal integration; and healthy, eco-friendly and sustainable solutions like cycling and walking as options. This may include dedicated cycling and walking tracks and expansion of footpaths and walkways.

Note: MDR – Major District Roads, PWDs – Public Work Departments, RDC – Road Development Corporation



RAILWAYS: Sector overview

Focus on development of fully integrated rail network^{12,13}

- Railways accounts for 33 per cent modal share in freight traffic
- Two dedicated freight corridors (DFCs) under implementation
- No high-speed railway (HSR) network
- Electrification of 57.9 per cent rail lines commissioned as on 1 November 2019
- High network congestion

NIP 2020 extract and observations



- Healthy private sector participation
- More than 40 per cent modal share of railways in freight traffic
- Two DFCs fully operational with four underway
- Mumbai-Ahmedabad HSR to be operational
- Electrification of 100 per cent rail lines and optimum utilisation of the existing network
- Focus on safer travel
- Improved customer experience
- Higher average speed

Vision 2025



Potential pipeline

Various initiatives have been undertaken by the Indian Railways to provide impetus to the Make in India programme and encourage investment in railway infrastructure through investor-friendly policies. Around, 72 per cent¹⁴ of planned capex constitutes network decongestion, network expansion, rolling stock and safety related infrastructure.

A glance at the big opportunities (As of 29 April 2020)^{15,16,17,18}



Number of projects
724



NIP capex over five years
USD182.3 billion



Key states: Kerala, Tamil Nadu, Andhra Pradesh, Bihar, Madhya Pradesh, Karnataka



Major projects: Construction of western and eastern dedicated freight corridors, 600 stations to be redeveloped via PPP, bid invited for operation of 150 private trains, investment cleared for Mumbai-Ahmedabad high-speed rail project

Note: Only projects published on the India Investment Grid website (<https://indiainvestmentgrid.gov.in/>) as of 29 April 2020 and costing between USD10 million and USD500 million have been considered for arriving at key states. 1 USD = INR 75

12. Indian Railways to be fully electrified in next 3-4 years, Livemint, 25 November 2019
 13. Task Force for creating National Infrastructure Pipeline, Department of Economic Affairs, 31 December 2019
 14. CRISIL Research, Accessed on 21 April 2020
 15. National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020

16. India Investment Grid, National Investment Promotion & Facilitation Agency, Accessed on 29 April 2020
 17. Railways to soon invite bids from firms to operate passenger trains, Livemint, 30 December 2019
 18. Railways for easier PPP norms to revamp 600 stations, The Economic Times, 27 April 2020

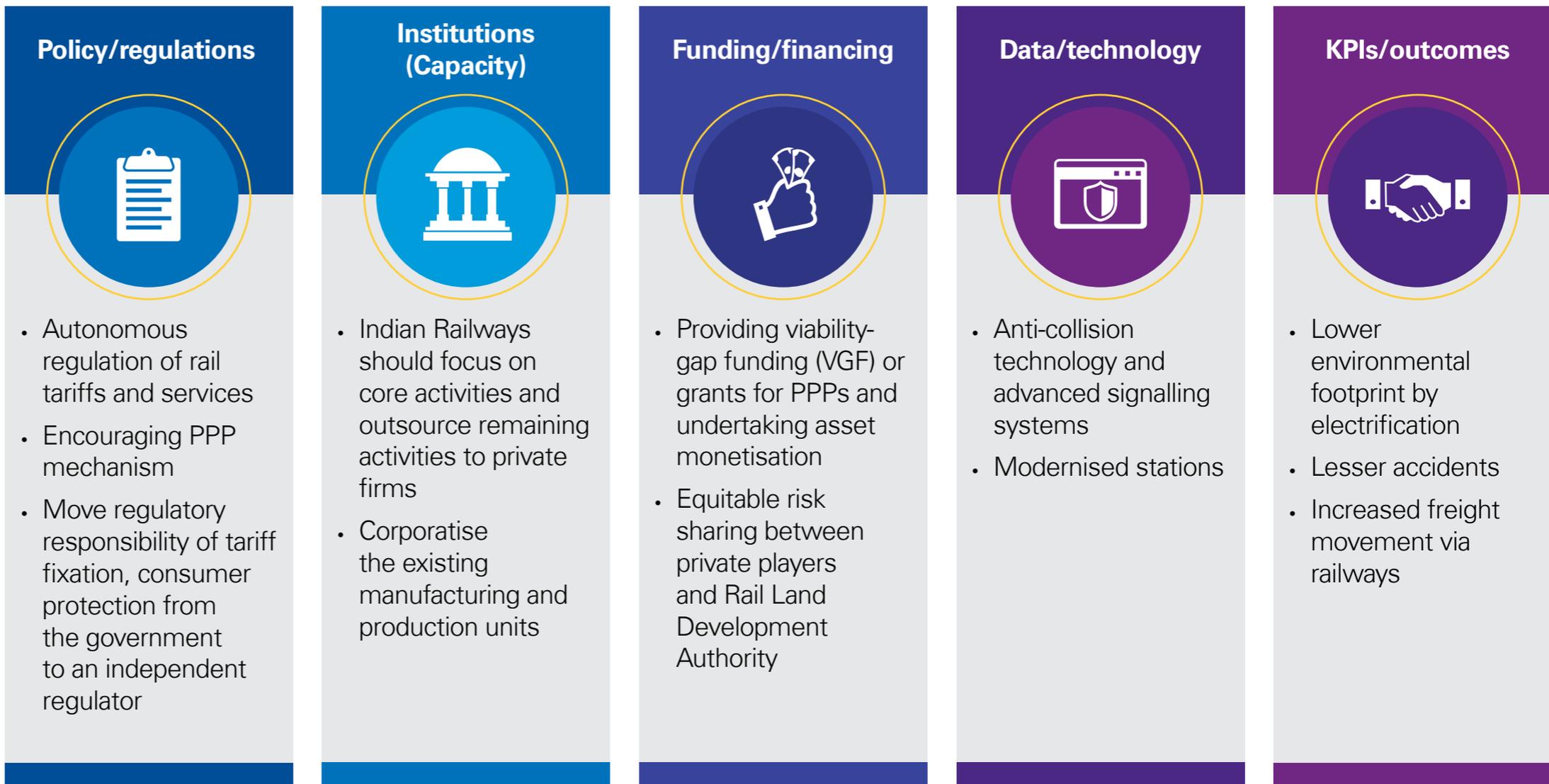


The nationwide lockdown due to the COVID-19 crisis has had significant loss of revenue to the Indian Railways as well as its catering arm as only freight transport of essential goods was permitted. Despite the financial setback, the Indian Railways demonstrated resilience and agility to cater unprecedented requirements arising in wake of COVID-19. Railways played a very crucial part in country's fight against COVID-19 by altering traffic routes and aggregating small and operating parcel cargo trains to not only ensure uninterrupted supply of essential items but also to help livelihoods. Railways also leveraged its resources to enhance the manufacturing of emergency medical supplies and deploying modular healthcare infrastructure such as isolation coaches around COVID-19 hotspots as well as far flung areas.¹⁹

Project prioritisation

Like roads, railway projects may also experience delays. Work on projects is already underway and work on dedicated freight corridors may resume in the second half of FY21. Roads and railways are expected to account for a major share of the investments even post COVID-19.

Building blocks of success - Enhancing railway infrastructure



Source: National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020

19. How Indian Railways can use COVID-19 as an opportunity to develop, Global Railway Review, 21 April 2020

PORTS: Sector overview

Emphasis on ports and waterways that reduce logistics time and cost^{20,21}

- There are 12 major and around 200 minor ports in India
- Only 60 per cent capacity of 2 billion tonnes is being utilised
- Higher logistics cost and turnaround time and low output per ship berth
- Low adoption of advanced technologies
- Movement via inland waterways at very nascent stage

NIP 2020 extract and observations



- New ports constructed via Sagarmala
- Capacity utilisation to increase to more than 65 per cent of 2.5 billion tonne
- Improved hinterland connectivity, port modernisation and computerisation
- Use of robots for packing and delivering, and data analytics to monitor logistics
- Higher share of inland waterways in both freight and passenger traffic

Vision 2025



The Indian government launched the Sagarmala programme in 2015 to promote port-led development in the country and reduce logistics cost for Export-Import (EXIM) and domestic trade with minimal infrastructure investment.

Potential pipeline

Overall, the Sagarmala programme is expected to oversee the development and implementation of new as well as existing ports and inland waterways across India.²²

A glance at the big opportunities (As of 29 April 2020)^{23,24}



Number of projects
58



NIP capex over five years
USD16.2 billion



Key states: Maharashtra, Goa, Kerala, Tamil Nadu, Andhra Pradesh, Karnataka, Odisha



Major projects: Vadhavan Port as well as building dry ports at Nashik, Wardha and Jalna

Note: Only projects published on the India Investment Grid website (<https://indiainvestmentgrid.gov.in/>) as of 29 April 2020 and costing between USD10 million and USD500 million have been considered for arriving at key states. 1 USD = INR 75

20. Port Modernization & New Port Development, Sagarmala, 05 November 2019

21. Task Force for creating National Infrastructure Pipeline, Department of Economic Affairs, 31 December 2019

22. India soars higher, KPMG, 2018

23. National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020

24. India Investment Grid, National Investment Promotion & Facilitation Agency, Accessed on 29 April 2020

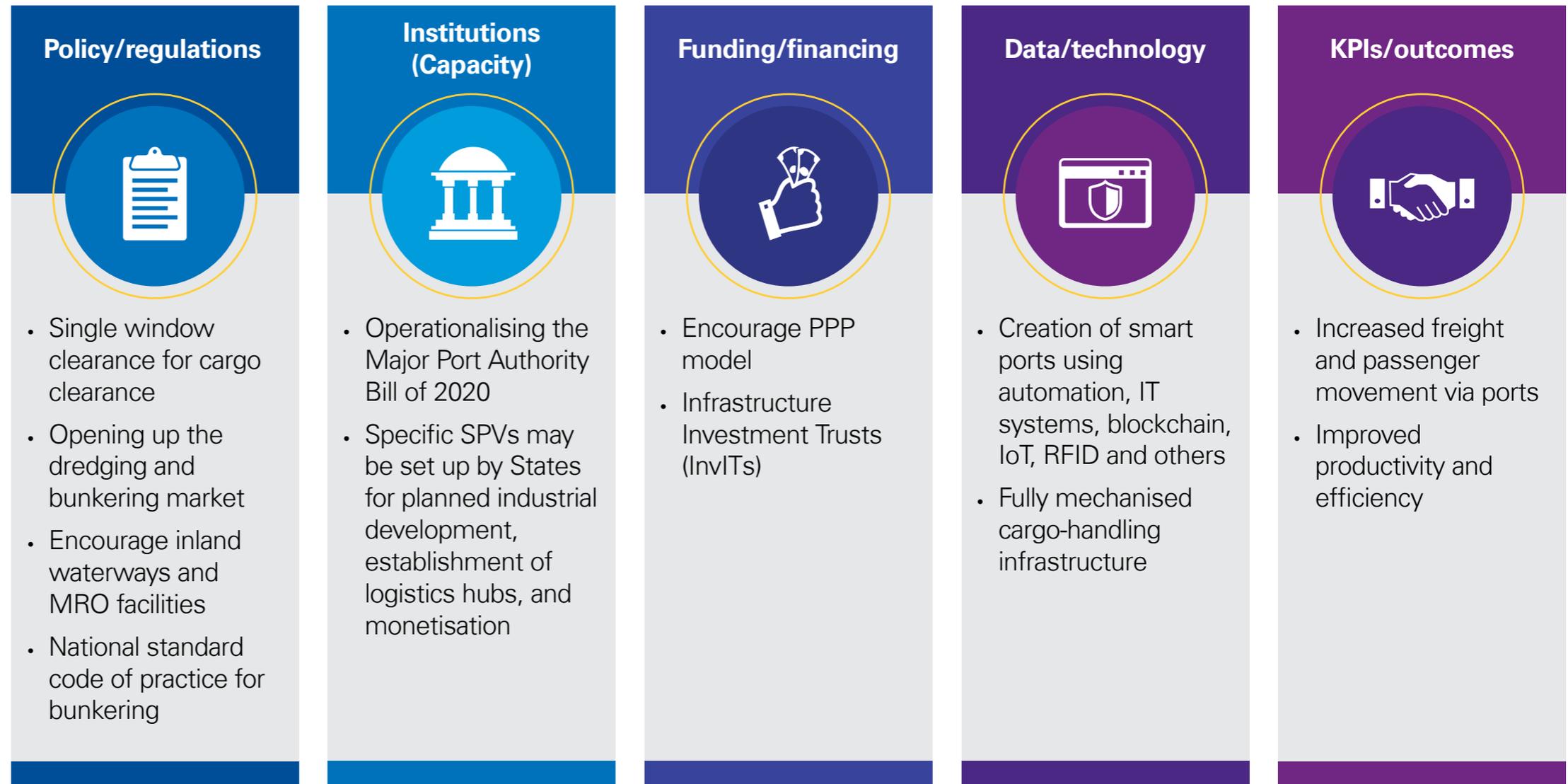
However, Indian ports have witnessed a significant reduction in container traffic since the COVID-19 outbreak as Italy, China and the US (the most affected countries) account for 30 per cent of both imports and exports in India's trade²⁵. Furthermore, decline in demand for petroleum and coal has also led to lower utilisation at ports.

Project prioritisation

The government is likely to prioritise monetisation of the land around major ports in the country such as the Mumbai Port²⁶ along with projects already under construction in the short term.



Building blocks of success - Developing quality ports



Source: National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020

25. CRISIL Research, Accessed on 15 April 2020

26. Shipping ministry ready with mega plan to turn Mumbai port land into a new mini city, The Print, 02 August 2019



AIRPORTS: Sector overview

Developing airport infrastructure and connectivity for passengers and cargo^{27,28,29,30}

- India is the **third largest aviation market in the world**
- **More than half of the 50 busiest airports** in the country operating over capacity since 2018
- **Only six airports** owned by Airports Authority of India (AAI) have been **privatised as PPP**
- **Regional connectivity scheme under progress**
- Despite a growing fleet and market, **the domestic maintenance repair and operations (MRO) industry has lost significant business to overseas competition** because of skewed tax and regulatory policies
- **Greenfield airports in Navi Mumbai, Goa, Bhogapuram have been delayed** for various reasons and have significantly impacted capacity addition and growth
- **India's low air traffic penetration** (<0.2 trips per capita) presents a big opportunity to make it the second largest aviation market in the world by 2030.

NIP 2020 extract and observations

- Become the fastest growing aviation market in the world **500 million domestic and 200 million international fliers by 2027**
- Commercial operations of four Greenfield Airports – **Jewar, Navi Mumbai, Mopa (Goa) and Bhogapuram (Vizag)**
- Award of PPP concessions for thirty to thirty-five AAI owned airports
- Commercial use of GAGAN, India's satellite based augmentation system
- Create a **USD three billion MRO industry** in India
- Set up an aircraft leasing business
- Expand regional air connectivity to all **Tier-2 and Tier-3** cities
- Set up world-class aviation skilling and training facilities for engineers, pilots, cabin crew and logistics services
- Double air cargo throughput
- More open skies agreements to expand international connectivity

Vision 2025



27. Delhi's Indira Gandhi International Airport 12th busiest in the world; overtakes Frankfurt, Guangzhou airports: report, Business Today, 23 March 2019
28. India's 50 busiest airports to breach capacity this year, Hindustan Times, 21 May 2018
29. AAI recommends Centre to privatise 6 airports including Amritsar, Varanasi, Livemint, 01 December 2019
30. Task Force for creating National Infrastructure Pipeline, Department of Economic Affairs, 31 December 2019



Potential pipeline

There are several reasons to be optimistic about India's ability to become the second largest or possibly the largest aviation market in the world in the next two decades; notwithstanding the short-term impacts of COVID-19 – low air traffic penetration, growing per capita incomes, increasing global mobility of the middle-class and higher propensity for leisure and business travel facilitated by global growth in trade and commerce.

India needs an estimated USD50 billion in building airport assets to cater to estimated demand over the next two decades. Our immediate need over the next five years is estimated to be USD20 billion. Much of that investment will need to come from the private sector, who have clearly demonstrated the value they bring in not just financing these assets efficiently but also in developing and operating world-class assets. Private interest in developing large commercially viable assets has also allowed the government to focus on financing regional airport infrastructure with the intent of expanding regional air connectivity and supporting traffic growth at hub airports. The Union Budget of 2020 has proposed the development of 100 new airports under the Ude Desh Ka Aam Nagrik (UDAN) scheme in addition to the 45 existing airports under the UDAN scheme³¹.

A glance at the big opportunities (As of 29 April 2020)^{32,33}



Note: Only projects published on the India Investment Grid website (<https://indiainvestmentgrid.gov.in/>) as of 29 April 2020 and costing between USD10 million and USD500 million have been considered for arriving at key states. 1 USD = INR 75

Aviation is one of the worst hit sectors globally because of COVID-19. Airport and airline businesses in India are expected to lose more than half of their topline in FY21. But the silver lining, is India's strong domestic market, which has already seen a steady increase in air traffic on many routes since resumption of air services recently³⁴. However, returning to pre COVID-19 traffic levels may take 18-24 months. Corporate travel may continue to remain muted for some more time even as the world recovers from the pandemic as businesses will need to rationalise costs to recover losses and save jobs. Having said, that leisure travel is expected to be bounce back faster, with opening up of international traffic on select corridors in phases (travel

bubbles), which will see a further upswing in the next 12-18 months as countries harmonise passenger safety norms and regulatory provisions including visa and immigration procedures

The role of technology in driving the transformation in customer experience and regulatory oversight has been significant. The increasing need for social distancing and contactless travel has prompted several innovations in airport processes and operational procedures, entailing investments in new equipment, software and data analytics and sharing capabilities across airports, airlines, regulators and other stakeholders.

31. Union Budget: 100 new airports to be developed under UDAN scheme, The Economic Times, 27 April 2020

32. National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020

33. India Investment Grid, National Investment Promotion & Facilitation Agency, Accessed on 29 April 2020

34. Robust demand for air travel spells relief for domestic airlines, Livemint, 11 June 2020



It is also driving new thinking on future airport designs, optimisation of land use, automation and digitization of services, all of which require significant investments in incubating and operationalising cost-effective solutions for future needs with an eye on improving customer experience and maximising value from these investments. It will also need emphasis on training, knowledge transfer, software development, augmenting bandwidth of internet and communication networks, renegotiation of existing service level agreements, drafting of more efficient contracts and rewriting of regulatory guidelines including a renewed and uncompromising focus on cybersecurity, data privacy and sustainability objectives. The next 5 years is going to see significant action within the airports sector in these areas.

As stakeholders explore newer ways to integrate technology into airport operations, the business models of future airports would evolve for the better. Commercial operations within the airports such as retail purchasing, food and beverages, duty free shopping and others would also undergo a sea change. The growth of e-commerce offers unlimited opportunity for airport owners and operators to expand the footprint of retail transactions and monetise passengers and other users beyond airport boundaries. Global e-commerce majors may also have a larger role to play in airport duty-free and retail businesses with their extensive supply chains and logistics businesses that can add substantive value to airports' top line and profitability, and make it a seamless experience for consumers having

access to single transaction platform with multiple sales channels at the back-end.

Investments in data, technology, warehousing, trucking, cargo handling, mobile and communication equipment will be seen across airports creating new jobs, incomes and multiplier impacts across local and regional economies.

India's GPS Aided GEO Augmented Navigation (GAGAN) program, offers the possibility of a quantum shift in service levels, costs of operations and delivering benefits to aviation and other stakeholders. The project implemented in collaboration with the Airports Authority of India was intended to make flying safer, faster and cheaper. GAGAN was developed and commissioned at a cost of around USD115 million³⁵. It is also interoperable with other

satellite-based systems such as WAAS (US), EGNOS (Europe) and MSAS (Japan) giving it the ability to provide seamless services across global airspaces. Its coverage extends from West Africa to Eastern Australia, which makes interested users within this hemisphere beneficiaries of the system. Most importantly, while it is primarily developed for air navigation purposes, it can extend significant benefits to many other sectors like defence, surface transport, agriculture, mining, telecom or disaster management across geographies.

35. Definition of 'Gagan', Economic Times, Accessed on 14 August 2020





Project prioritisation

The core issue dominating discussions for many years has been the high-cost structure of the industry. A theme that has never been more relevant than now as businesses are fighting hard to conserve cash and remain alive in a fiercely competitive and risk prone industry. Reduction in GST rates for MRO businesses has provided timely relief but rationalization of customs duties and taxes on aviation turbine fuel (ATF) remain unaddressed. It has been long argued that bringing ATF under GST and levying a flat nominal rate of tax will give much needed relief to domestic air carriers, as ATF contributes to 40-50% of an airline's operating cost. This needs to be done on priority, especially in the current situation to protect airlines' bottom-lines. It is also important to focus on structural reform to allow competitive advantage where possible vis-à-vis foreign carriers.

The ongoing large-scale Greenfield airport projects such as the Navi Mumbai airport

and the Mopa airport as well as projects that have been delayed would need to be prioritised. Furthermore, with airports in top 25 cities in the country facing capacity constraints, these may become even more congested in the next 10-15 years. Some of these cities, including Delhi, Goa and Mumbai, have second airports under construction to handle growth in traffic. Similarly, newer airports may be required to support demand and flying aspirations of many Indians who still do not have access to air travel. Operationalising 100 more airports under the UDAN scheme would be an important priority to support regional connectivity needs and fulfil the aspirations of many Indian citizens.

