



Impact Report | 2021

INDIA



Foreword

On behalf of all my colleagues at ThomasLloyd, I am very pleased to present here the 2021 edition of our India Impact Report. It describes the social, economic and environmental impact of the investments we have made in renewable energy in the Indian Subcontinent.

As an impact investor, we set out deliberately and intentionally to have a positive social and environmental impact through our investments and we are committed to regularly measuring and reporting this performance. In so doing, we fully comply with the disclosure requirements defined under Article 9 of the EU Sustainable Finance Disclosure and the LuxFlag Environmental label.

Measuring impact is neither an art, nor a science, and requires a carefully considered blend of qualitative and quantitative metrics to judge the ‘additionality’ of an investment; the extent to which it has brought about change – both positive and negative – which would not otherwise have occurred.

It follows from this that impact must necessarily involve the injection of new money into the economy. In this important respect, the development of real assets is crucially different to the trading of financial assets. The former provides new funds, creates real jobs and builds new infrastructure. The latter merely changes the ownership of a share certificate; with no new money for investment and no effect on employment, economic growth or wider social and environmental outcomes.

We cannot state often enough this fundamental difference between real assets and financial assets. Indeed, it may be no exaggeration to say that investors are currently being seriously misled by the aggregators and promoters of purely financial assets who sell so-called ‘sustainable’ investment products on the basis of questionable claims about their social and environmental effects.

Our Impact Reports, instead, draw on real-life experience and evidence. As developers of sustainable infrastructure assets and in conjunction with our trusted local partners, we have access to proprietary information on employment, salaries, human resource policies and health & safety records, which

allows us to show the real-world impact of our investment spending. We can account for every dollar or rupee spent, and though disclosure is necessarily constrained by commercial confidentiality, we are happy to evidence and share information on employment at project level.

At ThomasLloyd, we have consistently demonstrated our commitment to India’s economic, social and environmental welfare and are proud to help realise its ambitious future goals for the transformation of its energy supply which is vital for future development.

We believe strongly that the key to delivering impact is creating jobs. Employment brings income, security, responsibility and dignity. It brings family stability and fosters respect for institutions and justice. The development of infrastructure is both capital and labour-intensive. It requires a lot of money and creates a lot of jobs, multiplied well beyond the initial project investment. A dollar earned is a dollar then spent many times over. In addition to jobs, infrastructure spending also creates tax revenues: land value tax, corporation tax, payroll tax and sales tax. These tax revenues, in turn, help pay for improved public services: improved sanitation, better roads, housing and improved outcomes for health, education and social welfare.

This report evidences the 2190 jobs created during the construction phase of the completed solar sites (300 at Telengana I and II, 800 at Karnataka I and II, 700 at Maharashtra and 390 at Uttar Pradesh). It also shows the 261 full-time staff employed during the operational phase of the plants.

Our position as an owner and partner gives us a unique insight. We have always known that our investment would make a real difference to the quality of life through employment and clean energy. I am proud on behalf of all the team at ThomasLloyd once again to present this impact here.



NICK PARSONS F.R.S.A.
Head of Research and ESG Policy

Executive Summary

As the world continues to recover from the devastating impact of the COVID pandemic, we have seen how individuals, families, businesses and governments want not just a return of economic growth, but a model of growth which promotes resilience and security and which prioritises stewardship of the natural environment.

Investors, too, have become much more discerning. Of course, they want a decent return on capital, but this must not come at the expense of the planet, nor of the ability of future generations to share the fruits of prosperity. They want their money to be invested where it makes a positive and measureable difference and to avoid industries, technologies and sectors which contribute to global warming, poor health outcomes, income inequalities or the restriction of political freedoms.

With global equity markets at historically stretched valuations and with still more than USD12tn of negative-yielding bonds, the investment model of the past must adapt to the changing needs of the future. Real assets in the private market, uncorrelated with indices of listed securities, offer genuine portfolio diversification and attractive long-term returns.

At ThomasLloyd, it is our commitment to real economic development and the creation of new and sustainable infrastructure which differentiates us from traditional equity and fixed income investors. Developing long-term real assets with reliable long-term revenue streams is an integral feature of our own investment strategy. It is deliberate and carefully planned; respectful of environmental responsibilities, and delivering improved health and welfare outcomes.

As an impact investor, we set out deliberately and intentionally to have a positive social and environmental impact through our investments. We are committed to regularly measuring and reporting this performance. In so doing, we fully comply with the disclosure requirements defined under Article 9 of the EU Sustainable Finance Disclosure and the LuxFlag Environmental label.

Measuring impact is neither an art, nor a science, and requires a carefully considered blend of qualitative and quantitative metrics to judge the 'additionality' of an investment; the extent to which it has brought about change – both positive and negative – which would not otherwise have occurred. In line with SFDR, an investment must equally demonstrate that it has a positive impact, and that it does no harm.

By its very definition therefore, impact must necessarily involve the injection of new money into the economy. In this important respect, the development of real assets is crucially different to the trading of financial assets. The former provides new funds, creates real jobs and builds new infrastructure. The latter merely changes the ownership of a share certificate; with no new money for investment and no effect on employment, economic growth or wider social and environmental outcomes.

After first entering the Indian market in Autumn 2018 and subsequently and having subsequently delivered almost USD250m of capital expenditure, ThomasLloyd has demonstrated its commitment to the environmental, social and economic welfare of a country which has ambitious goals for the development and transformation of its energy supply. We have a wide range of proprietary data on employment, salaries and associated spending and can account for every dollar, cent or rupee of project expenditure from the day the first shovel hit the ground to the day our renewable energy plants were connected to the grid and provided energy to power the country.

In this India 2021 Impact Report, we evidence the impact of our investments in renewable energy. We analyse the direct and indirect impacts of the renewable energy projects, and how they have helped contribute to job creation, environmental protection, CO₂ reduction and the achievement of the United Nations seventeen Sustainable Development Goals (SDG's). We examine the substantial progress which India has made in reducing its dependency on fossil fuels and how the challenges of rapid demographic change and urbanisation are driving the government's ambitious targets for grid-connected solar power.

India is the world's second largest country by population with more than 1.3bn people. The United Nations estimates the population will increase by almost 300m over the next 25 years and in 2028 it will overtake China to become the world's most populous nation. Approximately one in every six people on earth lives in India.

The huge growth in population, along with continued urbanisation, has required significant expansion of energy supply. Figures from the Central Electricity Authority show that total installed power capacity in India as at the end of financial year 2020–21 amounted to just over 382 GW; a figure which has increased almost four-fold since 2000.

Over the past five years, enormous investment has been seen in the solar sector. Total installed capacity has risen from 2.6 GW in 2014 to 34.6 GW at the end of 2020. According to the Ministry of New and Renewable Energy (MNRE), India has grid connected 83.4 GW of renewable technologies-based electricity capacity and now targets an enormous 280 GW by 2030.

ThomasLloyd's local development partner in India is the Delhi-based SolarArise India Projects Pvt Ltd. The Company is referred to in the Report as SolarArise, and at end-January 2021 it owns and operates approximately 235 MW of grid-connected solar power projects at six sites in India: Telangana I and II, Maharashtra I and Karnataka I and II and Uttar Pradesh. It is now constructing a further 200 MW solar project in Madhya Pradesh. ThomasLloyd first invested in SolarArise in December 2018, and is now the largest shareholder in the Company. In total, the power supplied reaches over 309,000 people. The completion of Madhya Pradesh will bring another 200 MW of

grid-connected solar power and extend the reach to a further 256,000 people.

India has no system of local or municipal property taxes and there is no hypothecation of revenues from renewable energy development or generation. Drawing a direct link between corporation or income taxes and increased spending at the local government level – as we have previously done in the Philippines, for example – is therefore not possible.

To evidence and quantify 'Impact', we therefore focus on the direct and indirect employment effects, and use internationally accepted conventions on CO₂ mitigation and the mapping of socio-economic outcomes to the United Nations' seventeen Sustainable Development Goals (SDG's).

Using very conservative estimates, we assume a 2–4 times increase in local employment in the year period since construction began which comes in addition to the direct employment in the construction and operation of the solar plants.

This report evidences the the 2190 jobs created during the construction phase of the completed solar sites (300 at Telengana I and II, 800 at Karnataka I and II, 700 at Maharashtra and 390 at Uttar Pradesh).

The operational phase then requires ongoing full-time employees. Numbers vary according to the size and specificities of each plant, but average around 41 FTE at each site – engineers, technicians and security guards – plus 20 in head office accounting/purchasing/HR and admin functions and 10 management staff across the sites; a total of at least 490 direct jobs. Applying a very low multiplier of just 2–4 times would give a permanent total boost to full-time employment between 980–1960 jobs.

The operational phase then requires ongoing full-time employees. Numbers vary according to the size and specificities of each plant, but average around 39 FTE at each site – engineers, technicians and security guards plus accounting/purchasing/HR and admin functions – and 28 management staff across the sites; a total of at least 261 direct jobs. Applying a very low multiplier of just 2–4 times would give a permanent total boost to full-time employment between 522–1044 jobs.

Seventeen Sustainable Development Goals (SDGs) were introduced at the United Nations Conference on Sustainable Development in Rio de Janeiro in 2012. The objective was to produce a set of universal goals that met the urgent environmental, political and economic challenges facing the world. Our India Impact Report shows how our investments map across to all the SDG's but in particular, numbers 7, 8, 11 and 13: Affordable & Clean Energy, Decent Work & Economic Growth, Sustainable Cities & Communities and Climate Action.

The solar plants in which ThomasLloyd has already invested, and the future developments to which it intends to commit further capital, will help reverse the degradation of air quality and improve lives both locally and nationally. The cumulative impact is substantial, creating well-paid jobs in otherwise impoverished regions, directly supporting philanthropic projects in areas local to the solar plants and offering education, training and healthcare facilities to boost skills and livelihoods.

The right kind of growth in a post-COVID world involves building safe and secure communities, enhancing human capital and growing businesses whilst preserving traditional values. It requires also the right kind of energy – renewable, sustainable and local.

Our vision of sustainable development is growth where all stakeholders benefit and everyone is better off. This is ThomasLloyd's 'triple return' – social, environmental and financial – and the growth of renewable energy in India helps secure its potential for current and future generations.



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Introduction

Raising money from a broad range of investors across Europe and the world, ThomasLloyd invests exclusively in the fast-growing countries of Asia where the deployment of investment capital makes the greatest difference.

Whilst the G7 nations collectively grew by 40% over the last 20 years, the 30 countries which together comprise 'Emerging & Developing Asia' expanded by an astonishing 325%; more than quadrupling their GDP over the period.

Economic growth and the rapidly increasing urbanised populations across the Asian continent have boosted demand for energy and electricity across the region, but this economic growth has not been without environmental cost. With almost 60% of the world's population and a 'carbon cost of GDP' more than four times greater than the largest countries in Europe, the problem of CO₂ emissions requires urgent solutions in order to mitigate climate change.

With more than 1.3 billion people, and the world's sixth largest economy, India now plays a pivotal role in Asia's energy transition; shifting from dependence on fossil fuels to harness, instead, its abundant solar resources. Visionary government policies have driven the installation of more than 94 GW of renewable energy capacity (excluding large-scale hydropower) with solar accounting for just over 40 GW and wind a further 39 GW. Taken together, these already account for 20% of total installed capacity and the government now targets 450 GW of renewable energy by 2030.

ThomasLloyd's local development partner in India is the Delhi-based SolarArise India Projects Pvt Ltd. The Company – hereafter referred to as SolarArise – currently owns and operates approximately 235 MW of grid-connected solar power projects and is constructing a further 200 MW solar project in Madhya Pradesh. ThomasLloyd first invested in SolarArise in December 2018, and is now the largest shareholder in the Company.

We have consistently demonstrated our commitment to India's economic, social and environmental welfare and are proud to help realise its ambitious future goals for the transformation of its energy supply which is vital for future development.

The right kind of growth in a post-COVID world involves building safe and secure communities, enhancing human capital and growing businesses whilst preserving traditional values. It requires also the right kind of energy – renewable, sustainable and local.

Our investment philosophy is ideally suited to help deliver this positive change:

- Realising sustainable value for investors and for the people and communities in which we operate.
- Building long-term sustainable businesses, which provide employment and economic growth in partnership with social transformation and environmental protection.

CURRENT PORTFOLIO

CAPACITY

434 MW

INVESTMENT VOLUME (CAPEX)

248.7 Million USD

PERFORMANCE

ELECTRICITY REACH

573,675 People

CO₂ AVOIDED

637,560 Tonnes p.a.

As of: 30/06/2021



Geography

India is the 7th largest country in the world, with a total land area of 3,287,263km²; more than 13 times larger than the United Kingdom and 9 times larger than Germany.

The land of India – together with Bangladesh, Nepal, Bhutan and most of Pakistan – forms a well-defined subcontinent, separated from the rest of Asia by the imposing northern mountain range of the Himalayas and by adjoining mountain ranges to the west and east.

Due to its vast land area, India's climate varies across different regions. Most parts of the country experience a hot, tropical climate. To the north, near the Himalayas, the alpine tundra is cooler, while it has a desert climate to the west of the country. India has four seasons: winter (January and February), summer (March to May), monsoon season (June to September) and post-monsoon season (October to December).

The monsoon period can vary by several weeks; not only from one region of India to another, but also from year-to-year. The wet season occurs from early-June to late-September, causing heavy rainfall and often widespread flooding. Around

three-quarters of the country's annual rainfall comes during these three months. Temperatures are generally warmest in May or June, just prior to the cooling monsoon rains, and the country can be prone to deadly heatwaves.

Almost 10% of the world's agricultural land is in India. The total cultivable area is 1,269,219 km² (56.78% of total land area), which is decreasing due to constant pressure from an ever-growing population and increased urbanization. India has a total water surface area of 360,400 km² and around 14,500 km of inland navigable waterways.

The substantial year-to-year variability of monsoon rain brings much uncertainty to India's agricultural sector. Good years of rain bring substantial crop yields, though poor rainfall can lead to total crop failure, especially in those areas where man-made irrigation is not well-developed.

Almost half of all Indians still derive their livelihood directly from agriculture and food crops account for more than 60% of the total area under cultivation. Rice is the main crop in areas with more than 1,000mm of average annual rainfall, as well

as in some irrigated areas. Wheat is grown mainly in northern and north-western parts of the country where average annual rainfall is between 380–1,000mm.

