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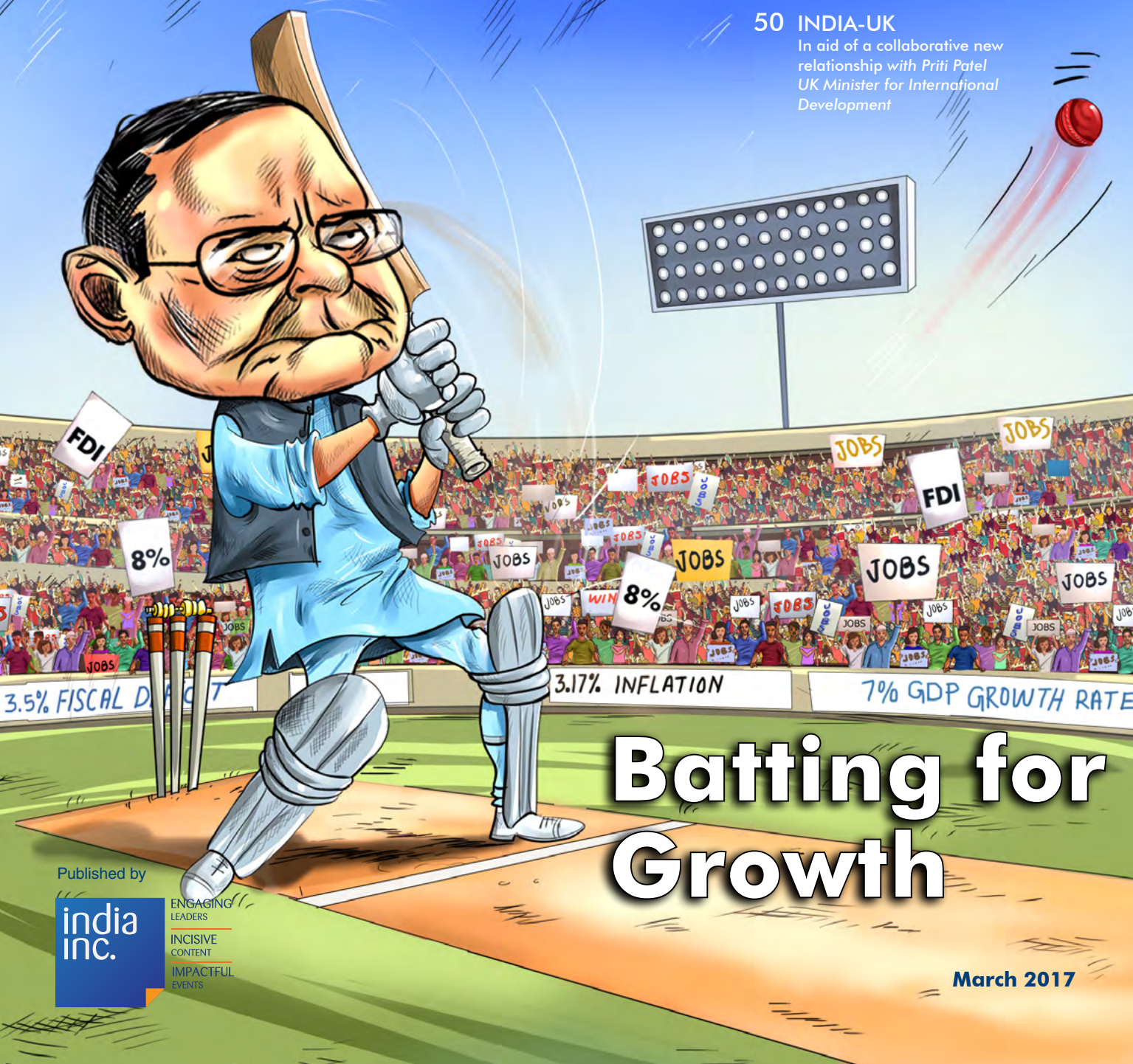

Batting for Growth

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INCISIVE CONTENT
IMPACTFUL EVENTS

March 2017

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ARUN JAITLEY: BATTING FOR GROWTH

After all the excitement over the Bharatiya Janata Party's 4-1 sweep of the recently concluded Assembly elections, it is time once again to focus on the nuts of bolts of governance. In the latest issue of 'India Investment Journal', we turn our attention to India's growth story and the man in charge of shepherding the country to greater economic heights.

Finance Minister Arun Jaitley, as our cover implies, has to bat both like Virender Sehwag and Rahul Dravid at the same time. I know cricket enthusiasts will pillory me for that statement because these two batsmen are as alike as the proverbial chalk and cheese, but let me explain.

As the election results proved once again, the ordinary Indian appreciates, among other things, the management of the economy by Prime Minister Narendra Modi and Jaitley and is willing to give them more time to make good on the promise of providing greater opportunities and more jobs.

In that sense, Jaitley, who is now wearing the additional hat of the country's Defence Minister as well following Manohar Parrikar's triumphant return to Goa as Chief Minister, has used the first two years of his tenure to "build his innings" a la Dravid. But with the next General Elections looming – they are due in a little over two years – Jaitley has already increased the tempo and stepped up the scoring rate as Sehwag was wont to do. And that is what we are focusing on in this issue.

The massive $90 billion he has allocated for infrastructure building in this Budget for 2017-18 is, in my opinion, like the proverbial volley of sixes that will take him closer to a winning score. This figure is quite close to the average investment (public and private) of $95 billion that fuelled the 2007-2011 boom. Yes, I know economists will cite inflation to argue that the present value of $95 billion from a decade ago is a lot higher than the nominal figure, but I would urge such people to look up another very important statistic.

Foreign direct investment (FDI) flows into India in the current year are at an estimated $53 billion.The target for 2017-18: $100 billion. And almost all of this figure will go into the generation of productive assets.

Taken together, I feel this massive dose of foreign and public investment can surely make up for the still poor investment rate of the Indian private sector and get the wheels of the economy rolling at a much higher velocity. Read about Jaitley's growth gambit in our cover feature of this month's 'IIJ'.

Let me add a point that is not covered in that report. As I have written previously, I feel analysts and even Jaitley's own government is erring on the side of caution while estimating the growth rate for the coming year.

Given the empirical evidence of how investments of about $100 billion per year over a three-four year period can send the growth velocity soaring, I feel Jaitley's thrust on infrastructure building combined with the rising levels of FDI inflows into India will almost definitely take the annual GDP growth rate beyond 8 per cent in the coming year. You can hold me to that – a year and a bit from now.

I feel Jaitley's thrust on infrastructure building combined with the rising levels of FDI inflows into India will almost definitely take the annual GDP growth rate beyond 8 per cent in the coming year.

Elsewhere in the latest edition, we have put together a Sector Focus package on the Indian defence aeronautical industry, which has both foreign defence contractors such as Lockheed, Boeing, Rolls Royce and SAAB, among others, as well as large Indian groups such as the Tatas, L&T, M&M and Reliance waiting eagerly for large orders to take forward the Make in India dream.

I would also like to draw your attention to our analysis on how the Jan Dhan scheme and demonetisation are coming together to take India closer its goal of becoming a digital (and largely cashless) economy.

Meanwhile, as Jaitley and the Modi government approach the final stretch of their five-year "Test match", we could see some real heavy hitting from the Finance Minister to push the investment cycle into a faster trajectory.

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EDITOR'S NOTE

The Year 2017 had been ear-marked as UK India Year of Culture by Prime Minister Narendra Modi during his tour of Britain in November 2015. That announcement became a reality when Indian Minister for Finance and Corporate Affairs, Arun Jaitley, represented the Government of India at a historic reception in Buckingham Palace in London recently.

While the year is set to be packed with an array of cultural events, both in India and the UK, the key message amid all the glitz and glamour is a familiar one: that India is crucial to the British economy, which is on the brink of breaking away from the European Union (EU).

In a series of interactions during his London visit, including an exclusive conversation on the sidelines of his packed schedule, the senior Indian Cabinet minister told 'India Investment Journal' that India remains one of the brightest spots amid considerable global uncertainty. In a clear snub to some of the increasingly anti-immigration rhetoric in the West, he was categorical that India would continue with its reform agenda as the least protectionist economy of today.

Britain, therefore, also forms a broader coverage theme of our journal this time. As part of an exclusive interview with the country's International Development Minister, Priti Patel, we explore the role of the private sector to promote the growth agenda in both countries; there is a special feature on how the UK continues to hold on to its position as the largest G20 investor into India; and a feature on how India is gradually becoming a growing market for British cars.

Our Big Story this time is also linked with the dynamic Indian minister on the cover and his historic Budget for 2017-18, which has set the tone for India's growth ambitions for the coming year. There is also an accompanying in-depth analysis on how schemes like Jan Dhan Yojana and demonetisation are empowering ordinary Indians.

And, within the context of a strong emphasis on infrastructure building in the Budget, the sectoral theme of this edition revolves around defence and aerospace, which is taking baby steps in the world of aircraft, missile and radar development. A PwC India expert talks through how Make in India is transforming this sector and we zero in on the mega Aero India 2017 in Bengaluru, where some crucial deals were clinched recently.

The State Focus for this edition of 'IIJ' is on Rajasthan and its resurgence as an important investment destination in India. An 'Expat's Guide to Jaipur' offers a broad fact-sheet on the state's capital city.

Among some of our regulars, Yoga Corner this time delves into the ancient Indian punishment of pulling ears to increase brain awareness and Realty Corner digs into the aftermath of the Annual Budget presented in February on the property market in India.

Please read on to explore all these features and much more.

Aditi Khanna
Editor, India Inc.

TAKING WING

Global arms merchants rub their hands in glee every time India decides to procure new weapons platforms. Over the next decade, the country is expected to spend a humongous $250 billion on new weapons, about a third of it for the Indian Air Force, which will need an additional 300 fighter jets, 1,000 choppers and an unspecified number of missiles and spares. The Narendra Modi government has decided to use its massive capital outlay over the coming decade as an incentive for foreign arms vendors like Boeing, Lockheed Martin, SAAB and BAE Systems to set up a defence aerospace eco-system in India to enable Indian private sector companies to design and build a future jet fighter from scratch – following in the footsteps of India's two-wheeler and car makers, who have followed the same template.

INDIAN-MADE JET ENGINES ALL SET TO TAKE FLIGHT

Rolls-Royce started its relationship with India over 80 years ago with its engines powering the first civil and military aircraft in the country. Chris Cholerton, President – Defence Aerospace at one of the world's leading manufacturers in the sector, tells 'India Investment Journal' how a focus on technology and capability transfer has contributed towards India's sustainable growth.

How is Rolls-Royce supporting the India growth story?

Today, as an investor, a high skills employer and a supplier of power systems across aerospace, marine, nuclear and industrial, we are developing a significant portfolio of activity in India to undertake progressively more complex activity across the engineering, manufacturing and supply chain domain. We believe in India's inherent strengths and are well-positioned to support the government in its commitment to 'Make in India' and in other socio-economic initiatives such as 'Smart Cities' 'Skilling' etc.

This year, R-R's theme at the Aero India show was "Co-creating the future together". Can you elaborate on what this means?

This theme recognises the deep relationships we have developed over many years, moving beyond just 'making in India' and looking for opportunities to truly co-creating, co-designing and co-developing the future together to support India's infrastructure and growth requirements. Developing a truly indigenous gas turbine capability is a long and difficult task for any country.

In fact, India has great indigenous capacity and capability to design, develop and manufacture a combat aircraft engine which can naturally be accelerated by technology transfer and close collaboration with trusted international partners, such as Rolls-Royce. We will also explore opportunities for co-creation for other products, not limited to gas turbines.

We believe we are uniquely placed to support India's future requirements as we are the only engine company to have transferred a full capability outside of our home market and to have executed successful international combat engine programmes. Also, our roots and partnerships are deep and long in this country.

Our collaboration with HAL for over 60 years proves that we have the partnering capability, technology and the heritage to support the government's Make in India initiative. We are proud to be a leading provider of power to the Indian Armed Forces and our commitment to support India to achieve its goals of indigenisation and self-reliance remains as strong as ever.

Overall, our long-term strategy in India is based on leveraging India's capabilities across engineering, manufacturing, supply chain and services activities and capturing indigenous market opportunities.

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>
> *Chris Cholerton, President Defence Aerospace, Rolls-Royce*

Where does India fit into Rolls-Royce's global value chain?

India fits as a supplier of products and services, as a partner to support design and manufacture for our global business, as a source of engineering talent and an important customer for our products and services for all our businesses. For example, at Manyata Technology Park in Bengaluru, we are showing real commitment by already employing over 500 engineers on complex component and concept design work. Our Supply Chain team in India is involved in providing inputs on capabilities to inform the component sourcing strategies, the introduction of new suppliers and the development of special process capabilities within the region.

The journey started with HAL (Hindustan Aeronautics Limited) forging division for the procurement of Ring Forgings, followed by partnering with HAL in our IAMPL (International Aerospace Manufacturing Private Limited) joint venture in 2012. The facility manufactures rings, shrouds and cones for a wide range of aero engines including the Trent family. Since then, India has evolved into a key supplier of multiple commodities centred upon core machining and fabrication capability. This journey will see us expand into other component types and we have ambition to continue to grow the technical complexity and breadth of component manufacture, helping us meet our customer requirements with the right cost, quality and delivery of our products.

Do you have any plans of setting up a manufacturing centre in India?

Our engines have been manufactured in India since the start of our partnership with HAL on the Orpheus in 1956. HAL now manufactures Adour engines that power Jaguar and Hawk AJT aircraft with our support. Over our long-standing presence in India, we have invested time and resources to build best-in-class supply chains, manufacturing and excellent engineering capabilities which support the development of the Indian industries.

We already have component manufacturing capability in country with HAL, through our IAMPL Joint Venture, which produces parts for our aero engines and is an important part of our global supply chain. We have also set up two engineering centres in India, one in Bengaluru where we carry out a range of aerospace design and engineering work, and the other in Pune to support our Marine and Power Systems business.

In Marine, our dedicated spares warehouse and a ship repair unit in Mumbai provide technical support to over 270 vessels using our equipment in India. Our Power Systems business, comprising of MTU and Bergen Engines, is active in the distributed power generation market in the areas of product investment and partnership opportunities for pursuing growth. The MRO workshop and Engine Test facility for MTU Engines in Pune is equipped to provide special tooling and trained manpower to overhaul all engine types.

The skill, the talent and the motivated workforce in India places it at the heart of our global strategy and, naturally, we are always on the lookout for opportunities to further expand our industrial footprint in India.

India has been struggling for decades to make a viable jet engine to power its indigenous fighter plane. Do you see any role for R-R in this?

Absolutely. India has made great strides already in this

> The skill, the talent and the motivated workforce in India places it at the heart of our global strategy

direction and there's an excellent pool of talented engineers and scientists. But a modern gas turbine engine is a hugely complex system and so developing indigenous capability is difficult and time consuming for anyone. Leveraging the existing skills and capabilities of trusted partners, such as Rolls-Royce and the UK government, will naturally help.

As I mentioned above, Rolls-Royce is unique in that it is the only whole engine company to have successfully transferred a complete capability outside of our home markets and has worked on many international engine collaborations. And our long heritage in the country and future global strategy, which places India at the heart of those ambitions, underlines that we have been and will remain fully committed to a successful India.

How can R-R help India in setting up a domestic eco-system for design and manufacture of high performance engines?

From a team of two, we now have around 800 (and still growing) highly-skilled and talented people in India capable of driving business growth and have ambitious plans to create a broader ecosystem that includes co-design, co-development and co-manufacturing. With our partners - QUEST and TCS - we develop high quality engineering solutions and services across the entire engine product development cycle in India.

Our growing engineering and supply chain footprint will enable us to build an ecosystem that engages in co-creation across the entire value-chain – from research, design and development to manufacturing, maintenance and repair. For India, it would provide further impetus to the 'Make in India' initiative to strengthen its R&D and access to advanced technologies and products.

In addition, our partnerships with the Strategic Manufacturing Skills Council for defence sector, the Aerospace & Aviation Sector Skills Council, Karnataka Aerospace Technology Centre and Rajiv Gandhi National Aviation University (RGNAU) emphasises our commitment to build future skills and competencies required by the Indian aerospace industry. Through our STEM outreach of over 30,000 in 2016-17, we are building and nurturing future talent pipeline. This demonstrates our long-term commitment to strengthen our distinguished legacy and play a major role in helping develop India's capabilities.

What critical technologies do Indian Tier 2, Tier 3 suppliers have to master for the above? Can R-R's vendors help achieve this?

Advancing capability in primary forming capabilities, including more complex forging and casting processes will provide an advantage for India. This will allow greater vertical integration and a route for greater control of cost, logistics efficiency and open up possibilities for future innovation.

Advancing areas of current strength in both machining and fabrication will also be advantageous in exploiting new opportunities in increasingly complex commodity areas. Aerospace demands the highest levels of quality standard – development and confidence in the application of these standards within the second and third tier of the Indian supply chain is an absolute requirement. This is a key enabler to future growth and an area where Rolls-Royce partnership can bring value.

AEROSPACE MAKES AN INDIAN MARK

by India Inc. Staff

The Indian defence-aerospace industry is taking baby steps in the world of aircraft, missile and radar development. There will be massive opportunities over the next decade for Tier 2, Tier 3 and Tier 4 firms in the West to form lucrative long-term JVs with Indian partners.

India is negotiating the sale indigenously designed Akash surface to air missiles to Vietnam. Almost simultaneously, the Government of India has also cleared a Rs 17,000-crore (($2.6 billion) agreement o jointly develop a medium range surface to air missile for the army in order to beef up its defence preparedness.

Importantly, the first is an example of a 100 per cent Indian weapons platform, while the second envisages co-development by India's Defence Research & Development Organisation (DRDO) and Israeli Aircraft Industry (IAI) – a big change from the previous practice of either buying foreign weapon systems off the shelf or assembling them in India under license.

A new approach

The system of assembling foreign weapon platforms, ranging from the British Jaguar fighter-bombers to the Russian MiG and Sukhoi fighter jets to French Mirage aircraft by the public sector Hindustan Aeronautics Ltd (HAL), does not seem to have led to much technology absorption in the country – evident from the travails faced by the Tejas Light Combat Aircraft.