A full roll-out of GAGAN should now become a national priority. Given the right set of wheels, it will help the industry come back stronger and more competitive in the new post COVID-19 normal.

Air cargo has become a focal point of business in current times, connecting vital

supply chains across the globe and keeping livelihoods safe, an unexpected positive spin-off from the COVID-19 pandemic. With belly capacity likely to be severely constrained on international routes in the foreseeable future, the scope for extracting value from cargo handling and increased freighter movements is significant. But that would require a renewed look at augmenting capacity and efficiency at all major airports in India, with technology as a key enabler. India handles about 3.8 million tonnes of air freight annually. That is less than what airports like Hong Kong, Memphis and Shanghai handle every year, clearly reflecting the disparity between potential and performance for a USD3 trillion economy. Decongesting cargo terminals and reducing cargo dwell times at airports in India always has been a priority. Building adequate capacity at new airports is important as well to realise our ambition of handling 10 million tonnes of air cargo by 2027, as set out in NCAP 2016. The UDAN

and Krishi UDAN schemes offer great opportunity to build the logistics backbone linking nodal production and distribution centres in the country that can serve both domestic and export markets seamlessly and lucratively, with invaluable benefits for the farming community. India is at the precipice of a major crisis in the industry as a consequence of slow reforms. But is also presents unprecedented opportunities to reinforce its dominance in the global aviation market, if it can get its act together on policy and structural reforms. This window may never come again. We need to act now to create a world class industry and a better future for ourselves.





Building blocks of success - Towards international and regional connectivity^{36,37}

Policy/regulations



- Detailed Roadmap for implementation of MoCA's Vision 2040
- Redrafting economic regulatory guidelines to support business recovery and facilitate new private investments
- Baseline standards and regulations for use of airport technology, cybersecurity, data privacy, MRO services and carbon emissions. Harmonise with global norms

Institutions (Capacity)



- Focus on e-governance especially for entities such as DGCA, BCAS, AERA, MoCA and AAI
- Capacity building for state level institutions to finance and support regional airport development projects under UDAN and other schemes

Funding/financing



- Leverage private investment for adding airport capacities in more cities
- Secure financing from International Financing Institutions (IFIs) to support strategic investments in UDAN and KRISHI UDAN schemes which has significant social and economic impacts
- Facilitate investment in domestic aircraft leasing and MRO businesses
- Promote joint investment initiatives with tourism infrastructure to leverage strong synergy with aviation

Data/technology



- Baseline preferred data usage and technology-enabled services at airports that conform to global standards and norms- expansion of DIGIYATRA guidelines and services consistent with this new philosophy and aspiration
- Focus on implementing robust data privacy and cybersecurity frameworks for all AAI run airports
- Redefining EDI, data-warehousing and oversight needs
- Institutionalising training and capacity building for government staff and a financing plan to deliver on new KRAs and KPIs.

KPIs/outcomes



- Commercial operationalization of Jewar, Navi Mumbai, Mopa and Bhogapuram airports
- Third largest market in the world by air traffic trips
- Air cargo dwell time in top 5 Indian airports to be on par with best airports in Asia-Pacific
- Use of GAGAN for all scheduled commercial air carriers in India
- Successful closure of new PPP transactions for at least 20 Brownfield/ Greenfield Airports
- Implementation of e-governance platform interfacing DGCA, BCAS, AAI, AERA and MoCA
- Implementation of uniform cybersecurity framework across all AAI airports

Understanding the strategic goals of the Infrastructure Vision 2025



Energy



Healthcare



Transportation and logistics



Agriculture and irrigation



Education and skilling



Urban and rural infrastructure



Digital infrastructure



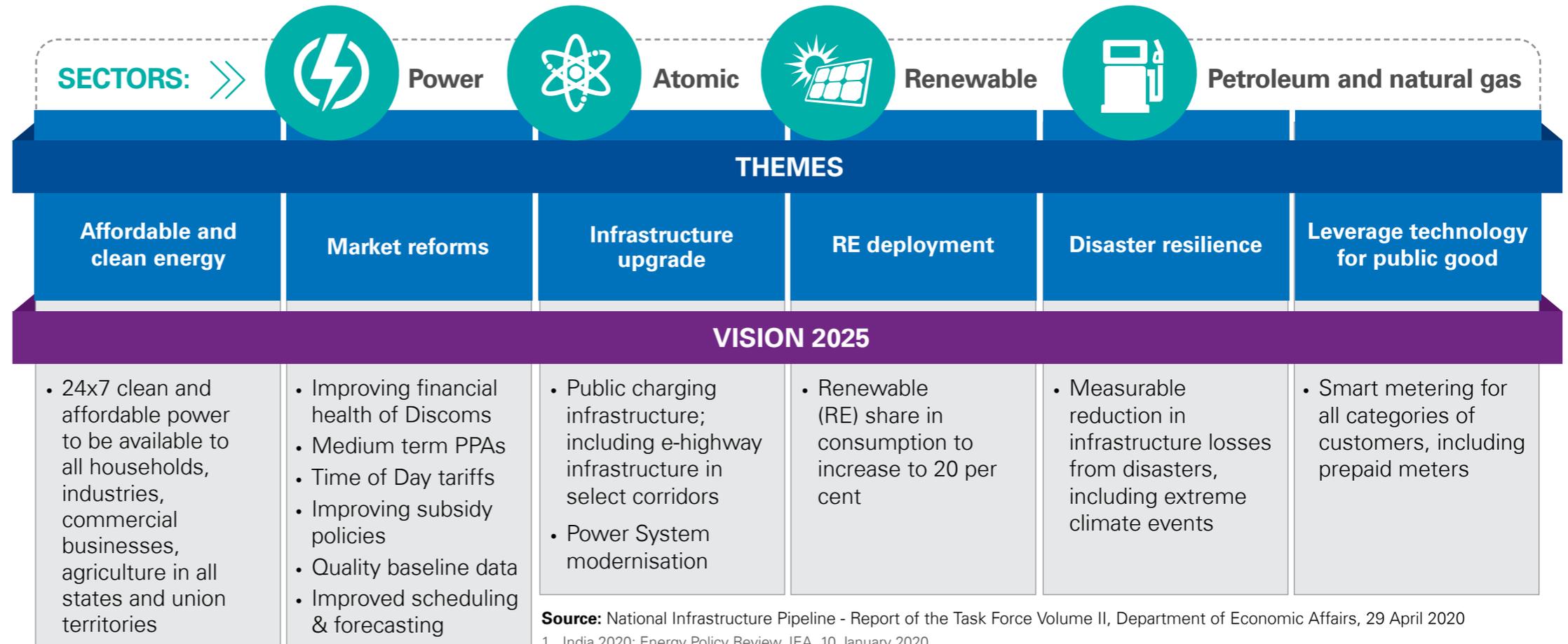
Disaster resilience

Click on tabs to navigate

Energy is the backbone for economic development, and access to clean and affordable energy is central to creation of an equitable society. India has significantly progressed in terms of energy security and provision of reliable energy access since early reforms. However, residual challenges remain in creation of a financially sustainable, efficient and resilient energy sector, development of future ready and smart infrastructure and 24x7 clean and affordable energy for all.

India's demand for energy is projected to double¹ by 2040, on account of economic development, population growth and rapid urbanization. Along with resolution of the structural challenges, there is need for creation of resilient and modern energy infrastructure that can help meet the future energy needs and support socio-economic development. Infrastructure investment will be key to achieving these goals, especially in the wake of Covid-19, which threatens to undo the progress made in recent times.

Mapping NIP sectors with the Infrastructure Vision 2025 goals



The NIP has allocated the highest portion of its estimated capital expenditure (capex) i.e. 24 per cent² to energy infrastructure including conventional power, atomic energy, renewables and petroleum and natural gas. Renewable Energy (RE) is envisaged to attract a lion's share of the total NIP outlay (8.3 per cent).

Apart from RE, government has focused on strengthening of distribution and transmission infrastructure, development of hydropower, conventional power, energy storage and atomic energy. NIP also lays emphasis on resolution of stressed assets and other market reforms

**POWER AND ATOMIC:
Sector overview**

About 64 per cent³ of India's power requirements are met by conventional energy sources such as coal.

Reduce dependence on thermal power, strengthen discoms and digitisation

- Installed Generation capacity: 370 GW
- Capacity Mix: Thermal- 62 per cent, RE - 23.5 per cent, Hydro- 12.2 per cent and Nuclear 1.8 per cent as of May'20
- Low per capital electricity consumption; 1,181 kWh
- Load shedding due to discoms' huge debt burden; high AT&C losses of discoms
- Sub optimal level of digitization in network and commercial operations;



NIP 2020 extract and observations

- Installed capacity: 583 GW
- Capacity Mix: Thermal - 50 per cent, RE - 39 per cent, Hydro - 9 per cent and Nuclear- 2 per cent
- Per-capita electricity consumption to 1,616 kWh
- Reformed Discoms;
 - Open access;
 - Cost reflective tariffs;
 - Payment of PPP through LC mechanism;
 - Government subsidies through direct benefit transfer (DBT);
 - Incentivise roof top solar energy production
- Smart metering for all categories, and 100 per cent digitisation of services
- Public EV charging infrastructure

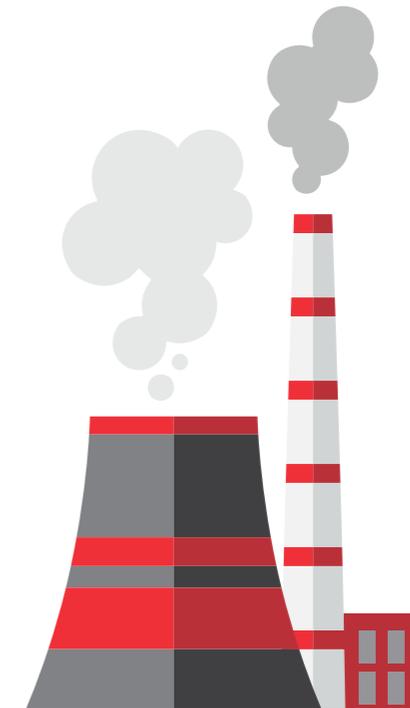
Vision 2025



Source: National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020

Note: RE – Renewable; Discoms – Distribution companies; LC – Letter of credit

2. National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020
3. National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020





Potential pipeline

The government is looking to increase the total installed capacity by approximately 36 per cent⁴ (213 GW) over the next five years. Out of this, thermal will contribute to approximately 60GW, RE – 140 GW, Nuclear – 5 GW and Hydro – 6 GW. Since approximately 64 GW thermal capacity is already under-development⁵, the largest investment is bound to be in RE.

There is a requirement of approximately 70 GW of storage in India by 2022, which is another area eliciting investments, especially in battery storage. Apart from this, investment is envisaged in transmission and distribution infrastructure and smart metering.

A glance at the big opportunities (As of 6 August 2020)^{6,7,8}



Key states: Telangana, Chhattisgarh, Himachal Pradesh, Jharkhand, Madhya Pradesh, Assam

Major projects:
Generation: Greenfield/expansion of super thermal power projects such as Lara and Barh super thermal power stations; Hydropower plants such as Dibang, Tawang – I&II, Teesta – IV
Transmission: HVDC Bipole Link between western and southern regions, interstate Green Energy Corridor Transmission Link and construction of substations
Distribution: Integrated Power Development Scheme (IPDS) and Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY)

Note: Only projects published on the India Investment Grid website (<https://indiainvestmentgrid.gov.in/>) as of 6 August 2020 and costing between USD10 million and USD500 million have been considered for arriving at key states. 1 USD = INR75

After an initial delay of 3 months, the long-awaited Real-Time Markets (RTM) (that allows management of energy imbalance closer to real time) was launched on 1st June 2020. However, other key power markets reforms such as Green Term Ahead Markets (GTAM), and National Renewable policy and enactment of the Electricity Amendment Bill may be pushed further.

Atomic energy sector



Key states: Tamil Nadu, Gujarat, Rajasthan and Haryana

Major projects: 7 total projects including Kundankulam Nuclear Project and commissioning a prototype 500 MWe fast breeder reactor

Note: 21 new nuclear reactors are expected to be set up by 2031: Department of Atomic Energy, The Economic Times, 03 January 2019

- National Infrastructure Pipeline - Report of the Task Force Volume I, Department of Economic Affairs, 29 April 2020
- Boom and Bust 2020: tracking the global coal plant pipeline, March 2020
- National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020
- India Investment Grid, National Investment Promotion & Facilitation Agency, Accessed on 29 April 2020
- The government is prioritizing projects that are linked with industrial clusters, Construction Week Online, 21 April 2020

RENEWABLE ENERGY AND SUSTAINABLE SOURCES OF ENERGY: Sector overview

India plans to increase its current 87 GW of renewable capacity to 175 GW by FY22 and 275 GW by FY27⁹ to meet the growing demand and reduce dependency on fossil fuels. However, by FY20, about

50 per cent of the 175 GW¹⁰ had been installed and the target is unlikely to be met, particularly post COVID-19.

Potential pipeline

The renewable energy sector accounts for around 35 per cent of the total Energy Sector outlay. This includes solar parks, utility scale projects, solar rooftops and solarisation of irrigation and railways etc.

Increase role of renewable energy and develop robust EV infrastructure¹¹

- Current share of renewables in energy capacity is at 22 per cent
- Per capita renewable energy consumption is at 10 per cent
- Low EV sales penetration; 2-3 per cent for three wheelers, negligible for cars, buses and two wheelers



NIP 2020 extract and observations

- Increase share in renewable capacity to 39 per cent
- Increase per capita renewable energy consumption to 20 per cent
- Grid energy storage and offshore wind energy to be promoted
- Increase EV penetration - private and commercial cars 5 per cent and 25 per cent, buses 11 per cent, two wheelers 32 per cent and three wheelers 48 per cent
- Expand EV infrastructure
 - EV stations within 3km in all commercial and multi storied buildings
 - Charging infrastructure every 25 km on all NH and economic corridors

Vision 2025

A glance at the big opportunities (As of 29 April 2020)^{12,13}



Capacity to be added by FY25
182.35 GW



NIP capex over five years
USD123.9 billion



Key states: Andhra Pradesh, Rajasthan, Gujarat, Uttarakhand, Tamil Nadu



Major projects: Includes all solar, wind small hydro and bio power projects, FAME India scheme for electric vehicles.

COVID-19 induced supply chain disruption has also provided greater thrust to domestic manufacturing. As a first step, Solar Energy Corporation of India (SECI) has successfully concluded the world's largest solar auction for developing 8GW projects and 2GW solar module manufacturing capacity. The bid entails investment of USD6 billion.¹⁴

9. Power sector finally looking up, rapid demand growth spells an opportunity, The Economic Times, 5 January 2019
10. All India Installed Capacity (In MW) Of Power Stations, CEA report, March 2020

11. National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020
12. India Investment Grid, National Investment Promotion & Facilitation Agency, Accessed on 29 April 2020

13. The government is prioritizing projects that are linked with industrial clusters, Construction Week Online, 21 April 2020
14. Adani Green Energy wins world's largest solar bid worth \$6 billion, Times of India, 9 June 2020



PETROLEUM AND NATURAL GAS: Sector overview

In recent years, the government has been focused on increasing natural gas in the energy mix to move towards a cleaner and more affordable source of energy. Natural gas plays a moderate role in electricity generation and is currently struggling to compete with coal due supply, but the fertiliser industry is also its big market and accounts for 27.7 per cent¹⁵ of India's natural gas consumption. India also seeks to increase its crude oil storing capacity in order to create energy contingency.

Link all states by a fully operational gas pipeline and build energy security for India¹⁶

- Huge regional imbalance on operational gas pipeline; operation pipeline length 16,788 km
- Around 5.33MMT capacity available to store crude oil under SPR programme; can supply only 10 days of India's oil requirement

NIP 2020 extract and observations

SPR – Strategic Petroleum Reserve
MMT – Million Metric Ton

- Additional 14,700 km national gas grid to link each state to gas pipeline
- Augment India's energy security, additional capacity of 6.5 MMT crude oil storage; buffer of overall 22 days

Vision 2025

15. National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020

16. National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020





Potential pipeline

The NIP has allocated approximately 1.73 per cent¹⁷ of the total budget towards developing an infrastructure that supports supply of natural gas and fuel nationally. The National Gas Grid is one of the schemes working towards access of gas across sectors. However, an additional regulatory and policy framework is required to expedite the execution of gas projects. The government has also emphasised on expansion of city gas distribution (CGD) network coverage to ensure the supply of cleaner fuel to households, industrial and commercial units as well as transportation fuel to vehicles.

A glance at the big opportunities (As of 29 April 2020)^{18,19}

Category	Number of projects	Mode of implementation	NIP Capex over five years (USD billion)
Gas pipelines	17	EPC	6.9
Oil pipelines	35	EPC	7
Oil/gas/LNG storage facilities	40	EPC	2.6
Others	2	PPP	1.4
	44	EPC	4
Total	25	JV	3.8
	163		25.7



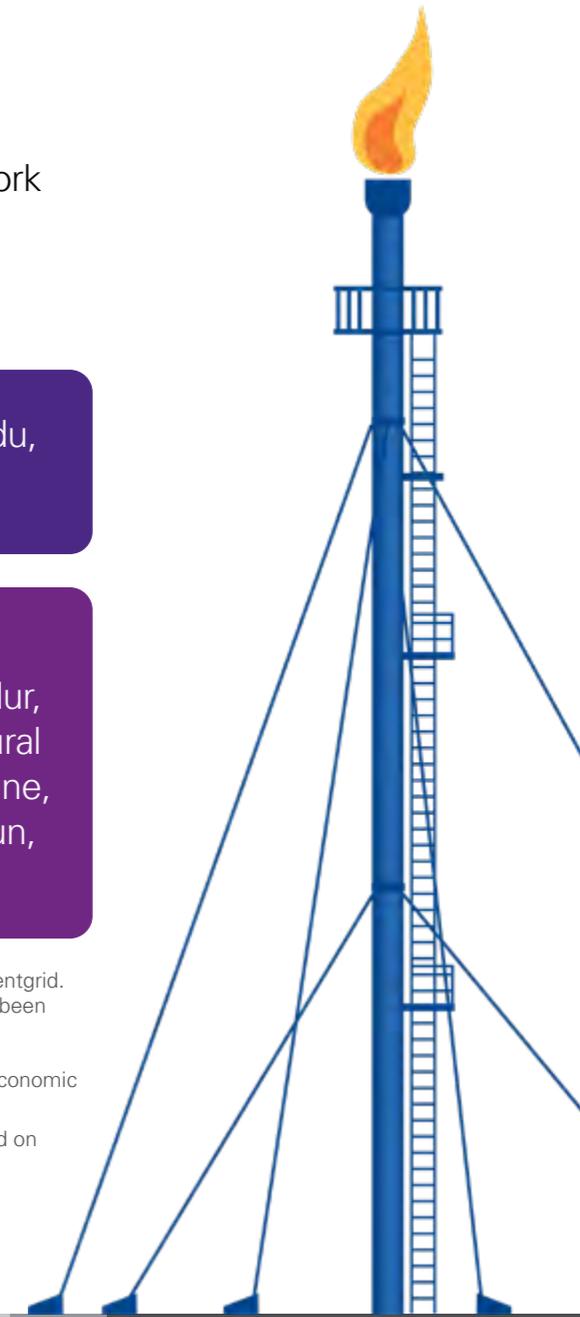
Key states: Madhya Pradesh, Tamil Nadu, Maharashtra, Uttarakhand



Major projects: Strategic Petroleum Reserve (Phase II) at Chandikhol and Padur, Jagdishpur–Haldia /Bokaro–Dhamra Natural Gas Pipeline and Barauni–Guwahati Pipeline, gas pipeline between, Haridwar-Dehradun, Jagdispur-Haldia

Note: Only projects published on the India Investment Grid website (<https://indiainvestmentgrid.gov.in/>) as of 29 April 2020 and costing between USD10 million and USD500 million have been considered for arriving at key states. 1 USD = INR 75

17. National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020
18. India Investment Grid, National Investment Promotion & Facilitation Agency, Accessed on 29 April 2020
19. The government is prioritizing projects that are linked with industrial clusters, Construction Week Online, 21 April 2020





Oil and Gas

Infrastructure projects beyond National Infrastructure Pipeline

The National Infrastructure Pipeline focusses on infrastructure projects on CGD, Oil and Gas Pipelines and storage units, however there is significant infrastructure additions beyond this as well. The Oil and Gas sector is seeing capex on the downstream side through brownfield and greenfield refinery capacity additions, and on retail side with fuel station additions and many private players coming to the space.

Of the total brownfield and greenfield capacity expansion of approximately 150 MMTPA requires a capex of about USD75 billion. Of which about 40-50 per cent can be realized in next 5 years, amounting to USD 30-40 billion spend by 2025.