Around a quarter of India’s land is forested, although this figure is reducing rapidly as a result of population growth, agriculture, urbanisation and industrialisation. Moreover, some areas officially classified as forest have been over-exploited for timber and firewood and are little more than scrubland, with substantial amounts of woodland used for the production of charcoal.

India’s vast and varied geography gives it a huge variety of mineral resources and fossil fuel. Coal is abundant and relatively easy to mine and the country is the world’s second-largest producer behind only China. Virtually all of India’s petroleum comes from the offshore Bombay High Field as well as Gujarat and Assam but it produces only a small proportion of its domestic needs. There are huge deposits of minerals such as iron ore, manganese and chromite along with copper, bauxite, zinc, lead, gold and silver. Non-metallic and non-fuel minerals include limestone, dolomite, rock phosphate, building stones, ceramic clays, mica, gypsum, fluor spar, magnesite, graphite, and diamonds.

The country’s other great natural resource – and which is key to our investment and development – is abundant and powerful

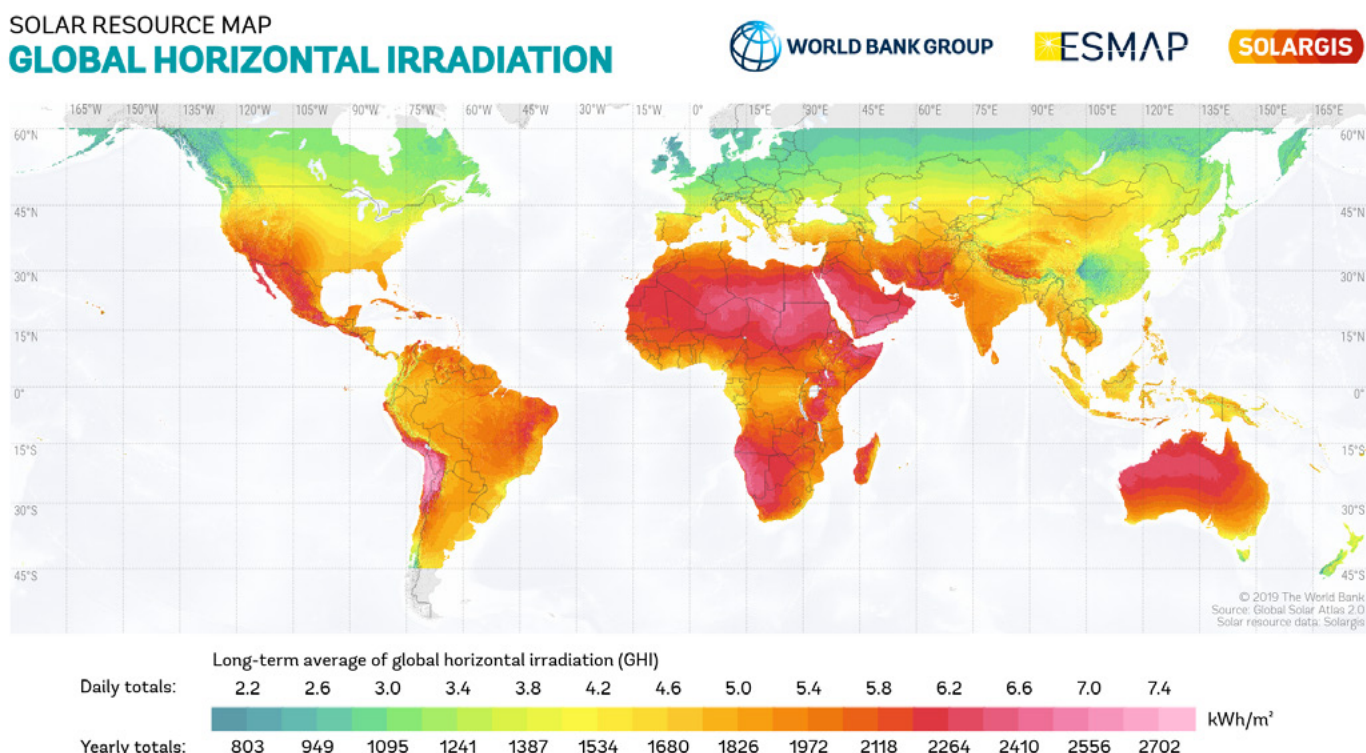
sunshine. There are different ways of measuring solar irradiance, but our preferred analysis is that from SolarGis and their measure of Global-Horizontal radiation. This shows clearly and accurately the amount of solar energy which is available at a given time and location anywhere in the country and predicts the potential future availability of solar energy based on past conditions and experience.

Solar irradiance is the power per unit area received from the sun in the form of electromagnetic radiation. Global Horizontal Irradiance (GHI) at any particular location on earth fluctuates seasonally according to the angle of the sun and the earth’s orbit around it.

To make meaningful comparisons across geographies, measurements are often expressed as either the long-term average daily or annual sum of kWh per square metre. The most plentiful solar irradiance in India is found in the Northwest and Central South of the country where the annual total can be as high as 2,000–2,100 kWh/m². To place this in a European context, Northern and Central Europe average around 850–1,000 kWh/m² per annum whilst the comparable measure for Southern Europe is 1,600–1,700 kWh/m².

It is this power and stability of solar irradiance, which help build the foundations of India’s future energy security.

Solar Resource Map – Global Horizontal Irradiation



This map is published by the World Bank Group, funded by ESMAP, and prepared by Solargis. For more information and terms of use, please visit <http://globalsolaratlas.info>.

Source: © 2019 The World Bank, Source: Global Solar Atlas 2.0, Solar resource data: Solargis



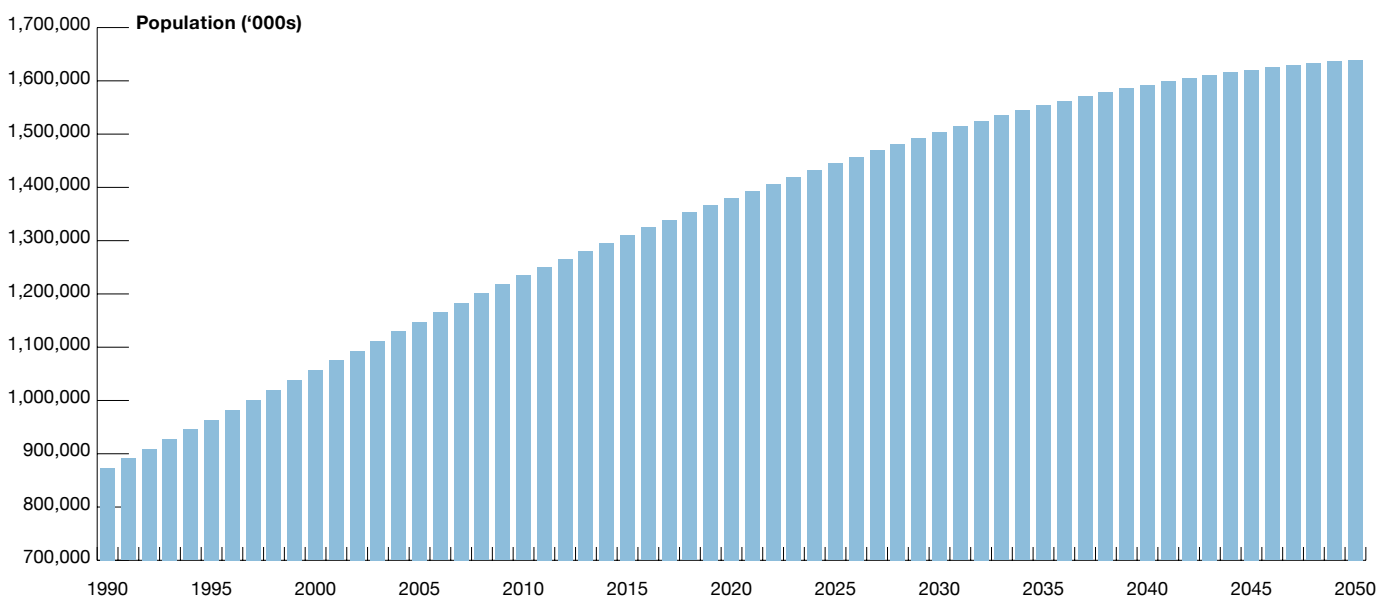
Demographics

India is the world's second largest country by population with more than 1.3bn people. The United Nations estimates the population will increase by more than 300m over the next 25 years and in 2028 it is projected to overtake China to become the world's most populous nation.

The population is quite young, with a median age of just 27.6 years of which male is 26.9 years and female is 28.3 years. Average life expectancy is around 68.3 years and is ranked 125th in the world according to the World Health Organisation. The birth rate for every 1,000 of the population is 19.3 and the death rate for every 1,000 of the population is 7.3.

India has a total of 40 cities that each has a population exceeding one million residents. Of these cities, two have populations that exceed 10 million. Delhi, the national capital, is the largest city both by area and population (19.8m) in North India. Mumbai, the financial capital, is the most populous (23.1m) and also the wealthiest city in India. Bengaluru (13.9m), formerly known as Bangalore, and Chennai (11.1m), formerly known as Madras, are the largest cities in South India. Kolkata (15.3m), the cultural capital, is the largest city in East India whilst Hyderabad has more than 13m people.

India's population forecast to increase by almost 300mn over next 25 years



Source: United Nations Population Division

India

a federal republic with **28 states** and **8 union territories**

Delhi, the national capital, is the largest city both by area and population (19.8m) in North India.

Delhi

Population (millions)
2011 16.75
2019 19.86
2050 36.16

The country has a total of 40 cities that each has a population exceeding one million residents. Of these cities, six have populations that exceed 10 million.

The largest of the states

Rajasthan

342,238 km²
an area only 15,000 km² smaller than Germany

Kolkata (15.3m), the cultural capital, is the largest city in East India

Kolkata

Population (millions)
2011 14.11
2019 15.32
2050 33.04

The second largest state

Madhya Pradesh

308,350 km²
slightly larger than Italy

The third largest state

Maharashtra

307,713 km²
slightly larger than Italy

Mumbai, the financial capital, is the most populous (23.1m) and also the wealthiest city in India

Mumbai

Population (millions)
2011 12.48
2019 23.06
2050 42.40

Hyderabad

Population (millions)
2011 6.81
2019 13.97
2050 14.61

Bengaluru (13.9m), formerly known as Bangalore, and Chennai (11.1m), formerly known as Madras, are the largest cities in South India.