A direct consequence of this failure is India's rank as the world's leading importer of weapons – for seven of the last 10 years, according to Sipri, an international research institute. This is an "accolade" the country could do without.

The Narendra Modi government has, thus, eased rules, cut through

> "We are offering 100 per cent technology transfer, full system and software control, under the Make In India vision. Saab is committed to India and will deliver the best industrial cooperation and technology transfer over the life of the programme."
>
> *Jan Widerstrom*
> *CMD, Saab India*

much of the bureaucratic red tape and made it attractive for the private sector as well as foreign defence companies to set up operations in India. In addition to making India self-reliant, this will also generate thousands of jobs in the country, lower costs, save foreign exchange and give wing to New Delhi's great power aspirations.

A welcome arms race

It will be fair to say that there is a veritable arms race raging in India – among large, medium and small companies in India's private sector. The Tata Group, both the Reliance Groups, each run by one Ambani brother, Larsen & Toubro (L&T), Godrej, Bharat Forge and a host of others have tied up with foreign vendors such as Boeing, Airbus, BAE Systems, among others, to bid for government contracts.

India's defence budget is the 4th largest in the world. The country is expected to spend up to $250 billion on procuring arms over the next decade. More than third of this will be spent on modernising the air wings of its military, with the expected acquisition of more than 300 frontline warplanes, over 1,000 helicopters and dozens of missile systems of varying ranges and capacities.

Creating a new eco-system

India was the first Asian country, apart from Japan, to develop and fly its own jet fighter plane. That was soon after Independence. HAL invited Kurt Tank, the designer of the Luftwaffe's fearsome Focke-Wulf single engine fighter jet, to design a jet for the Indian Air Force. The result: the HF-24 Marut, which served the air force with distinction for more than two decades.

But for some reason known only to the governments of that time, this knowledge base was allowed to wither away. India did not expand and build on the knowhow and know why gained. As a result, when it set out to design the LCA, it had to begin from scratch all over again.

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Aircraft manufacturing is a complex operation that needs a high technology eco-system with hundreds of small, medium and large vendors to make the components that go into a modern plane.

Barring the 52 DRDO laboratories and the few dozen public sector companies that are part of India's stuttering defence industrial complex, this country does not have many vendors with the expertise to nurture an aerospace industry.

This capability will have to be created almost from scratch. And therein lies a massive opportunity for a host of western European, US, Japanese and South Korean vendors.

Scope for mid-size Western defence vendors

US aerospace majors Boeing, Lockheed and Sweden's SAAB have offered to transfer the assembly lines of their F18 Super Hornet and F-16 fighter planes to India if the Indian government agrees to buy a minimum number of planes for its Air Force and Navy. SAAB has offered to do the same with its Gripen line of fighters.

"Under the Make in India process we may have one or two more jet fighters plants in India by the private sector," Indian Defence Minister Manohar Parrikar said recently, adding that "several proposals are under consideration and we will select them through a proper process."

The Indian government is yet to decide which offer it will take up – and the Donald Trump administration's US First credo may well put a spoke in the wheel of the offers of the two US companies.

But regardless of which company finally wins the bid for supplying planes, it is fairly certain at this stage that India will become the location of the only supply line of at least one of these fourth generation fighters.

"Saab is offering an industrial facility that will be centre of gravity for the Make in India Gripen. It is an unrivalled offer that will set new standards in aeronautical engineering excellence for decades to come… We are offering real technology transfer for an Indian-built combat aircraft of the future with new generation technology. We are offering 100 per cent technology transfer, full system and software control, under the Make In India vision. Saab is committed to India and will deliver the best industrial cooperation and technology transfer over the life of the programme," Jan Widerstrom, CMD, Saab India Technologies, told the media recently.

Boeing and Lockheed Martin have made similar statements about their offers as well.

These fighters use components sourced medium and small companies across the US and Western Europe. If the production base of any of these planes shift to India, it is likely that at least some vendors may be tempted to follow suit – in order to be closer to their end customer as well as to take advantage of the cost arbitrage India offers.

Then, there are reports that a private sector partner could be roped in to speed up the production and further development of the Tejas LCA. Since an estimated 35 per cent of the plane is sourced from abroad, this will open up new avenues of cooperation between large Indian private companies and medium and small scale vendors of high technology components in the West.

India will also buy about a thousand helicopters and develop new missile systems for its military. While some this will be designed and manufactured locally, a fairly large proportion will come from foreign vendors who will be obliged to Make in India.

Easier rules for 100 per cent foreign ownership

Many foreign defence vendors have refrained from investing in India because they don't want to share high technology unless they are allowed 100 per cent ownership. Till November, this was difficult as Indian laws allowed foreign companies to hold more than 49 per cent stake in Indian companies only if it brought in modern and state of the art technology.

This led to apprehensions that the word "state of the art" could be open to different interpretations by different people and this could lead to approvals being revoked in future. To remove such misgivings, the government has removed the term

"state of the art".
Press Note No 5 of 2016 published by the Department of Industrial Policy and Promotion (DIPP) amends the circular dated June 7, 2016 says foreign investment beyond 49 per cent (and up to 100 per cent) may be permitted on a case-by-case basis if it brings modern technology into the country.

This will make it easier for many small and medium companies to set up 100 per cent-owned subsidiaries in India that can supply high technology and patent/copyright-protected components to end-user assembly lines of fighter jets and helicopters made in India either by foreign companies or by joint ventures between large foreign defence companies and their Indian partners.

In particular, lots of opportunities exist for British firms. Says Fraser Hamilton, Vice President, Global Alliances, for Boxaar, which has developed a systems management software to quicken defence processes: "India is an exciting market. The UK may be leaving the EU, but we are stepping up our engagement elsewhere. India and the UK are an unbeatable combination in defence and aerospace."

Joint ventures are in place

The Indian government's announcements that it will buy complete weapons platforms from the Indian private sector to reduce imports of defence equipment from 70 per cent at present to 30 per cent within a decade has prompted a host of foreign defence aerospace manufacturers like Boeing, Lockheed, BAE Systems, Airbus, Israeli Aircraft Industry, among others to forge joint ventures with large Indian conglomerates such as the Tata Group, Reliance (both Mukesh Ambani and Anil Ambani), L&T, Godrej and M&, among others.

But the Indian government has not yet floated any large contract that any of these JVs can bid for. That, perhaps, is holding back Tier 2 and Tier 3 suppliers of components to these Western defence majors from forging links with smaller Indian companies.

"We like the policy; we await the execution," a senior executive in a foreign defence firm said at the recently concluded Bangalore Aero Show, which had 549 exhibitors, almost half of them foreign.

Make in India versus Assemble in India

As noted earlier in this report, India's mainly public sector defence industry has been assembling a host of Russian, British and French aircraft under license, without much technology absorption.

Some experts question how replicating this model with private sector partners will improve the situation. But here, some experts point to the example of the two-wheeler industry. In the early 1980s, when the sector was opened up, almost every Japanese major – Honda, Yamaha, Kawasaki and Suzuki – entered India in partnership with Indian companies.

The buzz then was that these Japanese brands would take over the Indian market in a short while. In truth, the reverse was the case. Today, an Indian company, the erstwhile partner of Honda, is the world's largest motorcycle company, and Indian brands, not the better known Japanese ones, rule the Indian roads.

A PwC study from 2014 says liberalising the defence sector could result in a similar diffusion of technology to Indian companies and help develop the domestic defence industrial base.

Priority to indigenous weapons platforms

The government has announced that it will priority to weapon system designed, developed and made in India. It has also eased norms for exports of these made in India weapons. Exports, according to experts, is the only way to make arms making a profitable proposition for domestic companies.

This is expected to incentivise companies to absorb and indigenise technologies and develop their own platforms, a la, the two-wheeler industry.

Encouraging defence start-ups

The Defence Minister announced the setting up of a new technology innovation fund for defence aerospace to encourage start-ups in this area.

"We are initiating a defence innovation fund with an initial contribution from HAL and BEL. The fund will support innovation and technology development and will be open to both Indian and foreign firms. The focus will be on start-ups to enable a culture of innovation," Parrikar said at the recently concluded Bangalore Aero Show. He did not disclose the size of the fund.

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Coming of age

The defence aerospace industry in India is slowly coming of age. The private sector, which has been supplying components to HAL and other defence contractors is now ready to step up and start making complete platforms with technological support from foreign defence contractors.

"In the coming years, the role of IT and network centric warfare is going to be a game changer. As the Indian defence industry catches up with the international industry in terms of producing hardware, it could take a quantum leap in matters of information warfare. The recent push by the government to incentivise electronics manufacturing in the country will complement the existing expertise in services and software," Dhiraj Mathur, Leader, Aerospace and Defence, PwC, said in a recent report brought out by the Big 4 consultancy firm.

India is now taking baby steps towards self-reliance in the defence sector. But before it gets there, it will have to create a network of vendors, suppliers, independent consultants and designers, especially in the micro, small and medium enterprises sector, who will, necessarily, have to form the backbone of the country's defence-industrial sector.

It may be a decade and a half before results begin to show. Over this period, there will be a huge opportunity not only for the big boys but also for Tier 2, Tier 3 and Tier 4 companies both in India and the West to enter into long-term joint ventures to service what is arguably among the most lucrative arms markets in the world.

INTERNATIONAL PLAYERS IN INDIAN AEROSPACE

Airbus

Airbus has a prominent presence in the Indian aviation sector, with over 70% market share. It works with over 45 Indian suppliers, who employ over 6,000 people. Airbus Helicopters recently teamed up with Mahindra Defence to produce helicopters locally, with the aim of establishing the first private sector joint venture company under the 'Make in India' initiative.

Bell Helicopter

Bell started its operations in India in 1995 and has over 100 employees in New Delhi, Bengaluru and Mumbai. Bell Helicopter and Tata Advanced Systems signed an agreement in July 2016 to manufacture helicopters under the Make in India initiative to meet civil and military requirements.

Boeing

Boeing's 707, 747, 757 Freighter, 777, 737 and the 787 Dreamliner have been the mainstay of India's commercial aviation sector. It employs 500 people in India and more than 3,500 people work on dedicated Boeing supply chain jobs. In September 2015, the India Ministry of Defence finalised its order with Boeing for production, training and support of Apache and Chinook helicopters.

Dassault Aviation

Dassault Aviation has a strategic partnership with the Reliance Group to execute the largest defence offset contract worth around to $4.5bn. The JV with Reliance Aerostructure Ltd has received clearance from the Competition Commission of India and Dassault CEO, Eric Trappier, recently said that the French major is ready to assist India with its fighter jet programme.

Honeywell Aerospace

Honeywell Aerospace claims to be supporting the Indian aerospace industry for 40 years, dating back to a tie-up with India's only defence OEM, Hindustan Aeronautics Limited (HAL). The firm employs about 2,800 dedicated aerospace engineers in India and produces integrated avionics and communications systems, among other products and services.

GE Aviation

GE Aviation is a leading provider of jet engines, components and integrated systems to Indian carriers and its engines power a large proportion of India's commercial and private fleet. Each of India's indigenously developed Light Combat Aircraft LCA Mk-II fighter jets are powered by a single GE F414-INS6 jet engine.

BAE Systems

BAE Systems India (Services) Private Limited manufactures aircraft, defence, and security equipment. In 2016, BAE Systems selected Mahindra as partner for the proposed in-country assembly, integration and test facility for the M777 Ultra Lightweight Howitzer. It claims that developing a supply chain in India is a key for the company.

Israel Aerospace Industries

Israel Aerospace Industries (IAI) has many years of experience in the unmanned aerial vehicle (UAV) field in India. The firm recently signed an MoU with Kalyani Strategic Systems to incorporate a JV in India with the aim of building, marketing and manufacturing air defence systems and ground-to-ground as well as ground-to-sea munitions.

Lockheed Martin

Lockheed Martin opened its India subsidiary in New Delhi in 2008. It has sponsored and supported the India Innovation Growth Programme (IIGP) since 2007, a flagship innovation programme in the Department of Science and Technology. The firm focuses on technology development, manufacturing and strategic collaboration in India, with a range of aircraft for the Indian Army and Navy.

Rockwell Collins

Rockwell Collins made its India entry with its first Design Centre in Hyderabad in 2008. Between the Hyderabad centre and a facility near New Delhi, the company claims to be focused on investing in India, transfer technology and provide open, affordable solutions to military and commercial partners. The firm has approximately 700 employees in the country.

Rolls-Royce

Rolls-Royce has been in India for 80 years and described itself as a key player in the country's aerospace sector. Its areas of operation include civil aerospace, defence aerospace, marine, power systems and civil nuclear systems. The company operates several sites across India, including in Delhi and Pune, and is growing its presence in Bengaluru.

Sukhoi Aviation Holding Company

Sukhoi is Russia's major aircraft holding company and manufacturer of export aircraft, ranked third in the world in terms of the number of modern fighters produced. India and Russia recently agreed to a detailed work-sharing agreement for the joint production of a new Sukhoi/HAL Fifth Generation Fighter Aircraft (FGFA).

Market Opportunity

- India is the **7th largest** Aerospace and Defence (A&D) market globally
- India is the **9th largest civil aviation** market in the world, and is projected to become the 3rd largest by 2020
- Due to the "Make in India" campaign there is now an estimated offset obligation of around **$50 billion**
- It is predicted that India will invest more than **$130 billion** for modernisation of the defence sector over the next 7-8 years.
- A significant portion of this will be spent on modernising the Indian Air Force
- Nasscom and Roland Berger estimate the total market opportunity for A&D electronics for India at $70-72bn over the next 10-12 years
- The Indian Aerospace industry is still very fragmented
- Maintenance, Repair and Overhaul and offset guidelines are major growth drivers

Policy Push

The Indian Ministry of Defence issued **Defence Procurement Procedure (DPP)** 2016 to increase the participation of India's private sector in military manufacturing, thereby supplementing the Indian government's "Make in India" initiative for the defence sector.

Key aspects of the DPP 2016

- IDDM (Indigenous Designed Developed and Manufactured) category has been made a priority under the DPP 2016
- The DPP 2016 has liberalised the threshold for offset liabilities for foreign vendors in the Buy (Global) (ie outright purchase from a foreign/Indian vendor) and the 'Buy and Make' categories of procurements
- Offset obligations on foreign suppliers has been generally retained at 30 per cent
- The DPP 2016 is aimed at encouraging growth of the micro, small and medium enterprises (MSMEs)
- The DPP 2016 has guidelines for the appointment of an agent by a foreign vendor, bringing greater transparency to the defence procurement process
- The government of India has liberalised the FDI policy in the defence sector
- FDI up to 100% is now permitted in the defence sector

SHORT TAKES

Reliance, Dassault get new JV

Reliance Aerostructure Ltd's 51:49 joint venture with Dassault Aviation has been incorporated as Dassault Reliance Aerospace Ltd (DRAL).

Eric Trappier, chairman of Dassault Aviation France, will be the chairman of the venture and Anil Ambani, Chairman of the Reliance Group, will be the co-chairman of DRAL.

DRAL will be a key player in the execution of offset obligations between India and France for the purchase of Rafale jets.

DRAL will develop infrastructure at Dhirubhai Aerospace Park at Mihan, Nagpur and construction of the greenfield facility will start in May 2017, and production by end-2017.

In phase I, DRAL's programme is expected to generate over 700 highly skilled direct jobs and 2,800 indirect jobs.

Adani Group explores Swedish JV

The Gautam Adani-led Adani Group is reportedly in talks with Sweden's Saab AB for a partnership.

The Swedish firm makes Gripen fighter jets, which reportedly is in the race for India's next multi-billion fighter jet order. The other is Lockheed Martin Corp. of the US, which makes the F-16 jets.

Saab has promised to build the fighter jets in India if it wins the order. The Indian government has sought proposals for single-engine fighter jets. In addition, the Indian Navy is also eyeing fighter jets for its aircraft carriers, which could be worth another $15 billion.

The planes will be procured under a new method in which an Indian government panel will prescribe a model to select an Indian partner. The Indian company will then exclusively manufacture military equipment for a specified period.

Boeing Defence India is born

Global defence and aviation major Boeing has announced setting up of Boeing Defence India (BDI), a local business entity, as part of its expansion plans in India.

BDI will serve as a framework enabling Boeing to draw on the growth and productivity benefits that India can offer the company, according to Leanne Caret, President and Chief Executive Officer of Boeing Defence, Space and Security.

Pratyush Kumar, President, Boeing India, will lead the new entity, a company statement said.

He said: "Boeing has made accelerated investments to grow the manufacturing, skill development and engineering scale in the country.

"With BDI, Boeing will expand its engagement with India's Ministry of Defence to deliver advanced capability and readiness to India's military customers and to develop a competitive supplier base in the country that is integrated into Boeing's global supply chain."

BDI will oversee Boeing's recent investments in India including the Tata Boeing Aerospace Ltd (TBAL) joint venture, the C-17 simulator training centre, Boeing's sourcing and manufacturing activities, sales and marketing activities and the engineering centre expansion.

LARSEN & TOUBRO

Larsen & Toubro in Europe JV

Indian engineering conglomerate Larsen and Toubro (L&T) and European missile major MBDA have set up a joint venture to develop and manufacture missiles in India to meet the country's defence requirements.

L&T MBDA Missile Systems Ltd is expected to be incorporated in the first half of 2017 after necessary approvals.

The L&T will hold 51 per cent in the new JV, while MBDA the remaining 49 per cent. It will kick off with the development of the fifth generation Anti-Tank Guided missile, missiles for the coastal batteries and high-speed target drones.

Antoine Bouvier, Chief Executive Officer, MBDA, said: "Our business strategy in India has always focused on entering into a partnership at the deepest level, not just with the armed forces but also with the Indian industry."

HOW INDIA'S GOAL FOR SELF RELIANCE IS TRANSFORMING AEROSPACE

by Dhiraj Mathur

The Indian government's goal to achieve self-reliance is on track, writes a senior adviser in the defence sector.