List of brownfield refinery capacity additions in India

Sl. No.	Refineries	Name of the company	Name Plate Capacity (MMTPA)	Brownfield expansion	
1	PSU	Guwahati	IOCL	1.00	0.20
2	PSU	Barauni	IOCL	6.00	3.00
3	PSU	Bongaigaon	IOCL	2.35	0.35
4	PSU	Haldia	IOCL	7.50	0.50
5	PSU	Mathura	IOCL	8.00	1.20
6	PSU	Mumbai	HPCL	7.50	2.00
7	PSU	Visakhapatnam	HPCL	8.30	6.70
8	PSU	Nagapattinam	CPCL	1.00	8.00
9	PSU	Numaligarh	NRL	3.00	6.00
10	JV	Bina	Bharat Oman Refinery Ltd.	6.00	1.80
Total			247.60	29.70	

Source: MoPNG, company websites, government notifications | MMTPA - Million Metric Tonne Per Annum

On the fuel retail side, with issue of "Authorization for Marketing Transportation Fuels (December 2019)", the retail sector is expected to see more investments in setting up of fuel retail outlets. The three public sector oil marketing firms - Indian Oil Corp (IOC), Bharat Petroleum Corp Ltd (BPCL) and Hindustan Petroleum Corp Ltd (HPCL) – had advertised to open 78,493 more petrol pumps in the country. Apart from the expansion spree by public sector OMCs, private players are adding fuel retail outlets as well. The joint venture between Reliance Industries Ltd and BP Plc, and Nayara Energy Ltd

List of Greenfield refinery capacity additions in India

Sl. No.	Refinery Owner	Name of Refinery (Greenfield)	Capacity (MMTPA)	Status
1	HPCL	Barmer Refinery (RAJ)	9	Under Construction
2	NOCL	Cuddalore Refinery (TN)	15	Under Construction
3	IOCL	Mundra Refinery (GUJ)	15	Proposed
4	BPCL	Lohagarh Refinery (UP)	7	Proposed
5	HPCL, IOCL, BPCL	Ratnagiri Refinery (MAH)	~40-60	Proposed
6	ONGC	Ankleshwar Refinery (GUJ)	0.14	Proposed
7	CALS Refineries	Cals Haldia Refinery (WB)	10	Proposed
8	Kakinada Refinery & Petrochemicals	Kakinada Refinery (AP)	15	Proposed
Total			111 to 131	

Source: MoPNG, company websites, government notifications

(formerly Essar Oil Ltd) has plans to add 2,000 pumps each in the next three years, whereas Royal Dutch Shell Plc is slated to add 150-200 petrol pumps over the period as well. Overall, ~80,000 retail outlets (RO) are expected to be commissioned. Of these, nearly 30-40 per cent are commercially realizable over the next 5 years that is equivalent to 30,000 new ROs by 2025. Considering average capex of INR10 million per RO, it is equivalent to INR300 billion or USD4 billion.*

*KPMG in India analysis 2020

Project prioritisation

Post COVID-19, affordable and reliable power supply will continue to be the focus of infrastructure investments.

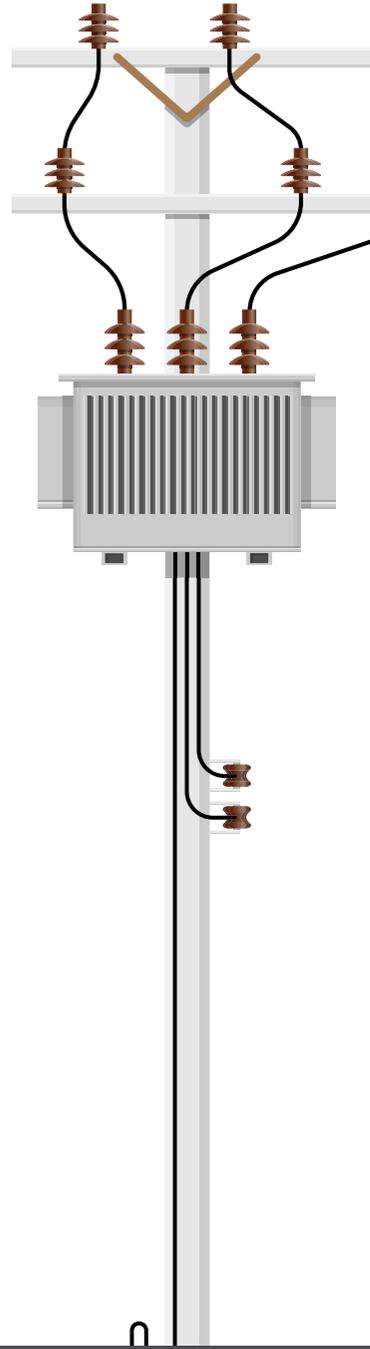
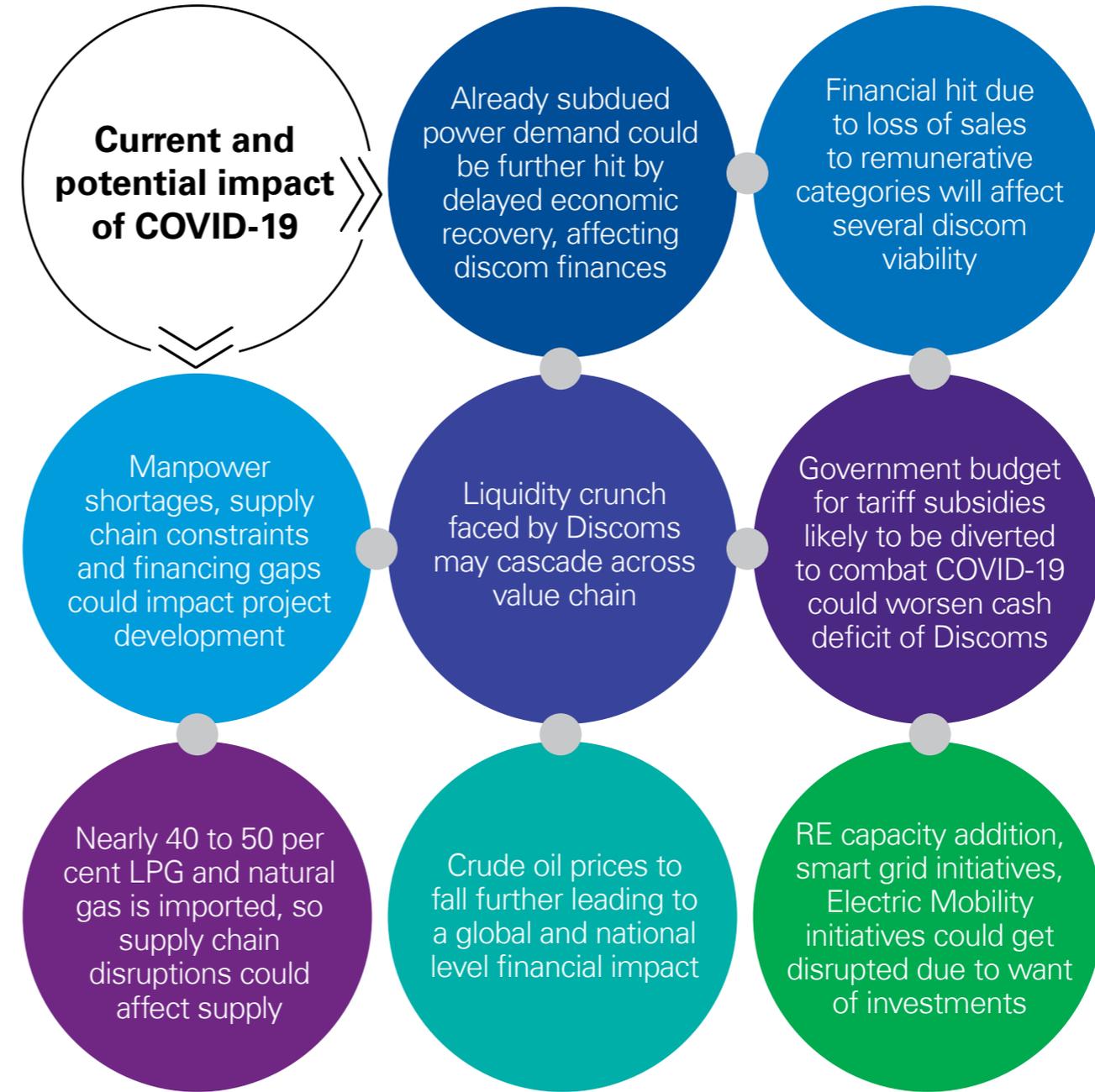
Investments in strengthening distribution and the sub-transmission grid along with discom modernisation and upgrade of digital/ IT backbone will be critical. Additionally, focus will be needed to mitigate sector risks/ challenges and channelise investments into new RE projects.

Private sector participation is one of the key objectives of the NIP and this should be another priority, particularly in the distribution and transmission segment.

COVID-19 has created uncertainty in power demand and has put additional financial pressure on distribution

COVID-19 induced lockdown has led to steep reduction in electricity sales which has hit revenue and collections significantly. Consequently, the liquidity crunch with discoms has worsened their already precarious financial position.

The financial impact is likely to cascade down the value chain affecting generator payments, availability of finance, the risk appetite of developers and discom's capacity to procure power. Thus, another priority needs to be reviving financial position of discoms to promote continued investments.



Source: Potential impact of COVID-19 on the economy, KPMG, April 2020

The energy sector needs strong policy and economic stimulus to create a more resilient and sustainable energy sector

There is need to look at the sector challenges and priorities again and create a comprehensive roadmap for clean energy transition. The efforts need to be complemented by increased cooperation with the private sector and the international community and imbibing good practices.



Measures for the sector to tackle the impact of COVID-19

Key action points

Short term

- Immediate liquidity infusion depending on Discom / state needs
- Continued subsidy support
- Robust expense and Working Capital (WC) management
- Deploy digital measures to improve collections
- Provide targeted relief to marginal consumers or those directly affected

Medium term

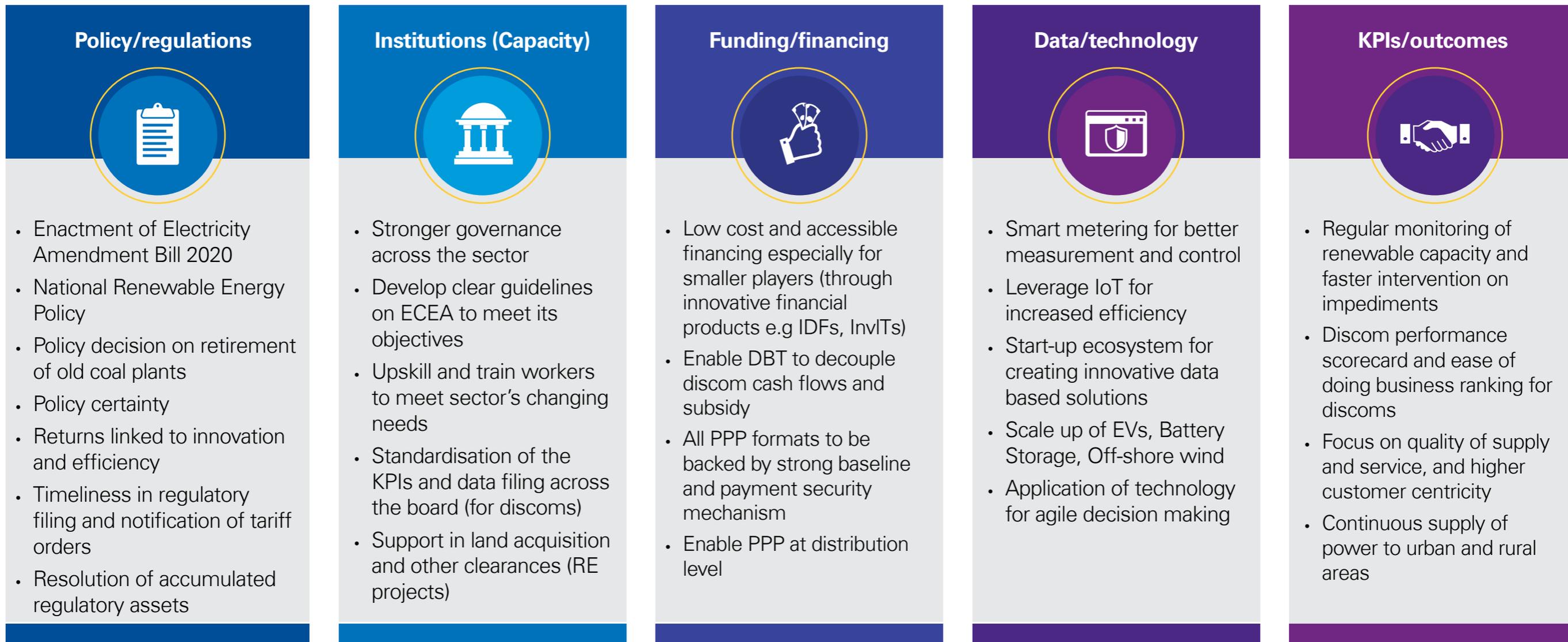
- Roll out GST for fuels and gas other than lubricants
- Leverage crash in crude oil prices to expand strategic reserves
- Unwavering focus on cost optimization (eg. power procurement) and AT&C loss reduction
- Digitalization of workflow and processes
- Deploy funds for upskilling or reskilling man-power
- Focus on strategies such as asset leasing and asset monetisation

Long term

- Focus on localization of manufacturing
- Discom performance rankings
- Improving efficiencies across the value chain
- Private sector participation in distribution through PPP, Franchisee etc.
- Impetus on customer centric services
- T&D Infrastructure modernization including smart metering
- Coherent roadmap and action plan for clean energy transition
- Continued reforms focusing on efficiency and competition

Source: KPMG in India analysis 2020 | WC – Working Capital

Building blocks of success^{21,22}



Note: ECEA - Electricity Contract Enforcement Authority, IDFs - Institutional Development Fund, DBT – Direct benefit transfer, AI – Artificial intelligence, ML – Machine learning

21. National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020

22. KPMG in India analysis 2020

Understanding the strategic goals of the Infrastructure Vision 2025



Agriculture and irrigation



Healthcare



Transportation and logistics



Energy



Education and skilling



Urban and rural infrastructure



Digital infrastructure



Disaster resilience

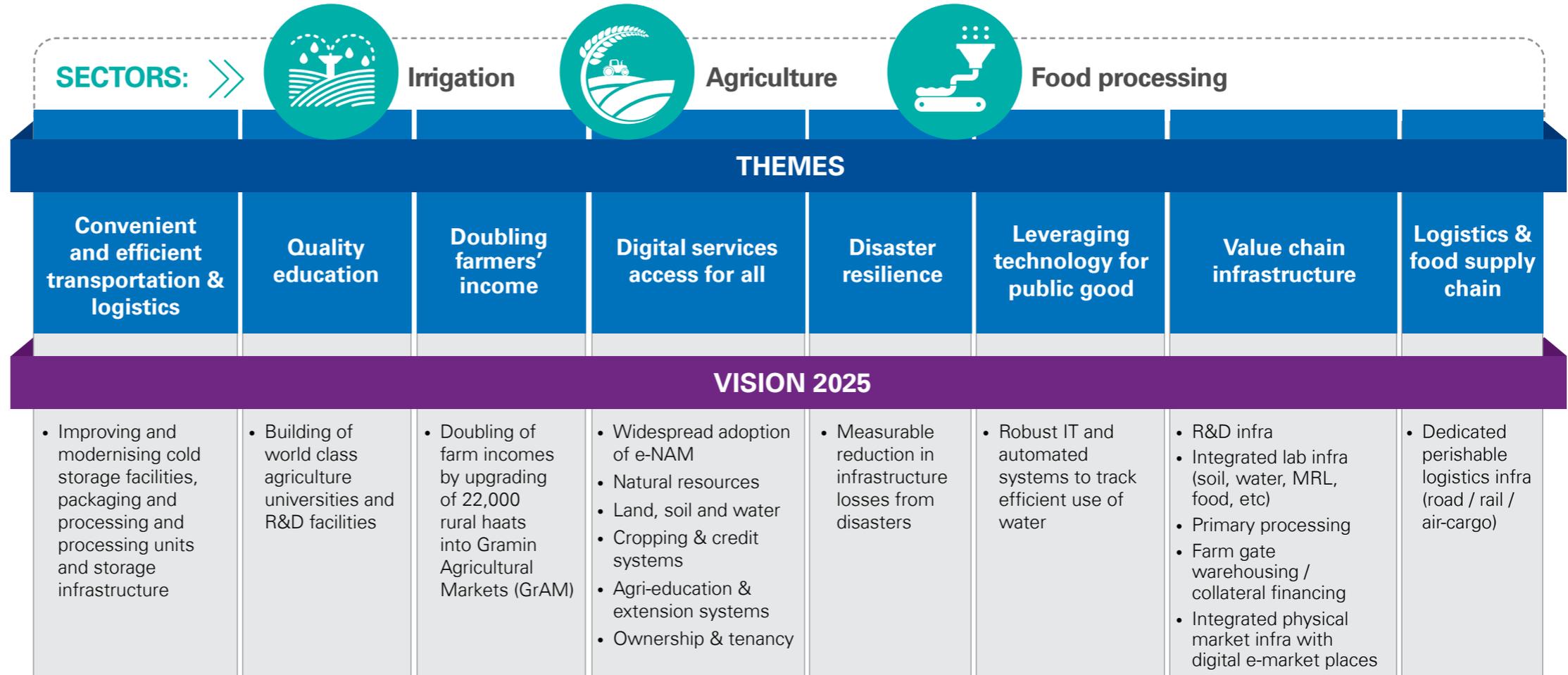
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Building Blocks

Agriculture contributes 17 per cent to India's GDP and more than 60 per cent of rural households in the country depend on the agriculture sector and associated activities.¹ This makes it critical to enhance the income generation capacity of the farming community.

COVID-19 has emphasised the importance of the sector from both production and consumption perspectives making room for flexibility in the regulatory environment. Additionally, the role of digital capabilities in the sector is expected to become more prevalent.

Mapping NIP sectors with the Infrastructure Vision 2025 goals



Source: National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020

1. U.S.-India partnership – road to prosperity, US India Business Council and KPMG, January 2019

IRRIGATION: Sector overview

Increased irrigation and micro-irrigation coverage²

- Low irrigation coverage
- Low focus on efficient methods of irrigation and water usage; micro-irrigation only 17 per cent of total irrigated area
- No interlinkage of rivers
- Pricing method based on irrigated land area-based fees

NIP 2020 extract and observations



- Higher irrigation coverage
- Emphasis on efficient methods of irrigation – micro-irrigation cover to reach 28 per cent of total net irrigated area
- Interlinking of rivers
- Pricing method based on water quantity-volumetric pricing
- Robust IT and automated systems to track efficient use of water

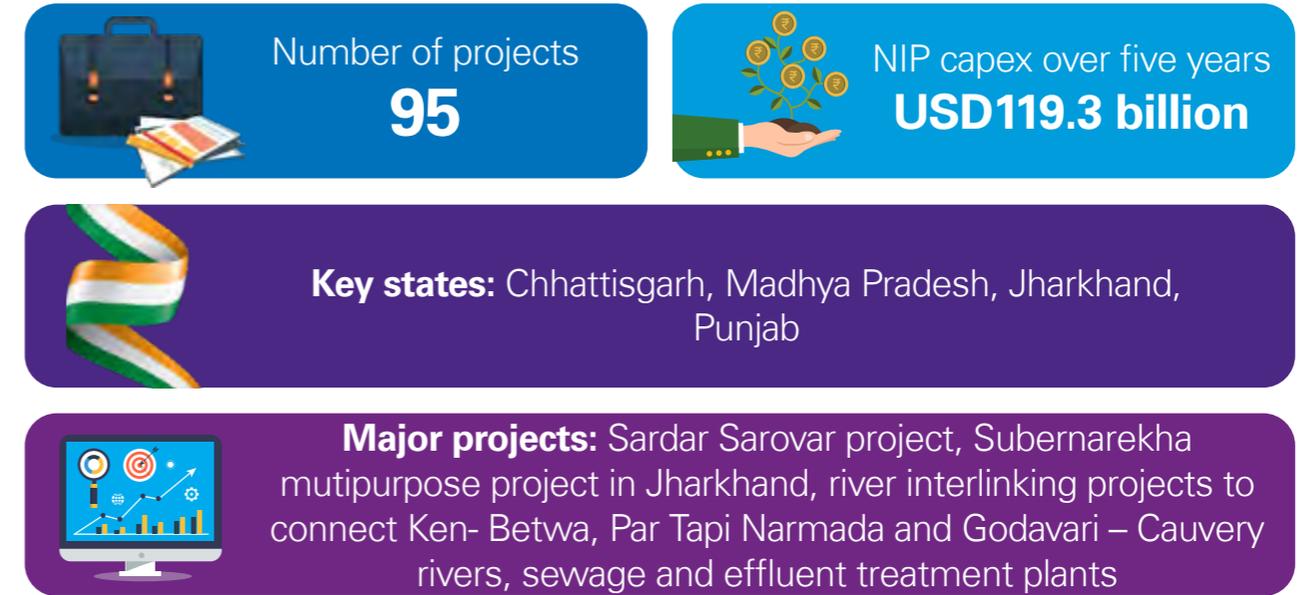
Vision 2025



Potential pipeline

The NIP has allocated a budget to increase irrigation coverage to 61 per cent over the next five years³. This would reduce agriculture's dependence on rainfall and improve farm productivity.

A glance at the big opportunities (As of 29 April 2020)^{4,5}



However, even before the onset of the pandemic, the problem of underutilisation of irrigation potential has been an ongoing concern. This is being driven by challenges including land acquisition, rehabilitation and resettlement of affected people, inadequate state budgets, rising costs of new schemes, huge backlog of incomplete schemes and increasing neglect of existing systems.