Bengaluru

Population (millions)
2011 8.43
2019 13.96
2050 15.62

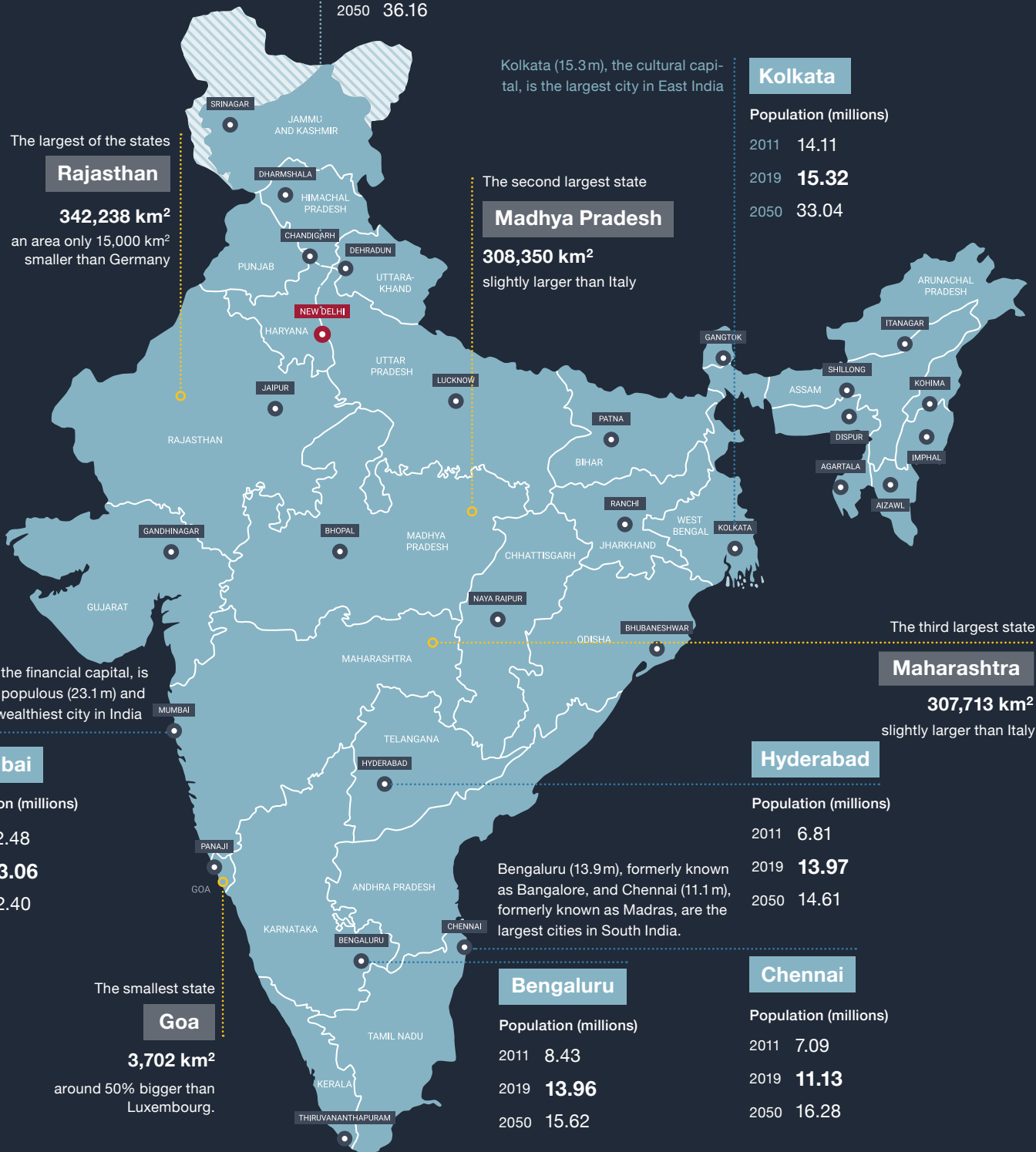
Chennai

Population (millions)
2011 7.09
2019 11.13
2050 16.28

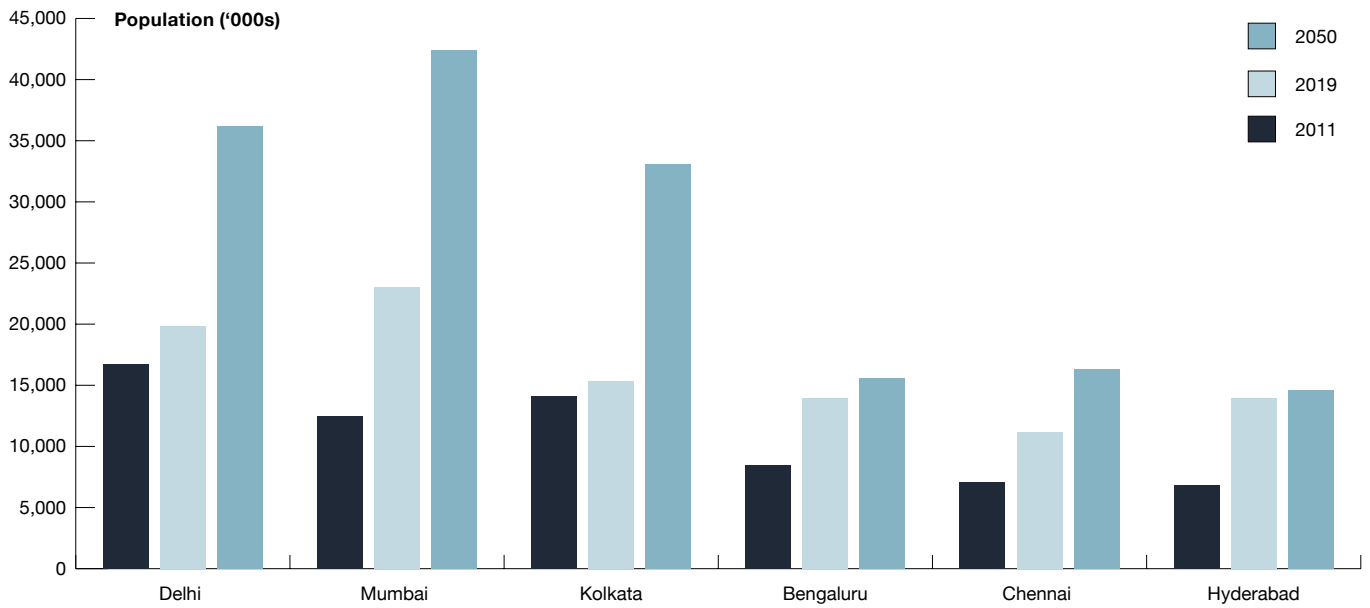
The smallest state

Goa

3,702 km²
around 50% bigger than Luxembourg.



Projected growth in India's mega-cities



Source: Hornweg & Pope – Population Projections 2050

The country also has many smaller but still very populated cities, including 397 with between 100,000 and 1 million people, and 2,483 cities with populations between 10,000 and 100,000. The overall urban population rate is around 32.7% whilst just over 67% are in rural areas. This is down from 82% in the early 1960's but the decline has not been as dramatic as in many Asian countries.

According to the country's 2011 Census, the population density of India stands at roughly 368 people per km². At present, India is comprised of 28 states and 8 union territories, with their respective population densities varying significantly. With a population density of 1,106 people per km², Bihar is the most densely populated state in India. The National Capital Territory

of Delhi – or Delhi as it is commonly known – is a union territory of India and home to the country's capital. Delhi's population density stood at 11,320 people per km² as of 2011, roughly 31x the country average.

Increased rural to urban migration and endogenous population increase will result in further growth in many cities across India. By 2050 the country is expected to have increased its tally of megacities to 8, and by 2100 it is projected to have 12. Existing megacities are also predicted to continue to grow in size. Delhi will increase by nearly 16 million by 2050, whilst Mumbai is set to grow by almost 20 million to become the world's most populous city by 2050. Another current megacity, Kolkata is projected to more than double in size, from 15 to 33 million.

Economy

At the start of this millennium, India's annual GDP stood at just \$466,841m; less than one-third the size of the French economy whose GDP was \$1,502,245m and the United Kingdom with \$1,652,539m. Its economy was barely one-fifth the size of Germany which was then the world's third largest with a GDP of \$2,202,845m. In 2000, India was not even amongst the world's top 10 economies. Its annual GDP at that time was lower than Mexico, Spain and South Korea and it was only the 13th largest in the world.

In the first 8 years of the new century, India's economic growth accelerated from the 5.4% annual average of the previous decade; boosted by the rapid growth in the world economy and plentiful liquidity which helped lift previously-shunned emerging markets around the globe. There was a rapid increase in the rate of investment, financed by high credit growth and a surge in capital flows and bank lending. The average rate of GDP growth accelerated to 8.8%.

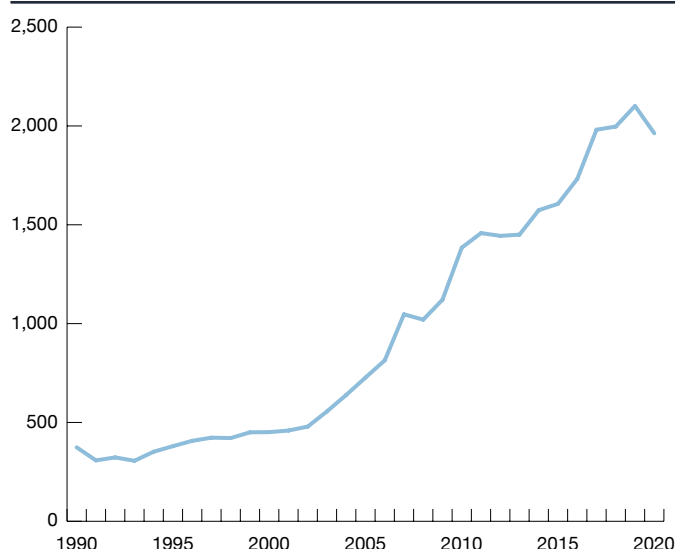
After the Global Financial Crisis (GFC) in 2008-09, growth continued at a somewhat more moderate pace, in part due to tighter global liquidity conditions and in part also due to a slowdown in domestic credit creation resulting from a high level of bad debts within the banking sector. Between 2011 and 2020, Indian GDP has nonetheless expanded at an average annual pace of 5.1% and its growth compares very well against other countries in Asia, in fourth place only to China, Bangladesh and Vietnam.

After the country's Election in 2019, growth began to slow. The country's annual rate of GDP growth fell to just 4%; the slowest pace since 2002 and exactly half the rate of growth seen just four years prior. Weakness in the rural economy, a deceleration of private consumption and credit supply constraints from non-banking financial companies (NBFC's) were largely responsible for this slowdown, whilst the country was by no means immune to global uncertainties relating to trade, tariffs and economic activity.

India's GDP growth was further hit by the COVID-19 pandemic in 2020 and actually contracted for the first time in 40 years, with a -8.0% annual drop. However, the IMF forecasts growth will rebound to 9.5% in 2021 and average 6.7% per annum for each of the next five years 2022–26.

In the space of less than 20 years, India overtook Mexico, Spain, South Korea, Brazil, Canada, Italy, France and the United Kingdom to be at the end of 2019 the fifth largest economy in the world after Germany. The UK has since regained its spot as the fifth largest economy, with India falling down one spot to sixth. Due to its huge and rapidly growing population, per capita GDP numbers are still low by international standards. For sure, average annual incomes per head have risen more than four-fold over the period from \$432 to \$1,963 but this is less than a quarter of China's average and only one-twentieth of the comparable G7 number.

Per capita GDP of India (annual USD)



Source: International Monetary Fund

Economic growth in selected Asian countries (annual % change)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Bangladesh	6,5	6,5	6,0	6,1	6,6	7,1	7,3	7,9	8,2	3,8
China	9,5	7,9	7,8	7,4	7,0	6,9	6,9	6,7	5,8	2,3
India	6,6	5,5	6,4	7,4	8,0	8,3	6,8	6,5	4,0	-8,0
Indonesia	6,2	6,0	5,6	5,0	4,9	5,0	5,1	5,2	5,0	-2,1
Malaysia	5,3	5,5	4,7	6,0	5,0	4,5	5,8	4,8	4,3	-5,6
Philippines	3,9	6,9	6,8	6,3	6,3	7,1	6,9	6,3	6,0	-9,5
Sri Lanka	8,4	9,1	3,4	5,0	5,0	4,5	3,6	3,3	2,3	-3,6
Thailand	0,8	7,2	2,7	1,0	3,1	3,4	4,2	4,2	2,3	-6,1
Vietnam	6,4	5,5	5,6	6,4	7,0	6,7	6,9	7,1	7,0	2,9

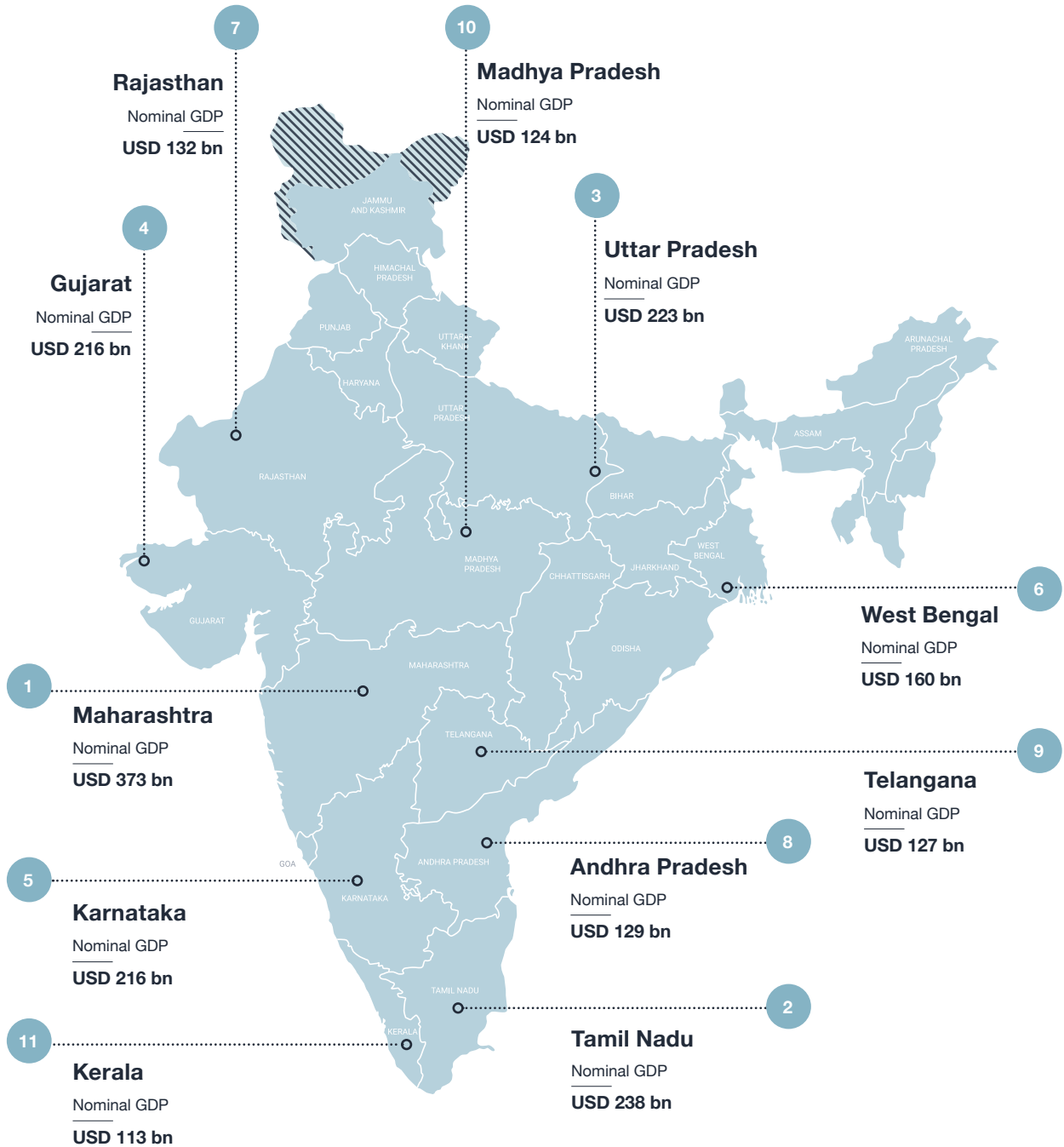
Source: IMF World Economic Outlook

Economic ranking by State

Just as India's states vary by area and population, so too there is a great variance in GDP. Maharashtra leads the way with USD 373bn; around 70% higher than second place Tamil Nadu's USD 238bn, with Uttar Pradesh in third place at USD 225 bn.

On a per capita basis, the table is skewed significantly by population size, with Goa enjoying the highest net state domestic product per head. The Union Territories of Delhi, Chandigarh and Puducherry take three of the top 5 places whilst no state or Union Territory below 4th place on the list has a per capita GDP of more than USD 3,000.

Nominal and per capita GDP by State



Source: India Ministry of Statistics and Programme Implementation



Infrastructure

India has traditionally developed significant expertise in engineering and has an extensive government bureaucracy. Combining these two great traditions, much of the country's infrastructure has been undertaken by government-managed construction agencies such as the Central Public Works Department, which was founded back in 1854. Most large-scale building activities – such as the construction of railroads, national and state highways, harbours, hydroelectric and irrigation projects, stadiums, auditoriums and government-owned factories and hotels – have been public sector projects, though in recent years the use of Public Private Partnerships (PPP's) has become more widespread.

The Indian Government recognises several types of PPP: the so-called Build-Operate-Transfer (BOT) model in which it engages a private sector entity to design and build infrastructure and to operate and maintain these facilities for a certain period, a BOOT contract where the private sector retains ownership of the asset, and Management & Maintenance contracts for infrastructure projects. The Department of Economic Affairs currently lists 1,824 PPP projects in its public database, albeit their track is somewhat mixed; whilst many road projects have done well, many power projects have not.