Dhiraj Mathur is Partner, Regulatory Services Leader – Aerospace & Defence, at Pricewaterhouse-Coopers India. He has been the lead advisor to many corporations on their India entry plans and joint ventures.

India's defence budget has grown manifold over the last seven decades to $39 billion in 2017-18, which is around 1.6 per cent of the country's gross domestic product (GDP).

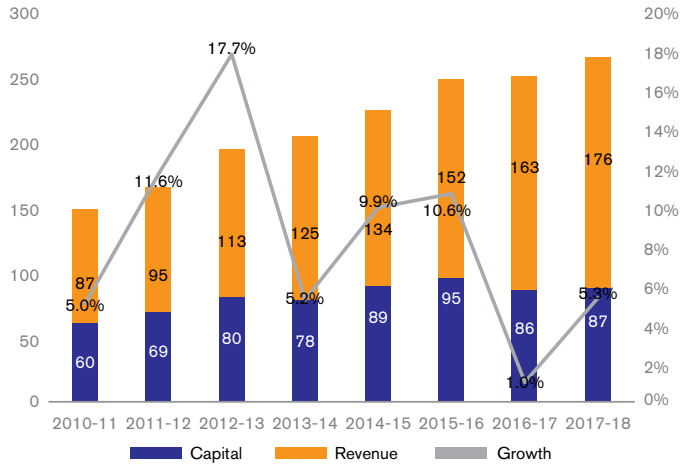
Overall, India contributes nearly 3 per cent to the world's defence and aerospace spending of about $1.7 trillion and ranks among the top five countries in the world in terms of military expenditure and is the largest importer in the world, as over 65 per cent of its requirements are bought from foreign Original Equipment Manufacturers (OEMs).

Obsolescence and depletion have created a significant demand for wide ranging equipment in all the three arms of the Indian armed forces. Accordingly, the Indian government has undertaken a major defence acquisition programme for the armed forces to upgrade and replace existing equipment in a planned and phased manner whilst also filling in the capability gaps. During the next 10-15 years, it is envisaged that India would need to replace all its major weapon systems.

The government recognises the financial and operational advantages of continuing with legacy Russian armaments. However, a number of factors have led to India broad-basing defence acquisition. These include difficulties faced in sourcing spares and components after dissolution of the USSR, improved relations with the US and a widespread realisation that it is in India's strategic interest to diversify our sources of supply. India has started buying defence equipment from a number of new suppliers – the US, Israel, France and UK. In the current Budget for FY 2017-18, the government has allocated about 33 per cent ($12.9 billion) of the total defence budget for purchase of capital equipment.

Faced with the high level of imports, the government has made achieving self-reliance a key national priority and has introduced a series of reforms to the Indian defence procurement policies and procedures. One of the key elements of the reform has been to allow private sector participation in defence production with the objective of developing a domestic defence industry and to build sustainable defence design, development and manufacturing capability within India. The introduction of defence offsets as a part of Defence Procurement Procedures (DPP) in 2005 was a step in this direction. The DPP was last amended in 2016 to introduce a hierarchy of acquisition categories with "Make in India" at the highest level. The reforms are also aimed at increasing transparency and ensuring

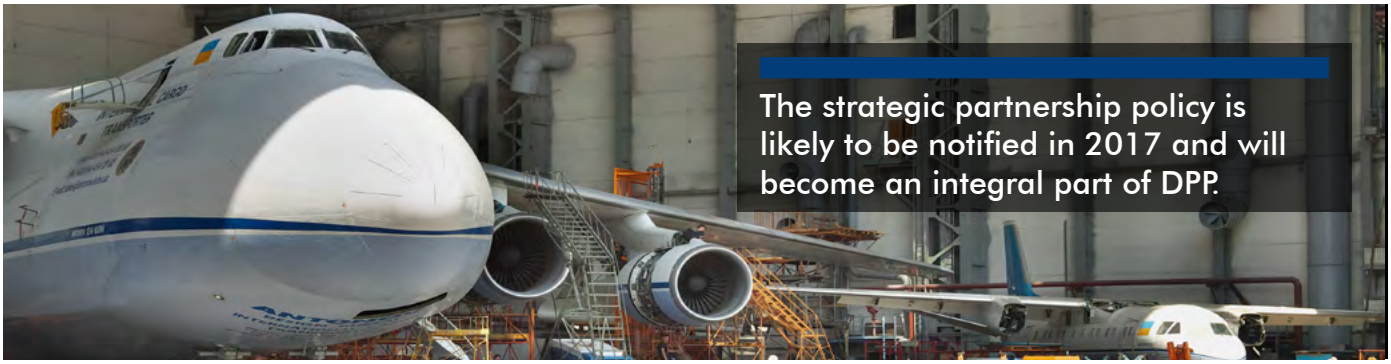
Defence budget allocation and y-o-y growth (INR '000 crore)



Self-reliance is the ability to develop the eventual capability to design, develop, and produce major armaments systems as well as their spare parts and components. However, the domestic industry is still at a nascent stage.

since the new DPP will compel TOT and investment in domestic manufacturing and training.

So far, OEMs have tended to have a "reactive" India strategy; they would start planning and get active only after issue of a RFI. This will have to change to a highly proactive stance if they want to participate in future programmes, the majority of which are likely to be in one of the make in India categories. A strong local presence in design, development and manufacture will enable them to have greater interaction with their customers, customise their product and be cost competitive. They, therefore, need to develop a focused India strategy that would include making her part of their



accountability in the defence acquisition and procurement process.

Self-reliance is the ability to develop the eventual capability to design, develop, and produce major armaments systems as well as their spare parts and components. However, the domestic industry is still at a nascent stage. Recognising this, in the past two years, the government has taken several policy initiatives to lower entry barriers, to improve the ease of doing business in defence manufacturing, and to provide a level playing field for domestic manufacturing. Indian government is also encouraging foreign investments in this sector by liberalising the FDI policy.

A major pending policy is to identify/select Indian private sector defence manufacturers as strategic partners for foreign OEMs. The strategic partnership policy is likely to be notified in 2017 and will become an integral part of DPP. These efforts have begun to bear fruit as we see increasing participation of the private sector with key companies moving up the value chain by partnering with leading global A&D companies.

Clearly, the government is totally committed to promote manufacturing through launch of the 'Make in India' campaign and improving ease-of-doing-business. Aerospace (both civilian and defence) and defence are key sectors of the Make in India campaign and will continue to be so. The government is leveraging the new DPP 2016 to push domestic companies and foreign OEMs to collaborate in defence production. Consequently, OEMs will have to review their India strategy global supply chain, enhance local presence and formulate an industry partnership strategy.

There are a large number of good companies – SMEs and mid-sized available and multiple options for partnering: co-production, technical collaboration, sub-contracting, joint ventures. They must plan to leverage India's abundant supply of low cost skilled labour and capitalise on manufacturing incentives provided by both the federal and state governments. The M-SIPS programme of the Ministry of Electronics and Information Technology is an excellent scheme that incentivises domestic manufacture of almost the entire range of electronics equipment, including for defense, by providing a 25 per cent cash subsidy for eligible CAPEX for both greenfield and brownfield projects.

Finally, some words of caution: it is very important to conduct a comprehensive due diligence on potential partners to ensure that they are aligned to global corporate policies, particularly in ethics. Second, laws and regulations in India are complex and it is important to have a good understanding of them to ensure compliance. And finally, you need to be patient in India! Things can get delayed but they do finally happen. But to succeed here, you need to be here, to enjoy our food and our traffic jams, the beautiful countryside and the rapidly developing smart cities.

And, there is indeed a big pot of gold at the end of the rainbow!

**Information Source: 'World Military Balance 2016', International Institute for Strategic Studies (IISS)*

AEROSPACE INDUSTRY TAKES FLIGHT WITH MAKE IN INDIA

It is dubbed Asia's largest air show and the 2017 edition of Aero India in Bengaluru recently proved the ideal showcase for the Indian government's plans to transform India into a global manufacturing hub.

The highlight of this year's Aero India was a dual role combat-capable Advanced Hawk jet trainer, developed jointly by the UK's BAE Systems and India's public-sector Hindustan Aeronautics Limited (HAL) being formally unveiled.

The smart weapons-enabled Advanced Hawk prototype, scheduled to undertake its maiden test flight in Britain in March, features an upgraded wing for greater agility and 13 per cent enhanced thrust in its Full Authority Digital Engine Control (FADEC) Rolls-Royce Adour Mk951 powerpack, according to aerospace guide 'IHS Jane's 360'.

This will potentially provide the trainer a 17 per cent improved climb rate and a 20 per cent reduced turn radius, BAE Systems claimed.

Equally funded by HAL and BAE Systems and executed over the past 24 months, the upgrade will qualify the Advanced Hawk to carry assorted weaponry for employment on strike co-ordinated armed reconnaissance, surveillance, air defence, and close air-support missions.

The Hawks were the highlight of the Make in India focus of the grand event, which attracted an estimated 550 companies from around the world and India.

"We encourage Indian companies in defence manufacturing but we would also like to encourage foreign companies. The government is working on ways to increase private player participation in defence manufacturing," said the Indian defence minister, Manohar Parrikar, who revealed that many of the major defence projects will get going this year, including a second manufacturing line for indigenously developed Light Combat Aircraft (LCA) Tejas.

"Many of the private sector projects like SP (self-propelled) gun, C-295 (Airbus transporter aircraft) and even single and twin-engine fighter jets are in an advanced stage of decision making. We expect to get these in line during the current calender year," he said.

The Indian Air Force is looking for new fighter jets to replenish its fleet. With another indigenous aircraft carrier to be inducted in service soon, the Navy is also looking to procure over 50 fighter jets.

"What the Navy wants is a different variety and it thinks that a twin-engine one would be a better version. The LCA naval version has to be successfully tested," the minister added.

He also unveiled a new Defence Innovation Fund (DIF) to encourage innovation, technological development, research and development in India. The initial contribution for the fund will come from Hindustan Aeronautics Limited (HAL) and Bharat Electronics Limited (BEL) and the fund would be open for both Indian and foreign companies.

"The government will encourage manufacturing, design as well as innovation in the field of defence manufacturing. Conditions have never been better than now for defence manufacturing in India and I hope it will make way for better technical enhancement," Parrikar said.

Deal Tracker

Thales and Bharat Dynamics sign MoU to explore transfer of technology (ToT) opportunity for STARStreak missile to India with the support of the UK government.

Telangana government to set up Skill Development Centres in the aviation sector; MoUs signed with three partners from France – namely National Skill Development Council, Airbus and Aero School Aquitaine; and with Cranfield University, UK.

Axiscades and Drone Volt signed an MoU to jointly address the growing market for drones in the Indian defence and aerospace sector. Both companies will evaluate opportunities for drones to address the requirements for the aerial surveillance, including disaster management and hazardous site security.

L&T and MBDA announced a strategic tie-up with a focus on jointly producing a new generation of anti-tank missiles for an upcoming project for armoured infantry vehicles.

Saab and Hindustan Aeronautics sign a contract to deliver (ToT) between South Africa and India. The contract – valued at $8.5 million – will see the transfer of technology for in-country maintenance of Saab's Integrated Defensive Aids Suite (IDAS) system in India.

Reliance Group & Dassault Aviation announced the incorporation of Dassault Reliance Aerospace Limited (DRAL) joint venture.

Israel Aerospace Industries (IAI) and Kalyani Strategic Systems Ltd (KSSL) sign an MOU to form a new JV to build, market and manufacture specific Air Defence Systems and light weight special purpose munitions.

Pawan Hans and Airbus Helicopters sign MoU appointing the Indian helicopter operator as Airbus Helicopters' approved maintenance centre for the Dauphin and Ecureuil rotorcraft. The MoU has the provision to enlarge Pawan Hans' scope of maintenance services in the future to include other Airbus helicopter types.

Overview

One of the highlights of Aero India 2017 was the display of unmanned aerial vehicles by domestic and overseas companies

Israel Aerospace Industries displayed the newest export version of its long-range Heron drone, dubbed the TP-XP

The homegrown "**Rustom",** a medium-altitude, long endurance unmanned combat air vehicle developed by India's
Defence Research and Development Organisation proved an attraction

Bell brought a navalised version of its **429 helicopter** to demonstrate its qualities to the Indian Navy

Israel Aerospace Industries (IAI) offered its **Boeing B767-300ER** based Multi-Mission Tanker Transport (MMTT) for
the Indian Air Force's requirement for six new tanker aircraft

UK-based Rolls-Royce presented an Advanced Military Fan Concept — a full scale model of military fan for a 5th generation fighter aircraft engine

INDIA IS THE MOST OPEN, LEAST PROTECTIONIST ECONOMY TODAY

India's Minister for Finance and Corporate Affairs, Arun Jaitley, just completed a packed tour of the UK during which Prime Minister Theresa May dropped in to a Downing Street meeting with his British counterpart, Chancellor Philip Hammond. 'India Investment Journal' caught up with the senior Indian Cabinet minister in London to explore his message for foreign investors, a possible free trade agreement (FTA) with post-Brexit Britain and the next phase of his dramatic reform agenda for the Indian economy.

Is post-Brexit UK a more, or less, attractive trading partner?

There is a considerable amount of interest in India, particularly after Brexit. Correspondingly my discussions in the past have also indicated that both investors and the government here [Britain] are looking for expanding opportunities of trade with India.

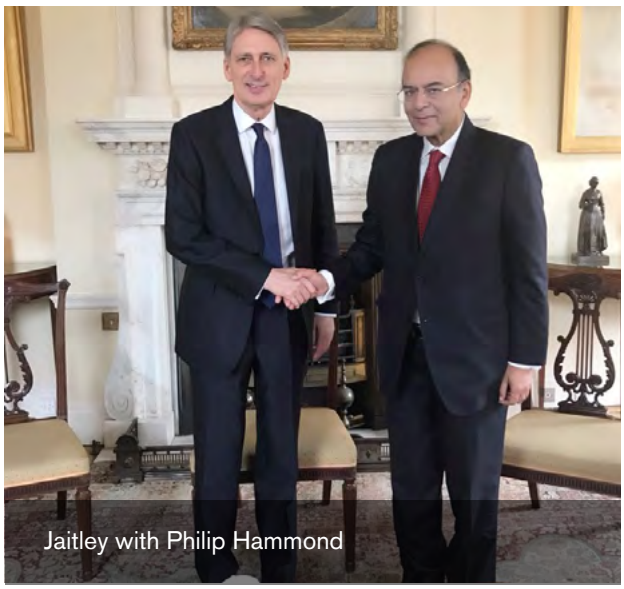
In our discussions with the government of Britain, what we have understood is that they are keen to send a message that there will be no move towards any form of protectionism.

As for expanding the nature of economic relations between our two countries, that can take place after Article 50 is invoked, Brexit negotiations are complete and the UK is legally entitled to enter into other negotiations.

Any formal dialogue on an FTA [with the UK] is yet to begin. A formal dialogue can only commence once the exit from the EU is complete and that will mean an Article 50 notice, three years after that once formalities of the exit are complete.

Once we get into that negotiation process, it is obvious that every country has its own set of priorities. There is a time schedule before any action can commence but notwithstanding that there is a very strong opinion in both countries to expand trade to the extent possible and explore all possibilities.

This outreach [the UK visit] will help us in further strengthening the perception that globally is gaining ground that in the midst of a global slowdown, India remains one of the bright spots as far as potential destinations of investments are concerned.



Jaitley with Philip Hammond

While there is a debate on across the world, India remains one of the few countries which has opened up significantly and the so-called protectionist debate is least audible in India today. Indians are dominating various economies of the world and one of our major points of global discussions today is about the movement of human resource.

Is the mobility of Indian professionals and students likely to impact any new trade deal with the UK?

As far as the services sector is concerned, conventionally we have had a very proactive position and always stood for expansion as far as that sector is concerned. There is a considerable amount of concern in India, particularly in sectors like IT. We believe that trade helps in expanding economies.

While there is a debate on across the world, India remains one of the few countries which has opened up significantly and the so-called protectionist debate is least audible in India today. Indians are dominating various economies of the world and one of our major points of global discussions today is about the movement of human resource.

They [Britain] have to realise that when international students come here [Britain] they subsidise the educational costs here. We already have a reality where the quantum of students coming into the UK is declining and other jurisdictions are available. The UK also is part of that competitive market.

What is your message to foreign investors on the aftershocks of demonetisation on the Indian economy?

It is a subject which is of keen interest to everybody and in my meetings I have tried to explain what our object was. One of the principle objectives was to integrate the informal and shadow economy which exists outside the system into a more formal one and make India's economy more compliant.

Therefore, a movement towards digitisation of the economy is of significant help. Initial trends indicate that it has been an important step in that direction and investors in the UK have been keen and curious to know about our experiences of demonetisation and the extent of remonetisation that has taken place.

We have almost completed the demonetisation process and it has been the smoothest possible replacement of currency anywhere in the world.

Demonetisation was a move to change the Indian normal; a new normal had to be created. A predominantly cash economy has now to be substituted with a digital economy, which will bring more money into the banking system and lead to better revenue generation. I see India becoming a less-cash economy as a result.

The post-demonetisation regime is actually going to generate a far bigger GDP in the long run.

Can investors feel confident about GST passing through smoothly?

Despite teething problems, hopefully GST will come up for implementation by July 1. The entire process has to be completed by September 15.

GST is the biggest tax reform since Independence and once implemented, it will be a far more efficient tax system. The quantum of taxation will go up and GST will make generation of cash more difficult.

The first requirement is the constitutional amendment, the law has been passed unanimously and by September 15th the curtain will be down. We have resolved most of the critical issues; legislations have been drafted.

Democracy does delay some decisions but at the end of day, a sense of responsibility does win. Most decisions are being taken unanimously and we will hopefully hit the July 1 date.

You plan to spend about $90 billion on building infrastructure in 2017-18; what role do you envisage for foreign companies in these projects?

This year we have allocated the largest amount for infrastructure out of our resources. Over and above that infrastructure also involves a public-private partnership, so the projects executed in the PPP mode will also have private sector investment coming in.