2. Task Force for creating National Infrastructure Pipeline, Department of Economic Affairs, 31 December 2019
3. Task Force for creating National Infrastructure Pipeline, Department of Economic Affairs, 31 December 2019

4. India Investment Grid, National Investment Promotion & Facilitation Agency, Accessed on 29 April 2020
5. The government is prioritizing projects that are linked with industrial clusters, Construction Week Online, 21 April 2020

AGRICULTURE AND FOOD PROCESSING: Sector overview

The government's plan to double farmers' income by 2022 is central to promote farmers' welfare, ease out distress in the sector and reduce inequality between income of farmers and other professions.

Potential pipeline

As much as two per cent of the NIP budget has also been allocated for development of agriculture and food-processing infrastructure, especially for conversion of Rural Haats into GrAMs, modernising storage infrastructure, cold storage and refrigerated transportation. Development of 22,000 GrAMs and 10,000 new FPOs is also underway⁶. These initiatives promise easy market access to farmers to sell their produce and furthermore save on logistics costs and prevent post-harvest crop damage.

Initiatives in place for bringing markets closer to farm gate

- e-NAM adoption facing implementation challenges such as infrastructure bottlenecks and Agricultural Produce Market Committee (APMC) regulations
- Lower than average yield for crops due to poor quality seeds and negligible adoption of technology
- Clustering of cold storage facilities
- Sub-optimal storage and cold chain infra resulting in post-harvest wastage
- Food Corporation of India (FCI) has installed modern silos capacity of 0.725 million MT

NIP 2020 extract and observations

Source: Task Force for creating National Infrastructure Pipeline, Department of Economic Affairs, 31 December 2019

- Upgrade 22,000 rural haats into Gramin Agricultural Markets (GrAM) and link to e-NAM
- Using FPOs/ SHGs based aggregation for maximising value to farmers
- Using drones for real-time weather updates
- Uniform pan-India distribution of cold storage and processing facilities
- Modernising the storage infrastructure by adding modern silos for capacity of 10 million MT

Vision 2025

A glance at the big opportunities (As of 29 April 2020)^{7,8}



Note: Only projects published on the India Investment Grid website (<https://indiainvestmentgrid.gov.in/>) as of 29 April 2020 and costing between USD10 million and USD500 million have been considered for arriving at key states. 1 USD = INR 75

6. Task Force for creating National Infrastructure Pipeline, Department of Economic Affairs, 31 December 2019
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8. The government is prioritizing projects that are linked with industrial clusters, Construction Week Online, 21 April 2020

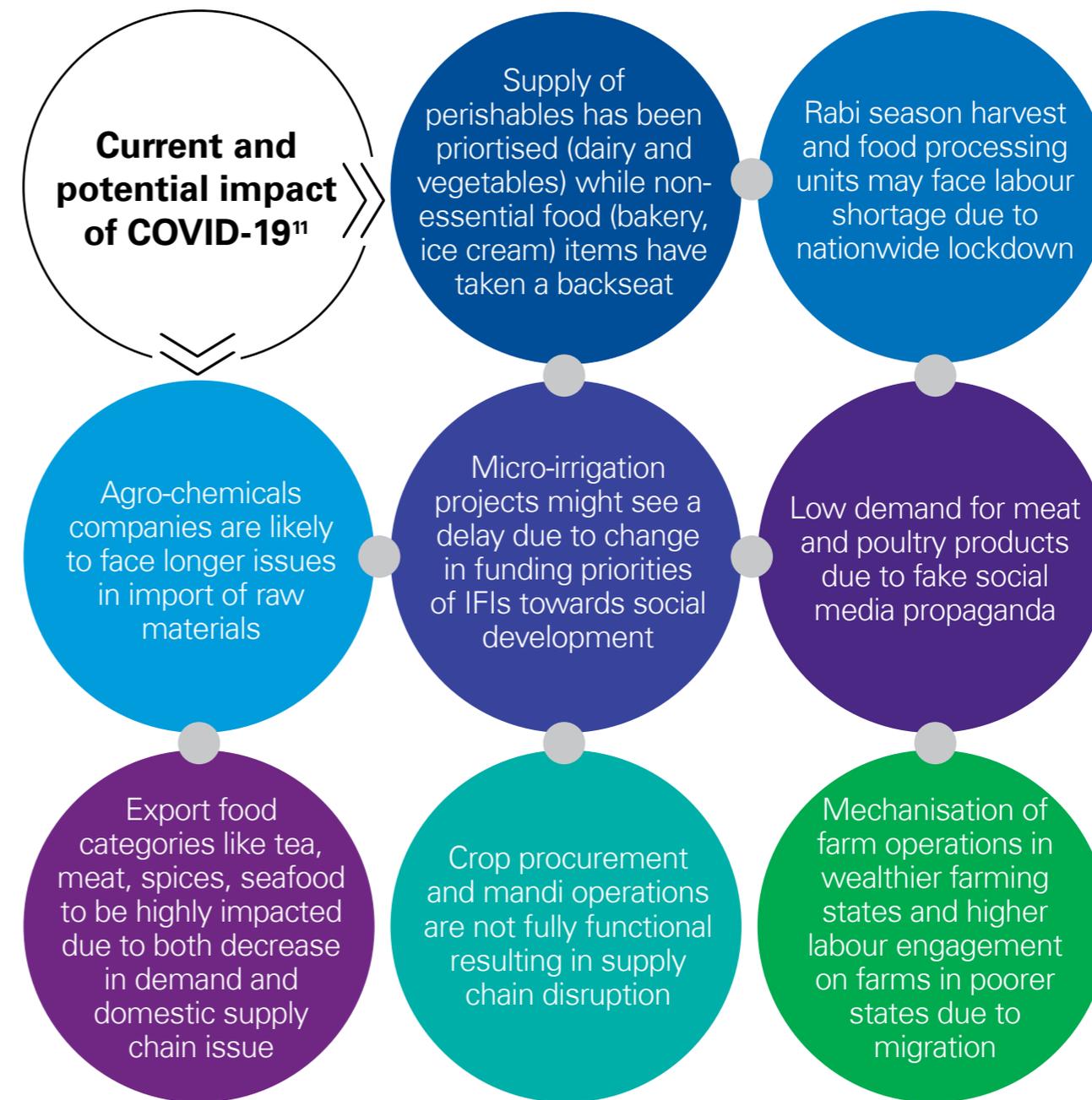
However, the recent pandemic outbreak in the country has moderately disrupted agricultural activities and its supply chain. Farmers are facing challenges related to harvesting and post-harvesting activities due to shortage of migrant labour as well as selling their produce due to disruptions around logistics, supply chains and shut down of mandi operations.

Despite this, COVID-19 has stimulated financing by governments as well as IFIs. Though the focus has been on public health, it is being expanded to integrate issues around poverty and exclusion – livelihood (farm based included), basic housing, migration, labour related guarantees/rights, special focus on the vulnerable population - women, old age persons and children. Funding to the sector would not prove to be an issue owing to financing from budgetary support, IFIs, corporate social responsibility (CSR) funds and start-up

investments. Private participation is also expected to expand in segments of farm mechanisation, IT enablement, seeds, pesticides and fertilisers.

The sector is anticipated to witness bigger engagements in supply chain, logistics, food processing and export, enhanced FDI and domestic investment in addition to incentives by the government.

Furthermore, the pandemic is changing the regulatory landscape of the agricultural sector. Several state governments have amended the APMC Act to allow direct marketing of agricultural commodities through agriculture markets and cooperatives⁹. This is helping enhance access to the market for farmers. Additionally, farmers have been able to form partnerships with private e-commerce players¹⁰ for last mile delivery to consumers due to the flexibility provided by the government in the wake of COVID-19.



9. KPMG in India Analysis 2020

10. KPMG in India Analysis 2020

11. KPMG in India analysis 2020

Project prioritisation

The IFI supported projects in the sector (agriculture, irrigation, climate resilience, rural livelihood); budget supported initiatives by states and social protection (insurance and safety net schemes – especially for labourers and service providers to pandemic affected people) will be important for the government.

It has also now become imperative to accelerate implementation income support schemes to farmers such as the Pradhan Mantri Kisan Samman Nidhi Yojana (a direct credit transfer scheme for farmers).¹²

Enabling faster access to market through e-NAM (an online trading platform for agri-commodities) and ensuring remunerative prices to farmers via the Pradhan Mantri AASHA Yojana would also improve the profitability for the farmers.¹³

Currently, e-NAM is being used only as a data mining tool and not as an alternate digital platform for agricultural trading. When the entire transaction is transferred onto the e-NAM platform, it can be used for the purpose of transparent price discovery and liquidating the stock.

Moreover, in order to tackle such emergencies, the government should consider expanding the Krishi Rail project as it would ensure cost benefit to farmers and consumers along with continuous supply of food essentials.

Upgrading irrigation and agri supply chain infrastructure to result in cost savings and improve market access for farmers

Agriculture is a high priority sector in terms of meeting national demand and sustenance of farmers. Rural food production requires special attention to mitigate the impact of the pandemic outbreak on the agricultural and food sector alongside the larger economy. The country requires measures including streamlining crop procurement, supply chain, mandi operations and fixing migratory labour issues.

It is important to mitigate the impact of the pandemic and tackle short-term issues even as the industry keeps working towards doubling farmer income over the medium to long term.

Key action points

Short term

- Identify hurdle free supply chain mechanism such as use of FASTag, GST, transport arrangements, Aadhaar based approvals
- Free of cost supply of agri inputs to stabilise food production
- Optimal farm gate prices for commodities
- Extend government support for procurement across crops

Medium term

- Expand and strengthen dedicated food transport corridors across India
- Priority handling of agri inputs good at the ports
- Enable direct credit transfer to migrant agricultural labour
- Explore new export markets and subsidies
- Use of technology on farms
 - Digital satellite technology to delineate villages into agro-climatic zones for undertaking precision farming activities
 - Predictive analytics and IoT sensors for farm, climate and pest management
 - Drones for spraying pesticides

Long term

- Create a dedicated railway line for perishable goods
- Invest into rail-side warehousing
- Introduce domestic and export market incentives to help food processing industries to process and liquidate inventories
- Re-calibrate agriculture and allied export policy
- Improved crop management practices
- Price support and sales subsidies to processing industries

Source: KPMG in India analysis 2020

12. About PM-Kisan Scheme. pmkisan.gov.in, August 2020

13. All you wanted to know about PM-AASHA, Business Line, 17 September 2018

Building blocks of success^{14,15}

Policy/regulations



- Policy simplifications for making the market simpler
- Assign priority sector status to micro irrigation
- Reform Agricultural Produce and Livestock Marketing (APLM) Act
- Regulatory framework for partnerships with private e-commerce players

Institutions (Capacity)



- Irrigation management transfer (IMT)
- Participatory irrigation management (PIM)
- Leveraging FPOs and SHGs
- Better coordination between center and state

Funding/financing



- Government funds – reallocation from other sectors
- Farmers can be provided interest subvention and access to credit guarantee fund
- Assured income for farmers and assured commodities for consumers

Data/technology



- Increase use of robust IT and automated systems, supervisory control and data acquisition (SCADA) and intelligent systems for irrigation
- Convert e-NAM from a tech solution to completely digital transactional platform

KPIs/outcomes



- Efficient use of water resources
- Less food wastage
- Doubling farmer income

14. National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020

15. KPMG in India analysis 2020

Understanding the strategic goals of the Infrastructure Vision 2025



Education and skilling



Healthcare



Transportation and logistics



Energy



Agriculture and irrigation



Urban and rural infrastructure



Digital infrastructure

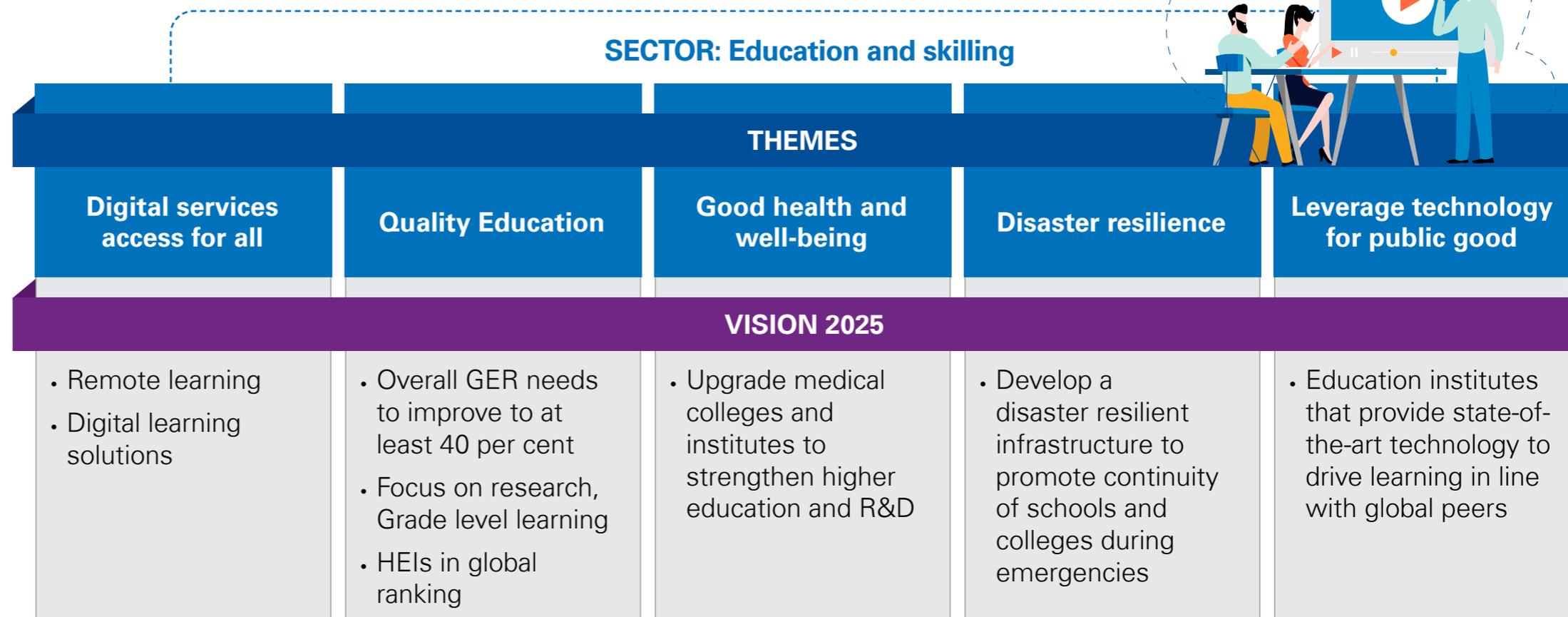


Disaster resilience

India is projected to have the world's largest working age population by 2030¹. The country is determined to improve access to quality education to its population, improve their employability and view this as an opportunity to enhance its competitiveness globally.

The COVID-19 pandemic has led to educational institutions being forced to unexpectedly leverage and use available technological tools to create content for remote learning. With schools and colleges being shut down due to COVID-19, educators are switching to virtual classes around the country.

Mapping NIP sectors with the Infrastructure Vision 2025 themes (illustrative)



Source: National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020

1. Budget 2020 pegs ₹99,300 crore for education sector, LiveMint, 05 February, 2020

EDUCATION AND SKILLIG: Sector overview

With the rising focus on literacy and primary education, the Centre's outlay on education has risen at a 12.5 per cent CAGR in the five-year period, touching nearly USD12.65 billion² (INR993 billion) in FY21.

The National Education Policy 2020³ has also proposed new regulatory changes aimed at promoting a flexible education approach and a new look towards liberal arts, along with enhancements in research quality and facilitating the transformation of the education system.

Other major initiatives that the government has launched over years are the National Skill Development mission, which aims to skill around 400 million people in India by 2022⁴, the Education Quality Upgradation and Inclusion Programme (EQUIP) scheme that provides strategic funding for development of higher education throughout the country and the 'Study in India' programme, which aims to position India as a research hub for international students.

Education and skill development plan of India⁵

- Only 2.5 per cent of total colleges in India offer PhD and 34.9 per cent offer post graduate programmes
- Infrastructure bottlenecks to achieve quality higher education as compared to global standards
- Only 25.8 per cent GER for 18-23 age group
- Sub optimal learning outcomes due to high pupil to teacher ratio (PTR) which is 24 currently

NIP 2020 extract and observations

Potential pipeline

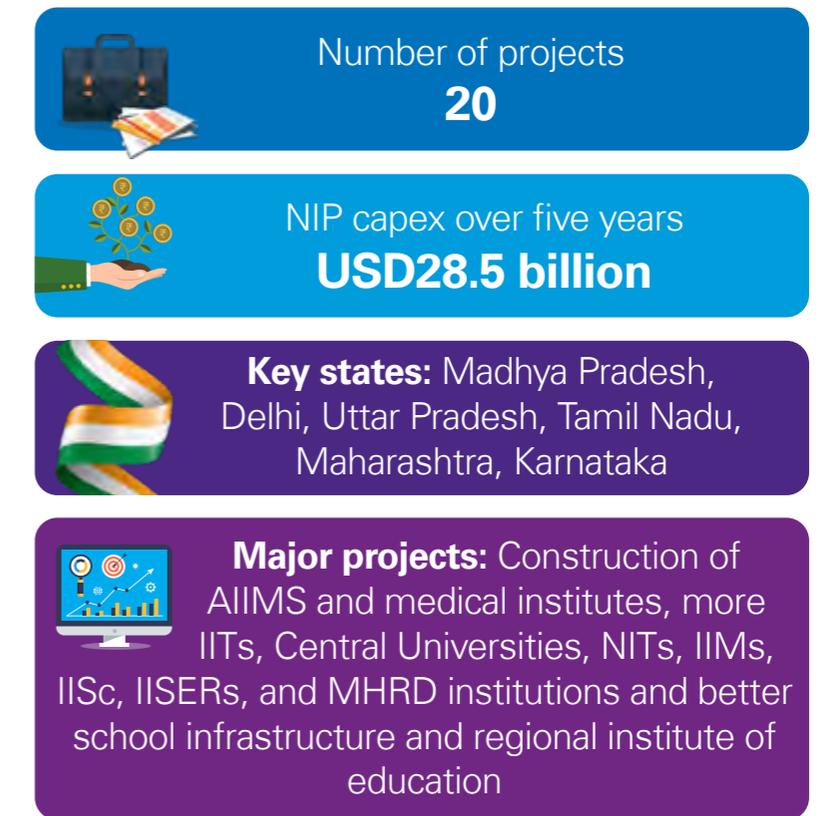
The NIP has allocated USD6.5 billion (INR486.2 billion) to the development of higher education infrastructure and USD5 billion (INR371.3 billion) to the development of secondary education⁶

- To improve quality of research 50 new institutes dedicated to research to be set up
- Technology driven world class education institutes to be set up
- Overall GER to improve to at least 40 per cent with reduced interstate disparity
- Establish new education institutes to tackle high PTR

Vision 2025

infrastructure. The projects that focus on development of medical institutes, modernisation of secondary schooling infrastructure and strengthening the R&D infrastructure in public universities are expected to gain higher traction in the coming years.

A glance at the big opportunities (As of 29 April 2020)^{7,8}



2. Budget 2020 pegs ₹99,300 crore for education sector, LiveMint, 05 February, 2020
3. National Education Policy 2020, MHRD, 29 July 2020
4. India launches mission to skill 400 million by 2022, Business Standard, 16 July 2015
5. National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020
6. Task Force for creating National Infrastructure Pipeline, Department of Economic Affairs, 30 April 20
7. India Investment Grid, National Investment Promotion & Facilitation Agency, Accessed on, 6 May 2020
8. National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020

However, with COVID-19 affecting the world and India going into lockdown for more than two months, the education and skill development sector might see a transformation.

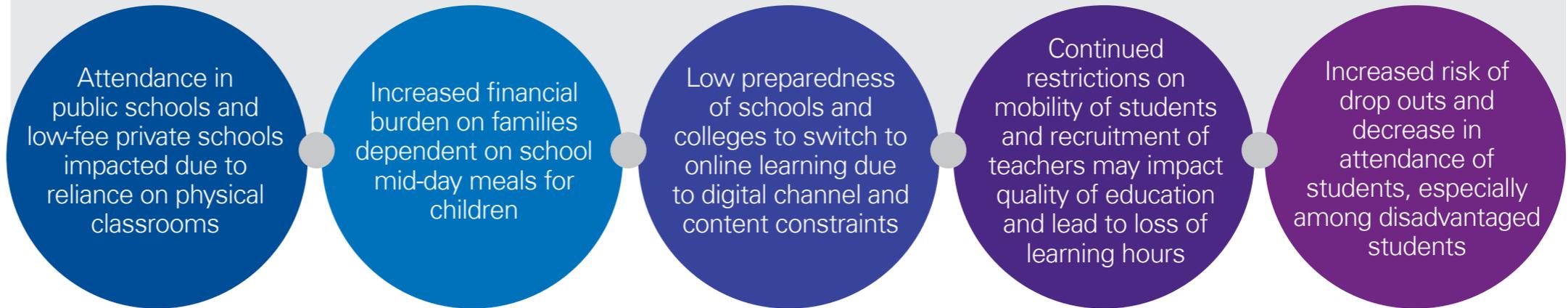
Digital intervention has now gained higher importance as online classes are emerging as the only way for teachers and students to interact. Other issues such as delayed college admissions, slowing of research activities and a constrained job market is putting pressure on the progress of the sector.

9. KPMG in India analysis 2020



Current and potential impact of COVID-19⁹

Education



Skills



Project prioritisation

Education

Setting up of Multidisciplinary Education and Research Universities (MERU), Special Education Zones (SEZs) and medical college infrastructure would likely become a priority along with investment into digital infrastructure to support remote learning.