India's rail system, entirely government-owned and operated by the Ministry of Railways, has 126,366 kilometres of total track over a 67,956-kilometre route and is the fourth largest network in the world after the US, Russia and China. With a total workforce of 1.254 million people, it is the world's eighth largest employer. Indian Railways runs more than 13,000 passenger trains daily, on both long-distance and suburban routes, from 7,325 stations across the country. Measured by the distance

travelled each year by passengers it is the world's second most heavily used system, with 1,051 billion passenger-kilometres travelled per year. India's railway carried 8.086 billion passengers in 2019–20, down 4.2% on the year prior.

In addition to the national rail network, there are 13 rapid transit metro systems in India. The first of these opened in Kolkata in 1984, whilst the newest opened in Nagpur in 2019. The Delhi Metro is the largest in the country. With a total length of 347 kilometres and 229 stations, it is now the world's 11th longest metro system and 22nd largest by passenger usage although the number of daily passengers has decreased significantly since the emergence of COVID-19, falling 82.5% to approximately 1 million passengers per day. In an attempt to combat both pollution and congestion, the National Capital Region Planning Board (NCRPB) has identified eight Regional Rapid Transit System (RRTS) corridors, connecting various important towns in the NCR with high speed, mass commuter rail-based transit systems. The Delhi-Meerut corridor received government approval in 2019 and is scheduled for completion in 2025.

According to the Ministry of Roads, Transport & Highways, the total road-network is 6,215,797km; the second largest in the world although this total includes many narrow and unpaved roads. The country's road network has increased at a CAGR of 4.2% since 1951. The length of national highways in India increased from 70,934km in 2010–11 to 126,350km in 2017–18. At 1.89 km of roads per square kilometre of land, the quantitative density of India's road network is roughly equal to Germany; higher than that of Japan (0.91) and the United States (0.68), and far higher than that of China (0.49), Brazil (0.19) or Russia (0.09).

Civil aviation was nationalised in 1953 into two government-owned companies: Air India for major international routes from airports at New Delhi, Mumbai, Kolkata, and Chennai; and Indian Airlines for routes within India and neighbouring countries. The two companies merged in 2011. As a result of subsequent deregulation, IndiGo, Spicejet, Air India, GoAir and Vistara are now the major carriers in order of their market share. Jet Airways, meantime, has been grounded since April 2019, following financial difficulties resulting from aggressive price discounting across the sector. India is the third-largest civil aviation market in the world. It recorded air traffic of 341 million passengers in fiscal year 2019–20, of which 275 million were domestic passengers.

India has a coastline of 7,516 kilometres, forming one of the biggest peninsulas in the world. According to the Ministry of Ports, Shipping and Waterways, around 90 per cent of India's trading by volume and 70 per cent by value was done through maritime transport. India has 12 major ports with 200 notified minor and intermediate ports. There are also 7 shipyards under the control of the central government of India, 2 shipyards controlled by state governments, and 19 privately owned shipyards.

India also has an extensive network of inland waterways in the form of rivers and canals. The Inland Waterways Authority reports their total navigable length is 14,500km, of which about 5,200km of the rivers and 4,000km of canals can be used by mechanized crafts. Freight transportation by waterways is highly under-utilized in India compared to other large countries and geographic areas like the United States, China and the European Union. The total cargo moved by inland waterways is just 0.1 per cent of the total inland traffic in India, compared to 6.7% in the European Union.

The telecommunications sector has traditionally been dominated by the state although the industry underwent a high pace of market liberalisation in the 1990s and has now become one of the world's most competitive and fastest growing telecom markets with some of the lowest call charges available anywhere. As of end-May 2021, the Telecom Regulatory Authority of India reported a total of 1.199bn telephone subscribers, over a billion of whom were wireless customers. The number of broadband internet subscribers in India stood at 780.27 million.

For all its' impressive aggregate metrics, however, India ranks only number 70 of 141 countries for Infrastructure in the World Economic Forum's most recent Global Competitiveness Report. A detailed breakdown shows it ranks 39 for railroads, 49 for ports, 48 for roads and 59 for air transport. Indeed, its overall rank of 70 was down places on the previous year; a period in which its population increased by over 16 million people; almost the entire current population of the Netherlands.

Rapid population growth means the nation must invest heavily merely to stand still. Recognising this reality, Prime Minister Narendra Modi's Independence Day speech in 2019 announced that ₹100 lakh crore would be invested on infrastructure over the next 5 years. In US Dollars, this amounts to investment of 1,390 billion or 278bn per annum. Finance Minister Nirmala Sitharaman at the end of 2019 gave more details of the infrastructure plan.

Roads, urban and housing, railways and power (renewable and conventional) comprise over 70% of the National Infrastructure Pipeline whilst renewable energy, atomic energy and conventional energy comprise 22% of the total NIP investment.

World Economic Forum Global Competitiveness Index for Infrastructure

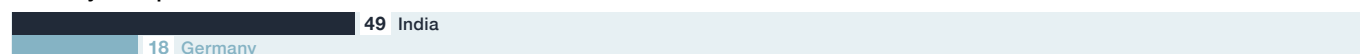
Reliability of water supply



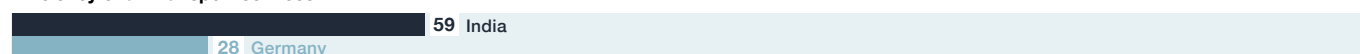
Electricity supply quality



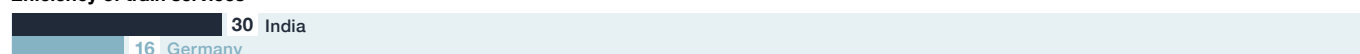
Efficiency of seaport services



Efficiency of air transport services



Efficiency of train services



Quality of road infrastructure

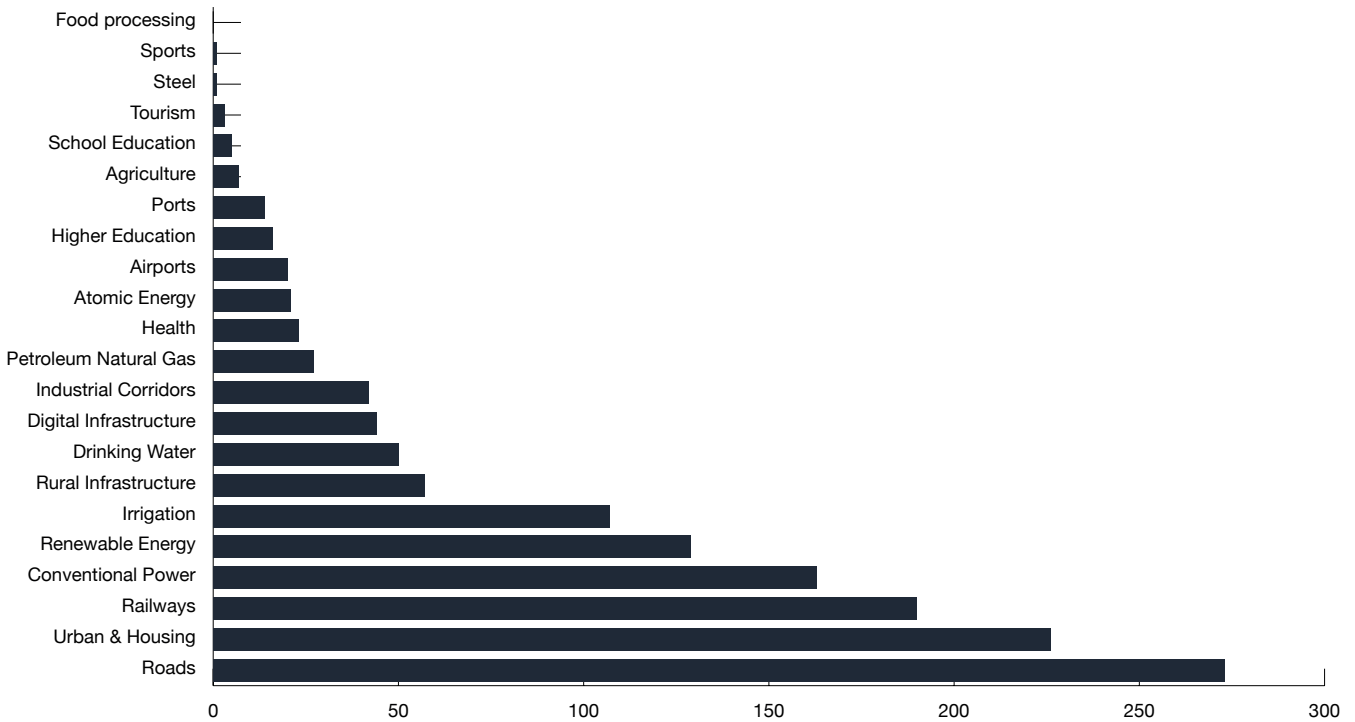


Quality of overall infrastructure



Source: World Economic Forum, The Global Competitiveness Report 2019

India's National Infrastructure Pipeline (NIP) (USDmn)



Source: Government of India, Ministry of Finance, Department of Economic Affairs

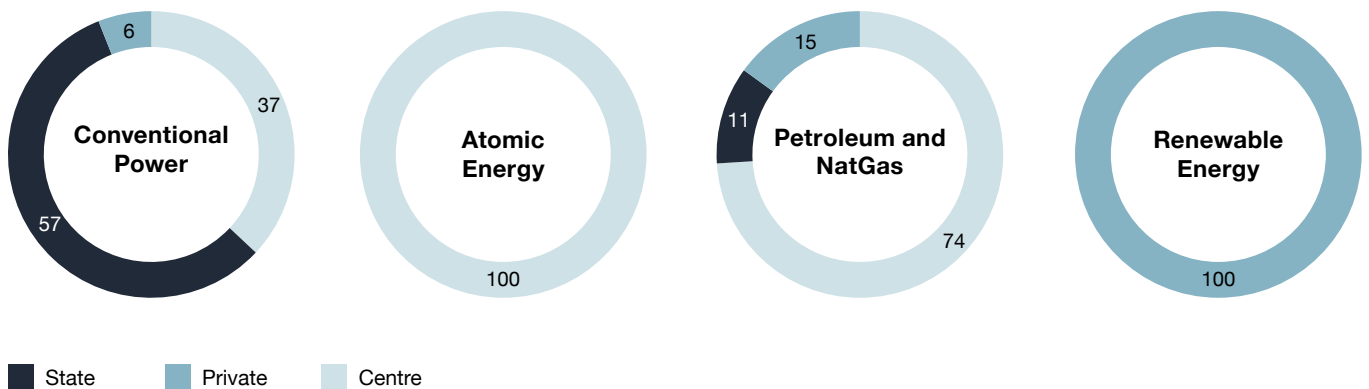
Prime Minister Modi announced the country’s intention to invest 100 trillion rupees in infrastructure on the country’s 75th Independence Day. The plan – called Gati Shakti – targets investment into the country’s logistics sector and aims to make “local manufacturers globally competitive”.

can be complex and protracted, and whilst legal agreements are necessary to protect consumers, investors and all relevant stakeholders, the sometimes conflicting priorities of State and National governments can create formidable challenges and delays in execution.

There is no doubting the political will to embrace technological change and modernise the country’s infrastructure, although just as India’s impressive bureaucracy has contributed to the country’s relative economic and political stability, it can also be a source of frustration and weakness. Contract negotiations

If these difficulties can be overcome or at least mitigated, then the scope for private sector investment – most notably in renewable energy – is enormous.

Sources of funding for India's National Infrastructure Pipeline (NIP) (percentages)



Source: Government of India, Ministry of Finance, Department of Economic Affairs



Current electricity supply and future demand

Figures from the Central Electricity Authority show that total installed power capacity in India as at the end of financial year 2020–21 amounted to just over 382 GW; a figure which has increased almost three-fold since 2007. Within this total, renewable energy capacity excluding large-scale hydropower rose to over 94 GW, with solar accounting for just over 40 GW and wind a further 39 GW. Taken together, solar and wind power now account for 20% of the total installed capacity.

COAL: Coal still accounts for more than half of all electricity supplied in India with 209 GW. The country has the fifth-largest hard coal reserves in the world (roughly 10% of the world total), and the mining sector is dominated by big state-owned companies, of which Coal India Limited (CIL) is the largest, accounting for 80% of India’s output. At present, more than

90% of coal in India is produced by open cast mining. This method has relatively low production costs and is less dangerous than deep mining, but has a large, adverse environmental footprint in the form of land degradation, deforestation, erosion and acid water runoff.

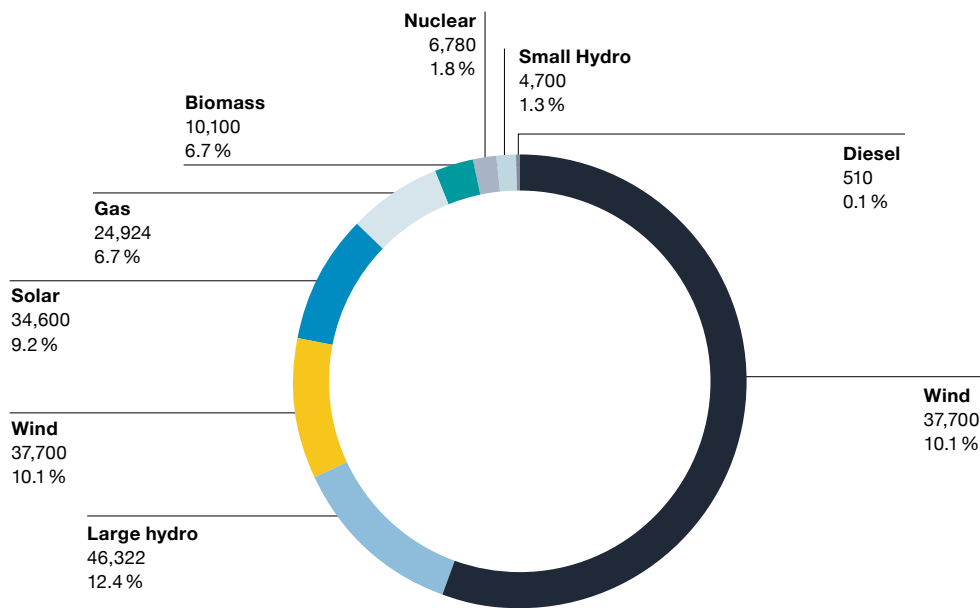
According to the International Energy Association, “Among the other problems facing the Indian coal sector is a mismatch between the location of hard coal reserves and mines, which are concentrated in eastern and central India, and the high-demand centres of the northwest, west and south. A tonne of coal must travel on average more than 500 kilometres (km) before it is converted to electricity, straining the country’s rail network.”