Additionally, infrastructure is one area where long term lending also takes place. There are a large number of international funds etc which like to invest and want a reasonable level of return over a long period of time. I think because there is an infrastructure deficit in India, the potential for investors therefore to invest in infrastructure, from a point of view of long-term investments, also exists.

India has one of the largest infrastructure building programmes anywhere in the world.

What is your forecast for private sector investments and growth for this year?

In the overall investment pattern in India, public investment has increased, FDI has increased, but private sector investment has not increased significantly.

One of the reasons for that is that the private sector during the boom period had expanded significantly and today with global demand a little low, they already have surplus capacity.

Therefore, they have to first utilise that surplus capacity before they can think in terms of additional investments.

An uptake in private sector investments will take place on the back of infrastructure investment, good agriculture growth this year, investment into the rural areas, ability to push up economic activity through reduction of tax as far as the smaller companies are concerned, the implementation of GST by the middle of the year, more resources with the banking sector and the ability of the banks to lend more. All this will spur growth and therefore, hopefully, revive private sector investment.

Jaitley with UK Foreign Secretary Boris Johnson (left) and International Trade Minister Liam Fox

Where is the focus of the government's next phase of reforms?

The global economy continues to face its own challenges. Any slow growth in the world impacts us also; but 7-8 per cent growth rate is the new Indian norm and if we get the support of the global economy, that figure has a scope of shooting up.

There is a huge mind-set change in India with much greater support for reform activity. India is a very important story to tell because in the midst of global uncertainties and the relative slowing down of the global economy, India has been able to carry on its reform programme fairly actively.

"The UK-India investment relationship is hugely important. India is now the third-largest investor and second-largest job creator in the UK; the UK is the largest G20 investor in India and plays an important role in building skills in the Indian workforce. And the UK government is committed to deepening this relationship further. In my first months as Secretary of State for International Trade, I've been lucky enough to visit India twice – most recently accompanying the Prime Minister [Theresa May] on her first bilateral visit outside Europe, as well as her first trade delegation.

In the words of Prime Minister Modi, India and the UK are an 'unbeatable partnership'. And I'm very glad that our Prime Ministers recently committed to 'building the closest possible commercial and economic relationship'."

Dr Liam Fox, UK Secretary of State of International Trade

Jaitley opens London Stock Exchange

INDIA'S ECONOMIC SHERPA

Arun Jaitley has carefully nursed the country's economy back to sound health.

He is equally at home rubbing shoulders with the world's leading industrialists and investors in Davos, London and Singapore and inviting them to invest in India as he is strategising the nitty-gritty of how to win elections in hinterland Indian states. And all this when he isn't dispensing advice on some of the thorniest legal problems of the land.

Meet Arun Jaitley, India's suave, erudite and very articulate Finance Minister, who is also one of the Bharatiya Janata Party's key political strategists and a member of Prime Minister Narendra Modi's inner circle of trusted advisors. Now, he has been given additional charge of the Defence Ministry following Manohar Parrikar's return to Goa as Chief Minister, clearly underlining his position as the Prime Minister's go-to man.

Unlike many of his contemporaries, who cut their political teeth in the country's student movement during the dark days of Emergency as socialist, communist or Congress activists, Jaitley, who studied Bachelor of Commerce at Delhi's elite Shri Ram College of Commerce and then law at Delhi University, has been a lifelong BJP man who first came into prominence as president of the Delhi University Student's Union in the mid-70s.

Jaitley has set out his stall as an advocate of fiscal prudence and growth-friendly policies. He has called for faster approvals for infrastructure projects and criticised arbitrary tax rulings under the previous government for stifling investment.

He is on record saying that the 19 months he spent in the high security Tihar Jail following a crackdown on pro-democracy activists by the Indira Gandhi-led Congress government was a turning point in his life as he met people from all walks of life.

Jaitley, who has retired from his very successful legal practice to concentrate fully on public service, also wears another ministerial hat – of Minister of Corporate Affairs – and has served as a minister in the previous National Democratic Alliance (NDA) government under Atal Bihari Vajpayee as well.

It was during his previous stint as Commerce Minister under Vajpayee that Jaitley set out New Delhi's principled stand at the World Trade Organisation (WTO) negotiations, refusing to open up India's domestic market to the West without a reciprocal reduction in farm subsidies by the rich countries. Several trade ministers, including under UPA I and II, have since led India's negotiators at the WTO but none of them have tinkered with the basic premise of Jaitley's stand.

Meanwhile, he was appointed General Secretary of the BJP in 2002 and again in 2004 and resigned from this position only in 2009 when he became Leader of the Opposition in the Rajya Sabha, in keeping with his party's principle of "One Man One Post".

He proved his political acumen during the BJP's decade-long stint out of power at the federal level by planning and executing his party's political and election strategy in eight Assembly (state-level) elections.

Of all the assignments he has handled for his party over the last four decades, his current one, as Minister of Finance, is arguably the most challenging. He inherited an economy gasping for breath, both fiscal and current account deficits were way beyond prudent levels, the inflation rate was in double figures and the country's growth rate had fallen to low single digits.

India's position as a member of the dynamic BRICS grouping was being questioned by many analysts, who said the country's macro-economic situation warranted, instead, a place among the so-called Fragile Five economies that everyone expected to go bust anytime.

Jaitley, a vocal critic of "tax terrorism" and "policy paralysis" under the previous UPA government, has had his work cut out not only to revive India's economy but also guide it to the top of the global pecking order of world's fastest growing major economies.

Massive investments in infrastructure, removing and easing the roadblocks that hinder foreign investments and ushering in a non-adversarial tax regime are some of the tools he has utilised while nursing the economy back to shape.

The project is still a work in progress, but it will suffice to say that the economy is back on track and India is back in business.

JAITLEY PUSHES THE GROWTH BUTTON

by India Inc. Staff

The Budget has allocated almost $90 billion for building new infrastructure. This will help restart the stalled private investment cycle and spur demand but the absence of serious efforts to resolve the non-performing assets (NPA) problem in the banking sector will hurt.

Indian finance minister Arun Jaitley, who reiterated his earlier statement that private investment remains sluggish despite incentives, has done his bit to revive the entrepreneurial instincts of private entrepreneurs, both domestic and foreign, by announcing a massive $90-billion infrastructure building programme – covering roads, highways, railways, inland waterways, ports, rural infrastructure, broadband, toilets and more – that promises to boost corporate top and bottom lines, create jobs and fuel a consumption and demand revival.

He has also addressed the demand side by lowering income tax rates in the lowest slab from 10 per cent to 5 per cent. This will put an additional $3 billion in the hands of consumers. Even a modest velocity of three – appropriate for India – will lead to a $9-billion rise in consumer demand and contribute significantly to a revival in demand.

And he has taken a big step towards Prime Minister Narendra Modi's goal of turning India into a (mostly) digital economy by announcing the imminent launch of Aadhar Pay, a merchant version of the payment system based on India's Universal Identify Card that is being given to every citizen.

Since every Indian, even the poorest of the poor who may not have debit or credit cards and/or mobile wallets, will have this, it will provide a massive boost to digital transactions across the economic value chain.

The target: 25 billion Aadhar Pay transactions in 2017-18. Meanwhile, the banking system will make available an additional one million point-of-sale (PoS) machines by the end of the next month and a further 2 million Aadhar-based PoS devices by September this year.

Towards a higher growth trajectory

Private investment, which has been anaemic over the last five years, and consumption expenditure, the main driver of demand in the Indian economy needs to grow for India to expand at 8 per cent-plus – the threshold identified by most experts for the country to be able to generate jobs for the millions of young people who join the workforce every year. Arun Jaitley's Budget, presented on February 1 provides a strong push to both, though economists have been quick to add caveats to the final result. But we'll come to that later.

Boost to consumer demand

First, let's look at consumer demand. Official figures show that Private Final Consumption Expenditure, proxy for money spent by Indians on consumption goods and services, for 2016-17 is likely to grow at 6.54 per cent, compared to 7.14 per cent in 2015-16, indicating that Indians have been niggardly about opening their purse strings.

The massive Rs 3.96 lakh crore (about $57 billion) allocated for investment on roads, highways, railways and inland waterways in Budget 2017-18 will almost certainly lead to a large uptick in consumer demand.

Highway to high growth

Jaitley has increased the allocation for roads and highways to Rs 64,900 crore ($9.8 billion) from Rs 52,447 crore ($8 billion). Economists are hopeful that like Atal Bihari Vajpayee's mega highway building programme, this increased allocation, too, will set off increased spending and lead to an all-round revival and higher growth for the economy.

Vajpayee's highway programme was launched in 2001. This showed immediate results – the number of workers in the construction sector jumped 50 per cent from 17 million in 1999-2000 to more than 26 million five years later.

This set off a virtuous cycle of consumption-led growth all round – because a boom in the construction sector directly feeds demand in about 250 feeder and downstream industries such as steel, cement, construction equipment, commercial vehicles, electric equipment, etc.

And this, in turn, creates more jobs and leads to greater demand for a host of other non-industrial, consumption items.

Rural roads as growth drivers

One little known fact about rural India is that more than 50 per cent of jobs in the heartland come from non-farm activities – industry, small traders, services and non-agricultural wage labourers, etc.

Thus, village roads are a key enabler of rural commerce. In addition, like in urban and more accessible areas, building rural roads also helps generate large primary employment.

Jaitley has increased the allocation for the Pradhan Mantri Grameen Sadak Yojana to Rs 27,000 crore (including a 40 per cent contribution from the states) from just a third of that sum when he took office two-and-a-half years ago.

This will help raise the purchasing power of the rural population, increase demand for consumer goods and drive the investment cycle into a relatively faster growth trajectory.

The Ministry of Finance has agreed to maintain its share of allocation for rural roads for the next three years, so, the expected growth in rural job creation and rise in consumption demand are expected to be sustained over the foreseeable future.

More roads=more jobs

The higher allocation for rural roads will automatically translate into greater lengths of metalled roads in rural India. Under the Modi government, the pace of rural road construction has jumped more than 35 per cent from 73 km per day in the last three years of the UPA regime to 100 km per day.

The Budget envisages raising this to 130 km per day, the highest in recent years but still about 10 per cent short of its peak expansion rate of 145 km per day in 2009-10.

The higher rate of rural road construction will generate higher employment and, therefore, greater prosperity across rural India and drive demand for industrial goods, which, in turn, will help rev up the investment cycle.

Employment generator

A look at empirical data will reveal an interesting nugget of information. In the five years beginning 2007, total infrastructure investments in India jumped to $475 billion or about $95 billion per year. Job generation in this sector also doubled to more than 50 million.

The problem this time: In 2016-17, gross fixed capital formation (GFCF), which measures total investment in the economy, actually slipped into negative territory – at -2.2 per cent – according to CSO.

Will history repeat itself?

Despite this, economists are cautiously optimistic. Their optimism is qualified because private investment, a critical driver of growth has remained stubbornly sluggish as is evident from the negative GFCF figure, but Jaitley is obviously betting on his massive allocation to infrastructure – Rs 48,000 crore ($7.2 billion) more than the previous year – to turn things around.

Reviving stalled investments

Here, there are some positive tidings for the economy. The Project Monitoring Group, which is mandated to clear the roadblocks clogging up several lakh crores of public and private investments, cleared projects worth more than Rs 1 lakh crore (around $14.5bn) last year, as a result of which, the investment rate has picked up in the current financial year. This process of unlocking stalled investments will effectively mean more than the allocated $57 billion investments coming on stream. And this will, to some extent, compensate for the stagnant private investment rate.

Private investment, which has been anaemic over the last five years, and consumption expenditure, the main driver of demand in the Indian economy needs to grow for India to expand at 8 per cent-plus – the threshold identified by most experts for the country to be able to generate jobs for the millions of young people who join the workforce every year.

Chugging along

Budget 2017-18 was unique not only because it was presented on the first day of February instead of the last, but also because it was the first to have subsumed the Railway Budget, which has always preceded the Union Budget by two days.

But being presented as part of the consolidated accounts of the Government of India hasn't hurt the Railways.

Jaitley allocated Rs 1.31 lakh crore (around $15bn) to the Indian Railways, an increase of 12 per cent over the current year. This includes laying an additional 3,500 km of railway tracks, up 25 per cent over the figure of 2,800 km in 2016-17.

Then, it has identified 25 stations, including iconic ones like New Delhi and Kolkata, for redevelopment with private sector participation. This is an off-Budget item. At the time of going to press, there are reports that a South Korean company has bid to redevelop the station at a cost of Rs 10,000 crore (around $1.5bn).

Every station, obviously, will not attract the same level of investment, but if the Delhi bid is any indication, it is probable that private and foreign investors will spend big bucks on projects that promise decent returns. And this will help keep the wheels of private investment spinning.

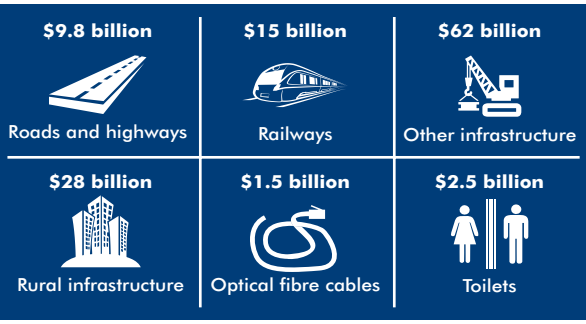
Then, there is also the project to power 2,000 stations across the country with solar energy. This will not only help reduce India's carbon footprint and help it meet its climate change goals, it will also help meet the Prime Minister's goal of generating 100,000 MW of power from solar energy in the next five years.

Growth via Digital India

Of all the Narendra Modi government's flagship schemes, Digital India is, arguably, the one that receives the least media attention. But unobtrusively, away from the public eye, more than 150,000 km of optic fibre network has been laid across

HERE'S THE MONEY

Finance Minister Arun Jaitley has allocated **$90 billion** for India's infrastructure needs, which should generate millions of new jobs, create demand and push growth.



India. This Budget has allocated Rs 10,000 crore ($1.5 billion) to expand this network to 150,000 gram panchayats.

This, too, will help reopen the investment cycle and lead not only to increased demand for internet-related equipment such as routers but also generate demand for other consumption items, driven by improving Net penetration in rural areas.

Housing for all

Another scheme that promises to unleash massive investments and generate hundreds of thousands of jobs is the renewed focus on Housing for all. To meet its target of providing a roof over every Indian head by 2019, the scheme will have to ensure the construction of 3.5 million houses every year, almost double the figure of 1.82 million units constructed in 2015-16.

Giving this sector infrastructure project will make it easier for realtors to launch and complete projects. And like big infrastructure projects such as highways and railways, rising demand for housing will also feed demand across the same 250-odd industries that feed the former and reinforce the virtual cycle of greater demand leading to greater jobs leading to greater overall prosperity leading to higher growth.

Outlay on toilets

Jaitley has allocated Rs 16,248 crore ($2.5 billion) for building toilets in 2017-18. This is 30 per cent more than the revised estimate for 2016-17 of Rs 12,800 crore, which itself was double the previous year's figure of Rs 6,524 crore. Like large infrastructure and housing, this initiative, too, will demand in a host of feeder industries such as cement, steel, sanitaryware. Being a much smaller ticket item than house, it can generate jobs at a much faster rate and quickly ramp up spending power among rural construction workers.

Push to rural infrastructure

Rural India accounts for 46 per cent of India's GDP, and a significant portion of the demand for cement, steel, two-wheelers, textiles, footwear, televisions and electrical gadgets.

Buoyed by a good monsoon after two consecutive years of drought, the farm sector growth jumped to 4 per cent in 2016-17 from 1.1 per cent the previous year.

This is already being reflected in the relatively higher demand for two wheelers, steel and a host of items consumed in the hinterland.

To sustain this momentum and also to reduce India's dependence on the rain gods, Jaitley has proposed to spend $28 billion in 2017-18 on building rural infrastructure.

As discussed above in the context of roads, highways and housing, this will lead to significant orders for the Indian corporate sector as well as local contractors and generate huge direct employment in rural India.

The spin-off, in terms of increased demand for material and equipment required for this rural infrastructure push will, in turn, create jobs in urban and other non-rural areas and lead to a jump in consumption demand – a key ingredient for sustainable and high GDP expansion.

The direct giveaway

The Finance Minister has also reduced the I-T rate in the lowest tax slab from 10 per cent to 5 per cent. This will reduce the tax outgo of assesses in that tax slab and increase cash in hand for all others by Rs 12,500 (around $187) per annum.

Since elasticity of demand is highest in lower income groups, this giveaway will cumulatively generate a demand of about Rs 60,000 crore ($9 billion), given velocity of three. This will translate into higher demand for cars, TV, two-wheelers and other items consumed by the middle classes.

Bank recap a damp squib, to prove a drag on growth

Early in this article, we had highlighted some caveats flagged by economists and promised to return to them later. Stressed balance sheets from past expansion plans gone wrong and the inability of banks to lend as a result of holding the resultant unpaid loans are two sides of the same coin – and a significant contributor to the sluggish private investment cycle.

Analysts had been hoping that the finance minister would announce some sort of an at least partial bailout of banks to shore up their ability to resume lending to spur growth once again.

However, his allocation of a measely Rs 10,000 crore ($1.5 billion) towards bank recapitalisation is wholly inadequate given the gravity of the crisis.

Jaitley had his reasons. He had to find funds to push infrastructure investments, he had to maintain fiscal discipline, failing which international ratings agencies could have downgraded India to junk category, and he had to compensate the common Indian for the hardship they had endured as a result of the demonetisation shock.

8% growth still some way off

The choice he made is understandable, but crucially, it leaves the Indian economy running on one cylinder less.

Most economists and analysts are unanimous that Jaitley's Budget will stoke a recovery in the economy and raise GDP growth to beyond 7.5 per cent – the government's own Economic Survey puts it in the 6.75-7.5 per cent band. But the magic figure of 8 per cent-plus will have to wait for a time when all the pieces of India's economic jigsaw – including healthy banks and a good monsoon – are once again in place.