Skilling

Infrastructure development related to certain sectors such as transport and logistics, heavy engineering and housing construction (both rural and urban) needs to be prioritised and thus would require extensive upskilling and reskilling interventions.

Similarly, high growth sectors such as healthcare, horticulture, food processing and financial services sector would require extensive fresh skilling intervention to meet the emerging demand.

Investment into digital infrastructure, devices and content critical to maintain enrolment levels post COVID-19¹⁰

Key action points - Education

Short term

- Develop back to school plan with social distancing for primary school students and adopt hygiene practices
- Develop digital learning solutions for higher and secondary school students
 - Build model schools with STEM, digital skills, cyber security embedded in curriculum
- Quick fix medical college infrastructure to support COVID-19 response
- Continue mid-day meals via home delivery
- Explore different channels such as TV, mobile, radio
- Ascertain alternative ways for conducting exams
- Develop guidelines for use of digital medium for educational purpose
- Adopt best practices for hygiene in reopened schools

Medium term

- Increase digitisation of educational content
- Provide loans, technology and resources to schools to improve digital infrastructure
- Modify curriculum and learning objectives for a dynamic future
- Ensure business continuity by relaxing
 - Attendance and assessment criteria
 - Private school fee
- Monitor learning outcomes and build teacher capacity, using regional institutes of education

Medium term

- Institutionalize practice to carry out business continuity planning as part of annual planning exercise
- Design educational institutes with built-in features that can convert to control rooms or quarantine units
- Develop a robust contingency plan and operating procedures, guidelines for emergencies
- Strengthen nationwide digital infrastructure for remote learning
- Provide devices and content that support low bandwidth internet

10. KPMG in India analysis 2020

Additionally, the skills development sector needs to take measures to ramp up new skills that the post COVID-19 era would require and put in place needed digital collaborations to enhance remote learning.



Key action points - Skilling¹¹

Short term

- Create COVID-19 awareness by mobilising healthcare personnel, anganwadi workers
- Add healthcare and emergency management skills to National Skill Development Mission
- Identify impacted sectors, realign skilling demand-supply mapping, ascertain new job roles and entrepreneurship opportunities
- Create a demand-driven skill development ecosystem

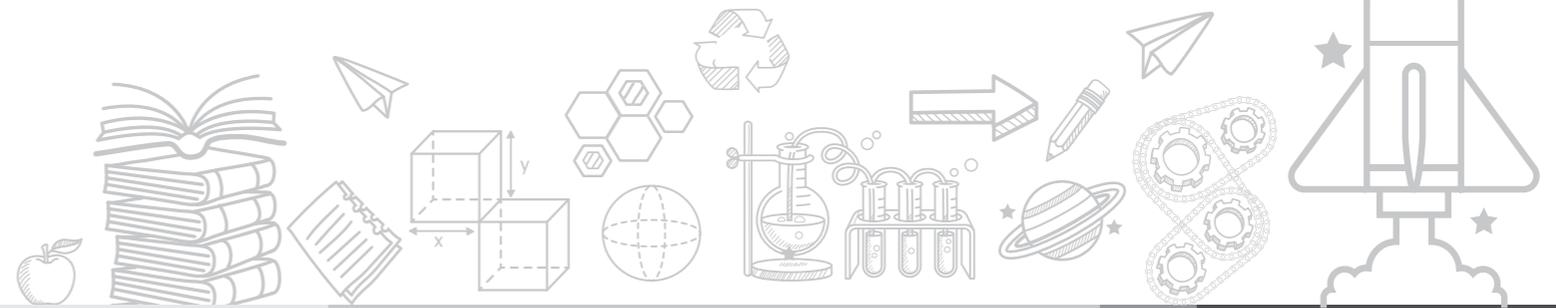
Medium term

- Provision of grants, soft loans, stipends to training partners, vocational centers and trainees
- Effective collaboration between National Skill Development Corporation, Sector Skill Councils and edutech companies
- Identify partners for online platform for training and assessment of the trainees
- Future skills programs integrated into higher education academic programs with academic credits

Medium term

- Establish model industrial training institutes (ITIs) and Pradhan Mantri Kaushal Kendras (PMKKs) for closing skill gap
- Scale up the online skilling ecosystem and virtual vocational training centers
- Higher focus on digital skills
- Industry-academia linkages for qualified trainers and industry experts

11. KPMG in India analysis 2020



Education

Building blocks of success: The road to achieving accessible and quality education infrastructure¹²

Policy/regulations



- Accelerate adoption and implementation of National Education Policy 2020
- Develop a digital policy covering cyber security across sectors including education to strengthen digital infrastructure

Institutions (Capacity)



- Add capacity in primary and secondary schools in rural areas to address movement of migrants
- Add R&D centers within public universities to ensure pipeline of talent and address demand from returning post graduate, doctoral and expats students in wake of COVID-19

Funding/financing



- Higher government equity in Higher Education Financing Agency (HEFA)
- IFIs would continue to fund towards enhancing the education infrastructure

Data/technology



- Strengthen and incentivise broadband connectivity for education
- Enhance device ownership for students for widespread adoption of remote learning
- Greater impetus on digital skills

KPIs/outcomes



- Number of enrolments vs talent rate absorption or medical capacity which is being created
- Access, equity and quality to be the key metrics
- Performance grading index for school education
- National institutional ranking framework for higher education

12. KPMG in India analysis 2020

Skilling

Building blocks of success: Harnessing the demographic advantage that India enjoys¹³

Policy/regulations



- Ensure liquidity for training providers in the next phase of Pradhan Mantri Kaushal Vikas Yojana (PMKVY), National Apprenticeship Promotion Scheme (NAPS)
- Create upskilling/re-skilling plan to realign candidates for jobs in growth sectors

Institutions (Capacity)



- Trainers' time to be utilised for sharing live classroom sessions and e-content development
- Introduce online theory modules for apprenticeship trainings
- Model skilling centers and mega ITIs to be established

Funding/financing



- Provide subsidies to edutech players, loans to training providers for ICT upgradation and incentives for healthcare related courses
- Payouts under the govt. schemes to be linked with number of online contact hours established
- Corporate-backed and CSR-funded trainings and PPP mode for infrastructure development

Data/technology



- For skilling centers with limited internet connectivity – leverage radio, TV as medium to continue classes
- Leveraging platforms such as Bharat Skills to achieve teaching-learning objectives as well as for awareness creation and sensitisation

KPIs/outcomes



- Number of sectors having realigned skilling targets
- Number of students getting reskilled/upskilled
- Percentage of students placed
- Infrastructure and capacity of training institutes reflected in the grading score of ITIs/Training Center

13. KPMG in India analysis 2020

Understanding the strategic goals of the Infrastructure Vision 2025



Urban and rural infrastructure



Healthcare



Transportation and logistics



Agriculture and irrigation



Education and skilling



Energy



Digital infrastructure



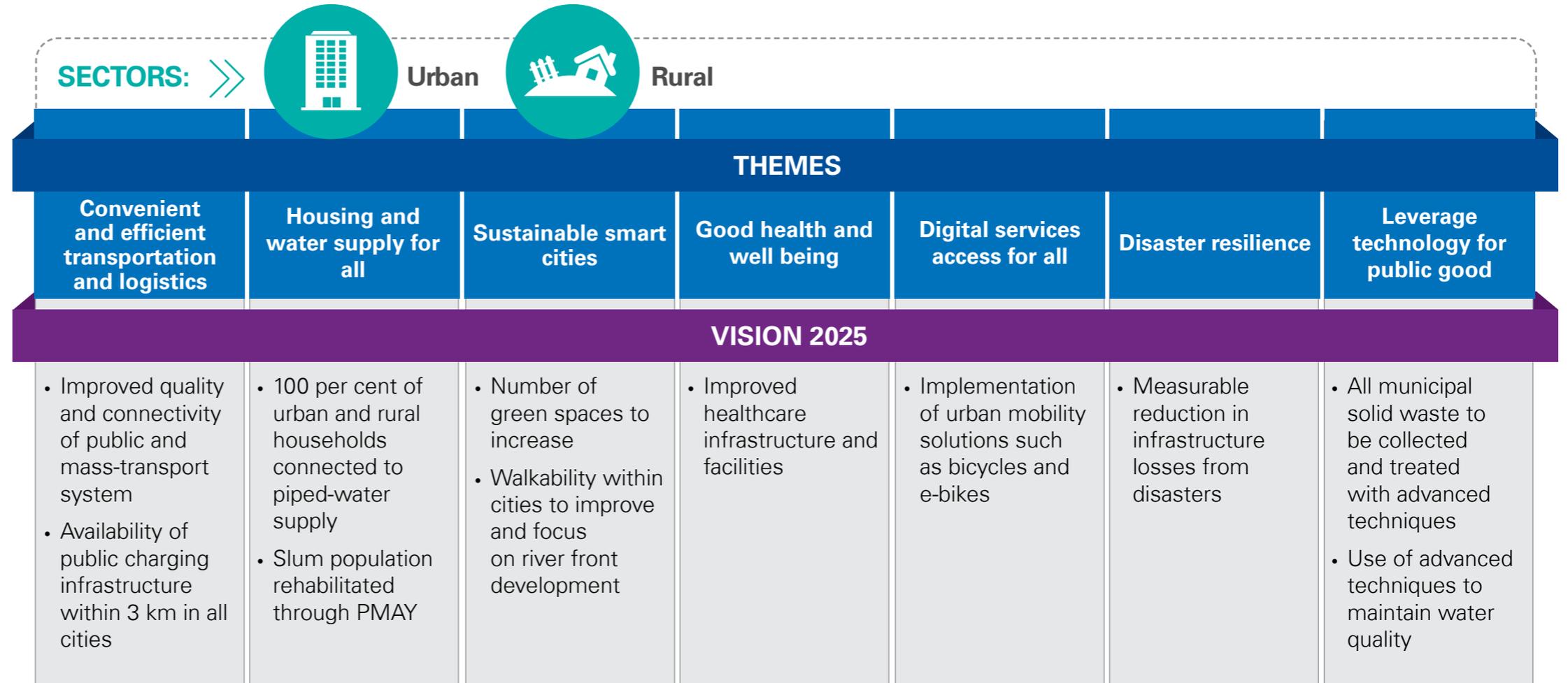
Disaster resilience

Click on tabs to navigate

Indian cities are likely to accommodate almost half of the population by 2040¹. This highlights an increased need for integrated, sustainable, technology-enabled and inclusive design and development of physical,

institutional, social and economic infrastructure in the country. Urban agglomeration will become even more important post COVID-19.

Mapping NIP sectors with the Infrastructure Vision 2025 goals



Source: National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020

1. National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020



Urban infrastructure - Sector overview

The urban set-up contributes to 65 per cent of the GDP² and comprises two parts: urban development/municipalities and the supporting ecosystem of healthcare, utilities, industries, and finances.

Providing a boost to urban infrastructure

- Around 56 per cent of urban and 16 per cent of rural households have access to piped drinking water
- Only 19 per cent of the municipal solid waste generated is treated scientifically
- High proportion of population living in slums in India
- Limited green spaces, only 18 cities have operational metros
- Low awareness and penetration of electric vehicles (EVs)
- High dependence on private transport

NIP 2020 extract and observations

- All urban and rural households connected to piped-water supply
- All municipal solid waste to be collected and treated with advanced scientific techniques
- Slum population rehabilitated with implementation of the PMAY
- Decongestion of urban spaces through urban planning, green spaces, mass transit systems, EVs, charging infra and public transport
- National standards on urban infrastructure adopted by all cities

Vision 2025

Source: National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020

2. KPMG in India analysis 2020



Potential pipeline

Many programmes for urban development such as the AMRUT to provide basic civic amenities like water supply, sewerage, urban transport, parks to improve the quality of life; PMAY-U to provide affordable housing and the SCM for integrated development are already in place.

Each of these programmes have been designed to address issues at a national scale and develop

basic infrastructure and services that must be made available to all citizens and businesses to multiply the output, efficiencies and productivity to the nation's economy.

Recognising the significance of urban and rural infrastructure due to its linkage with economic growth and quality of life, the NIP has allocated almost 17 per cent of the overall budget for urban infrastructure development³.

A glance at the big opportunities (As of 29 April 2020)^{4,5}

Number of projects
1,362 kWh

NIP capex over five years
USD255.9 billion

Major projects: Affordable housing, mass rapid transit system, Smart City Mission, AMRUT, Jal Jeevan Mission

Note: 1 USD = INR 75

The recent COVID-19 pandemic has compelled companies to adopt a work from home (WFH) policy for their employees. Companies are realising the efficiency benefits of a long term

WFH policy in select sectors such as IT and financial services. This is expected to alter the commercial as well as residential real estate requirements in urban areas.



Urban infrastructure would receive more impetus as the government realises the importance of urban design and master planning in dealing with disasters and pandemic.

More focus could be placed on the following projects.

- Smart cities, a composite mission that focuses on the quality of life of the citizens and inter-departmental collaboration, can be taken up at an institutional level for taking urban transformation forward
- Strengthening of the five core utilities that comprise the critical infrastructure: Power, telecom, water, wastewater, solid waste management and transport through initiatives such as Swachh Bharat Mission, Smart Cities Mission, AMRUT, Digital India and BharatNet

- Transit corridor development, including expressways such as Delhi-Mumbai, Delhi-Kolkata, Bengaluru-Chennai, Bhopal-Indore, Mumbai-Ahmedabad and Chandigarh-Jammu
- Social Infrastructure development through strengthening of healthcare infrastructure to address the rising instances of urban lifestyle diseases, adopting health services standards and practice protocols; initiating community health centres (CHCs) and primary health centres (PHCs) with attractive insurance and financing options and using technology-driven healthcare solutions
- A methodical approach towards worker rehabilitation with respect to housing, employment and skilling.

3. National Infrastructure Pipeline - Report of the Task Force Volume I, Department of Economic Affairs, 29 April 2020

4. India Investment Grid, National Investment Promotion & Facilitation Agency, Accessed on 29 April 2020

5. The government is prioritizing projects that are linked

with industrial clusters, Construction Week Online, 21 April 2020

6. KPMG in India analysis 2020

Rural infrastructure - Sector overview

With 65 per cent of the country's population residing in rural areas, it is essential to develop rural infrastructure and provide them with basic amenities to improve their quality of life. The reverse migration caused by COVID-19 has shown the need for substantial development in many rural and potential secondary cities so that new centres of economic growth are established. Moreover, with agriculture being the main source of income, rural infrastructure is important for enhancing farmer income through growth of agro-based industries, access to markets and job opportunities.

Providing a boost to rural infrastructure

- Lack of access to pucca houses and basic civic amenities
- Almost 97 per cent villages have access to basic drinking water
- Only 18 per cent rural households have access to piped water supply
- Pradhan Mantri Gram Sadak Yojana (PMGSY) under implementation
- Almost 99.4 per cent rural households have access to toilets and 90 per cent villages have been declared open defecation free (Swachh Bharat Mission Gramin)



NIP 2020 extract and observations

- Entire rural population to have pucca houses and basic civic amenities under the PMAY – Gramin and Urban missions
- Access to safe and piped drinking water for all under Jal Jeevan Mission by 2024
- All rural households to have toilets and all villages to be ODF



Vision 2025

Source: National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020 

7. National Infrastructure Pipeline - Report of the Task Force Volume I, Department of Economic Affairs, 29 April 2020



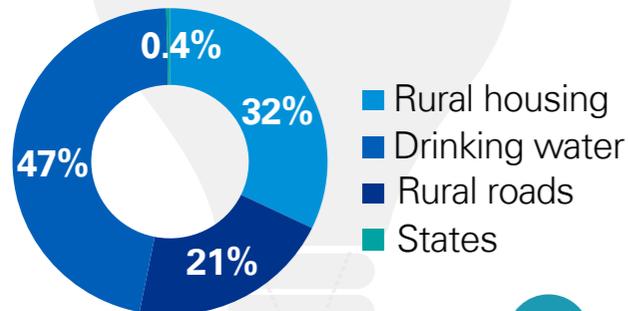
Potential pipeline

In view of the above, the Government of India (GoI) has initiated critical schemes such as PMAY - Gramin to provide housing in the rural areas; Swachh Bharat Mission to eliminate open defecation and improve

solid waste management in both urban and rural areas; PMGSY to develop and improve the quality of rural roads; and Jal Jeevan Mission - Rural to provide tap water to all rural households.

The NIP has allocated almost 7 per cent to rural infrastructure development⁸.

A glance at the big opportunities (As of 29 April 2020)^{9, 10}



Note: 1 USD = INR 75

Project prioritisation

The NIP vision would need to be supported by the following projects to improve rural infrastructure:

- Utilities and infrastructure development: Biogas and solar-based electric substation managed by private sector in collaboration with Gram Panchayats, cluster-wise solid waste management
- Rural livelihood mission projects
- Healthcare services: Strengthening and creating options of privatisation of health infrastructure such as private PHCs, District Health Centre or civil

- hospitals, engaging women-led Self-Help Groups (SHGs) for manufacturing and distribution of health products (for instance, gender based online services to order medicines and sanitary products)
- SVAMITVA (Survey of villages and mapping with improvised technology in village areas) enabling households with enhanced means for financial benefits and strengthening the demand assessment process of Gram Panchayats by institutionalising the asset and tax collection register.

The main priority would be to assess finance access for capital projects and prioritise their implementation

8. National Infrastructure Pipeline - Report of the Task Force Volume I, Department of Economic Affairs, 29 April 2020

9. India Investment Grid, National Investment Promotion & Facilitation Agency, Accessed on 29 April 2020

10. The government is prioritizing projects that are linked with industrial clusters, Construction Week Online, 21 April 2020

Key action points

Short term



- Reassess Smart Cities Mission based on capacity to implement and spend
- BharatNet proliferation for rural connectivity
- Empower and strengthen Gram Panchayats and Seva Kendras
- Safeguard existing funding through contract reinforcement
- Use National Investment and Infrastructure Fund and India Infrastructure Finance Company to tap pension, sovereign wealth and insurance funds

Medium term



- Expand utility metering to rural areas
- Regulations for utility metering to be modified to recover losses from commercial real estate
- Drone based delivery system for cities
- Change housing design, especially for slum rehabilitation and PMAY
- National level non-invasive health monitoring mechanism
- Strengthen self-funding of municipal corporations –
- Tax revenues
- Asset monetisation (re-purposing, PPP, leasing of land parcels and buildings)

Long term



- Improved urban design and master planning policy
- Cluster development by private players
- Urban mesh-based architecture of existing integrated command and control centres (ICCCs)
- Shared resources using technology for shorter ROI cycles
- Proliferation of digital payments, telemedicine and drone-based mapping in rural areas
- SDG Alignment



Source: KPMG in India analysis 2020

Building blocks of success

The key to success would be creating a hub and spoke model of core/large cities with supporting satellite cities and further extending it to the rural areas to ensure expanded integrated development. This, along with alignment with Invest India projects, would help the country achieve the urban transformation vision faster without compromising on the vision statements in the NIP. To ensure delivery with impact requires active community

engagement within the planning and design of cities as liveable places. The following aspects also need to be taken into consideration to ensure sustainable development.

- Projects linked to water, sanitation, health, safety and housing would get prioritised
- Mitigating the impact of climate change, with projects to manage urban heat

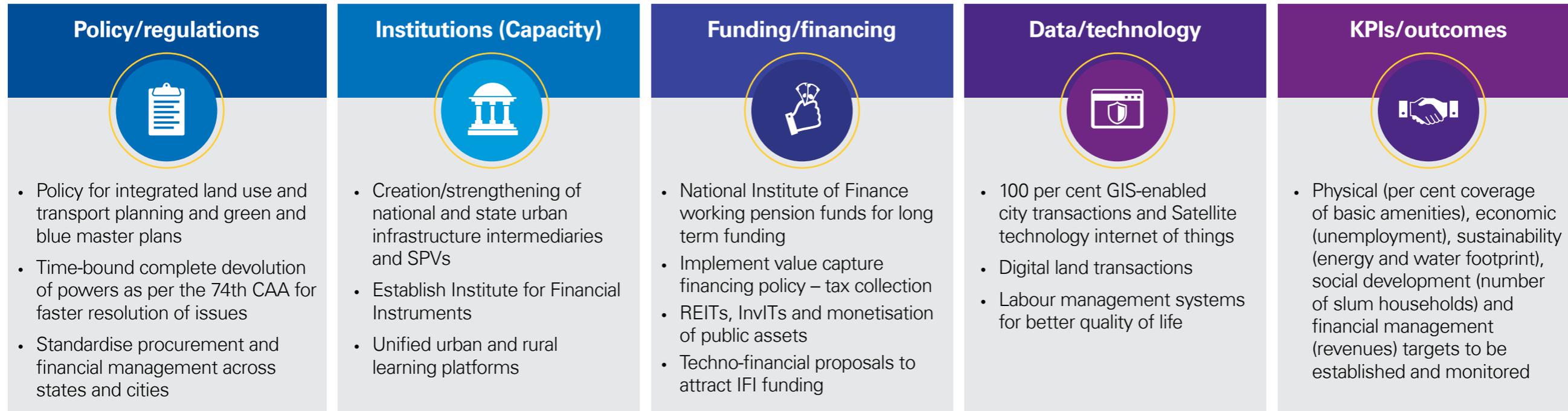
islands using a drip system of recycled water and reducing air pollution using IOT sensors for monitoring pollutant levels

- Lifestyle and health would gain increasing importance with a need to adopt universal standards in production, clear instruction of edible and non-edible products and further control on distribution of certain non-vegetarian products. Like economic growth,

urban health becomes a collectively responsibility and could be a potential outcome of urban infrastructure investment

- Allowing for resilient infrastructure development, including contamination-proof water storage, distribution and supply and strengthening of transport corridors.