Total installed electricity capacity (MW)

Fuel Type	2016	2017	2018	2019	2020
Coal	193.000	192.163	197.172	200.705	208.625
Large Hydro	43.153	44.478	45.293	45.399	46.322
Wind	28.858	32.300	34.100	35.600	37.700
Solar	9.890	12.300	21.700	28.200	34.600
Gas	25.000	25.329	24.897	24.937	24.924
Biomass	9.750	8.800	9.400	9.800	10.100
Nuclear	6.780	6.780	6.780	6.780	6.780
Small Hydro	4.400	4.400	4.500	4.600	4.700
Diesel	838	838	838	638	510
Total	321.669	327.388	344.680	356.659	374.261

Source: Central Electricity Authority

Total installed electricity capacity (MW)



Source: Government of India, Ministry of Power, Central Electricity Authority, Growth of Electricity sector in India from 1947 – 2019

The challenge for India is in developing sufficient capacity in other baseload technologies to replace much of its coal output. The sheer scale of growth in demand for electricity cannot be met solely by intermittent resources like wind and solar, both of which are heavily-dependent on baseload to protect the integrity of the grid.

HYDROELECTRICITY: India currently has around 50 GW of installed hydroelectric capacity (of which over 90% is large hydro) which represents a little under a third of the assessed resource. 4.8 GW of small hydro is installed in India, with a further 0.5 GW currently being installed. The MNRE’s 2020 year-end review revealed that 13 GW of large-hydro is under installation, although some of these plants have been delayed by technical or environmental problems and public opposition. Hydroelectric power development has lagged well behind thermal generation capacity, leading to a consistent decline in its share of total electricity output. Capacity additions and generation have routinely fallen short of the targets set in successive government programmes, while the objective of bringing in private investors has likewise proved difficult to realise.

NUCLEAR: India has 22 operating nuclear reactors at seven sites, with a total installed capacity close to 7 GW. Another six nuclear power plants are under construction, which will add around 5.5 GW to the total. The current share of nuclear power in the generation mix is relatively small at 2% and is way lower than the vision of the Department of Atomic Energy (DAE), which hoped to produce at least 20 GW of nuclear power by 2020. Nonetheless, India still has ambitious plans to expand its future role, including a long-term plan to develop more complex reactors that utilise thorium, a potential alternative source of fuel for nuclear reactors and of which India has the world’s third largest reserves. At present, there are ten reactors (totalling 8,000 MW) at various stages of construction. In

addition, the government has given administrative approval for the construction of ten 700 MW Pressurised Heavy Water Reactors (PHWRs). As a result, India anticipates a total installed nuclear capacity of 22,480 MW by 2031, a 230% increase on current capacity.

NATURAL GAS: Natural gas has a relatively small share (7%) of the domestic energy mix totalling around 25 GW. Optimism about the pace of expansion, fuelled by some large discoveries in the early 2000s, has been dashed by lower than expected output from offshore domestic fields and many of these power stations are shut down throughout the year for lack of natural gas supply.

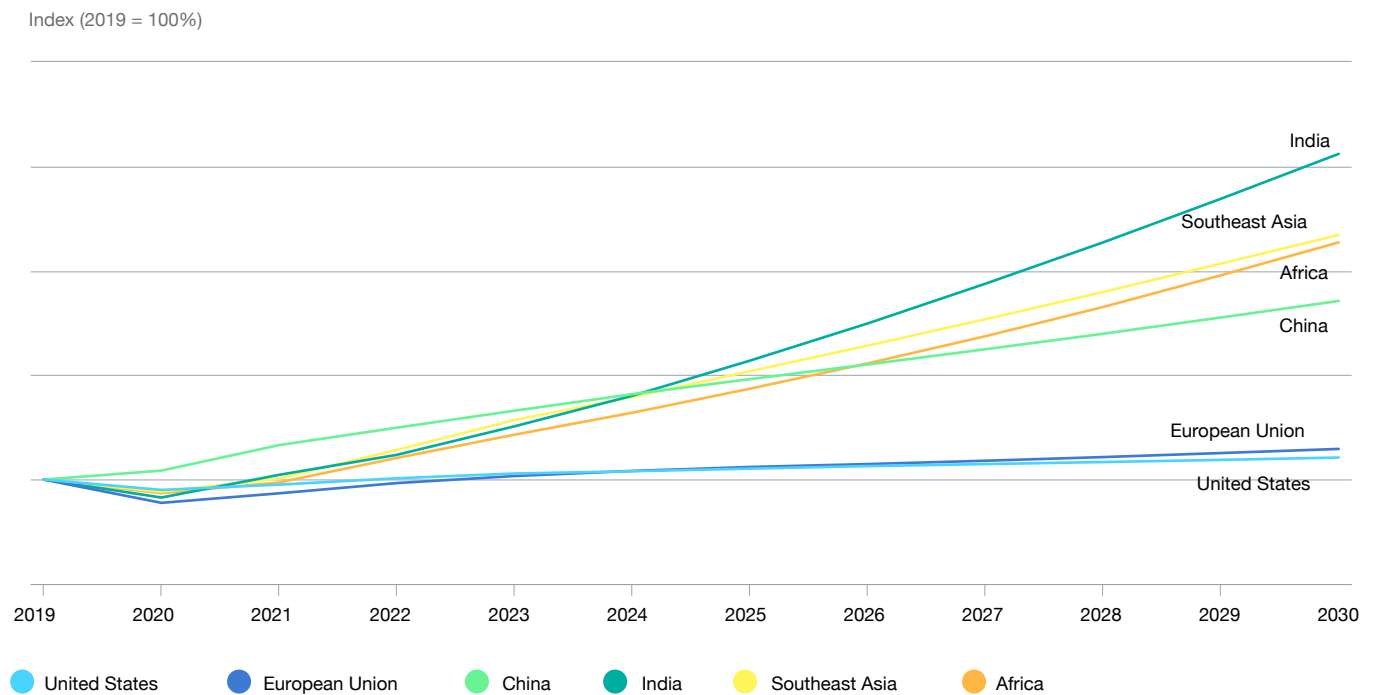
BIOENERGY: Bioenergy accounts for around 20% of India’s energy consumption, by far the largest share of which is the traditional use of biomass for cooking in households. There was just over 10 GW of power generation capacity fuelled by biomass at the end of FY 2020 – 21; around 3% of total capacity. The largest share is based on bagasse (a by-product of sugarcane processing) and a smaller share is cogeneration based on other agricultural residues. A Report from the Indian Renewable Energy Development Agency (IREDA) in 2018 suggested the potential for biomass energy in India includes 16 GW from biomass energy and a further 3.5 GW from bagasse cogeneration. The estimated potential of biomass in India has since been revised, following a study sponsored by the Ministry of New and Renewable Energy (MNRE). The study estimated surplus biomass availability at around 230 million metric tonnes per annum, corresponding to a potential of around 28 GW. Furthermore, the study highlighted a bagasse cogeneration potential of 14 GW. The leading states for biomass power projects are Chhattisgarh, Madhya Pradesh, Gujarat, Rajasthan and Tamil Nadu. A strategy to successfully develop bioenergy is a key part of securing India’s energy transition, enabling it

efficiently to balance in transmission its ambitious intermittent power targets.

WIND: India has the fourth-largest amount of installed wind power capacity in the world. As of March 31st 2021, the installed capacity of wind power was 39.2 GW, spread across many states. The largest wind power generating state is Tamil Nadu accounting for nearly 25% of installed capacity, followed in decreasing order by Gujarat, Maharashtra, Karnataka and Rajasthan. Wind power accounts for 10.0% of India’s total installed power capacity, and 3.7% of the total power output. India targets installation of 60 GW of wind power capacity by 2022. The government, through the National Institute of Wind Energy, has installed over 800 wind-monitoring stations across India, in order to better select the locations of potential sites. Gujarat was found to be the most ‘windy’ state in India, with a wind potential of 142.6 GW. Karnataka, Rajasthan, Maharashtra and Andhra Pradesh rounded off the top five, with the total wind potential of India projected at 695.5 GW.

SOLAR: The Indian government had an initial target of 20 GW capacity for 2022, which was achieved four years ahead of schedule. In 2015, the target was raised to 100 GW of solar capacity (including 40 GW from rooftop solar) by 2022, and in 2020 the target was further raised to 280 GW by 2030. As of March 2021, the installed capacity of solar electricity was 40.1 GW, around 10% of the country’s total and a tenfold increase in the last 6 years alone. The largest solar power installations are in Karnataka, followed by Telangana, Rajasthan, Andhra Pradesh and Tamil Nadu. The International Energy Agency forecast in an October 2020 report that electricity demand in India would increase by more than 60% over the next decade, outstripping all major countries and regions over the period. India is already the world’s third-largest producer and third-largest consumer of electricity. The return to strong economic growth, the expansion of the population and the continued trends towards urbanisation will make the next decade another exciting period in the country’s development as a renewable energy powerhouse.

Projected electricity demand in the decade 2020 – 2030



Source: International Energy Agency



Solar Energy Policy

India is a world leader in renewable energy. Its’ success has not been accidental, but a result of determined efforts over a long period of time, well before it became fashionable and without the boom and bust cycles and expensive subsidy-based failures which characterised European efforts.

In a visionary speech way back in 2008, the then Prime Minister of India, Dr. Manmohan Singh launched the National Action Plan on Climate Change. His words are worth repeating in full. “Our vision is to make India’s economic development energy-efficient. Over a period of time, we must pioneer a graduated shift from economic activity based on fossil fuels to one based on non-fossil fuels and from reliance on non-renewable and depleting sources of energy to renewable sources of energy. In this strategy, the sun occupies centre-stage, as it should,

being literally the original source of all energy. We will pool our scientific, technical and managerial talents, with sufficient financial resources, to develop solar energy as a source of abundant energy to power our economy and to transform the lives of our people. Our success in this endeavour will change the face of India. It will also enable India to help change the destinies of people around the world.”

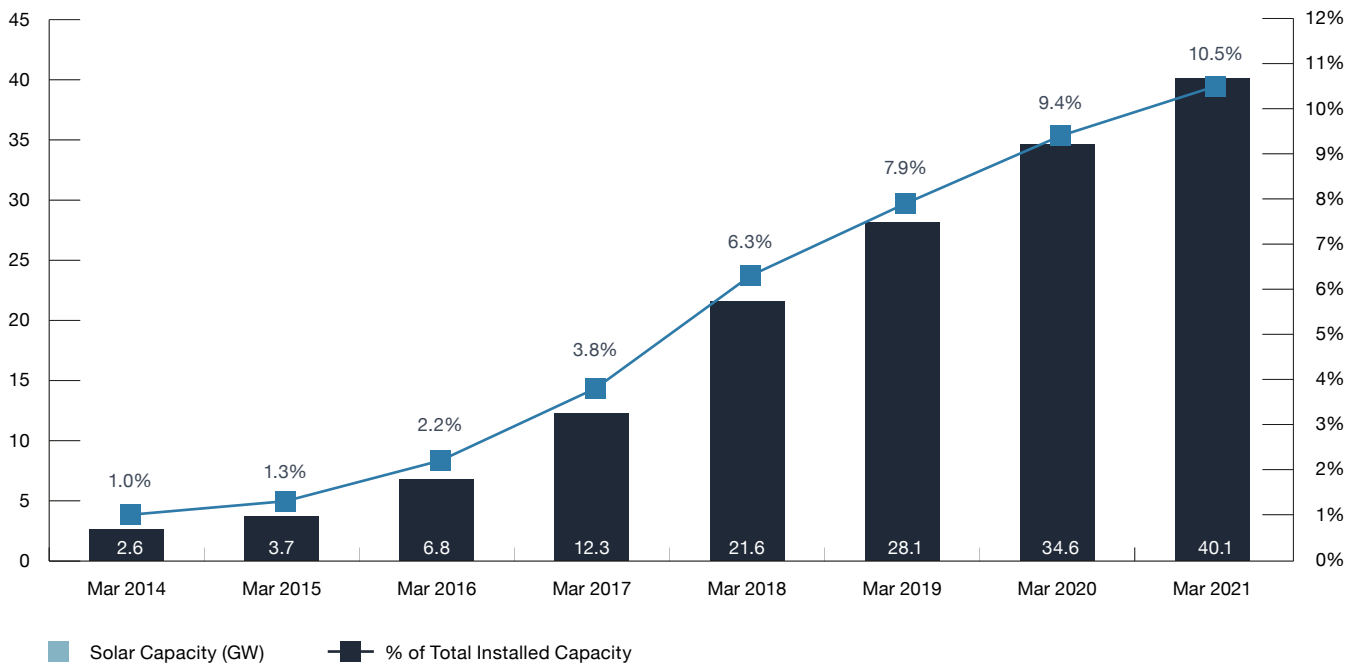
Throughout the next decade, India’s installation of solar capacity continually outstripped official forecasts and targets. The Union Budget of 2015 – 16 set out plans to install 175 GW of renewable energy capacity by 2022, of which 100 GW would be solar capacity: 40 GW of rooftop solar photovoltaics (PV) and 60 GW of large and medium-scale grid-connected PV plants. In 2020, this was further increased to a massive 450GW of renewable energy by 2030. The new target comprises 280 GW of solar and 140 GW from wind, with 30 GW from biomass and small hydro.

Almost all India’s current solar capacity has been installed in the past ten years. The initial 20 GW target was met in 2018 and a further 18.4 GW has subsequently been installed to take capacity to 40.1 GW. Despite generally more challenging economic conditions and amidst frequent warnings of slowdown, annual growth of solar installation has not fallen below 20% in any of the past six years – helped by continued reductions in the price of solar power. India achieved ‘grid parity’ in 2017 – 18 and solar power is now much cheaper than new thermally-generated power. The implementation of a ‘solar parks scheme’ is also underway, with a target capacity of 40 GW by March 2022. These solar parks provide developers with a ‘plug and play’ model by facilitating necessary infrastructure such as land and power evacuation facilities. As of end-2020, 40 solar parks have been sanctioned with a cumulative capacity of 26.3 GW across 15 states.