A MUCH NEEDED CLEAN-UP OF INDIA'S AUGEAN STABLES

by Manoj Ladwa

Indian Finance Minister Arun Jaitley has addressed the institutional issues plaguing decision-making in India and considerably reduced the scope for corruption among government servants.

Foreign investors often complain about India's byzantine bureaucracy and demands for unaccounted cash to grease the system and speed up decision making.

Though ministers and senior bureaucrats in New Delhi no longer make such demands, there are reports that there has been little improvement in the lower bureaucracy and in some states.

The clean-up in New Delhi was the result of individual rectitude and personal commitment of ministers and their staff. In his Budget presented on February 1, Finance Minister Arun Jaitley made good on Prime Minister Narendra Modi's election promise of bringing in institutional changes to clean up the system – even as he kept his other promises and delivered a growth-oriented Budget that pleased the stock markets, foreign and domestic investors, salaried tax-payers and most economists and analysts.

The Finance Minister, who reiterated his earlier statement that private investment remains sluggish despite incentives, has done his bit to revive the entrepreneurial instincts of private entrepreneurs, both domestic and foreign, by announcing a massive $90-billion infrastructure building programme that promises to beef up corporate top and bottom lines, create jobs and fuel a consumption and demand revival.

He has also addressed the demand side by lowering income tax rates in the lowest slab from 10 per cent to 5 per cent. This will put an additional Rs 20,000 crore ($3 billion) in the hands of consumers. Even a modest velocity of three – appropriate for India – will lead to a $9-billion rise in consumer demand and contribute significantly to a revival in demand.

Even the Opposition, led by Congress Vice-President Rahul Gandhi, couldn't say much beyond calling it "anti-poor and anti-farmer". That's the standard fall back line of Indian politicians when they run out of concrete issues to beat the government with. That, to my mind, is the clearest indicator that Jaitley's Budget has taken the wind out of the Opposition's sails.

> "In his Budget presented on February 1, Finance Minister Arun Jaitley made good on Prime Minister Narendra Modi's election promise of bringing in institutional changes to clean up the system – even as he kept his other promises and delivered a growth-oriented Budget that pleased the stock markets, foreign and domestic investors, salaried tax-payers and most economists and analysts."

We have analysed the Budget in detail in this edition of 'India Investment Journal'. So, I will use this space to list five main takeaways that will surely lead to greater business opportunities, easier processes as well as the institutional clean-up that foreign investors have long yearned for.

Here goes:

1) Big push towards a digital economy: In keeping with the Narendra Modi government's goal of turning India into a largely cashless economy, the Finance Minister has pushed the digital button across the Budget.

The most revolutionary move, arguably, is his announcement that Aadhar Pay, a merchant version of the payment system based on India's Universal Identify Card that is being given to

every citizen, will be rolled out shortly. Since every Indian, even the poorest of the poor who may not have debit or credit cards and/or mobile wallets, will have this, it will provide a massive boost to digital transactions across the economic value chain.

The target: 25 billion Aadhar Pay transactions in 2017-18. Meanwhile, the banking system will make available an additional 1 million point of sale (PoS) machines by the end of the next month and a further 2 million Aadhar-based PoS devices by September this year.

This massive digital push, which is likely to be one of Modi's lasting legacies, a la Atal Bihari Vajpayee's highway building programme, will no doubt throw up humongous business opportunities for global FinTech companies.

2) FIPB abolished: The Foreign Investment Promotion Board (FIPB) has been abolished. Foreign investors had often complained that the board's processes hindered, rather than facilitated, their investment plans. Over the last few years, the Modi government has moved 90 per cent of all foreign investment proposals to the automatic route, ie, out of the purview of the FIPB. Now, even the remaining 10 per cent of foreign investment proposals will be spared the pain of approaching it. I hasten to add a caveat here: We still don't know what mechanism will replace the board. So, on this count, at least, we'll have to hold the champagne for now. But I hope it will mean less bureaucracy at the very least.

3) Blow to the shadow (black) economy: The issue of political funding has been a contentious one across the democratic world – from the US to the UK to Japan and India. The biggest issue has been: how to keep slush money out of the political system and how to ensure that illegally generated funds are not used to buy political favours.

The Budget has capped anonymous cash donations to political parties at Rs 2,000 ($30). Any amount beyond this has to be paid by cheque or a new bearer bond to be floated by the Reserve Bank of India. This is a novel initiative by Jaitley and its success or failure will be tracked closely by governments and political analysts around the world.

This is how it will work: Potential donors can buy by digital transfer, bearer bonds up to any amount from a designated Indian bank and donate the same to political parties of their choice, which can then encash these at designated bank branches. Thus, only the receiver will know the identity of the donor but the cash component, usually siphoned out of companies, will be replaced by tax-paid funds remitted through the banking system. These two measures will almost certainly clean up India's political funding system in large measure.

4) Ban on cash transactions beyond Rs 3 lakh ($4,500): The Finance Minister has banned all cash transactions, which are used even for legitimate transactions in the informal sector, beyond Rs 3 lakh ($3,700). This, along with GST, which will be rolled out from July 1 this year, will bring large parts of the informal economy into the tax net and reduce corruption in the system and address a major pain point for foreign investors.

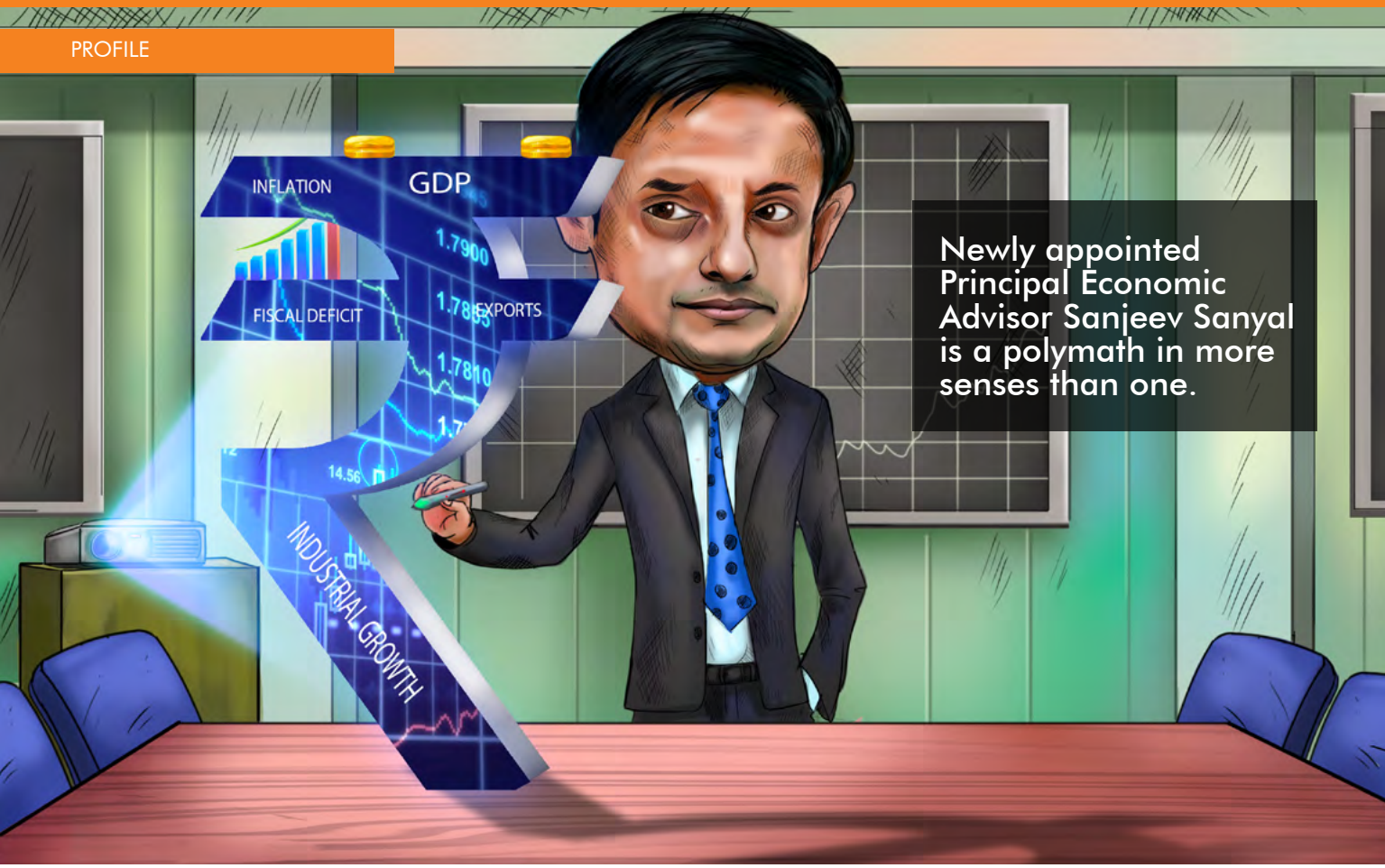
5) Massive rise in spending on infrastructure and rural development: A consumption-led revival of the investment cycle is sine qua non to lift India's growth rates. Jaitley has greased the wheels of the economy by promising to spend $90 billion on infrastructure and rural development.

He has allocated $60 billion for building and upgrading India's creaking infrastructure. Of this ($38 billion has been allocated to the transport sector – railways, roads and highways and internal waterways.

Then, he has allocated another $30 billion for rural and agricultural development. This will spur growth in rural incomes and buoys the rural economy, which accounts for 46 per cent of the Indian GDP. Rising rural prosperity is a key pre-requisite for high GDP growth rates and analysts say Jaitley has hit the bulls eye with this move.

Not only will these investments result in large contracts to foreign and Indian companies and consultants, they will also generate jobs that can fuel a consumption-led demand revival.

And taken together, they will lead to a cleaner, less cash-dependent economy where strong institutional processes prevail over individual discretion, thus, leading to more predictable and faster decision making.



Newly appointed Principal Economic Advisor Sanjeev Sanyal is a polymath in more senses than one.

A CONTRARIAN ECONOMIST

He has eclectic reading habits that range from the Rig Veda to philosophers like Karl Popper to physicists such as Werner Heisenberg to the history of the sub-continent – when he isn't thinking deeply about "complex adaptive systems" or criticising Marxist-style planning or Indian policy making.

And all this while doing his day job –as the newly appointed Principal Economic Advisor (PEA) to the Ministry of Finance, Government of India, and till recently, as Managing Director and Global Strategist at Deutsche Bank.

The 45-year-old Sanjeev Sanyal is also the best-selling author of three books – Land of the Seven Rivers: A Brief History of India's Geography, The Ocean of Churn: How the Indian Ocean Shaped Human History and The Indian Renaissance: India's Rise After a Thousand Years of Decline.

Economist, author, amateur historian, polymath and free thinker, Sanyal, son of a civil servant, is an alumnus of Kolkata's St James School, St Xavier's Collegiate School and Delhi's Shriram College of Commerce, three of India's most famous educational institutions. After completing his B.A. in Economics from Delhi University, he went to Oxford University's St John's College for his Master's degree in economics.

A report in Forbes says his upbringing in Communist-ruled West Bengal in the 1980s and India's post-liberalisation transformation influenced his world view. Having witnessed first-hand how socialist planning had hurt both his motherland and his native state made Sanyal inherently suspicious of rigid planning. Long regarded as a Young Turk who doesn't hesitate to question the shibboleths of his professional predecessors, Sanyal was named a Young World Leader by the World Economic Forum in 2010.

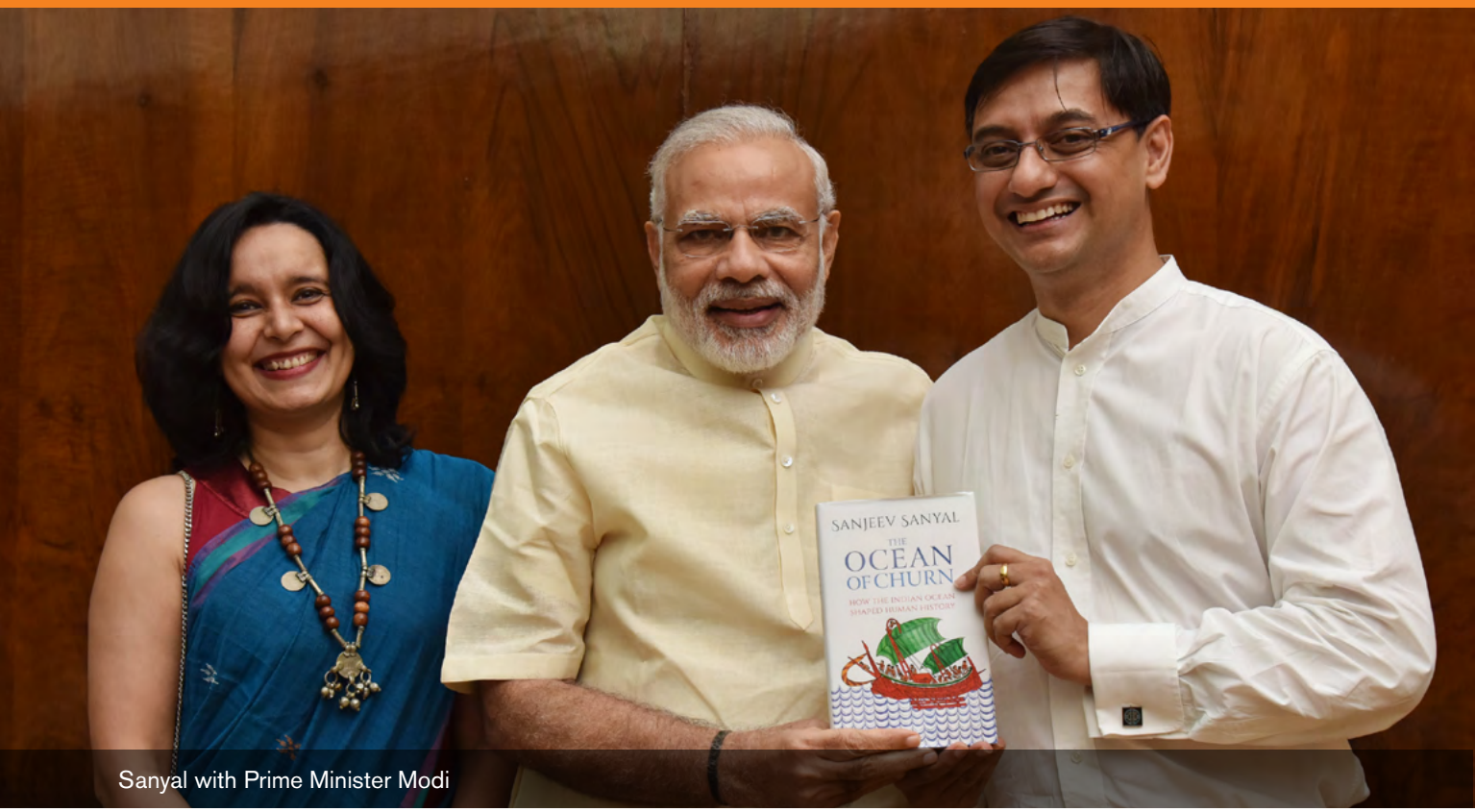
Like many contemporary Indian economists and analysts, he questions the Nehruvian economic consensus. But going a step further, he asserts that Nehruvian socialism was fundamentally flawed and could never have succeeded, regardless of how well it was implemented.

But to come back to his books, which deal with the history of geography and urban design, he says the philosophical underpinning of complex adaptive systems (CAS) inform all his writings.

CAS what? It's an esoteric science of complex macroscopic collections of relatively similar and partially connected micro-structures formed in order to adapt to the changing environment and increase its survivability as a macro structure. They are complex because the behaviour of the whole is not an aggregations of the behaviour of the constituent parts of the whole.

The Forbes article quotes Sanyal's first boss Manu Bhaskaran, CEO of Centennial Asia Advisors, Singapore, as saying: "It was thoroughly enjoyable working with him because of his new ideas and unorthodox views. I felt I was learning from him , rather than he from me."

He worked in Deutsche Bank till 2008 as Chief Economist for South and South East Asia. Then, he took a step very out of character for an economist – he took a break to research for a



Sanyal with Prime Minister Modi

write his book, Land of Seven Rivers…

Like his analysis of economics, which differed radically from those inspired by Marxism, his analysis of history, too, was a departure from the dominant Marxist thinking on the subject.

He was influenced by CAS, according to which the world consists of constantly evolving eco-systems whose constituent parts do not always work in tandem – a sharp repudiation of classical Marxist theory that posits that the world comprises predictable systems that can be planned and controlled.

CAS, he has explained, is in line with his thinking. "It's also the underlying philosophy of the Rig Veda," he has told the media.

In keeping with his philosophy, he has taken stands that challenge conventional economics. He says global imbalances – some countries running large surpluses while other run corresponding deficits – should be accepted. In this, his views fly in the face of those who continue to swear by the virtues of "equilibrium".

In keeping with his reputation of being a bit of an iconoclast, Sanyal has written as essay titled "Predictions of a Rogue Demographer", in which he challenges the UN forecast that global population will grow to10 billion by the end of this century. His model, which takes into account rapidly rising urbanisation, which brings down fertility rates, forecasts that earth's population will peak at 8.5 billion within the next four decades before falling to 8 billion.

A contrarian, who is inherently suspicious of linear extrapolations that inform much of contemporary economic forecasting models, Sanyal, believes that the government's top two priorities should be to reform the legal system to facilitate governance and that there should be a fundamental shift in how we build our cities.

Sanyal says cities like Chandigarh, designed by French architect Le Corbusier, have failed because rigid Socialist planning has come in the way of their organic growth, unlike, say, the more chaotic but much more dynamic and rapidly growing Gurgaon, now part of the National Capital Region.

But despite his strong and often contrarian views on fairly mainstream subjects, his peers swear that he is not dogmatic. A former colleague says he has seen the new Principal Economic Advisor change long held views when confronted with data that proved him wrong.
"He has the intellectual honesty to accept his mistakes," says an old friend.

These two traits – a strongly independent style of thinking and the humility to accept a mistake, while maintaining his intellectual rigour at all times – make him a formidable professional.