Developing integrated, sustainable urban and rural infrastructure^{11, 12}



Note: CAA – Constitution Act Amendment, SPVs – Special Purpose Vehicles, REIT – Real Estate Investment Trust, InvIT – Infrastructure Investment Trusts, IFI – International Financial Institutions, GIS – Geographic Information System

11. National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020

12. KPMG in India analysis 2020

Financing Urban and Rural Infrastructure

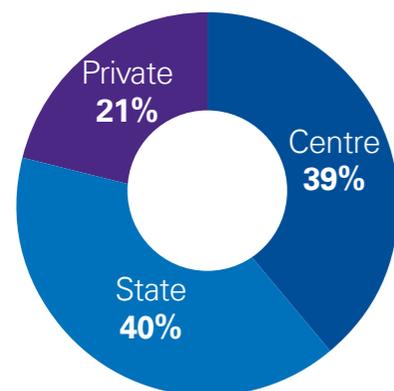
The total capital expenditure under the NIP in infrastructure sectors in India between fiscals 2020 and 2025 is projected at around INR111 lakh crore¹³. Out of this amount the projected capital expenditure for Urban is INR19.19 lakh crore and Rural Infrastructure is INR7.73 lakh crore which constitute 17 per cent and 7 per cent respectively of total expenditure. The year wise details of both the sectors is detailed in the table¹⁴ below:

Sector	FY20	FY21	FY22	FY23	FY24	FY25	No Phasing	Total FY 20-25
Urban								
Atal Mission for Rejuvenation and Urban Transformation, Smart Cities, MRTS, Affordable Housing, Jal Jeevan Mission	298,174	462,208	404,134	234,858	217,164	159,862	142,867	1,919,267
Rural Infrastructure								
Rural Infrastructure	103,555	116,306	109,930	27,055	27,055	27,055	0	410,955
Water and sanitation	36,758	60,497	100,881	84,822	80,002	0	0	362,960
Total Rural Infrastructure	140,313	176,803	210,811	111,877	107,057	27,055	0	773,915

Figures in INR crores

The above figures may undergo change as information is yet to be received from some States. It is proposed to reprioritise projects depending on status of clearances, timely approvals and financing.

Low Private Sector Investment under NIP



The Centre (39 per cent) and state (40 per cent) are expected to have almost equal share in implementing the NIP in India between FY20 and FY25, followed by the private sector (21 per cent).¹⁵

There has been a southward trend in the percentage contribution of the private sector

which is expected to be further condensed amidst COVID and the perceived economic outlook.

Due to the repurposing of funds at the centre and state towards COVID response and relief the investment potential of the authorities in urban infrastructure has reduced. It is critical to

attract private financing and identify innovative tools which could fund the NIP for the Urban and Rural sector.

13. National Infrastructure Pipeline - Report of the Task Force Volume I, Department of Economic Affairs, 29 April 2020

14. National Infrastructure Pipeline - Report of the Task Force Volume I, Department of Economic Affairs, 29 April 2020

15. National Infrastructure Pipeline - Report of the Task Force Volume I, Department of Economic Affairs, 29 April 2020

Key inhibitors to private sector participation in projects are:

Unpredictable financial capacity of urban local bodies

- Urban local bodies face uncertain cash flows, limited potential in fees, taxes and revenues to cover infrastructure investments and the risk aversion of borrowers
- The institutional strength and capacity of ULBs to handle loan covenants and repayments of private sector investments is not adequate.

Lack of bankable projects

- There is a lack of clarity in risks and returns of projects to enable sound investment decisions
- Absence of private sector involvement at the project conceptualisation stage to enable early identification of bankable projects

Inadequate procurement and contract enforcements

- There is a need for improving the transparency in procurement processes with standardisation
- Post award contract enforcement and arbitration mechanisms need to be strengthened

Measures to be taken to attract private finance in Urban Sector

Private sector favourable policy interventions to encourage the flow of long-term finance from pension, insurance, sovereign wealth funds and private sector investors by removing constraints to their activity.

This could include:

- Declare the sector as a priority sector and channelize investment through a dedicated fund
- Encourage more debt and equity funds for infrastructure investment;
- Institutionalize the municipal bond markets with continuous hand holding and support
- Set up loan pooling mechanisms for weaker ULBs by aggregation of projects. This will help draw interest of large and creditable investments
- Leverage fair and transparent PPP models

Outcome-based funding approach in all Centrally sponsored urban programs. Financing/funding and allocation of other resources to be linked to achievement of citizen-centric outcomes.

Establish an **Economic Investment Vehicle (EIV)** to attract large investors/international investors.

ULBs should implement innovative revenue augmentation measures around tax collection, pending receivables and interest charges, service charges for municipal services.

Multi-level institutional strengthening and capacity building exercises should be undertaken with establishment /activation of urban financing intermediaries.

Adopt flexible HR policies and framework to onboard good talent from the market. Establish a national panel of professionals who can be allocated to ULBs and SPVs to deliver financial effectiveness.

Assign more authority and autonomy to urban local bodies in line with the 74th amendment.

Understanding the strategic goals of the Infrastructure Vision 2025


Digital infrastructure


Healthcare


Transportation and logistics


Agriculture and irrigation


Education and skilling


Energy

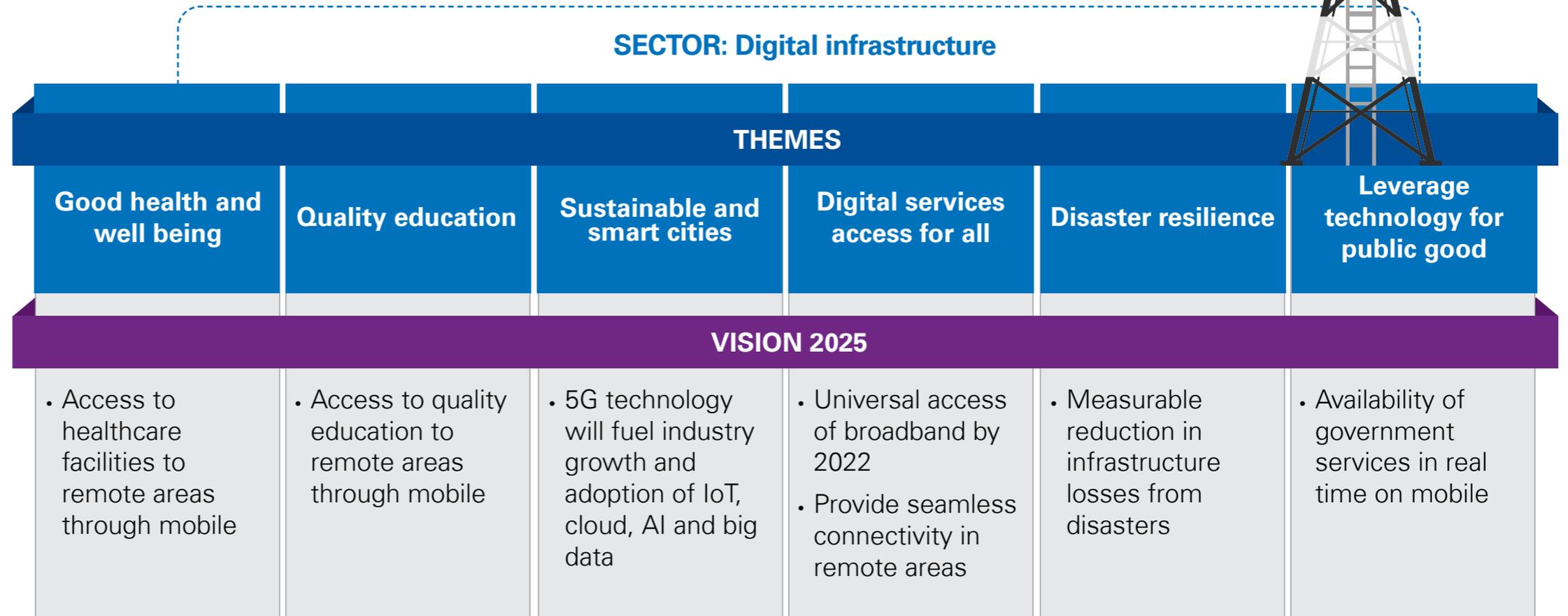

Urban and rural infrastructure


Disaster resilience

Click on tabs to navigate

India aims to provide telecom and high-quality broadband services to its population along with end-to-end online delivery of government services to ensure the socioeconomic empowerment of every citizen.

Mapping NIP sectors with the Infrastructure Vision 2025 goals (illustrative)



Source: National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020

Sector overview

Currently, India has the second-highest number of internet subscribers¹ globally, driven by rising internet penetration, cheap data rates and affordable range of smartphones.

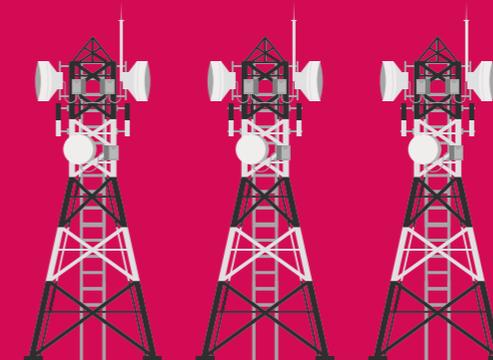


Digital services access to all^{2,3, 4, 5, 6,7}

- Approx. 90.5 per cent teledensity (India ranks second in terms of mobile phones)
- Internet penetration is around 50 per cent
- Around 1.5 million gram panchayats connected under Bharat Net
- Poor connectivity and low data speeds
- 4G has gained ground significantly
- Higher focus being placed on data localisation and e-governance
- One of the cheapest data rates – India is the least expensive country in the world to buy 1GB of mobile data.
- UPI payments recorded 1.5 billion transactions in July, the highest so far.

NIP 2020 extract and observations

- Teledensity to covered 100 per cent population (India ranking first)
- Internet penetration to reach 80 per cent through Bharat Net
- Real time government services on mobile
- 5G and digital technologies to fuel industry growth and innovation
- India to emerge as data-centre hub fueling growth of fintech, ecommerce and OTT sectors



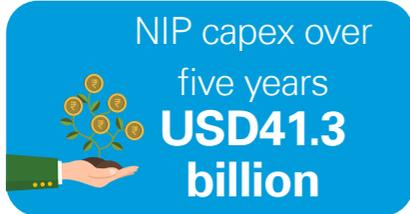
Vision 2025

1. India has second highest number of Internet users after China: Report; The Economic Times, 26 September 2019
2. India has second highest number of Internet users after China: Report; The Economic Times, 26 September 2019
3. BBNL website, Accessed on 16 April 2020
4. Task Force for creating National Infrastructure Pipeline, Department of Economic Affairs, 31 December 2019
5. Internet usage in India - statistics & facts, Statista, 7 July 2020
6. DIGITAL 2020: INDIA, Dataportal, 18 February 2020
7. UPI Product Statistics, NCPI, Accessed 11 August 2020

Potential pipeline

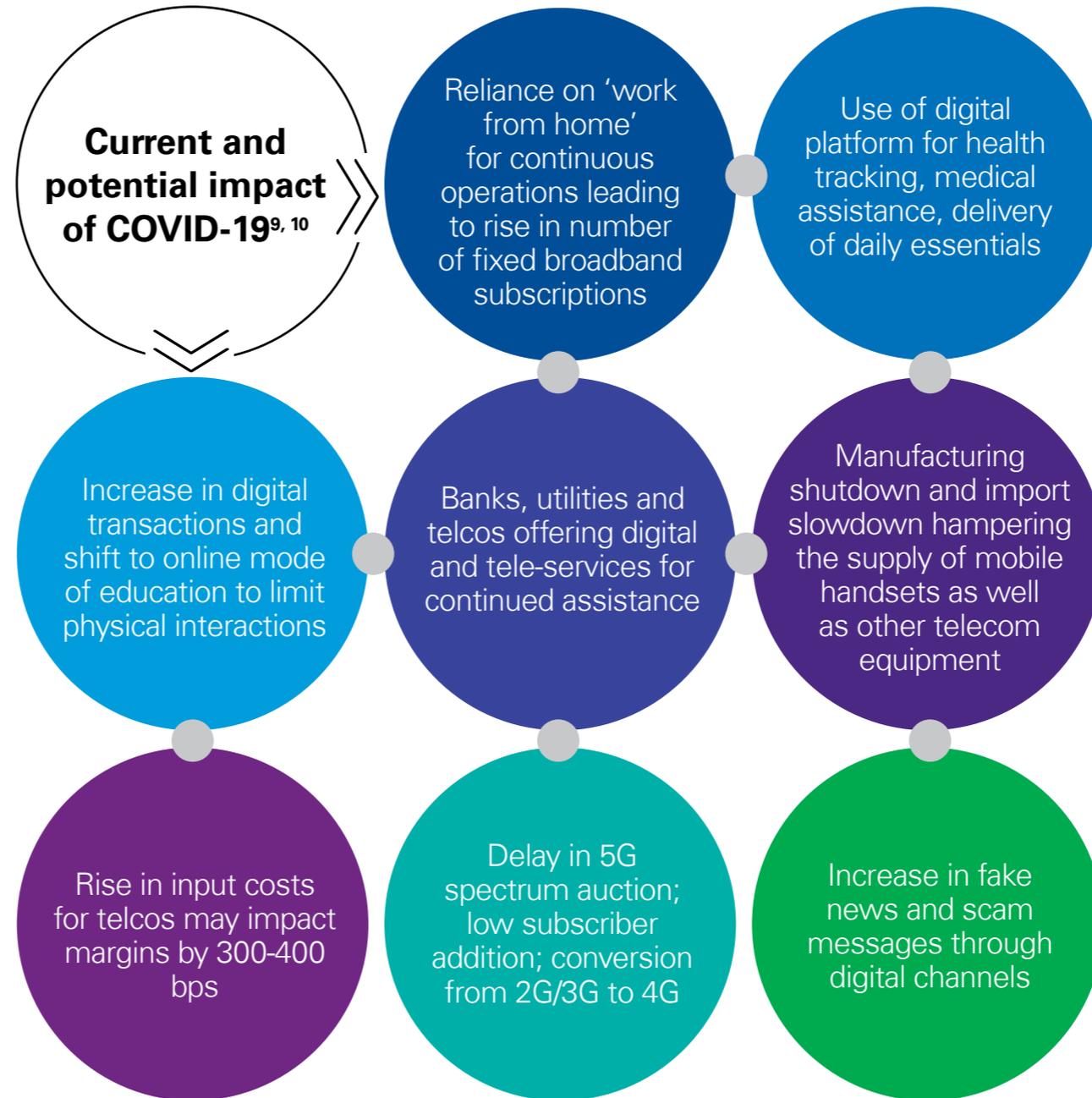
The digital revolution in India continues to intensify with strategic initiatives such as Digital India, Make in India and Skill India.

A glance at the big opportunities (As of 29 April 2020)^{6,7}



Note: Only projects published on the India Investment Grid website (<https://indiainvestmentgrid.gov.in/>) as of 29 April 2020 and costing between USD10 million and USD500 million have been considered for arriving at key states. 1 USD = INR 75

Amid the nationwide lockdown in India, telecom services were deemed essential and, therefore, are deemed to getting a leg-up in the priority list of the NIP implementation. The integration of Jan Dhan Yojana and the Digital India initiative has helped the government identify targets for direct cash transfers as part of the recent stimulus package for the poor affected by the lockdown⁸.



With the Indian telecom industry facing financial stress owing to high debt, adjusted gross revenue (AGR) dues, regulatory fees and spectrum pricing, telecom companies may be reluctant to invest in infrastructure in the near term.

6. India Investment Grid, National Investment Promotion & Facilitation Agency, Accessed on 29 April 2020
7. The government is prioritizing projects that are linked with industrial clusters, Construction Week Online, 21 April 2020
8. Banks to ensure smooth transfer of funds to women account holders, Business Standard, 26 March 2020
9. Telecom towers unaffected by lockdown, task force ensuring smooth functioning, Money Control, 2 April 2020
10. CRISIL Research, Accessed on 16 April 2020

Project prioritisation

Due to the increasing pressure on the sector in view of the ongoing pandemic, the deployment of optic fibre cable (OFC) under the BharatNet initiative has become crucial for upgrading the current system and handling the ever-increasing data load.

Rationalisation of spectrum prices, in line with international benchmarks, along with single window time-bound approvals for Right of Way (RoW) of fibre roll-out would also prove to be critical.

Additional telecom towers need to be installed to increase coverage in rural and non-metro areas and to increase capacity in metros. DoT and the Government have announced reforms that would make government buildings mandatorily allow installation of towers, and telecom services be brought under the Ease of Doing Business (EoDB) reforms to fast track tower installation¹¹.

Policy makers, telcos, OEMs and B2B consumers to work in tandem to ensure uninterrupted access to digital services



Key recommendations to mitigate the negative impact of COVID-19^{12, 13}

Short term

- OTT players switch from high definition to standard definition streaming
- Replace the ads and pop-ups with announcements on COVID-19 awareness
- Set up a self-regulatory organisation to improve security, customer protection and pricing
- Expedite BharatNet and fibre roll-out by adopting global best practices
 - Australian Broadband Guarantee (ABG)

Medium term

- Create more Wi-Fi hotspots
- Provide financial aids to expand network roll-outs
 - Provide moratorium for spectrum dues
 - Explore opportunities to curtail price fluctuations to improve ROCE
- Encourage use of tele-medicine and tele-conferencing
- Encourage software firms to focus on innovative design and conceptualise solutions

Long term

- Postpone AGR issues for at least a quarter
- Reduce taxes and levies
- Develop cyber security and data storage capacities
- Explore use of blockchain, cloud and collaborative tools
- Reduce reserve prices for 4G and 5G spectrum charges
- A build-test-launch sandbox offering for innovators to test their models

11. TAIPA submission on "Ease of Doing Business", TAIPA, April 2017 <www.trai.gov.in/sites/default/files/TAIPA_07092017.pdf>

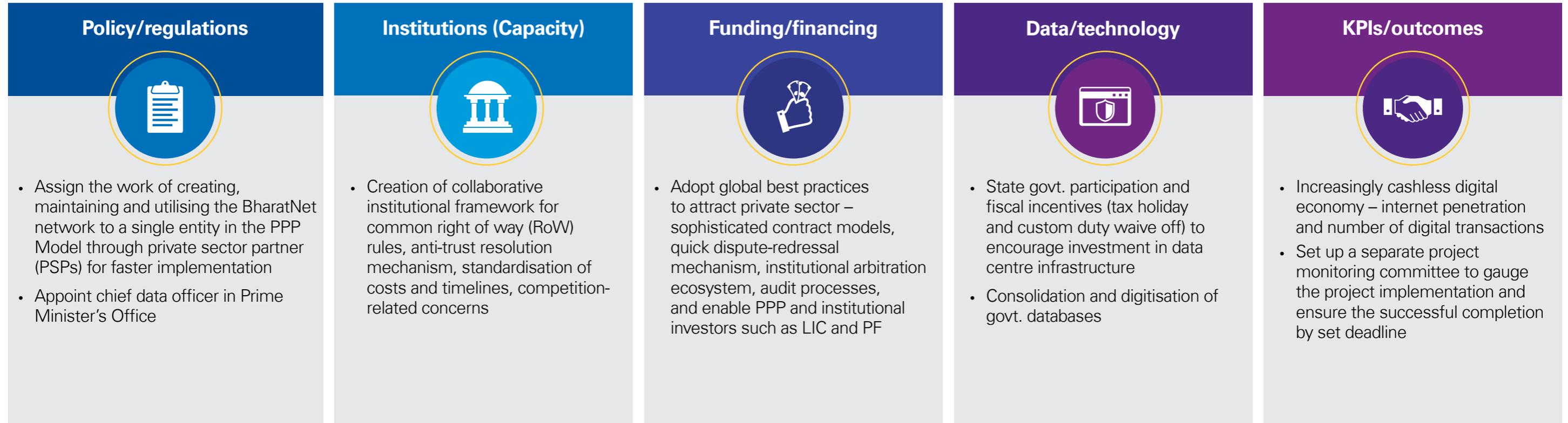
12. Impact of COVID-19 on the Indian economy, KPMG, April 2020

13. CRISIL Research, Accessed on 16 April 2020

Building blocks of success

While getting the required confidence to achieve the sector vision may not look easy in the light of the current pandemic, it does, however, offer an opportunity to encourage the digital enablement of processes. This may help the overall cause with some modifications on utilising the adjusted direction of resources and leveraging the full potential of technologies such as Internet of things (IoT), cloud, and artificial intelligence (AI).