Growth of utilities’ installed solar capacity			
Year	Installed capacity (MW)	Annual growth (MW)	Annual growth (%)
2010	161	N/A	N/A
2011	461	300	186.34
2012	1,206	745	161.61
2013	2,319	1,113	92.29
2014	2,632	313	13.50
2015	3,744	1,112	42.25
2016	6,763	3,019	80.64
2017	12,289	5,526	81.71
2018	21,651	9,362	76.18
2019	28,180	6,529	30.16
2020	34,627	6,447	22.88
2021	40,085	5,458	15.76

Source: Ministry of New and Renewable Energy

Utilities' installed solar capacity and market share



Source: Ministry of New and Renewable Energy

Paris Agreement on Climate Change

India is a signatory to the Paris Agreement on Climate Change and supports the achievement of the Sustainable Development Goals (SDG's). Its' Nationally Determined Contribution (NDC) under the Paris Agreement includes commitments:

- to reduce the emissions intensity of its GDP by 33–35% from 2005 levels by 2030.
- to achieve about 40 percent cumulative electric power installed capacity from non-fossil fuel based energy resources by 2030 with the help of transfer of technology and low cost international finance including from Green Climate Fund (GCF).
- to create an additional carbon sink of 2.5 to 3 billion tonnes of CO₂ equivalent through additional forest and tree cover by 2030.
- to better adapt to climate change by enhancing investments in development programmes in sectors vulnerable to climate change, particularly agriculture, water resources, Himalayan region, coastal regions, health and disaster management.

India's immediate NDC challenge is to achieve 40 per cent installed capacity of power from non-fossil fuels by 2030. The current 46.2 GW of large-scale hydroelectricity plus the 94.4 GW of renewable energy capacity already installed gives a total RE capacity of 140.6 GW; around 37% of the country's overall capacity. At recent rates of expansion, installation and new bidding in the solar sector, the NDC target is at least within reach.



Investments

ThomasLloyd's local development partner in India is the Delhi-based SolarArise India Projects Pvt Ltd. The Company – hereafter referred to as SolarArise – currently owns and operates approximately 235 MW of grid-connected solar power projects and is constructing a further 200 MW solar project in Madhya Pradesh. ThomasLloyd first invested in SolarArise in December 2018, and is now the largest shareholder in the Company.

The SolarArise sites are in Telangana I and II (2*12 MW), Maharashtra (67.2 MW), Karnataka I (40.5 MW), Karnataka II (27 MW) and Uttar Pradesh (75 MW); the first of which to be commissioned in June 2016 was Telangana I and II, at Palwai village near Gadwal in the Mahbubnagar district of Telangana, geographical co-ordinates: 16.153026° N, 77.763979° E. The two solar plants at Telangana together occupy a total area of 327,188 m² and were grid connected to the existing 33 kV Gadwal TSTRANSCO substation, 13.5 km away. They provide electricity to 36,554 people.

The Maharashtra site is in Chatgaon Village, Beed District, geographical co-ordinates 18.961683° N, 76.212849°E. The plant occupies a total site area of 1,239,654 m² and has been in full commercial operation since August 2017. It is grid connected to an existing 132 kV Talegaon MSETCL substation, 5.5 km away and provides electricity to 126,196 people.

The first Karnataka site is at Chikkoppa Village, Koppal District, geographical co-ordinates: 15.652016° N, 75.992484°E. The plant occupies a total site area of 721,049 m² and has been in full commercial operation since January 2018. It is grid connected to an existing 110 kV Yelburga KPTCL substation, 5.5 km away and provides electricity to 72,236 people.

The second Karnataka site is in Kerehalli village, Koppal District, State of Karnataka, geographical co-ordinates 15.371604° N, 76.307229° E. The plant occupies a total site area of 484,328 m² and has been in full commercial operation since August 2019. It is grid connected to an existing 110 kV Kerehalli KPTCL substation, 2 km away and provides electricity to 41,988 people.

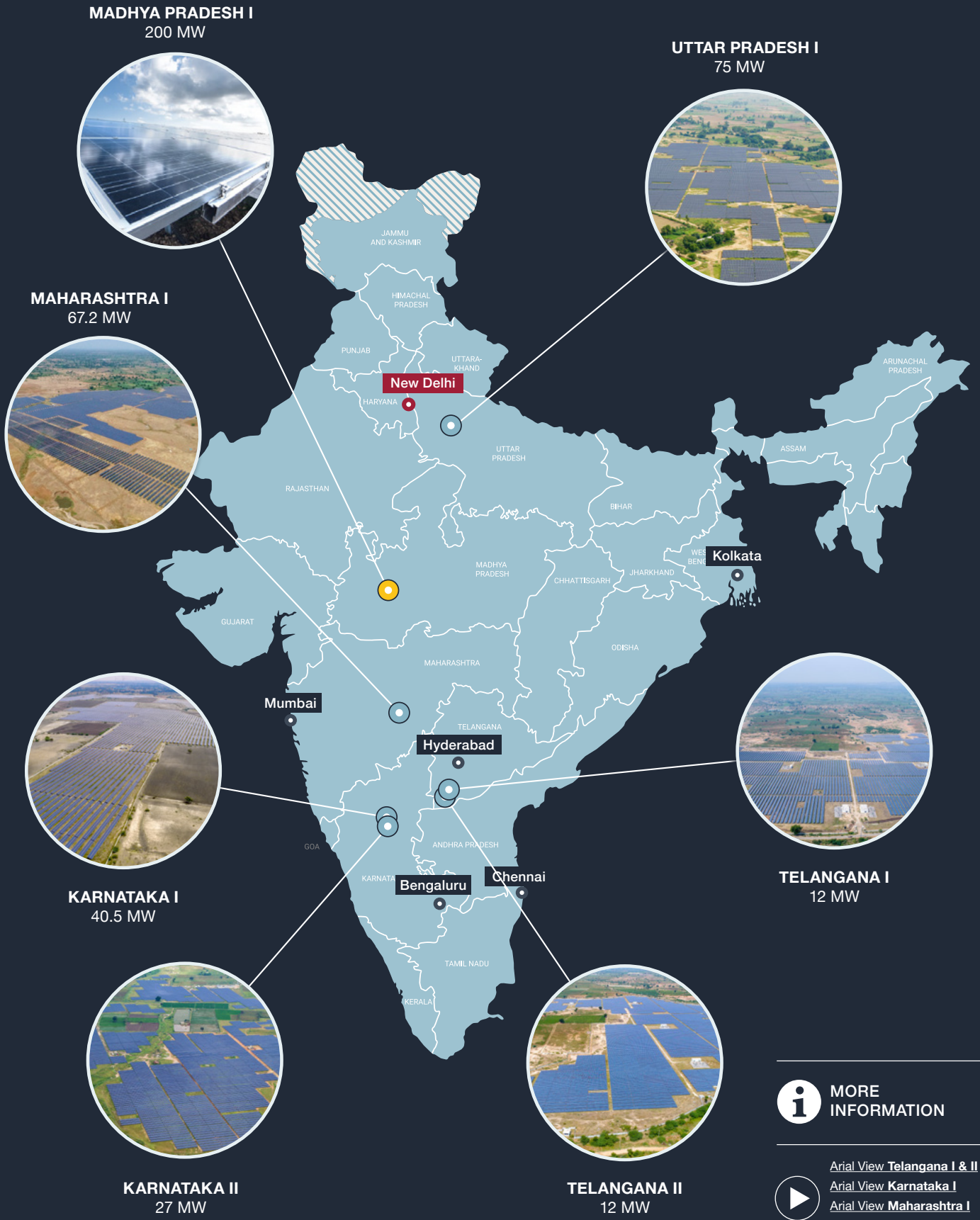
The Uttar Pradesh I site is in Baramay Khara Village, Budaun District, State of Uttar Pradesh, India, geographical co-ordinates 28.107417°N, 79.051250°E. The plant occupies a total site area of 894,356 m² and has been in commercial operation since January 2021. It is grid connected to an existing 132 kV Bilisi UPPTCL substation, 5 km away and provides electricity to 93,295 people.

The Madhya Pradesh I site is in Surajpur Village, Shajapur District, State of Madhya Pradesh, India, geographical co-ordinates 23.227417°N, 76.215425°E. The plant is scheduled to go into operations in Q3, 2023. It will occupy a total site area of 2,585,900 m² and will be grid connected to an existing 400 kV PGCIL Pachora substation. It will provide electricity to 264,562 people.

Land acquisition

Utility-scale solar plants are inherently land-intensive projects. Whilst India's huge and growing population needs to be accommodated, it is the seventh largest country in the world with 3,287,263 km². According to the last official census data in 2011, the population density stood at 368 people per km², whilst using latest UN figures for 2020 this has now risen to 420. The country has over 40 cities with a population greater than 1 million and two with more than 10 million. It also has 397

Solar Portfolio



i MORE INFORMATION

- [Arial View **TeLANGANA I & II**](#)
- [Arial View **KARNATAKA I**](#)
- [Arial View **MAHARASHTRA I**](#)
- [Arial View **UTTAR PRADESH I**](#)

● in construction

towns and cities with between 100,000 and 1 million. Clearly, there are vast tracts of land with few, if any people.

At current levels of efficiency, a 1 km² solar plant produces just under 100,000 KWh of electricity (98,834 to be exact). To fully supply the entire electricity requirements of India today would require just over 13,000 1 km² solar power plants. The Great Indian Desert – the Thar Desert – is the world’s 17th largest with 177,000 km² in the north-west of the country. Thus, to meet all the country’s electricity needs, an area equivalent to just 7.4% of the Thar Desert would suffice.

Of course, the Thar desert is not going to be covered in solar panels. A utility-scale plant needs to be grid-connected so the power can be distributed to where it is needed. For the developer, a balance must be struck between cost and ease of land acquisition, the cost of building the transmission lines to the nearest point of grid connectivity and solar radiation levels. Remote land is cheaper, but the transmission costs are significantly higher.

Our land acquisition policy is driven not solely by these financial and logistical considerations, but also by the Environmental pillar of our ESG policy and that of our local development partners. Our Socially Responsible Investment Policy is implemented at the early stages of land acquisition in India with strict adherence to environmental standards. Specifically, there must be no deforestation, no inhabitation and no change of use from food to energy production.

Land is first identified by total Solar Irradiance (GHI) and then by location, contour, shape, contiguity and soil type to determine

its suitability for the installation of photo-voltaic solar panels. The subsequent determination of land ownership is a laborious process. Not all titles are electronically held and in some cases of ancestry there can be multiple owners of the same land. Land can be held in very small parcels and all owners must be identified and adequately compensated in return for ceding title. To ensure that the current landowners have clear and proper title, title search is undertaken on previous ownership going back 20–30 years. This is done by reviewing the revenue records by a land legal expert appointed by the company. The company works with a credible land aggregator who will take full responsibility for ensuring title search documents are gathered, negotiate with the landowners and ensure registry is completed in the name of the project company as per the local regulations and practices. Through this entire process, the company is supported by land legal counsel to ensure all regulatory and social impact norms are being adhered to.

In the environment domain, we must adhere to the legal, regulatory and governance frameworks of the investment jurisdiction and to regulatory compliance. We must also adhere to the IFC/ World Bank performance standards and to the eligibility criteria of the LuxFlag Environment Label.

IFC Performance standards

Only when all the Company’s standards on ownership, use and compensation are met can land be acquired for development in renewable energy projects.

Performance Standards	Specific Areas
Performance Standard 1	Assessment and Management of Environmental and Social Risks and Impacts
Performance Standard 2	Labour and Working Conditions
Performance Standard 3	Resource Efficiency and Pollution Prevention
Performance Standard 4	Community Health, Safety and Security
Performance Standard 5	Land Acquisition and Involuntary Resettlement
Performance Standard 6	Biodiversity Conservation and Sustainable Management of Living Natural Resources
Performance Standard 7	Indigenous Peoples
Performance Standard 8	Cultural Heritage

Only when all the Company’s standards on ownership, use and compensation are met can land be acquired for development in renewable energy projects.



Impact methodology

As an impact investor, we set out deliberately and intentionally to have a positive social and environmental impact through our investments and we are committed to regularly measuring and reporting this performance. We fully comply with the disclosure requirements defined under Article 9 of the EU Sustainable Finance Disclosure Regulation (SFDR) and the LuxFlag Environmental label.

- We are committed to investing responsibly. The primary objective of our infrastructure investment is to create lasting value, both for investors and for the people and communities in which we operate.
- We are committed to realising sustainable value. This involves building long-term sustainable businesses, which provide employment and economic growth in partnership with social transformation and environmental protection.
- We are committed to the integration of material environmental, social and corporate governance (ESG) factors into all corporate and investment decisions, so as to deliver transparency, mitigate investment risk and to enhance investment returns in the best interests of our clients, other stakeholders and investee communities.

Measuring impact is neither an art, nor a science, and requires a carefully considered blend of qualitative and quantitative metrics to judge the ‘additionality’ of an investment; the extent to which it has brought about change – both positive and negative - which would not otherwise have occurred. The United Nations Principles for Responsible Investment (PRI), to which Thomas-Lloyd is a signatory, notes that when measuring impact, “It is more common to track outputs and outcomes, using indicators

that imply rather than prove impact. This is a justifiable way of simplifying the process and making it manageable, particularly where there is evidence that that such indicators relate to the desired impact.”

Outputs are the directly measurable results arising from a company’s activities. These could include, for example, greenhouse gas emissions, water consumption, the number of employees or workplace training programmes. Outcomes are the ultimate changes in a system, intended and unintended, that result from these outputs.

To evidence and quantify ‘Impact’, our preferred approach is focus on the direct and indirect employment effects, and use internationally accepted conventions on CO₂ mitigation and the mapping of socio-economic outcomes to the United Nations’ seventeen Sustainable Development Goals (SDG’s).

We believe strongly that the key to delivering impact is creating jobs. Employment brings income, security, responsibility and dignity. The development of infrastructure is both capital and labour-intensive. It requires a lot of money and creates a lot of jobs, multiplied well beyond the initial project investment. A dollar earned is a dollar then spent many times over. In addition to jobs, infrastructure spending also creates tax revenues: land value tax, corporation tax, payroll tax and sales tax. These tax revenues, in turn, help pay for improved public services: improved sanitation, better roads, housing and improved outcomes for health, education and social welfare.