At a time when Prime Minister Narendra Modi is breaking the mold and taking Indian into uncharted economic waters, Sanyal's inputs are expected to add a cutting edge to his boss, Chief Economic Advisor Arvind Subramanian's erudite prescriptions for taking the Indian economy into a higher growth trajectory.

Long regarded as a Young Turk who doesn't hesitate to question the shibboleths of his professional predecessors, Sanyal was named a Young World Leader by the World Economic Forum in 2010.

Says a former colleague, speaking on condition of anonymity: "He is one of the clearest thinkers in the small community of globally recognised young economists. I can't predict what heights he may or may not reach in his new position. But one thing is certain: as PEA in the Ministry of Finance, he will certainly push the boundaries and try and navigate Indian economic planning into new areas in his three years in office."

SHORT TAKES

Japan's Jera invests $200mn in ReNew

Japan's energy supply chain firm Jera has invested $200 million in India's ReNew Power.

The Japanese company has picked up a 10 per cent stake in ReNew, valuing the Gurgaon-based solar and wind energy company at $2 billion.

"As a ReNew Power shareholder, we will seek to contribute to the company by making available technical, operational, project development, and management experience gained through our global power businesses," Jera president Yuji Kakimi said in a statement.

JERA has business interests across the energy value chain in businesses such as liquified natural gas and coal supply.

ReNew Power has 3.2 GW of operational and under construction capacity from its own wind and solar projects. It has set a target of over 11 GW of wind and solar power capacity over next five years.

It has also secured long term $390 million debt funding from the Asian Development Bank (ADB).

India-Belgium to work on solar tech

India is looking at an innovative Belgian solar storage technology that promises to offer consumers a source of quality power as a green and reliable alternative to flickering supply from battery storage or diesel generators in distant or off-grid locations.

The National Institute of Solar Energy (NISE), an autonomous entity under the new and renewable energy ministry, and Tiger Power of Belgium, signed an MoU for validation of the technology that combines solar panels, normal lead-acid battery and hydrogen fuel cells to produce steady power.

The MoU was signed as part of the visit of Belgian deputy Prime Minister Alexander De Croo, who is also the minister for development cooperation, digital agenda and telecom programmes.

The package is a solar-battery storage module with a hydrogen fuel cell in tandem. The solar panels charge the battery during daytime for power in the night. But in case the battery becomes weak or fails in the absence of sun, an inbuilt electronic brain switches on the fuel cell to maintain power supply.

Apple to make IPhones in India

American tech giant Apple is to start making iPhones in Karnataka, according to the state government.

Apple plans to start an initial manufacturing operation in the southern Indian state by April.

Priyank Kharge, minister of information technology and biotechnology in Karnataka, told media about Apple's plans but an official statement from the California-headquartered company has not been made yet. It, however, has said that it was keen to "invest significantly" in India.

Reports said the plant is being set up by Taiwanese manufacturing company Wistron Corp. Apple has a 2 per cent share of India's mobile phone market, behind South Korean rival Samsung.

Apple is currently unable to set up its own branded stores in India due to foreign direct investment norms and would have to source 30 per cent of the components of its products locally to be able to sell directly in the country.

Oppo plans Greater Noida plant

Chinese smartphone maker Oppo is planning an industrial park in Greater Noida, which will house a manufacturing unit.

Sky Li, vice-president of Oppo and managing director of international mobile business and president of Oppo India, said the details will be announced in the New Year.

Oppo already has a production unit in India and the new industrial park is planned over 1,000 acres with an investment of around $216 million.

India has overtaken the US in 2016 to become the world's second-largest smartphone market with an installed base of 275 million devices, according to global industry body GSMA.

GSMA has predicted that India, which is currently also the second-largest mobile market globally, will have nearly 1 billion mobile subscribers by 2020, from 616 million unique users in June 2016.

Rising demand at the bottom of the pyramid and more activity coming under the tax n
a host of consumer goods produced by Indian and foreign companies

JAN DHAN, DEMONETISATION TO EMPOWER ORDINARY INDIANS

by India Inc. Staff

Financial inclusion is, arguably, the first flagship initiative of the Narendra Modi government to meet with success. To the four such schemes that people usually count as being part of the programme – the Pradhan Mantri Jan Dhan Scheme (PMJDS), the Pradhan Mantri Suraksha Bima Yojana (PMSBY), the Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY) and the Atal Pension Yojana (APY) – we can now add another, possibly the most important, one – demonetisation.

Former Prime Minister Rajiv Gandhi had said that only 15 paise of every rupee the government allocated for the poor actually reached the intended beneficiaries. Eighty five per cent of welfare benefits are lost due to leakages, corruption and administrative inefficiencies.

Changing this paradigm will create massive opportunities for both Indian and foreign businesses, especially in the medium and small sectors.

$40 billion outgo, huge wastage

The government will spend about $40 billion on subsidies in the coming financial year, which is about the same level of outgo as this year. This money is spent on cooking gas, kerosene, fertilisers and food items and also provides scholarships for needy students across the country.

Last year's Economic Survey (for 2015-16) said $15 billion or about 40 per cent of the total budgeted subsidy goes to people who don't need it. There was no estimate on how much is lost due to leakages, corruption and administrative sloth.

This is a criminal wastage, especially because unlike in the West, India does not have a

> "Well-known intellectuals from Harvard and Oxford (universities), who have been at key positions in the Indian economic system, had said the GDP would go down by 2 per cent, some others said it would go down by 4 per cent."
>
> *PM Narendra Modi on the impact of demonetisation*

universal social security scheme for its citizens. Schemes such as pensions, provident fund and health and accident insurance are available to only a few people employed in the organised sector.

Jan Dhan accounts to the rescue

The Narendra Modi government has succeeded in substantially cutting down leakages by using the Direct BenefitTransfer (DBT) mechanism by which the value of the subsidy is transferred directly to the beneficiary's Jan Dhan account.

Just to recap, the Jan Dhan scheme is a financial inclusion scheme launched by the Prime Minister in 2014 to ensure that every Indian family had a bank account. This programme entered the Guinness Book of World Records for "the most bank accounts opened in one week as a part of financial inclusion campaign..." During the August 23-29, 2014 week, 1.81 million bank accounts were opened by Indian banks. Till date, 260 million bank accounts have been opened. According to official figures, DBT has led to a savings of Rs 50,000 crore (($7.5 billion) over the last three years. This is roughly the same as the subsidies under DBT in 2016-17. This means DBT has led to the savings of nearly one year's worth of subsidies. In 2016, DBT covered 84 schemes across 17 ministries, two-and-a-half times more than 34 schemes in 2015. As on date, about 330 million people, or about 25 per cent of all Indians receive subsidies via DBT in their Jan Dhan accounts.

"The savings figure is expected to significantly rise further in the next financial year as the government will be bringing a total of 533 central payout schemes in 64 ministries under the DBT mechanism by March 31, 2018 as per the directions of PM Narendra Modi," a report in The Economic Times, India's leading financial daily, said.

Demonstration to help

On November 8 last year, Prime Minister Narendra Modi unveiled, arguably, the most revolutionary reform measure taken by his government. The demonetisation of Rs 1,000 and Rs 500 notes, which sucked 86 per cent of liquidity ($210 billion) out of the system, hit at the root of several problems ailing the Indian economy.

Corruption hits the last man in the queue more than any other person. The value of cash in circulation in the Indian economy is about 12 per cent of GDP compared to 4-5 per cent in developed economies. Demonetisation is expected to reduce the cash component of the Indian economy by a third.

This will bring many more economic activities overground. Hitherto unreported economic activity will now be reported to the authorities and taxes will be collected on the same, leading to higher government revenues. And this, in turn, will lead to an expansion of the list of DBT beneficiaries.

It will almost certainly also improve India's poor rank of 76 in the next edition of the Corruption Perception Index brought out by Transparency International and also lead to an improvement in India's rank in the Ease of Doing Business Index.

Higher growth to lift all boats

The expected buoyancy in the government's revenues as a result of a greater percentage of transactions coming within the tax net, will give Finance Minister Arun Jaitley sufficient headroom to further reduce both direct and indirect tax rates – as he has done, albeit in a limited way – in the Budget for the coming financial year.

This will undoubtedly push growth and help generate jobs for many of the millions of youngsters joining the workforce every year.

JAM session

The government has been using a combination of Jan Dhan, the Aadhar card (a unique identity number given to every Indian) and mobile phones (which have an 85 per cent penetration across India) to directly transfer cash in lieu of subsidies to the accounts of intended beneficiaries.

Then, the PMSBY, which offers a cover of Rs 2 lakh ($3,200) for accidental death and disability, has got 78 million subscribers. The premium of Rs 12 (18 cents) per annum is its primary attraction. This scheme is the first attempt at providing a universal social security net for the ordinary Indian.

The APY, which offers old age pensions ranging from Rs 1,000 to Rs 5,000 per month, has got almost five million subscribers and government officials are hopeful that subscriptions will pick up over the coming months and years. This contributory scheme is open to all citizens between 18 and 40 years of age and the government picks up 50 per cent of the tab for the first five years.

Aadhar pushes cashless economy

Last year, Parliament passed the Aadhaar (Targeted Delivery of Financial and Other Subsidies, Benefits and Services) Bill, 2016. This enabled the government to expand the scope of the Direct Benefit Transfer (DBT) scheme to better target beneficiaries of subsidies and other benefits. The Aadhaar

card is used for schemes such as MNREGA, Jan Dhan Yojana, the public distribution system and pension and PF schemes.

Aadhaar decoded

It is a 12-digit unique identification number issued to residents of India. While enrolling for the number, applicants have to furnish biometric data such as photograph, finger print or iris scan and demographic information such as name, date of birth and address. This data is stored in a back end that uses technology to ensure that the same person is not issued multiple numbers.

Demonetisation has, admittedly, resulted in a temporary consumption squeeze. But remonetisation, now almost complete, is expected to result in higher levels of consumption in the months ahead.

Cashless route to prosperity

Demonetisation has, admittedly, resulted in a temporary consumption squeeze. But remonetisation, now almost complete, is expected to result in higher levels of consumption in the months ahead.

This will definitely lead to a surge in demand for consumer durables, FMCG, cement, steel and a host of other goods and services. And this, in turn, will lead to an improvement in job creation opportunities in the economy.

This latest gambit, the Prime Minister has promised, is only the first move in a long and protracted battle against black money (unaccounted income). There is no evidence yet that the ordinary Indian is upset at Modi for the short-term inconvenience that many have been subjected to.

If Modi can deliver on his promise of freeing the country from the scourge of black money, he will have achieved the impossible. And this alone can improve the lot of the ordinary Indian.

Middle class India

India has a middle class that is 300 million strong. By 2030, this figure is expected to rise to 500 million. The JAM formula and demonetisation will only help hasten this process. As many more people step up into the neo middle class, consumption demand for a host of products and services will rise.

And this is where companies such as Unilever's Indian subsidiary, Nestle's Indian arm and Mondelez India, along with their international supply chains, can step in to address the needs of this new class of consumers.

This is an emerging market segment that will, over the next decade, emerge as one of this country's most important demand generators. Addressing this demand could make the difference between winning and losing the battle for the Indian consumer.

As the JAM initiative addresses the issue of demand at the bottom of the pyramid over the next few years and the demonetisation programme increases the size of the economy by turning the "black" economy into "white", this trend will increasingly become more evident.

The JAM formula

260 million
No. of Jan Dhan accounts

Rs 87000 crore ($13.05 billion)

Amount of deposits in Jan Dhan accounts

What is a Jan Dhan account?

Jan Dhan is a flagship financial inclusion scheme launched by the Narendra Modi government

It seeks to ensure that every family in India had access to financial services, namely banking savings and deposit accounts, remittance, credit, insurance, pension in an affordable manner

It created a world record by opening 18.09 million new accounts within first week

It was rolled out on August 28, 2014, less than a fortnight after the PM announced the scheme on August 15

Benefits of Jan Dhan Accounts

- Account holders will be provided bank accounts with no minimum balance
- RuPay debit cards will be issued
- Accidental insurance cover of **₹1 lakh (US$1,500)**.
- Six months after opening the bank account, holders will be eligible for **₹5,000 (US$74)** overdraft
- With the introduction of new technology introduced by **National Payments Corporation of India (NPCI)**, a person can transfer funds, check balance through a normal phone which was earlier limited only to smart phones
- Mobile banking for the poor would be available through **National Unified USSD Platform (NUUP)** for which all banks and mobile companies have come together

The JAM Initiative

JAM refers to Jan Dhan Accounts, Mobile phone numbers and the Aadhaar number

The triangulation of these three numbers allows the government to zero in on the intended beneficiary of official schemes and avoid leakages of subsidies and payouts

The Demo effect

Value of currency in circulation prior to **Nov 8: Rs 17 lakh crore ($255.11 billion)**

Proportion of high value notes **(Rs 1,000 and Rs 500): 86%**

Value of high value notes: **Rs 14.5 lakh crore ($217.59 billion)**

Why it is beneficial

- A massive blow to the shadow or "black" economy
- Improves tax compliance
- Leads to an increase in the country's GDP
- Leads to redistribution of wealth
- Increased transparency & reduced corruption
- Attractive for foreign investors as it will reduce corruption

GDP growth rates (in %) for 2016-17

The deceleration: (in bar charts show growth rates for each of the four quarters of the current financial year; show projected figures for Q4)

Sectors that felt the brunt of demo: Real Estate, Retail, automotive, construction, ancillary industries etc

INDIAN SMART CITIES MISSION: A PROCESS TO LEAPFROG TO DOUBLE DIGIT GROWTH

by Mousumi Roy

The Smart Cities Mission of the Government of India is one of the most challenging and ambitious urban development agenda, writes an urban infrastructure enthusiast.

Mousumi Roy is Senior Director at the Federation of Indian Chambers of Commerce and Industry (FICCI) and heads verticals on Smart Cities, Real Estate and Urban Infrastructure.

The objective to develop 100 Smart Cities over five years is a laudable commitment towards urban transformation. The mission is launched at a time when India's urbanisation is growing faster than the rest of the world.

Currently only about 31 per cent of India's population lives in urban areas. Globally the share is over 50 per cent and in most developed countries the share exceeds 80 per cent. This implies that urbanisation will continue to take place over the next several decades and is projected to reach about 600 million by 2031. It further envisions Indian cities to be the locus and engine of economic growth over the next two decades and suggests that the realisation of an ambitious goal of 9-10 per cent growth in GDP depends fundamentally on making Indian cities more liveable, inclusive, bankable and competitive.

It is for this reason that we need to plan our urban areas well and cannot wait any longer to do so. India's urban population is about 31 per cent and this relatively low base allows us to plan our urbanisation strategy in the right direction by taking advantage of the latest developments in technology. It also allows an opportunity to learn from good practices and mistakes made elsewhere, within the country as well as outside the country.

India's urban population is about 31 per cent and this relatively low base allows us to plan our urbanisation strategy in the right direction by taking advantage of the latest developments in technology.

City building exercise is a continuous process with its share of challenges and difficulties. This project will provide a number of opportunities as well as challenges for all stakeholders in the sector. Smart cities are those cities which have intelligent physical, social, institutional and economic infrastructure while ensuring centrality of citizens in a sustainable environment. Smart City for its sustainability needs to offer economic activities and employment opportunities to a wide section of its residents, regardless of their level of education, skills or income levels. In doing so, a Smart City needs to identify its comparative or unique advantage and core competence in specific areas of economic activities and promote such activities aggressively by developing the required institutional, physical, social and economic infrastructures for it and attracting investors and professionals to take up such activities. It also needs to support the required skill development for such activities in a big way. This would help a Smart City in developing the required environment for the creation of economic activities and employment opportunities.

Building new, green cities from scratch is a great way to avoid many troubles but in a country like India, the retro-fitting of existing cities with "smart" and economical solutions is a more viable option. The conceptualisation of a Smart City varies from city to city and country to country, depending on the level of development, willingness to change and reform, resources and aspirations of the city residents. In developed countries, a Smart City is one where existing infrastructure is augmented through application of IT, and includes sustainable development. However, the approach is different in the Indian context. Since many cities lack basic infrastructure, institutional framework and proper governance, Smart City initiatives will have to focus on providing basic needs through IT enabled solutions.

Intelligent ICT, IoT platforms, big data and analytics will play a very significant role in the evolution of Smart Cities. These technologies will help find solutions to issues ranging from poor infrastructure to improving the delivery of a range of public services.

The key elements of success towards building Smart Cities would broadly cover the following aspects.

- Financial resources of both the public and private sector have to be utilised effectively to meet the objective of building Smart Cities.

- Cross-sectoral cooperation between state departments and local bodies would build stronger ties of collaboration and integrate the efforts towards meeting the objectives. Cities need to have inter-departmental cohesiveness as well as harmony for driving the Mission.
- Complex solutions require organisational versatility, including more flexible partnership models between the public and private sectors.
- Focusing on the needs of its citizens and encouraging the processes that make cities greener and self-reliant. Smart Cities should be places where citizens are generators of ideas, services and solutions, rather than mere receivers of them.
- Entry of all-encompassing technology should not be seen as a one-stop-solution to all our problems. Encouraging innovation is key to improve city life.
- Most cities today are vast repositories of information and data. When systematically organised in a digital fashion, the data can be exposed, shared and interconnected. Giving people the right kind of access to this information can simplify ways of life and reduce day to day challenges.

The conceptualisation of a Smart City varies from city to city and country to country

Challenges exist but if a holistic approach is adopted for implementation of the Smart Cities project, the benefits which will accrue to all the stakeholders will be huge. Interconnecting governmental organisations and administration; creating e-education solutions; devising novel technological innovations while promoting energy conservation and material re-use; leveraging technology for the efficient movement of people, vehicles and goods are just some initiatives which can bring about a smart change and cultivate a green movement.

COMPANIES EYE SOCIALLY RESPONSIBLE OUTCOMES

The average spending on corporate social responsibility (CSR) by companies in India went up 29 basis points to 1.64 per cent last year, edging closer to the government mandate of 2 per cent.