Ensuring digital services access to all^{13, 14}



13. National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020

14. KPMG in India analysis 2020

Understanding the strategic goals of the Infrastructure Vision 2025

Click on tabs to navigate



Disaster resilience



Healthcare



Transportation and logistics



Energy



Agriculture and irrigation



Education and skilling



Urban and rural infrastructure

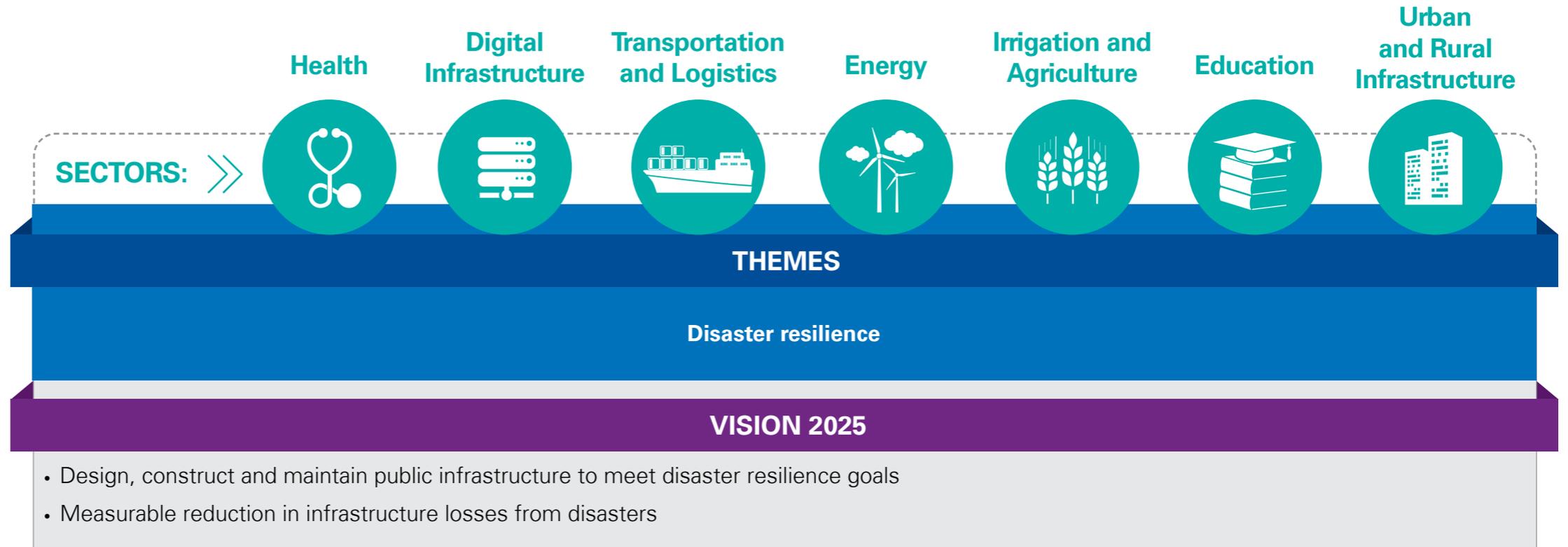


Digital infrastructure

Natural and man-made disasters have resulted in massive human and economic losses. The unpredictability of its frequency, severity and location of hydro-meteorological or climatic hazards are likely to cause even more damage in the future. Investment in disaster-resilient infrastructure can help minimise these losses.

It encompasses houses withstanding a disaster, to citizens having adequate and safe access to the basic amenities such as water, electricity, essentials, healthcare, waste management, transportation, and digital connectivity along with workplaces, farms, schools and hospitals.

Mapping NIP sectors with the Infrastructure Vision 2025 themes (illustrative)



- Design, construct and maintain public infrastructure to meet disaster resilience goals
- Measurable reduction in infrastructure losses from disasters

Source: National Infrastructure Pipeline - Report of the Task Force Volume II, Department of Economic Affairs, 29 April 2020

With the outbreak of COVID-19, the country has for the first time recognised a pandemic as a 'notified disaster' under the Disaster Management (DM) Act, 2005. This allows the Government to provide for support and extend additional funds to activities, including mitigation strategies and capacity building. As a result, funds are being channelised from other sectors into healthcare.

Goal overview

India is prone to various natural disasters due to its geo-climatic position and socio-economic vulnerability. Recent disasters have showcased that up to 66 per cent¹ of total public sector losses in climate-related extreme events have been related to infrastructure damage.

In the past, the country has dealt with disasters and subsequent infrastructure damage in an ad hoc fashion, requiring assembling of resources and make-shift

infrastructure, which are later dismantled. A longer-term perspective and a co-ordinated approach are required within a wider resilience framework. As a result of COVID-19, it is observed that public and private sectors are closely working together to ensure an immediate recovery across sectors.

Potential pipeline

India has plans to reinforce its current and future infrastructure to cope with natural and man-made disasters and risks in the future. The recent pandemic has highlighted a clear need for ensuring that all new and existing infrastructure systems are disaster resilient.

The Pandemic Task Force

A national, multifaceted COVID-19 task force has been formed as the command and control set-up for executing the government's responses.

Ensuring disaster-resilient infrastructure

- In December 2005, the Disaster Management Act was enacted, which envisaged the creation of the National Disaster Management Authority (NDMA) and State Disaster Management Authorities (SDMAs) to implement a holistic and integrated approach to disaster management in India.²

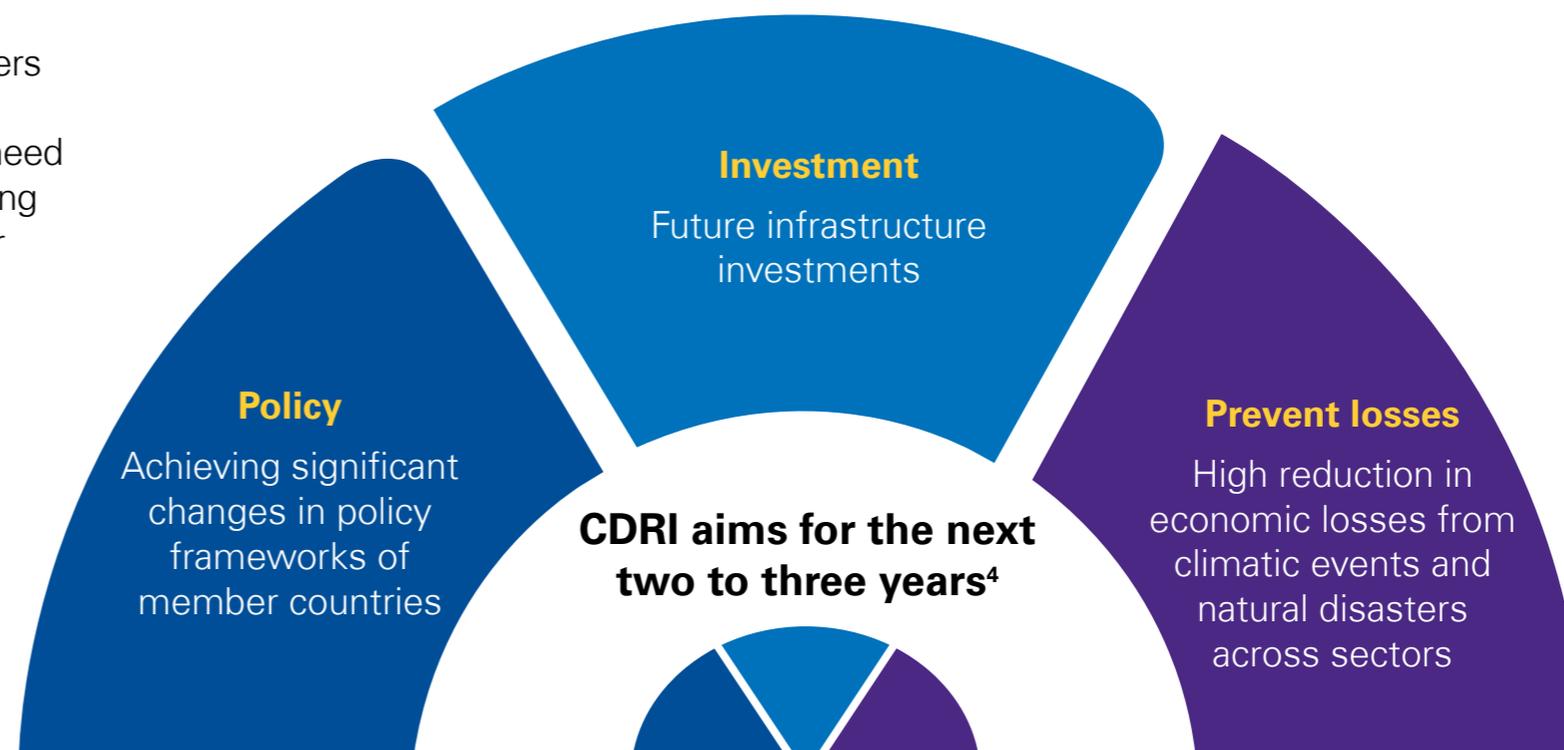
- India, in September 2019, launched an international Coalition of Disaster Resilient Infrastructure (CDRI) to promote disaster-resilient infrastructure, inviting all U.N. members to join.³

1. India Launches Global Coalition for Disaster-Resilient Infrastructure, International Institute of Sustainable Development, 03 October 2019

2. National Disaster Management Authority website, Accessed 12 May 2020

3. Prime Minister announces Coalition for Disaster Resilient Infrastructure at UN Climate Action Summit 2019, Ministry of Home Affairs, 24 September 2019

4. National Infrastructure Pipeline - Report of the Task Force Volume I, Department of Economic Affairs, 29 April 2020



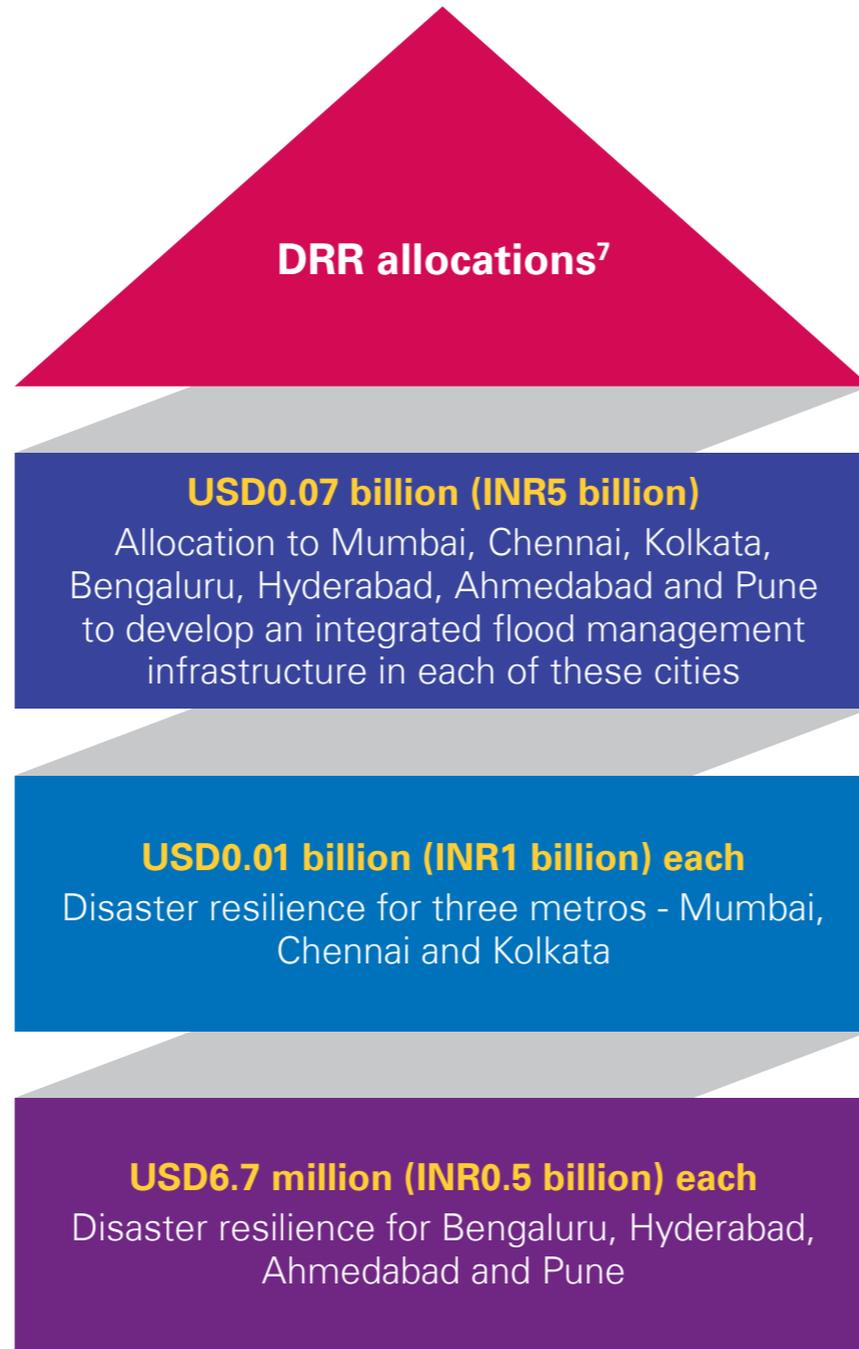
The NIP also outlines the need to ensure that all new and existing infrastructure projects are climate and disaster resilient. Taking this into account, the central government allocated USD3.7 billion (INR280 billion)⁵ for Disaster Risk Reduction (DRR) to curtail disaster-led losses and their impact on states.

- This is a novel concept that rewards state governments that actively focus on building disaster resilient infrastructure rather than depending on only providing relief and rehabilitation.
- Certain states have already launched their respective first DRR⁶ to ensure that the state's development gains are sustained and the damages and impacts of various disasters are minimised

5. India dedicates \$2 billion a year to DRR, Times of India, 20 February 2020 (1 USD = INR 75)

6. Assam initiates its First Disaster Risk Reduction (DRR) Roadmap in line with SDGs, The Sentinel, 14 March 2020

7. India dedicates \$2 billion a year to DRR, Times of India, 20 February 2020 (1 USD = INR 75)



Gujarat tops the national Disaster Risk Resilience Index⁸

The State Disaster Risk Management Fund (SDRMF) has received an allocation of USD3.9 billion (INR289.8 billion) for FY21, with USD2.9 billion (INR221.8 billion) being contributed by the centre.⁹

- The National Cyclone Risk Mitigation Project (NCRMP) Phase – II worth USD0.3 billion (INR23.6 billion) is being implemented in Goa, Gujarat, Karnataka, Kerala, Maharashtra and West Bengal.¹⁰
- World Bank-funded Tamil Nadu and Puducherry Coastal Disaster Risk Reduction Project (CDRRP) initiative that focuses on improving the resilience of coastal communities to a range of hydro-meteorological and geo-physical risks.

8. Disaster Score Card for States and Union Territories of India, NDMINDIA.NIC.IN, May 2018 (Note: Disaster resilience is measured on seven indicators – risk assessment, risk prevention and mitigation, risk governance, disaster preparedness, disaster response, disaster relief and rehabilitation and disaster reconstruction.)

9. India dedicates \$2 billion a year to DRR, Times of India, 20 February 2020 (1 USD = INR 75)

10. NCRMP.gov.in, Accessed on 28 February 2020



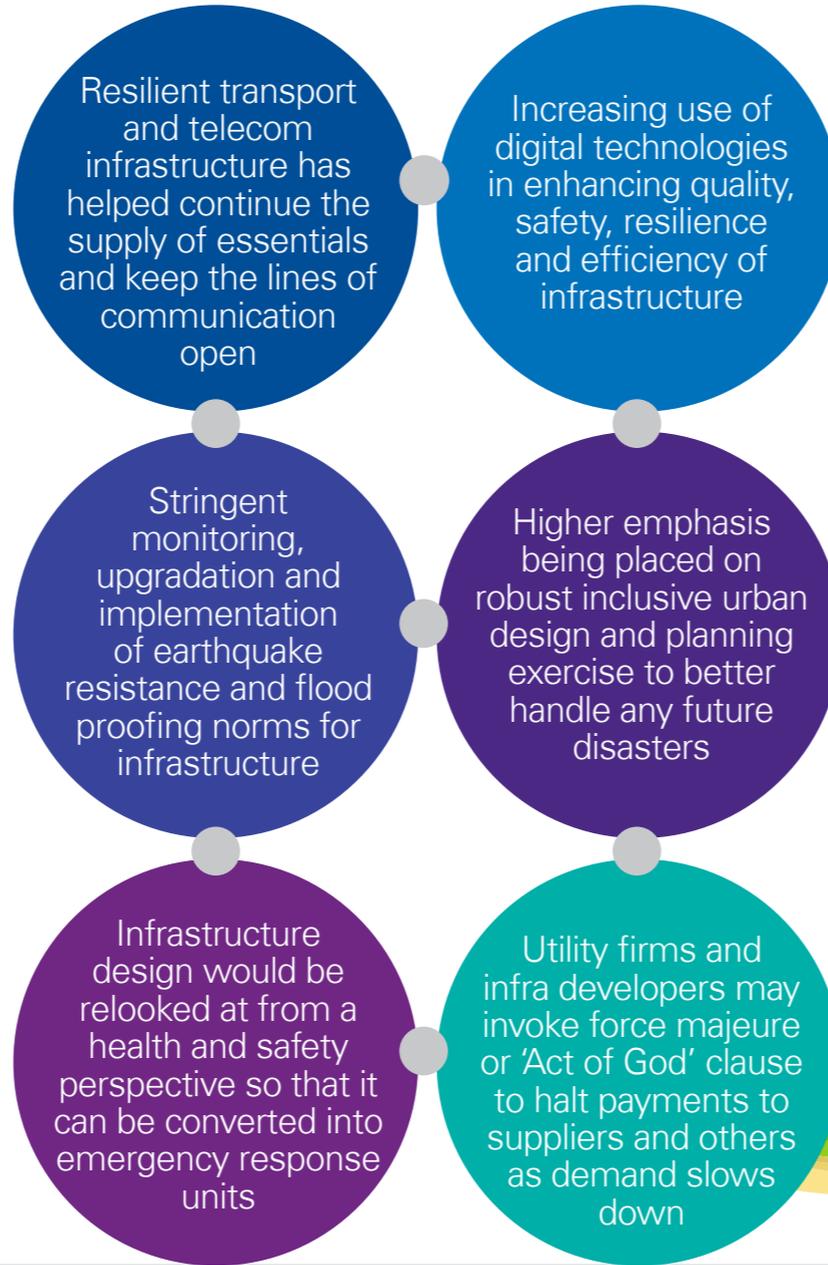
The COVID-19 pandemic underscored the need for a more comprehensive approach to disaster resilience

However, the recent pandemic has been a wake-up call for the stakeholders to realise the need for investment into a more permanent plan for disaster mitigation, management and resilient infrastructure.

Individual States/UTs have been empowered for management of COVID-19. This includes the following.

- Identification of additional quarantine facilities, development of isolation wards, training of health workers and doctors, ensuring adequate equipment (PPEs, medicines, masks)
- Under the Disaster Management Act, States/UTs can now draw funds from the State Disaster Response Fund
- A few states have also utilised the enabling provision for infectious disease management as provided under Epidemic Diseases Act, 1897 to empower any person to take combative measures.¹³

Current and potential impact of COVID-19^{11,12}



11. CRISIL Research, Accessed on 22 April 2020
 12. Indian corporates hit by coronavirus lockdown declare force majeure, Financial Times, 03 April 2020
 13. States/UTs empowered for management of COVID-19, Ministry of Health and Family Welfare (PIB), 14 March 2020

A collaborative approach is critical to develop a disaster resilient infrastructure

Managing a disaster of such a magnitude requires strong leadership, coordination, co-operation, clear communication and representation across different stakeholders.



Key action points^{14,15}

Short term

- Implement early warning systems (smart thermometer, fast testing tools, etc.)
- Reorganise current capacity and assets for a dynamic response to the crisis, example bring back retired healthcare professionals
- Minimise misinformation

Medium term

- Develop robust communication channels for collaboration and cooperation
- Create nationwide standards, designs and regulation for disaster resilience
- Assess risk metrics and assessment methodologies
- Reconstruction and recovery planning

Medium term

- Use prediction models based on past events
- Encourage private sector to invest and build disaster resilient infra
- Create a global 'marketplace' for disaster and climate resilient infrastructure to exchange knowledge, products, technical assistance
- Robust urban planning and design

It is also critical to comprehend the dependencies in the systems, including social structures, infrastructural networks (transportation, housing and healthcare), essential services (food supply, waste management), lifelines (water, electricity and fuel), emergency services (police, fire), business impact analysis (BIA) and cross-sectoral supply chain. Another aspect is to trigger a behavioural change among citizens to make them more sensitive to such disasters while establishing support systems for the marginalised and the at-risk population.