As the World Bank’s International Finance Corporation (IFC) puts it, “For most people in developing countries, a job is the most certain way out of poverty. By 2020, the world will need to

create 600 million jobs just to keep up with population growth. These jobs must be good jobs – because job growth alone isn't enough to catalyze development.

That's because far too many jobs in developing countries today are in the informal sector – where workers struggle with fewer rights, hazardous working conditions, and low wages. Informal jobs are closely correlated with poverty. IFC believes the private sector – which accounts for nine out of every 10 jobs – is critical to creating more and better jobs.”

The International Monetary Fund (IMF) states that infrastructure investment of approximately 1% of GDP in advanced economies produces on average an increase of 1.5% in GDP over four years. For India, the multiplier is much larger and it is estimated that increasing infrastructure investment by just 0.5% of GDP will boost growth by 1.8% in the medium to long run.

India has no system of local or municipal property taxes and there is no hypothecation of revenues from renewable energy development or generation. Drawing a direct link between corporation or income taxes and increased spending at the local government level – as we have previously done in the Philippines, for example – is therefore not possible. In our privileged position as a developer of infrastructure assets, however, we have access to detailed information on job creation and salaries which allows us to quantify and evidence the employment impact of our investments.

Employment during construction phase

The construction phase of a solar plant is very labour-intensive with groundworks, foundations, perimeter-securing and an exhaustive list of installation and pre-connection safety checks to be carried out. The workers employed in Telangana, Maharashtra, Karnataka and Uttar Pradesh were a mix of hires by the third-party Engineering, Procurement and Construction (EPC) company and those hired or sub-contracted directly by the main project developer.

In the 2020 India Impact Report, we used the case study of our first solar plant in Maharashtra to evidence the employment impact in the construction phase of the project. In this 2021 update, we showcase our latest plant in Baramay Khera Village, Budaun District, State of Uttar Pradesh, which – despite the logistical difficulties of the COVID pandemic – was completed in 2020 and began commercial operations in January 2021.

The Uttar Pradesh project followed a longer construction period methodology, wherein the construction was spread uniformly across greater number of months. The site was divided into a large number of blocks, with the teams moving block by block upon their respective completion. In this strategy, on average, the site will employ an almost similar number of workers month on month, rather than being 'back-loaded' with larger numbers as it reaches the final construction stage.

In part, this different way of working was dictated by the logistical problems of operating under strict COVID restrictions. The safety and security of our workforce is of paramount importance which meant new workplace protocols had to be rigidly

observed. Government regulations and permits added a further layer of legislative compliance and the net result was that fewer workers were employed, but for a longer period.

The Ministry of Home Affairs notified an Order towards the end of Q1 2020 that power generation, transmission and distribution were essential services and we were able to continue to operate all five solar plants in our India portfolio. At each project site, the local authorities provided special travel permits to employees allowing them to commute to work from their local residences. New construction was also permitted under the Ministry order and the company therefore issued the first part of the Notice to Proceed (NTP) to Jakson Limited; the chosen EPC contractor. Work on the Uttar Pradesh site began in the second week of May with an initial 50 workers strictly observing the necessary COVID Health & Safety Protocols.

There are several categories of jobs created through infrastructure investments: Jobs associated with construction and maintenance and jobs associated with improved services and lower costs. Construction and maintenance activities generate employment not only for those workers directly involved (direct effect), but also for the corresponding suppliers and distributors (indirect effect), and for the providers of goods and services that are consumed by the direct and indirect workers (induced effect).

Access to power, information, and communications technologies, or improved transportation, can add significantly to job growth by allowing existing businesses to increase their output and hence create more jobs, whilst new businesses may emerge because of the infrastructure spending, leading to even further job creation.

The IFC estimated that electricity provided by the new power transmission lines in India generated a total of about 75,000 jobs from 2006 – 12, a much larger number than the direct creation of about 2,000 jobs associated with construction and maintenance of the lines”.

Workers hired for Uttar Pradesh construction	
May 2020 – March 2021	
	Q3
Employees (EPC hired)	
Technical	24
Office Staff	10
General Labour (semi-skilled)	200
Local Workers (unskilled)	75
Employees (SolarArise hired)	
Owner's Engineers	1
SolarArise Employees	10
Employees (EPC subcontractor hired)	
Unskilled Workers	70
Total	390

Source: SolarArise company records

Job creation during construction and operation (end-2020).

	Construction phase	Operational Phase	
		Full-time technicians and Admin support	Head office staff*
Telengana I and II	300	24	7
Karnataka I and II	800	63	7
Maharashtra I	700	91	7
Uttar Pradesh I	390	55	7
total	2190	233	28

* allocated across sites

A more recent study from India's IDFC Institute developed a robust methodology for estimating the induced effect of infrastructure provision on employment which was then applied to estimate impact across different economic geographies in the country. The study surveyed 2,500 firms in 18 'peri-urban' districts across different states, with the aim of understanding the infrastructure challenges facing each firm. It then aimed to estimate the job creation from the cost-savings accruing to each firm as a result of the challenges being resolved.

The IDFC study revealed that 30% of industrial firms and 33% of service sector companies reported that the provision of electricity was an impediment to growth of their business. Among firms that identified 'electricity' as a problem, the main issues were high prices (70%), unscheduled power cuts (34%), and load shedding (26%). Around 52% of firms used a generator.

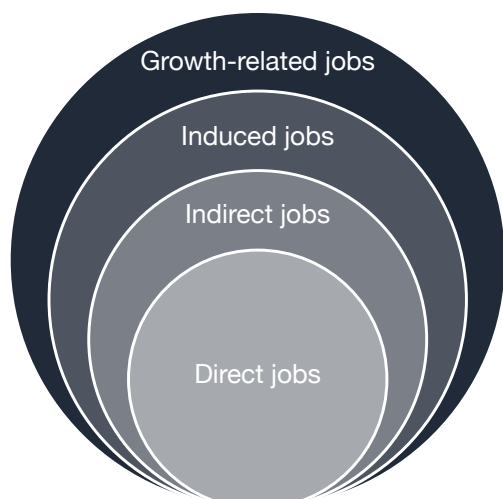
Against this background of infrastructure constraints – not just in electricity, but also roads, water supply and waste water treatment – it is no surprise that their resolution would lead to significant benefits. IDFC estimates that that cost savings for firms in the agro-allied sector could translate to an increase in employment that is 110% of the existing total employment. In terms of employment elasticity, it estimates that for firms

in the services sector, every 10% increase in cost saving due to improvement in electricity could result in a 4.8% increase in jobs.

Using very conservative estimates – significantly less than the evidence from the IFC survey and the IDFC model projections due to the remoteness of the solar sites – we assume a 2–4 times increase in local employment from all four types of jobs (direct, indirect, induced and growth-related) in the period since construction across our portfolio of solar sites began.

In addition to the 2190 jobs created during the construction phase of the completed solar sites (300 at Telengana I and II, 800 at Karnataka I and II, 700 at Maharashtra and 390 at Uttar Pradesh), the operational phase requires ongoing full-time employees. Numbers vary according to the size and specificities of each plant, but average around 39 FTE at each site – engineers, technicians and security guards plus accounting/purchasing/HR and admin functions and 28 management staff across the sites; a total of at least 261 direct jobs. Applying a very low multiplier of just 2–4 times (much less than suggested by the IFC study) would give a permanent total boost to full-time employment between 522–1044 jobs.

The growth-related job effects on infrastructure investments are the largest and affect the overall economy



Source: Worldbank



ESG integration

ESG Policy

We are committed to the integration of material ESG factors into all corporate and investment decisions, so as to deliver transparency, mitigate investment risk and to enhance investment returns in the best interests of our clients, other stakeholders and investee communities.

We believe that ESG issues impact the value and reputation of ThomasLloyd, in addition to driving systemic risks and opportunities. An ESG framework embeds our philosophy of 'Realising Sustainable Value' in all our processes and investments, keeping us on track to deliver the impact our investors demand.

We fully comply with all laws and regulations, at all times and in all jurisdictions, following industry standard environmental, social and corporate governance ('ESG') guidelines and best practices. Acting with integrity in all our operations, we avoid all forms of discrimination and embed equality and diversity in our employment policies. We respect human rights and avoid exploitation of child labour, ensure no bribery or corruption and actively manage investment projects to deliver ESG and Impact outcomes in the communities and countries in which we operate.

- In the environmental domain, we must adhere to the legal, regulatory and governance frameworks of the investment jurisdiction and to regulatory compliance. We must also adhere to the IFC/World Bank performance standards and to the eligibility criteria of the LuxFlag Environment Label. We must evidence plans to prevent, mitigate and control serious environmental damage resulting from accidents and inci-

dents related to all activities, including immediate reporting to the relevant authorities.

- In the social domain, we must respect and secure labour rights, maintain safe working conditions and develop diverse human capital through training and education programmes. We must also avoid exploitation of child labour, reject all forms of discrimination and embed equality and diversity in our employment policies.
- In the governance domain, we must evidence a code of conduct and a risk management system to prevent all forms of bribery, corruption and money laundering.

The EU Sustainable Finance Disclosure Regulation (SFDR) which was introduced in early 2021, is designed to improve and standardise ESG disclosure. SFDR requires investment managers with financial products targeting sustainable investments as part of their investment objective to disclose how the sustainable investment objective is met and provide details on the "Sustainability Indicators" used to measure this. ThomasLloyd reports under Article 9 regulation which is the most stringent in terms of pre-contractual disclosures and ongoing transparency. We have adopted the Principal Adverse Impacts framework and a set of sustainability indicators which are used to measure the ESG performance of our investee companies and the attainment of the sustainable investment objectives of our financial products. We work with management teams to analyse and monitor the risks in a framework which is directly aligned to SFDR. We will be reporting our progress against these sustainability indicators from 2022-onwards.

ESG Risk Management Framework aligned with SFDR

Indicators applicable to investments in investee companies						
Adverse sustainability indicator	Metric	Impact {year n}	Impact {year n-1}	Explanation	Actions taken	
Climate and other environment related indicators						
Greenhouse gas emissions	1. GHG Emissions	Scope 1 GHG Emissions				
		Scope 2 GHG Emissions				
		From 1 January 2023 Scope 3 GHG Emissions				
		Total GHG Emissions				
	2. Carbon Footprint	Carbon Footprint				
	3. GHG Intensity of Investee Companies	GHG Intensity of Investee Companies				
Biodiversity	4. Exposure to companies active in the fossil fuel sector	Share of investments in companies in the fossil fuel sector				
	5. Share of non-renewable energy consumption and production	Share of non-renewable energy consumption and non-renewable energy production of investee companies from non-renewable energy sources compared to renewable energy sources, expressed as a percentage				
	6. Energy consumption intensity per high impact climate sector	Energy consumption in GWh per million EUR of revenue of investee companies, per high impact climate sector				
Water	7. Activities negatively affecting biodiversity sensitive areas	Share of investments in investee companies with sites/operations located in or near to biodiversity sensitive areas where activities of those investee companies negatively affect those areas				
Waste	8. Emissions to water	Tonnes of emissions to water generated by investee companies per million EUR invested, expressed as a weighted average				
	9. Hazardous waste ratio	Tonnes of hazardous waste generated by investee companies per million EUR invested, expressed as a weighted average				
Social and employee, respect for human rights, anti-corruption and anti-bribery matters						
Social and employee matters	10. Violations of UN Global Compact principles and Organisation for Economic Cooperation and Development (OECD) Guidelines for Multinational Enterprises	Share of investments in investee companies that have been involved in violations of the UNGC principles or OECD Guidelines for Multinational Enterprises				
	11. Lack of processes and compliance mechanisms to monitor compliance with UN Global Compact principles and OECD Guidelines for Multinational Enterprises	Guidelines for Multinational Enterprises				
	12. Unadjusted gender pay gap	Average unadjusted gender pay gap of investee companies				
	13. Board gender diversity	Average ratio of female to male board members in investee companies				
	14. Exposure to controversial weapons (antipersonnel mines, cluster munitions, chemical weapons and biological weapons)	Share of investments in investee companies involved in the manufacture or selling of controversial weapons				
Indicators applicable to investments in sovereigns and supranationals						
Adverse sustainability indicator	Metric	Impact {year n}	Impact {year n-1}	Explanation	Actions taken	
Environmental	15. GHG Intensity	GHG intensity of investee countries				
Social	16. Investee Companies subject to social violations	Number of investee countries subject to social violations (absolute number and relative number divided by all investee countries), as referred to in international treaties and conventions, United Nations principles and, where applicable, national law				
Indicators applicable to investments in real estate assets						
Adverse sustainability indicator	Metric	Impact {year n}	Impact {year n-1}	Explanation	Actions taken	
Environmental	17. Exposure to fossil fuels through real estate assets	Share of investments in real estate assets involved in the extraction, storage, transport or manufacture of fossil fuels				
Social	18. Exposure to energy-inefficient real estate assets	Share of investments in energy inefficient real estate assets				

In India, ThomasLloyd's local partners define standards, protocols, procedures and systems for managing environmental, health and social (EHS) risk. These are formulated as per the requirements of the International Financial Corporation (IFC) and the Japan Bank for International Cooperation (JBIC). Our partners engage specialist contractors IndusEnviro for implementing EHS methods and policies and detailed site assessments are produced to show compliance with the strictest standards of safety and governance.

ESG vs Impact

Whilst our ESG reporting framework will be aligned to the most demanding requirements of the EU's SFDR Article 9, we do not believe that ESG is itself the defining feature of our investment approach. ESG can conceptually be seen as describing behaviours and processes along the investment journey.

In this regard, ThomasLloyd is a signatory to UN Principles of Responsible Investment and supporter of the Task force on Climate-related Financial Disclosures (TCFD). We map our impact outcomes against the UN's 17 Sustainable Development Goals (SDG's) and measure our contribution to environmental improvements using internationally agreed standards. We play an active part in the transition to a low-carbon future and fully support the aims of the Intergovernmental Panel on Climate Change (IPCC).