The overall expenditure among companies in India on CSR activity registered a significant increase of 22 per cent, latest analysis by ratings agency CRISIL has revealed. The bulk of the CSR money went into education, skills development, healthcare and sanitation initiatives.

India's Companies Act 2013 encourages corporates to spend at least 2 per cent of their average net profit of the past three years on CSR activities. In the 2016 fiscal year, the second year of this CSR mandate, 1,505 companies, or 30 per cent of the 4,887 listed on the Bombay Stock Exchange, met the criteria for mandatory spending. Of these, 77 per cent, or 1,158 companies, reported on their CSR activity, compared with 1,024 companies, or 75 per cent of the 1,300 eligible in the previous fiscal year 2015 .

These 1,158 companies also spent a lot more money compared with 2015, which led to a 29 basis points improvement in average spending to 1.64 per cent compared with 1.35 per cent in 2015, moving closer to the 2 per cent mandate.

Ashu Suyash, Managing Director and CEO, CRISIL, said: "A standout feature last fiscal was about focus shifting to CSR outcomes. This is indeed the way to go, as underlined by the 'Effective Altruism' movement worldwide where, instead of doing what feels right, find the best causes to work on by using empirical evidence and analysis."

A quick survey of corporates and implementing agencies threw up some interesting pointers to this end, according to the analysis. Majority of the companies said they were open to collaboration for CSR activity, but finding the right partner, and structuring and reporting on such partnerships, were among the challenges.

In absolute terms, the total money spent rose by Rs 2,500 crore ($374mn) to Rs 8,300 crore ($1.2bn) in fiscal 2016. Another Rs 1,835 crore ($274mn) needed to be spent for the average to achieve the mandated 2 per cent. Of this, as much as Rs 5,300 crore ($790mn) – or Rs 1,175 crore ($175mn) more than fiscal 2015 – were spent on CSR activities linked to education, skills development, healthcare and sanitation, which are also the government's priority areas.

Ramraj Pai, President, CRISIL Foundation: "This public-private complementarity is great to see because, as a percentage of total government expenditure, India spends significantly less than what other BRICS nations do. So the private sector ramping up where government spending is low is truly synergistic CSR."

There were 133 companies that either didn't spend a dime, or were still freezing their CSR agenda. But even that is an improvement given that 200 companies were in the same boat in fiscal 2015. Of the 1,024 companies that figured in our analysis last year, 917 continued to meet the CSR criteria in 2016. Nearly two-thirds of them increased their CSR spend, while one-third reduced. Encouragingly, 56 per cent of them spent 2 per cent or more compared with 50 per cent in fiscal 2015.

In fiscal 2015, smaller companies had spent relatively more, but in fiscal 2016, the larger ones have done well with more than half of them adhering to the 2 per cent mandate versus approximately a third previously. There were two reasons for the 22 percentage point jump in adherence by the larger companies:

- they are overcoming the challenge of large-scale interventions, which takes more time and effort
- they are using implementing agencies, mainly non-governmental organisations, for execution.

Somewhat counterintuitively, many smaller ones preferred going solo.

> "A standout feature last fiscal was about focus shifting to CSR outcomes. This is indeed the way to go, as underlined by the 'Effective Altruism' movement worldwide where, instead of doing what feels right, find the best causes to work on by using empirical evidence and analysis."
>
> *Ashu Suyash*
> *Managing Director and CEO, CRISIL*

Smaller companies more giving, but larger ones will catch up

Going forward, larger organisations with established processes, governance systems and active boards would be more alive to the CSR task. However, presently, outcomes are quite the opposite is what the data reveals.

Spending profile (% of profit)	% of companies (segmented on annual sales turnover)		
	Rs 100-500 cr	Rs 500-10,000 cr	More than Rs 10,000 cr
2% or more	53%	50%	31%
1.5% or more	62%	59%	47%
< 1.5%	38%	41%	53%
< 1%	26%	29%	36%

As the table above shows, smaller companies were relatively more enthusiastic about spending on CSR activity compared with their larger counterparts in fiscal 2015. Clearly, they are not short on altruistic, society-building motivation. This also reflects a broad-basing of CSR activity in India Inc.

For the bigger companies, the challenge is the large size of their spending mandate so they need considerable time and effort to conceptualise and design processes to maximise outcomes.

The trend will thus change by the time we revisit the numbers after the current fiscal and we expect most lagging large corporates to show traction in their CSR activity.

Regional disparities in CSR compliance across India

Other than the industrialised states such as Gujarat, Tamil Nadu and Maharashtra, where companies have performed well in terms of CSR spending, it is heartening to see companies based in West Bengal, Uttar Pradesh spending more than the national average, notes CRISIL

	Spending profile (% of profit) of companies			
States	2% and above	1.5% and above	less than 1.5%	less than 1%
West Bengal	57%	68%	32%	21%
Gujarat	56%	67%	34%	26%
Uttar Pradesh	57%	67%	32%	24%
Tamil Nadu	62%	66%	34%	34%
Haryana	62%	65%	35%	19%
Maharashtra	48%	65%	34%	27%
Telangana	51%	60%	39%	28%
Karnataka	51%	59%	41%	29%
Rajasthan	46%	58%	42%	28%
NCT of Delhi	43%	57%	43%	29%
Rest of India	38%	49%	50%	35%

82% of CSR spending in 4 sectors

Sector	Spending (US$ mn)	Spending (Rs cr)	As % of total
Education & skills development	337.6	2250	**33%**
Healthcare & sanitation	281.3	1,875	**27%**
Rural development projects	133.8	892	**13%**
Environment conservation	93.4	623	**9%**
Relief funds	32.4	216	3%
Empowerment	21	140	2%
National heritage protection	18	120	2%
Promotion of sports	13.4	89	1%
Funds for technology development	2.3	15	0%
Benefits for armed forces/families	2.3	15	0%
Others*	90.9	606	9%
Total	**1026.4**	**6841**	**100%**

IS THE TIME RIGHT FOR ENERGY STORAGE IN INDIA?

by Akhilesh Magal and Souvnik Roy

As India edges towards its ambitious renewable energy target, the next challenge will be effective energy storage solutions that can be made in the country.

India has embarked on an ambitious programme of accelerating renewable energy deployment in the country. The target for renewable energy has been expanded multi-fold to 175 GW by 2022. A major part of the target is going to be from solar PV (100 GW) and wind energy (60 GW) and the rest from small hydro and biomass plants (5 and 10 GW respectively).

India's current installed capacity for solar PV is around 9 GW and wind being a more mature technology is at 29 GW. India's current power generation capacity is around 315 GW. These renewable energy goals are directly translated from India's commitment at the Paris COP21, where the country committed to achieve 40 per cent of renewable energy in its energy mix by the year 2030.

In particular, India's solar energy generation programme seems to be at the forefront of rapid cost de-escalation. Earlier in February 2017, India witnessed yet another record low solar tariff of Rs 3.29/kWh (Levelised over 25 years). This tariff is already lower than tariffs for thermal power plants discovered under reverse bidding. 'Bridge to India' reported: "Recent bids for new thermal power capacity in Andhra Pradesh saw tariffs at Rs 4.27/kWh to Rs 4.98/kWh. In 2013, in Rajasthan and Tamil Nadu, thermal power prices were even higher at Rs 5.41/kWh and Rs 5.66/kWh."

These costs do not take into account variability in fuel costs over the lifetime of the thermal power plant, environmental externalities and other social costs that might accrue from these enormous power plants. Simultaneously, solar PV module prices are scheduled to decline. The International Renewable Energy Agency (IRENA) predicts a 59 per cent decline in global PV prices by 2025. Meanwhile, the efficiency of solar panels is also steadily increasing for both mono and poly crystalline configurations. SunPower – a leader in PV module technology recently announced an efficiency of 24.1 per cent at the module level last year. Increased module efficiencies directly translate to a lower land requirement. This is a boon for India – a country that struggles to acquire large tracts of land for any infrastructure project. In this backdrop, it is clear that solar PV technology will become the mainstay energy source of India in the years to come.

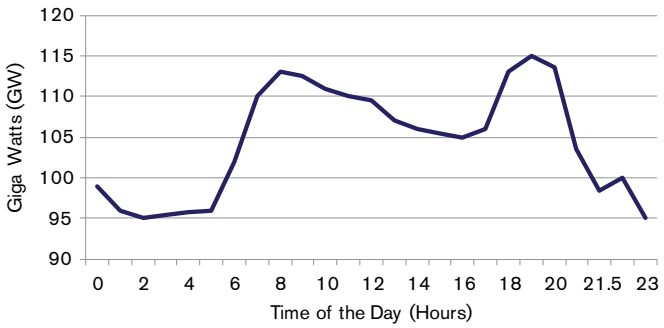
The main challenges of renewable energy are three-fold – predictability (inability to predict the power output in a future point of time), variability (non-constancy of power output) and dispatchability (inability to deliver required amount of power).

Challenges

The main challenges of renewable energy are three-fold – predictability (inability to predict the power output in a future point of time), variability (non-constancy of power output) and dispatchability (inability to deliver required amount of power). These challenges, while important, were somehow muted given the low quantum of renewable energy on India's grid. However, with the rapid growth in renewable energy and the non-growth in load demand, the penetration of renewable energy on the national grid as well as localised regions of the grid is increasing sharply.

The rapid increase in renewable energy capacity has not resulted in a similar growth in transmission infrastructure in most cases. This has resulted in evacuation bottlenecks in the grid. The states of Tamil Nadu and Rajasthan have been particularly affected. A petition filed by the Indian Wind Power Association (IWPA) estimates that wind energy generators in the state of Tamil Nadu have had to back down to an extent of 50 per cent. Another petition before the Central Electricity Regulatory Commission (CERC) states that for the year 2013-14, wind energy generators lost 33 per cent of the total energy possible. Solar energy developers too have not been spared. The state of Rajasthan also curtailed solar power for the first time in 2016. These instances point to a need for better infrastructure, better forecasting and scheduling regulations and technology and energy storage possibilities. With the price of renewable energy now cost competitive with thermal power, effective grid management is the next technology focus area. This would mean stronger transmission and distribution infrastructure with low down time, advanced communication capabilities that would help the Load Dispatch Centres (LDC) to control and monitor generation and energy storage technologies.

Typical all India load curve in winter



One of the severe challenges faced by most LDCs in India today is to manage instant ramping up (or down) of traditional thermal power plants. Figure 1 below shows that ramp rates of 211 MW/min are not uncommon in India. With an increased penetration of renewable energy, especially solar PV, the evening ramp is likely to be exacerbated. Solar PV starts to ramp down in the evening hours and this coincides with an increase in the load. To compound the problem, solar PV's inherent uncertainty could shift tremendous stress on gas and coal power plants to deliver uncertain ramp rates in a relatively short time. Managing this through solar and wind coupled storage for a few hours in the evening is one opportunity for storage solutions.

Recent Initiatives

The Government of India recognises these challenges and has announced India's first storage tender through the Solar Energy Corporation of India (SECI). SECI has invited solar project developers to install storage solutions along with new solar energy project. The tender is a 100 MW solar tender in the state of Andhra Pradesh and mandates that 50MW of solar projects shall be connected to a storage capacity of 2.5 MWh. SECI has also announced a similar tender for energy storage project in Karnataka, for 200 MW (of 50 MW/2.5 MWh).

Although nascent, these steps indicate the direction that India wants to take in terms of creating a vibrant energy storage market in the country. Several international storage players such as NGK Insulators, AES Energy Storage, Sumitomo Electric, LG Chem, Samsung SDI, NEC Energy, BYD, Toshiba, GE and Saft are already in discussion with local partners and are keen to enter the Indian market.

Meanwhile the Central Regulator, CERC has recently issued a staff paper on Introduction of energy storage in India. The document highlights various energy storage technologies employed globally, installed capacity in India and potential value chains. These initiatives show that the Indian government is determined about the role that energy storage would play in better managing the grid.

Ultimately, any storage solution for India will need to be cost competitive with retail power tariffs. The current rates of energy storage are far too high to justify any large scale application. Chemical battery based technologies average between $/MWh 300 to 500. India should attempt at creating a vast market across its various states to ensure a scale effect, which would in turn bring down prices. India can do well to learn from its experience in bringing down solar PV tariffs through transparent reverse auctions.

Once the price for storage comes down as a result of scale, the size of the storage solutions can be proportionally increased. In doing this, India must ensure that it does not make the same mistake that it did with regards to manufacturing solar PV modules in India. India must ensure that it facilitates an ecosystem for energy storage solutions in India to ensure that they are Made in India.

Akhilesh Magal is Head Advisor, Solar Energy, and Souvnik Roy is a Project Officer at the Gujarat Energy Research and Management Institute (GERMI), an institute dedicated to research in the fields of solar energy, energy efficiency, environment and petroleum research.

A NEW VISION OF STEEL FOR DEVELOPMENT

by Rajesh V. Shah

The Government of India recently unveiled its vision for India's steel manufacturing capabilities by circulating a new draft steel policy for 2017 for public discussion and approval by the Cabinet, writes India Inc. policy expert.

The Government of India recently announced a highly ambitious vision for India's steel industry and future demand and circulated a New Draft Steel Policy 2017 for public discussion.

This document is an outline for attaining a most challenging target capacity of 300 million tonnes of crude steel capacity by 2030, which is anticipated to be the demand for steel then. To put this figure in context, India is producing only around 100 million tonnes today while China alone produces around 750/800 million tonnes per year, which is an astounding 50 per cent of global output. Besides it will require India to add capacity every year at a rate not even remotely achieved in the past.

It is thus unmistakably clear that if high enough steel making capacities don't exist within India's short term, the long term economic security is at peril. This plays against the backdrop of the fact that the only country which can supply steel in large quantities is China, with which India has a huge negative trade balance already..

Very correctly, in its first paragraph this Draft Policy points out that installation of adequate steel making capability is of strategic importance and especially vital for a large country. Hence every enabler which supports competitive Indian steel making capacity has not only economic value but adds to our national security.

India's per capita consumption of steel, as most of its other comparative necessities such as energy or plastics, is much lower than global averages. The Government has expressed confidence in achieving the high targets set for building roads, ports, new cities, housing and expanding the railway network. This rapid growth in infrastructure is expected to be accompanied by an equal, if not faster, need for all forms of vehicles and consumer durables. All of which have and will continue to have steel as one of their principal constituents.

It is thus unmistakably clear that if enough steel making capacities don't exist within, India's short term and long term economic security is at peril, especially when the only country which could then supply steel in large quantities is China, with which India already has a huge negative trade balance.

The 'Steel Vision 2017' compiles quite thoroughly all the predicaments facing Indian steel companies, such as non-availability of key raw materials like coking coal and key alloys. It further elaborates that acquiring land, establishing key linkages such as water, power and transportation, obtaining

iron ore mining rights and crucial environmental clearances, delay construction of new projects significantly. High prevailing interest rates, long gestation periods to build steel plants and the huge debts, much of them still under corporate debt restructuring, faced by many of the Indian steel companies, further compound the difficulties to expand or construct greenfield units. Indian banks have become extremely vary after living through several steel demand and price downturns, to lend easily to the Indian steel sector. Further, the current initiatives of the Government aimed at assisting the Indian steel industry to recover, will have to be rolled back in the near term.

Given all that is stacked up against Indian steel companies, including those in the public sector, it is completely unlikely that anywhere near 300 million tonnes in capacity can be achieved within a decade. India would remain undesirably dependent on imports, mostly from only one country, China, or accept impaired development.

However, the future doesn't have to be so gloomy if the Indian Government can accept the reality which comes through transparently in the Government's own Draft Steel Policy. They must be compelled into sacrificing the holy cow – the deeply ingrained concept of Government-owned steel plants.

The Government of India owns a majority stake in six steel plants, producing only about 18 million tonnes annually. These well established units are most valuable as they have tens of thousands of acres each of land in their possession and are blessed with extraordinarily good linkages as well as operating mining rights for iron ore and coal. Each location can easily construct plants upwards of 25 million tonnes capacity annually, together creating the steel capability critical for India's prosperity. It is totally possible, if truly land efficient layouts are employed to achieve upwards of 25 million tonnes of capacity in each of these six locations. This would mean that 10 times the existing capacity is possible in this Government owned plants. Yet there is no way this will happen if they remain in the public sector as they have been most ineffective in project management due to various inbuilt constraints. Projects are delayed at least five years beyond set deadlines and their manpower productivity is abysmally low.

The only path ahead is for the Government to disinvest each of these six plants to large, qualified and competent bidders, mostly international, and perhaps to one or two Indian firms, with firm guarantees from them to invest and expand to mandated levels of capacity. Investment of nearly $150 billion of low cost funds over a decade will be essential and which can come almost entirely from international sources.

It is for the Government to create sufficient public support as the Vajpayee led BJP Government did in the past, when several industries were disinvested, and those today are models of corporate efficiency, continued investment and enhanced employment. The Government exchequer could also realise over $15 billion through disinvestment of their stake in these public sector steel units.

Japan, South Korea, China and France, the only remaining major steel producing nations, should be wooed by India so that they encourage and support their countries' premier steel corporations to bid for and take over the Indian public sector steel plants to expand them rapidly to competitively meet all of India's future needs. All Government assistance and assurances for safeguarding such unprecedented foreign investment in a single sector must be promised and given. Existing employees would in any case have nothing to fear as they are protected by law and their tenure can be ensured as part of the contract with the new owners. Such massive expansion of India's steel capabilities would necessarily generate millions of skilled jobs, directly and indirectly.

If the infrastructure, transportation and housing aspirations of the billion plus Indians are actually to be realised and, in the process, essential long term economic security is not to be put at stake, then this rational route needs be adopted without delay.

Make in India absolutely commences with making steel in India.

Rajesh V. Shah is Co-Chairman and Managing Director, Mukand Ltd, and a Former President of the Confederation of Indian Industry (CII).

INDIAN BUDGET 2017 A BOOST FOR AFFORDABLE HOUSING

by Deepak Varghese

India Inc. property expert unravels the Indian government's recent Budget for 2017-18 and its impact on the country's real estate market.