14. International workshop on disaster resilient infrastructure, IWDRI 2020

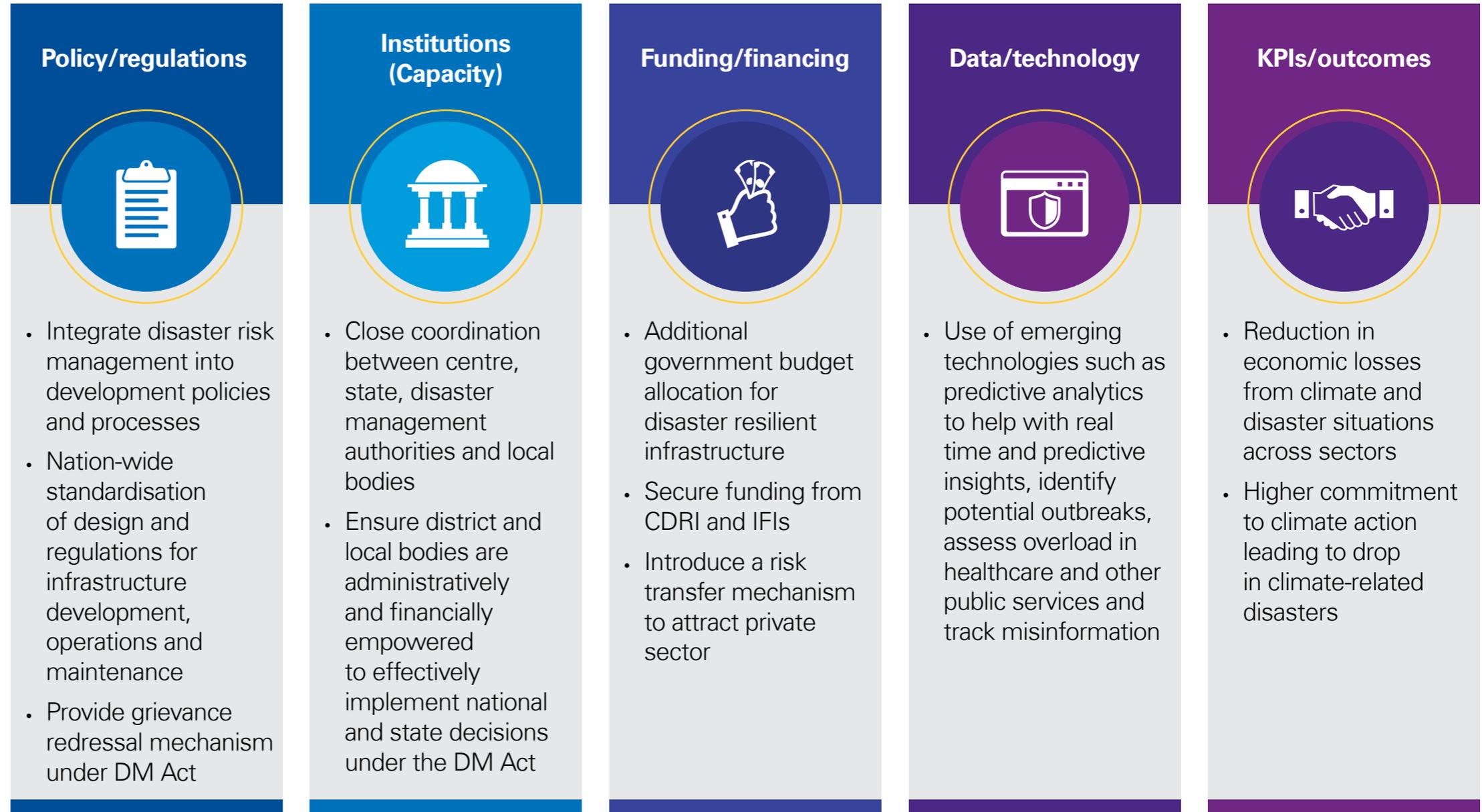
15. COVID-19: A Perspective of a Disaster Management Professional, eMediHealth, 07 April 2020

Building blocks of success

Presence of guidelines, national standards, model bidding documents, standard procedures and design considerations for disaster resilient infrastructure and mandatory compliance with such norms (taking cues from the mandatory implementation framework in other countries such as Japan) would help build the resilience of communities and settlements.

Going forward, public-private partnerships can help bridge gaps in information, investment and technical support required to address nationwide concerns, including natural disasters and pandemics.

Robust policies and cross-sectoral coordination could create sustainable, resilient solutions to help prevent and mitigate pandemics, reduce social suffering, facilitate business continuity, support resilience, guarantee income and employment to citizens and contribute to faster economic recovery.



Source: CRISIL Research, Accessed on 16 April 2020 | India, Global Facility for Disaster Reduction and Recover, 2019

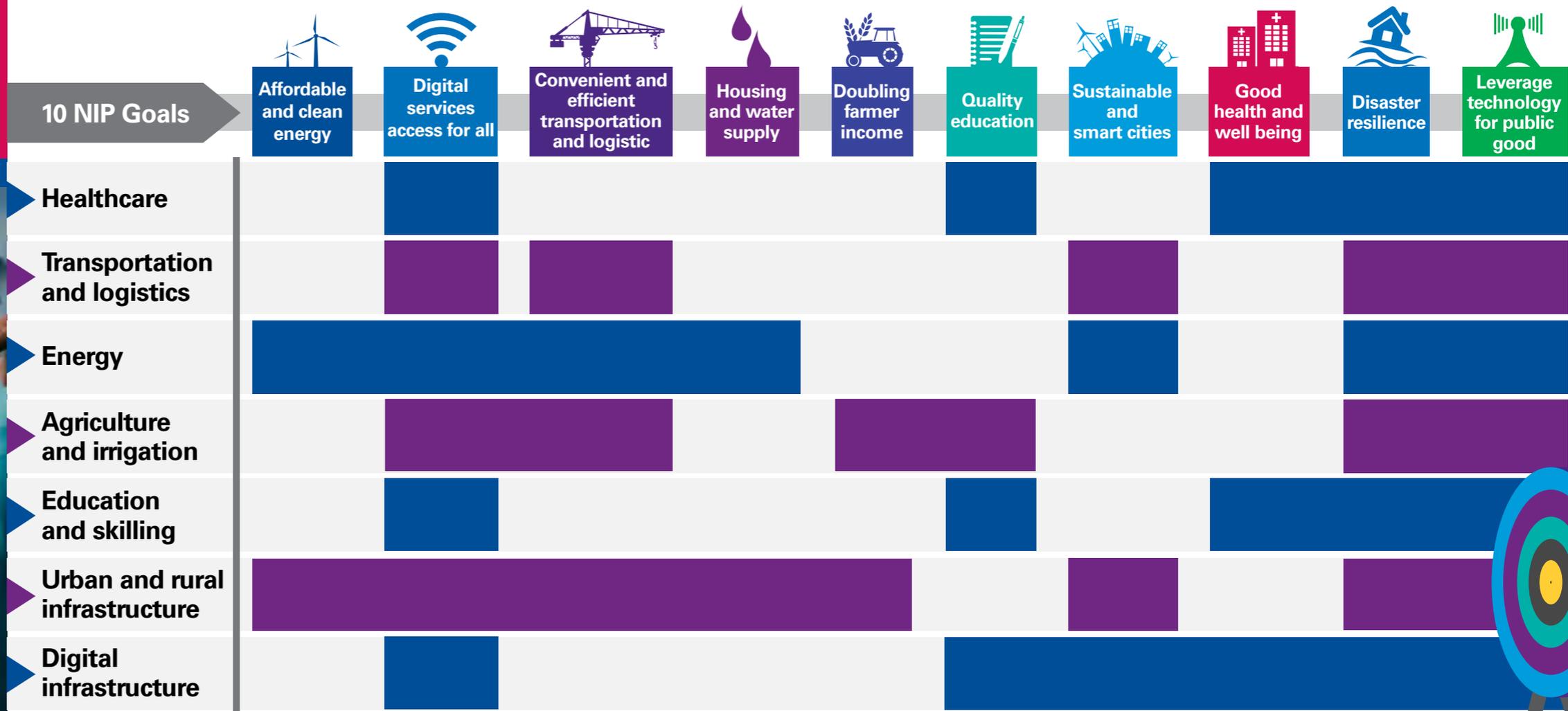
Interdependencies in the NIP

It should be noted that the sectors listed under the NIP and the goals set out in Infrastructure Vision 2025 cannot be viewed in isolation but rather need to

align to achieve the target of USD5 trillion economy. This will entail an integrated approach along with necessary support from policy. Projects across multiple sectors

can only be executed in parallel when there is collaboration across ministries, industry stakeholders and user groups.

Urbanisation collaboration requirement



With the COVID-19 scenario in the country continuing to evolve, the Indian government has taken up a dynamic approach to address the associated issues with the

most recent response being the USD266 billion (INR20 trillion)¹ COVID-19 stimulus package.

Termed as the 'AtmaNirbhar Bharat

Abhiyan', the package is expected to serve the dual purpose of paving the path towards recovery and enabling the economy to cope with the evolving business conditions in the post COVID-19 world.

Five key pillars of a self-reliant India



Source: AtmaNirbhar Bharat Abhiyan, KPMG, 13 May 2020

One of the key pillars identified building modern infrastructure and also ties into the Infrastructure Vision 2025 and the NIP outlined in April 2020.

Key measures announced

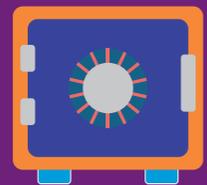
Tranche	Focus	Measures	Implications
 1 (INR5.9 trillion)	Liquidity infusion	Discoms <ul style="list-style-type: none"> • INR900 billion liquidity infusion against receivables • State guarantees to loans for discharging liabilities to power generating firms 	<ul style="list-style-type: none"> • Much-needed initiative, especially as the weak finances of DISCOMS and the unprecedented cashflow problems that they face affect their payments to power generating firms • Cash flow constraints eased • Relief to real estate developers fearing stalled projects and muted demand
		Real estate <ul style="list-style-type: none"> • Extension of up to six months (without costs to contractor) to construction/works by all Central Agencies • Extension for projects under RERA 	

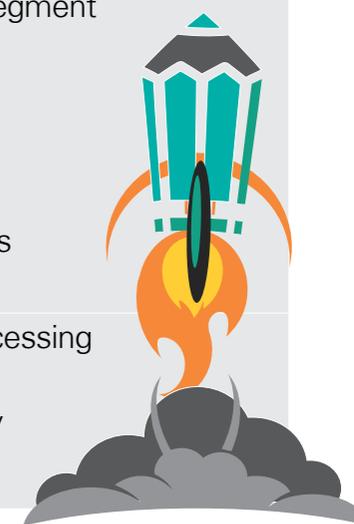
Source: KPMG in India analysis 2020

1. AtmaNirbhar Bharat Abhiyan, KPMG, 13 May 2020 KPMG in India analysis 2020



Key measures announced

Tranche	Focus	Measures	Implications
 <p>2 (INR3.1 trillion)</p>	<p>Migrant workers, street vendors, self-employed people, small traders and farmers</p>	<p>Migrants</p> <ul style="list-style-type: none"> • INR35 billion set aside for free food grains supply for migrant workers • Introduction of One Nation One Ration card, 100 per cent national portability and full automation of FPS (Fair Price Shop) will be achieved by FY21 • Scheme to be launched under PMAY to provide affordable rental homes for migrant workers and urban poor <p>Housing</p> <ul style="list-style-type: none"> • Extension of Credit Linked Subsidy Scheme (CLSS) up to March 2021 <p>Small and marginal farmers</p> <ul style="list-style-type: none"> • INR300 billion additional liquidity through NABARD for crop loans • INR2 trillion credit boost through Kisan Credit Cards 	<ul style="list-style-type: none"> • Around 8 crores migrant workers to benefit; non cardholders will also be covered • Extensive use of technology to enable migrant workers to buy ration across anywhere in the country • Provides ease of living at affordable rent to migrant workers and urban poor paying a sizeable part of their income as rent <ul style="list-style-type: none"> • At least 0.25 million middle income (annual income: INR0.6-1.8 million) families will benefit during 2020-21 <ul style="list-style-type: none"> • To benefit 300 million farmers, support for post-harvest Rabi activities and prepare for Kharif season • 2.5 crore farmers to benefit via institutional credit at concessional interest rate
 <p>3 (INR1.5 trillion)</p>	<p>Agri-culture sector and its allied activities</p>	<p>Strengthening infrastructure, increasing capacities</p> <ul style="list-style-type: none"> • Boost to farmgate infrastructure • Formalisation of Micro Food Enterprises (MFE) • Pradhan Mantri Matsya Sampada Yojana (PMMSY) • Promotion of herbal cultivation • Animal Husbandry Infrastructure Development Fund • Beekeeping initiatives • Extending 'Operation Greens' initiative to all fruits and vegetables for six months as pilot <p>Governance and administrative reforms</p> <ul style="list-style-type: none"> • Amendments to Essential Commodities Act and marketing reforms • Agriculture produce price and quality assurance 	<ul style="list-style-type: none"> • Attract much needed private investments • Around 0.2 million MFEs to benefit • Increase production of fish and employment in fisheries segment • Income generation worth INR50 billion for farmers • Facilitating investments in dairy processing and cattle feed infrastructure • Increase in income for 0.2 million beekeepers • Reduced wastages, affordability of products for consumers <ul style="list-style-type: none"> • Better price realisation for farmers and growth in food processing industry • Better visibility, quality standards and investment capability into agri-inputs



Key measures announced

Tranche	Focus	Measures	Implications
 <p>4 and 5 (INR0.48 trillion for both tranches 4 and 5)</p>	Structural reforms across sectors	<ul style="list-style-type: none"> Reforms in coal and mining sectors Efficient airspace management, more world-class airports through PPP model, MRO reforms New tariff policy to be released and power departments/utilities in UTs to be privatised 	<ul style="list-style-type: none"> Sustaining the competitiveness of domestic coal and mineral sectors Total benefit of INR10 billion per year for the aviation sector and INR130 billion private investment Long term benefits to consumers and attract private investments
	Policy measures	<p>Social infrastructure</p> <ul style="list-style-type: none"> Quantum of Viability Gap Funding (VGF) enhanced upto 30 per cent each of total project cost <p>Atomic energy</p> <ul style="list-style-type: none"> PPP mode for research reactor to produce medical isotopes and facility to use irradiation technology for food preservation Linking start-up ecosystem to nuclear sector <ul style="list-style-type: none"> Additional allocation under MGNREGS Increased investments in Public Health PM eVIDYA, Manodarpan, National Foundational Literacy and Numeracy Mission and new national curriculum to be launched Further enhancement of Ease of Doing business New policy for public sector enterprises States' borrowing limits increased 	<ul style="list-style-type: none"> Boost to private sector investment in social infrastructure projects Promotes welfare through affordable treatment of cancer and other diseases and compliments agricultural reforms to assist farmers Synergy between research facilities and tech-entrepreneurs Job opportunities for returning migrant workers Improved healthcare access Digitalisation of the education sector Allows companies to access a larger pool of capital Radical transformation of the investment landscape and minimised admin costs Extra resources of INR4.28 trillion for states 

The fiscal stimulus package is well targeted and well timed. However, the realisation of potential benefits will be contingent on effective collaboration among Central Government and State Governments to enable investments from private sector participants. Additionally, leveraging digital technology will be crucial to ensure effective 'on-ground' implementation and monitoring

performance. Overall, it focuses not only on addressing today's crisis but also creating a roadmap for future growth.

Furthermore, given the economic disruption, unconventional sources of financing along with steps like deficit financing might need to be explored, especially as fiscal deficit is expected to widen sharply.

As India continues to pursue COVID-19 strategies, it needs to focus not only on short-term relief but also on the measures that will help the country to be successful and self-reliant over the long term. Planning and investing in vital infrastructure projects would help the nation accomplish both goals.

Developing the NIP remains pivotal

The way forward



Building resilient infrastructure systems is paramount, with a focus on sustainable growth

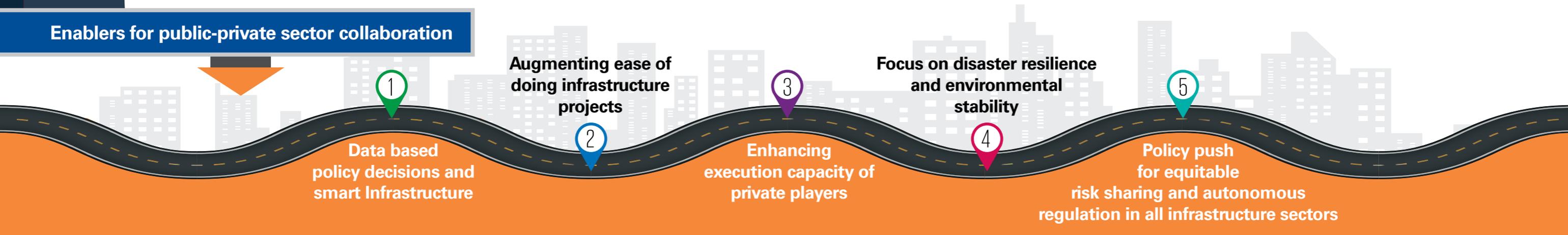
India has dealt with natural disasters such as floods or cyclones, but this is the first time that an outbreak of this magnitude has wreaked havoc on an unprecedented scale. The government plans to place adequate thrust on the Make in India initiative and the NIP to help the country become self-reliant and build resilient infrastructure systems to counter future outbreaks.

In addition to increased focus on infrastructure spending, there is a growing need to transition towards smart and sustainable development. This includes providing clean energy to households, building solar farms and leveraging

latest technologies in order to tackle air pollution. Using green building materials and integrating digital infrastructure will integrate the social, economic and ecological dimensions of development in the country.

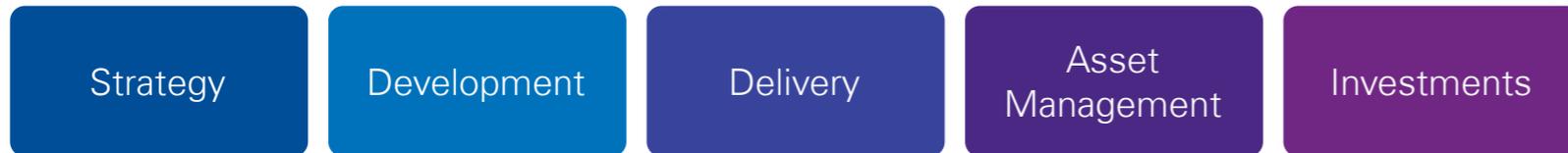
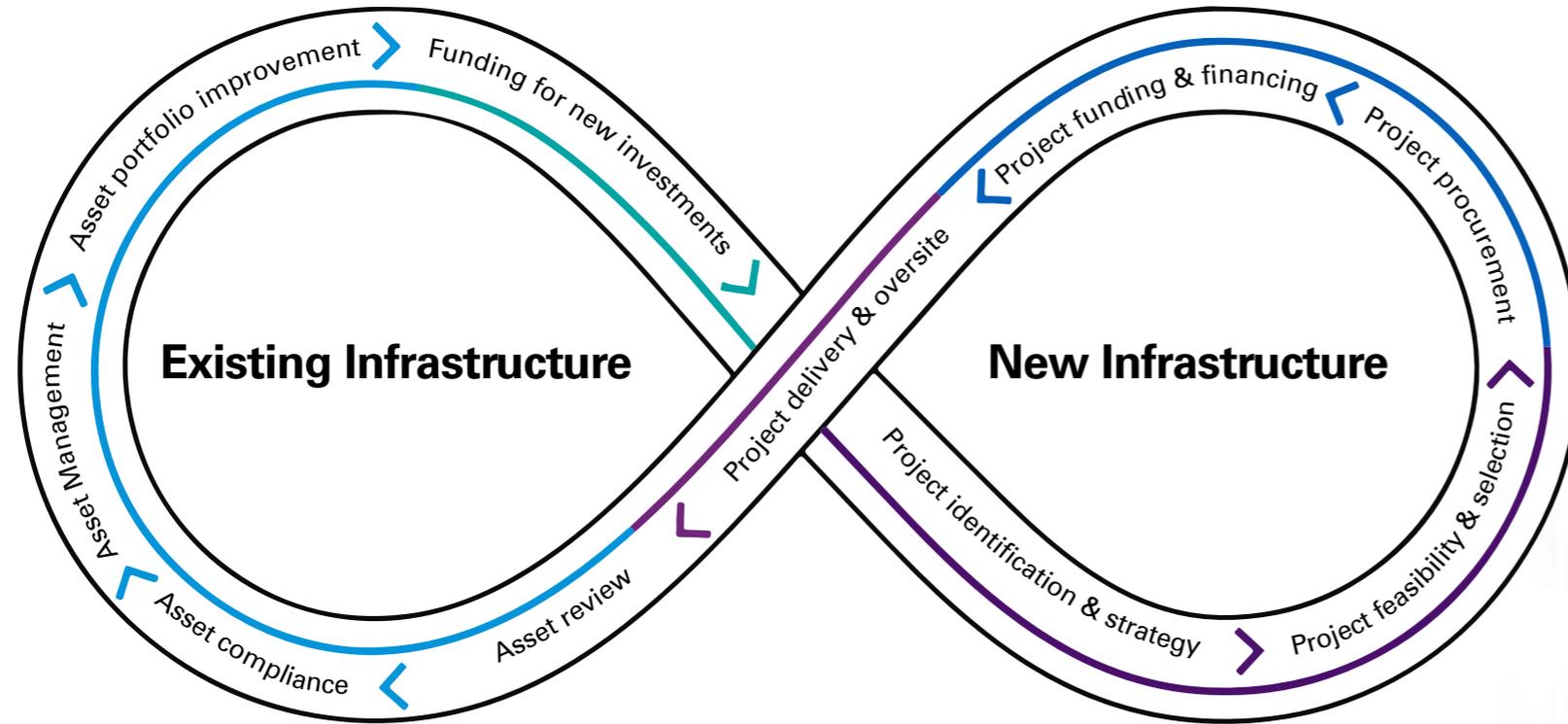
Participation and collaboration between the public and private sectors is essential. The private sector has contributed significantly to the pandemic response through innovation and its expertise in Industry 4.0 will be critical to build next-generation infrastructure. Alongside this, the Government has an enabling role to play in creating policy and regulatory certainty. In going forward in securing economic recovery, there's a need to build on the opportunity and take stock of the NIP, align these with Ministerial policy and deliver through technical expertise in delivering projects.

Enablers for public-private sector collaboration



Asset Lifecycle

KPMG's global infrastructure offerings across the asset lifecycle



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