The ultimate goal of our investments is impact; the difference we have made to the economies, societies and communities where our money and that of our clients is put to work. We take our ESG reporting very seriously, but this alone will not drive transformational change. It is impact which is at the heart of our investment philosophy.



Environment

India's air quality has been on a worsening trend for a long period of time; a trend which has recently deteriorated even further. Its' main causes include a big increase in population, and rising incomes for an ever-growing number of city-dwellers attracted by the higher incomes on offer in an urban environment. Greater disposable income has led to higher vehicle ownership and, whilst a shift from rural to urban living has seen a reduction in the proportion of lighting and cooking fuelled by traditional biomass sources such as firewood and dung, the sheer volume of inward migration to the more prosperous cities has stressed the natural environment to near-breaking point.

In May 2018, the WHO released its study of air pollution in 795 cities across 67 countries. 14 of the top 20 most polluted cities in the world (as measured by fine particulate matter PM 2.5) are in India: Delhi, Varanasi, Kanpur, Faridabad, Gaya, Patna, Lucknow, Agra, Muzaffarpur, Srinagar, Gurgaon, Jaipur, Patiala and Jodhpur. The WHO reported, "Around 3 billion people – more than 40% of the world's population – still do not have access to clean cooking fuels and technologies in their homes, the main source of household air pollution," whilst more than 90% of air pollution-related deaths occur in low and middle-income countries (including India), mainly in Asia and Africa.

We should note that India is not the only Asian country in which land-clearance by farmers causes problems of smog and smoke. Indonesia and Malaysia are particularly hard-hit by fires at the end of crop season, with Singapore frequently impacted by its neighbours' actions. An academic paper from researchers at the universities of Harvard and Columbia estimated that 100,300 people died prematurely in these three countries in 2015 due to deliberately started land-clearance fires.

It is against this background that progress on climate change needs to be considered. India is a signatory to the Paris Agreement on Climate Change and supports the achievement of the Sustainable Development Goals (SDG's). Its' Nationally Determined Contribution (NDC) under the Paris Agreement includes commitments:

- to reduce the emissions intensity of its GDP by 33-35% from 2005 levels by 2030.

- to achieve about 40 percent cumulative electric power installed capacity from non-fossil fuel based energy resources by 2030 with the help of transfer of technology and low cost international finance including from Green Climate Fund (GCF).
- to create an additional carbon sink of 2.5 to 3 billion tonnes of CO₂ equivalent through additional forest and tree cover by 2030.
- to better adapt to climate change by enhancing investments in development programmes in sectors vulnerable to climate change, particularly agriculture, water resources, Himalayan region, coastal regions, health and disaster management.

India's immediate NDC challenge is to achieve 40 per cent installed capacity of power from non-fossil fuels by 2030. The current 46.2 GW of large-scale hydroelectricity plus the 94.4 GW of renewable energy capacity already installed gives a total RE capacity of 140.6 GW; around 37% of the country's overall capacity. At recent rates of expansion, installation and new bidding in the solar sector, the NDC target is at least within reach.

The United Nations Environment Programme (UNEP) Emissions Gap Report 2020 reported that, "Collectively, the G20 members are not on track to achieve their unconditional NDC commitments based on pre-COVID-19 projections. Nine of the sixteen G20 members (counting the EU27+UK as one), are on track (Argentina, China, EU27+UK, India, Japan, Mexico, the Russian Federation, South Africa and Turkey). Five G20 members are projected to fall short and therefore require further action (Australia, Brazil, Canada, the Republic of Korea and the United States of America). Projections for Indonesia and Saudi Arabia are inconclusive." The report specifically noted that, "India's 2030 emissions projections show a small decrease, partly due to a strong growth in renewable energy deployment."

We have played our own part in this renewable energy deployment. As previously noted, the electricity produced by the solar sites in Telangana, Maharashtra, Karnataka and Uttar Pradesh already reaches 309,023 people, with an overall CO₂ reduction of 343,436 tonnes per annum.

CO₂ Production, Mitigation and Offset

Carbon sequestered by



5,017,379

tree seedlings
grown for 10 years



371,763

acres of forests
in one year



2,074

acres of forests preserved
from conversion to
cropland in one year

Greenhouse gas emissions from



65,991

passenger vehicles
driven for one year



762,594,709

miles driven by an
average passenger
vehicle



103,210

tons of waste
recycled instead
of landfilled

CO₂ emissions from



34,143,806

gallons of gasoline
consumed



335,382,802

pounds of
coal burned



4,017

tanker trucks'
worth of gasoline

Source: www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

Sustainable Development Goals

Seventeen Sustainable Development Goals (SDGs) were introduced at the United Nations Conference on Sustainable Development in Rio de Janeiro in 2012. The objective was to produce a set of universal goals that met the urgent environmental, political and economic challenges facing the world.

The SDGs replace the Millennium Development Goals (MDGs), which catalysed a global effort in 2000 to tackle the indignity

of poverty. The MDGs established measurable, universal-agreed objectives for tackling extreme poverty and hunger, preventing deadly diseases, and expanding primary education to all children, among other development priorities.

The UN describes the 17 Goals as “a bold commitment to finish what we started, and tackle some of the more pressing challenges facing the world today”. We highlight below how ThomasLloyd’s investments in renewable energy map across to the UN’s development agenda.



1 NO POVERTY



- At least one third of all workers on each site are unskilled locals.
- We pay decent, living wages to all workers, enabling them to feed themselves and provide food and shelter for their families.

2 ZERO HUNGER



- Unemployment decreased in Telangana, Karnataka, Maharashtra and Uttar Pradesh due to jobs created through these solar plants.
- Reliable energy is essential for the agriculture industry and our plants help to increase electricity reach and provide a secure electricity supply.

3 GOOD HEALTH AND WELL-BEING



- The solar plants provide residents with clean energy, reducing air pollution.
- Emphasis on excellent Health & Safety policies and procedures
- A local health clinic was upgraded to cover basic medical help for the local community..

4 QUALITY EDUCATION



- The local schools are encouraged to visit a state-of-the-art solar power plant.
- ThomasLloyd Foundation has upgraded four schools in Maharashtra, providing a total 13.1kWh of solar panels plus all ancillary equipment to provide electricity, ceiling fans and lighting.

5 GENDER EQUALITY



- SolarArise encourages women to grow and succeed in their personal and professional lives. Several women hold leadership positions, including in strategy and data analytics. Tanya Singhal, director and co-founder, was awarded “Woman of the Year” in solar industry in India.
- The Board of SolarArise includes two female Directors

6 CLEAN WATER AND SANITATION



- The energy sector accounts for roughly 10% of total water withdrawals and 3% of total water consumption worldwide.
- Replacing fossil-fuel power stations with solar power production reduces stress on scarce water resources.
- Our solar plants use state of the art waterless cleaning systems

7 AFFORDABLE AND CLEAN ENERGY



- SolarArise produces clean and affordable renewable energy.
- Number of households with access to electricity has increased since the solar plants were built.
- Our clean solar energy already reaches more than 300,000 people.

8 DECENT WORK AND ECONOMIC GROWTH



- At peak times during construction, 1800 employees were on site.
- Post-completion, at least 210 full-time jobs have been created. These, in turn, contribute to a permanent boost of around 1050 jobs.



- Local areas have been developed through the construction and operation of infrastructure projects.
- Commercial Operations achieved for 75MWp Uttar Pradesh I solar plant during the last year; expected to provide sustainable power generation for years to come



- Skilled and unskilled workers hired across each solar plant.
- Distributed more than 400 bicycles to the locals, to facilitate commuting.



- Clean renewable energy is vital to support urbanisation and population growth.
- Solar plants directly contribute to better air quality and reduced environmental pollution.



- Our motivation is to combine ecology and economy in every project, in every investment product and more generally as the basis of our business.



- India emits over 2.6bn tonnes of CO₂ every year; almost 8% of the world's total.
- The CO₂ emissions avoided by our six already-operational solar plants is the equivalent of almost 75,000 passenger vehicles.
- Every USD invested in fast-growing economies, such as India, has a greater carbon offset impact than a USD invested in Europe



- All SolarArise solar plants lead to a substantial CO₂ reduction, mitigating the adverse effects of climate change on the oceans..



- Land is assessed to determine its suitability and sustainability for the installation of photo-voltaic solar panels. No deforestation occurs and inhabited land is not developed.
- Sustainable energy is crucial for ecosystems.



- Reliable, secure and sustainable energy is one of the foundations of economic and social stability.
- Job creation contributes to civil society and fosters respect for its institutions.



- ThomasLloyd is a member of the United Nations Environment Program Finance Initiative, a signatory of the United Nations Global Compact, a member of the GIIN and a supporter of the Task Force on Climate-Related Financial Disclosures (TCFD).

CONCLUSION

With more than 1.3 billion people, and the world's sixth largest economy, India now plays a pivotal role in Asia's energy transition; shifting from dependence on fossil fuels to harness, instead, its abundant solar resources. Visionary government policies have driven the installation of more than 94 GW of renewable energy capacity (excluding large-scale hydropower) with solar accounting for just over 40 GW and wind a further 39 GW. Taken together, these already account for 20% of total installed capacity and the government now targets 450 GW of renewable energy by 2030.

At ThomasLloyd, we have consistently demonstrated our commitment to India's economic, social and environmental welfare and are proud to help realise its ambitious future goals for the transformation of its energy supply which is vital for future development.

The solar plants in which we have already invested, and the future developments which are planned, will help reverse the degradation of air quality and improve lives both locally and nationally. The cumulative impact is substantial, creating well-paid jobs in otherwise impoverished regions, directly supporting philanthropic projects in areas local to the solar plants and offering education, training and healthcare facilities to boost skills and livelihoods.

The electricity produced by the solar sites in Telangana, Maharashtra, Karnataka and Uttar Pradesh already reaches 309,023 people, with an overall CO₂ reduction of 343,436 tonnes per annum. This is equivalent to the greenhouse gases emissions from more than 65,000 passenger vehicles or almost 1.2 billion kilometres driven by the average vehicle. These figures will increase substantially with the completion of the Madhya Pradesh plant.

This report evidences the the 2190 jobs created during the construction phase of the completed solar sites (300 at Telengana I and II, 800 at Karnataka I and II, 700 at Maharashtra and 390 at Uttar Pradesh). It also shows the 450 full-time staff employed during the operational phase of the plants.

We believe strongly that the key to delivering impact is creating jobs. Employment brings income, security, responsibility and dignity. It brings family stability and fosters respect for institutions and justice. The development of infrastructure is both capital and labour-intensive. It requires a lot of money and creates a lot of jobs, multiplied well beyond the initial project investment.

In addition to jobs, infrastructure spending also creates tax revenues: land value tax, corporation tax, payroll tax and sales tax. These tax revenues, in turn, help pay for improved public services: improved sanitation, better roads, housing and improved outcomes for health, education and social welfare.

With ESG firmly embedded in our responsible investment policy and throughout our investee companies, we have been granted the use of the LuxFLAG Environment Label and report under Article 9 of the EU's Sustainable Finance Disclosure Regulation (SFDR). This Impact Report forms part of our regulatory compliance and we look forward to developing this compelling story of sustainable infrastructure investment in the coming years.

Bibliography

India Impact Report – Geography

- <https://www.nenergybusiness.com/features/six-largest-coal-producing-countries/>
- <https://solargis.com/maps-and-gis-data/download/world>

India Impact Report – Demographics

- <http://www.indiaonlinepages.com/population/delhi-population.html>
- <https://sites.uoit.ca/sustainabilitytoday/urban-and-energy-systems/Worlds-largest-cities/population-projections/city-population-2050.php>
- https://nhm.gov.in/New_Updates_2018/Report_Population_Projection_2019.pdf

India Impact Report – Infrastructure

- http://www.indianrailways.gov.in/railwayboard/uploads/directorate/stat_econ/IRSP_2016-17/Annual_Report_Accounts_Eng/Statistical_Summary.pdf
- <http://morth.nic.in/showfile.asp?lid=3100>
- <https://www.ibef.org/industry/ports-india-shipping.aspx>
- <http://www.pppinindia.gov.in>
- <http://www.infrastructureindia.gov.in>
- <https://www.railway-technology.com/projects/delhi-ghaziabad-meerut-rrts/>
- https://morth.gov.in/sites/default/files/BRS_Final.pdf
- <https://www.aljazeera.com/news/2021/8/15/modi-unveils-infrastructure-plan-on-indias-75th-independence-day>

India Impact Report – Current Electricity Provision

- <https://www.iea.org/data-and-statistics/charts/electricity-demand-outlook-in-selected-regions-countries-in-the-stated-policies-scenario-2019-2030>
- <https://cea.nic.in/dashboard/?lang=en>
- http://cea.nic.in/reports/annual/annualreports/draft_annual_report-2018.pdf
- <https://sg.news.yahoo.com/indias-nuclear-power-generation-capacity-112938083.html>
- <https://mnre.gov.in/bio-energy/current-status>
- <https://mnre.gov.in/wind/current-status/>

India Impact Report – Solar Energy Policy

- http://indianpowersector.com/home/renewable-energy/solar_new/solar-power/
- <https://www.worldenergy.org/news-and-media/news/india-addresses-the-fourth-energy-revolution/>
- http://www.cea.nic.in/reports/monthly/installedcapacity/2018/installed_capacity-03.pdf
- <https://economictimes.indiatimes.com/industry/energy/power/indias-utility-solar-capacity-grows-72-in-fy18-report/articleshow/64675139.cms?from=mdr>
- https://www.pv-tech.org/news/india_releases_annual_targets_for_100gw_solar_goal
- <https://mnre.gov.in/solar/schemes>
- <https://www.iea.org/data-and-statistics/charts/electricity-demand-outlook-in-selected-regions-countries-in-the-stated-policies-scenario-2019-2030>

India Impact Report – Impact methodology

- https://www.idfcinstitute.org/site/assets/files/15212/idfc_institute_infrastructure-jobs_report_2019.pdf
- <https://www.unpri.org/download?ac=294>
- https://www.ifc.org/wps/wcm/connect/news_ext_content/ifc_external_corporate_site/news+and+events/news/newfeaturestory_creatingjobs
- <https://www.imf.org/en/News/Articles/2015/09/28/04/53/sores093014a>
- https://www.idfcinstitute.org/site/assets/files/15212/idfc_institute_infrastructure-jobs_report_2019.pdf

Memberships and
voluntary commitments