The central theme of the 2017 Budget in early February seems to be towards creating cash flow and consumption from the bottom of the pyramid. This would then flow upwards to more robust and long-term capital formation at the hands of the development companies. The same trend is observed in the changes to the real estate rules in the current Budget.

The Indian government is on a mission to house the middle and lower strata of society and in order to boost this agenda it has accorded the status of infrastructure to affordable housing. Affordable housing is defined as units less than 600 square feet in non-metropolitan cities and in metropolitan cities it is defined as 300 sq ft. The Budget has shifted reference to carpet size as against built up, where built up homes are about 20 per cent more than carpet size. The impact of this being that developers of such projects will be able to borrow at a much cheaper rate and thereby boost home purchases for end use. However, 300 sq ft for metros is too small for a home and industry feels that it should have been at least 450 sq ft.

Home loan interest offset on homes rented out has been capped at Rs 200,000. High net worth investors (HNWI) had a trend of buying homes on a mortgage and renting it out. Given typical mortgage costs were at 10 per cent per annum and rental yields more like 2.5 per cent, they would offset the negative interest against incomes from other sources after reducing rent from interest paid. This gave them an offset to reduce direct taxes. This loophole has now been closed. Properties costing more than Rs 200,000 have already been affected badly due to end use sales and demonetization. The latest Budget provision will definitely impact such property sales going forward.

The holding period of property for the purpose of computing long-term capital gain has been reduced to two years from three years. This move should give a boost to owners of small homes upgrading to larger homes. This read in tandem with the affordable homes getting infrastructure status should give a boost to home buying.

The Budget has shifted reference to carpet size as against built up, where built up homes are about 20 per cent more than carpet size. The impact of this being that developers of such projects will be able to borrow at a much cheaper rate and thereby boost home purchases for end use.

The shift of base year for the purpose of capital gain indexation from 1981 to 2001 will lead to lesser profits being declared on the sale of a home and more free cash in the hands of the seller. This would not force the seller to resort to taking part of the sale proceeds in cash. Besides reducing black money creation, it will also bring in properties into the market at various price points and create a general transparent liquidity cycle of sales and purchases of properties.

Overall, the Budget is a good attempt to boost the real estate sector. An agenda to support the middle and lower strata and an attempt to bring more transparency into the pricing by eliminating opportunities of creation of black money will have a positive impact.

Deepak Sam Varghese is founder-director of Moonbeam Advisory

IN AID OF A COLLABORATIVE NEW RELATIONSHIP

Priti Patel took charge of the UK government's Department for International Development (DfID) at a time when the country's aid programme for India was evolving from the traditional hand-outs system to a more collaborative one. 'India Investment Journal' caught up with the minister as she completed six months in Britain's Cabinet.

"We don't give traditional aid to India but if we look at the facts – the UK is one of the largest investors in India and India is one of the largest investors in Britain. India invests more in the UK than whole of the European Union (EU) put together.

"That says a lot about the strength of the private sector working relationship. We have many UK and Indian businesses working collaboratively together," says Patel, when asked how the India-UK aid relationship is working in 2017.

"Joint working on key initiatives in areas like smart cities, the technical assistance we are able to give, the energy side to meet development objectives and urbanisation, cleaning up waters and rivers – all strengthen and re-state our collaboration. It is an opportunity to bring the expertise and experience that the UK has more to the forefront," says the senior minister in the Theresa May led Cabinet.

Joint working on key initiatives in areas like smart cities, the technical assistance we are able to give, the energy side to meet development objectives and urbanisation, cleaning up waters and rivers – all strengthen and re-state our collaboration. It is an opportunity to bring the expertise and experience that the UK has more to the forefront.

The Gujarati-origin minister, who has served as the Indian Diaspora Champion in the UK Cabinet previously, also expressed her excitement over the launch of the UK India Year of Culture 2017 celebrations at Buckingham Palace in February.

"Throughout the year, we are going to see great works of art, great collaborations, all the cultural aspects coming together and a real demonstration of how strong our cultural ties are. It is going to be really exciting," she

Priti Patel during a recent tour of Lebanon

said. The Conservative Party MP has completed just over six months in office as minister in the Department for International Development (DfID) but has already been on countless visits to war-torn regions and has just returned from Lebanon and Jordan, countries at the heart of the Syrian refugee crisis.

She said: "It's been pretty humbling, my first six months; particularly where I have been and the state of the world in general. My focus has been on many of the humanitarian crises that have concentrated all our minds, in particular Syria.

"The UK has been at the forefront of dealing with the crisis. We have committed 2.3 billion pounds since the start of this conflict. It is our biggest ever response to humanitarian crisis and makes us the second-largest bilateral humanitarian donor. We have helped to get over 250,000 Syrian children into schools and get them educated."

The British public should be proud and feel confident in the way in which their development system and aid is spent.

Asked about some of the negative rhetoric around refugees coming out of countries like the US under President Donald Trump, she said: "The US are a huge supporter to the refugee crisis, we should not lose sight of that. They are the number one contributor in the region.

"We have to make sure that we work together with the international community, whether it is UN agencies or other country donors. It is about how we work together to provide the right support on the ground.

"I think the British public should be incredibly proud of the fact that their generosity is saving lives and changing lives in difficult parts of the world, from north-east Nigeria, Ethiopia, Somalia to South Sudan."

When she was appointed as the DfID minister as Theresa May took charge of Downing Street in July 2016 just weeks after the Brexit referendum, Patel had declared her goal as ensuring that British aid delivers the country's global vision outside the European Union (EU). She sees her job as making sure the international aid system "does what it says on the tin" and delivers for the world's poorest.

She explains: "The British public should be proud and feel confident in the way in which their development system and aid is spent. I am not afraid to stop things that I think don't work in our national interest or may not fit with our strategic priorities in Britain post-Brexit.

"I want to demonstrate that our aid is working in our national interest and global interest, certainly in terms of supporting our place in the world."

However, it is no secret that her job hasn't been easy as she holds firm against a growing tide against the UK's aid programme.

"While I appreciate that some might want to paint a particular point of view about aid, we should never lose sight of the fact that we have great values in the UK and the way we are there on the frontline supporting countries and people that are vulnerable and poor and need our help and assistance.

"But at the same time, I am not afraid to challenge the aid system and the international development system and that is exactly what I am doing – challenging this department, the way we spend money, re-prioritising how we spend funds in some quarters.

"I am also challenging the multi-lateral systems, large aid agencies, getting them to cut back on their overheads, deal with fraud."

Photo Credit:UK Department for International Development

A ROYAL LAUNCH TO BOLSTER POST-BREXIT INDIA-UK TIES

Queen Elizabeth II greets Indian guests at the Palace

India's Finance Minister, Arun Jaitley, represented the Government of India to mark the launch of Indian festivities across Britain throughout the year.

The year 2017 had been declared UK India Year of Culture during Prime Minister Narendra Modi's visit to the UK in November 2015. Its official launch took place on February 27 with a gala reception hosted by Queen Elizabeth II in Buckingham Palace, which was lit up in peacock colours – a reference to India's national bird.

Earlier in the day, heavy downpours in London washed out a planned Changing of the Guard ceremony to Indian music but Band of the Grenadier Guards moved to Wellington Barracks nearby to perform the music.

The festivities, which brought together high-profile celebrities from various fields, are widely seen a reiteration of Britain's focus on India as a stronger trading partner once it leaves the European Union (EU) after a referendum in favour of Brexit last year.

"This only re-emphasises the importance which is attached to the Indo-UK relationship. It launches a heavy calendar of events that will celebrate our excellent relationship with the UK over the decades," Jaitley said.

"This is the kind of celebration of India-UK culture that should have happened long ago," added Indian cricket legend Kapil Dev.

The Queen was joined by her husband, Duke of Edinburgh, and grandson Prince William and his wife Kate.

A series of institutions in Britain and India will be collaborating throughout the year to present a host of screenings, travelling exhibitions, literary festivals, music and dance performances, and sporting events.

UK foreign secretary Boris Johnson said: "Through the year of culture we will celebrate modern India and the long standing relationship between both countries, rooted in our flourishing people-to-people links. I hope through this series of cultural events we can connect the next generation of Britons and Indians and inspire people to play their part in shaping UK-India relations over the next 70 years."

India@UK2017, organised by the Indian High Commission in London, the Indian Ministry of Culture, and Indian festival producer Teamwork Arts, in association with the UK's Globe Theatre, British Library, Young Vic, Birmingham Rep, Barbican Centre, Sadler's Wells, Tramway, Edinburgh Festival Theatre, and the Royal Festival Hall, will present five iconic strands in the UK to showcase the cultural diversity of India through the year.

The Queen opened up Buckingham Palace to Indian dance and music as she hosted the launch of UK India Year of Culture 2017.

Jaitley with Lord Gadhia

Cricketer Kapil Dev with the Indian High Commissioner to the UK, Y.K. Sinha

Indian actors Suresh Gopi and Kamal Hassan

Photo Credit: James Gifford-Mead

INDIA DRIVES BRITAIN'S LUXURY CAR EXPORT BOOM

The rising popularity of Tata Motors owned Jaguar Land Rover (JLR) models led to a 15.8 per cent hike in car exports from the UK to India in 2016, the recent UK automotive industry figures released in London revealed.

India is now the eighth largest Asian market for UK car exports with JLR's Land Rover Discovery Sport, Ranger Rover Evoque, Jaguar XF, Jaguar XE and Jaguar F-Pace among the top five most popular models with a growing number of "affluent buyers" in the country. The Society of Motor Manufacturers & Traders (SMMT), one of the UK's largest trade associations, said the Indian demand formed part of a wider 17-year high for British car manufacturing last year.

"India is now the eighth biggest Asian market for UK car exports, with demand rising at a rapid rate as an increasing number of affluent buyers take advantage of a range of all new premium and luxury British-built cars. UK car exports to the country grew 15.8 per cent to 3,372 in 2016," SMMT said in a statement.

It also found that Indian-built car models accounted for 31,535 new car registrations in the UK, an uplift of more than 12.6 per cent on 2015.

"India and the UK have a great history of collaboration in the automotive sector and it is essential we secure mutually beneficial trade relationships in the future. India is a growing market, for the moment largely for luxury vehicles. But we face high import tariffs which makes it more difficult to sell into India," said Mike Hawes, SMMT chief executive.

"It remains to be seen the kind of trade deal the UK may look to agree with India post-Brexit. But meanwhile, it is very much about producing the right product for the market, which is in the premium category," he noted.

Meanwhile, as many as 1,727,471 vehicles rolled off production lines in the UK last year from some 15 manufacturers, an 8.8 per cent rise in total car production in Britain compared to 2015 and the highest output since 1999.

More cars are now being exported from Britain than ever before, which the SMMT highlighted was the result of investment made over recent years in world-class production facilities, cutting-edge design and technology and one of Europe's most highly skilled and productive workforces rather than any Brexit effect.

Production growth in the UK was predominantly driven by overseas demand, with global appetite for British-built cars rising by 10.3 per cent to an all-time high of 1,354,216 – a second consecutive annual record. Around eight out of every 10 cars manufactured in the UK is now exported, bound for one of 160 markets worldwide.

The European Union (EU) remains by far the country's biggest market, something that could be directly affected by the final trade deal struck as Britain exits the economic bloc.

"Brexit is a significant challenge and we want our respective governments to support our industry. The last year was undoubtedly a very, very successful year for the industry but there is a lot of uncertainty with one of our biggest market, the EU," added Hawes. EU countries make up exactly half of the UK's top 10 individual global markets, with Germany leading, followed by Italy, France and Belgium. Furthermore, Europe supplies the majority of components (65 per cent) within UK-built vehicles, underlining the critical importance of tariff and barrier-free trade to future UK automotive production.

The automotive industry is a vital part of the UK economy accounting for £71.6 billion turnover and £18.9 billion value added. With 169,000 people employed in manufacturing and 814,000 across the wider industry, it accounts for 12 per cent of total UK export of goods and invests £2.5 billion each year in R&D. Some 30 manufacturers build more than 70 vehicle models supported by 2,000 component providers and some of the world's most skilled engineers.

While the Make in India programme is proving a considerable pull factor for some UK-based automotive firms, the demand for India to lower its import tariffs has been a consistent one – both from the UK as well as the wider European Union (EU) market. As Britain negotiates its exit from the EU, the automotive sector will be among the key focus areas in any new India-UK free trade agreement (FTA).

Top 5 British Best-sellers in India

1. Land Rover Discovery Sport
2. Land Rover Range Rover Evoque
3. Jaguar XF
4. Jaguar XE
5. Jaguar F-Pace

BRITAIN HOLDS ON TO POSITION AS LARGEST G20 INVESTOR INTO INDIA

Britain beat off tough competition from Japan to hold on to its position as the largest G20 investor and biggest job creator in India, a new report revealed.

Between 2000 and 2016, the UK invested $24.07 billion in India and created 371,000 jobs, the Confederation of British Industry (CBI) finds in its 2017 'Sterling Assets India' report. Japan by comparison invested around $23.76 billion, followed by the US at $19.38 billion as the top G20 investors into India.

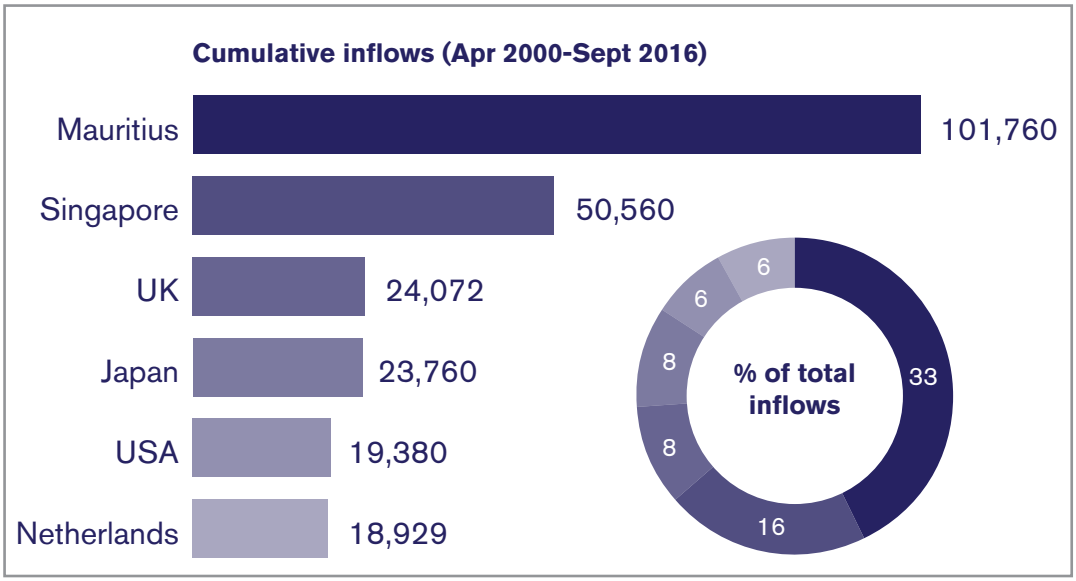
"The top reasons British firms invest in India are the size and growth potential of the market, the easy availability of talented workers and the stable political system," it notes.

The analysis, supported by PricewaterhouseCoopers (PwC) and UK India Business Council (UKIBC), found that Britain had increased its investment into India by $1.87 billion between 2015 and 2016, representing 8 per cent of all foreign direct investment (FDI) into the country.

"These figures reflect the thriving commercial links that Britain's businesses – large and small, and from a whole host of sectors – have built in India, and which the Prime Minister saw on her first visit outside the EU [in November 2016]," said Carolyn Fairbairn, CBI Director-General.

"From strengthening the UK's leading position as the largest G20 investor in India to being the biggest Indian job creator through direct investment, it's clear the country is a magnet

Equity FDI in India by G20 nations, Apr 2000-Sept 2016 (US$m)



Source: Department of Industrial Policy and Promotion

for British firms… Further reductions in India's corporate tax rates and improvements to the ease of doing business will see the relationship between India and the UK go from strength to strength," she said.

The chemicals sector receives the lion's share of British investment in India at $6.1 billion (25 per cent of UK FDI), followed by drugs and pharmaceuticals at $4.1 billion (17 per cent) and food processing at $3.2 billion (14 per cent).

The total number of people employed by British companies in India currently stands at 788,000, representing 5.3 per cent, or one in 20, of private sector jobs.

Kevin Burrowes, executive board member and head of clients and markets at PwC UK, said the findings offer a good base for India-UK ties to build on in a post-Brexit era.

From strengthening the UK's leading position as the largest G20 investor in India to being the biggest Indian job creator through direct investment, it's clear the country is a magnet for British firms.

prospects for revenue growth over the next three years, compared to 41 per cent globally, adding to India's attraction as a place to invest," he added.

UKIBC chair Patricia Hewitt described the findings as a sign of the UK "solidifying" its place as the number one G20 investor and job creator in India through FDI.

She said: "The Indian government's efforts to improve the business environment are clearly bearing fruit, and British businesses of all sizes and from across sectors have continued to spread right across this exciting and fast-changing market.

"As Prime Minister Modi said, the UK and India are an 'unbeatable combination'."

Delhi proved the most popular investment destination for British firms in recent months. Between April 2015 and September 2016, nearly a quarter (22.35 per cent) of British investments chose Delhi. The state of Maharashtra, with the city of Mumbai, attracted the largest share of British investment ($7.47 billion) between 2000 and 2016.

The 'Sterling Assets India' report marks the start of a series of events planned by the CBI and UKIBC on the UK-India trade relationship to take place in both the UK and India over the next two years.

Employment generated by foreign companies in India (Apr 2000-Sept 2016)

Country	Numbers (000)
UK	280
Japan	276
Germany	107
France	62
US	226
Mauritius	1185

"India offers excellent opportunities for UK businesses looking to engage in a fast-growing emerging economy. Building ever closer business ties with India will be critical, especially at this current time, given the changing global and European stage," he said.

"It is encouraging to see that confidence among British and Indian business leaders has increased in comparison to last year. According to PwC's latest CEO Survey, 75 per cent of Indian CEOs are 'very confident' about their company's

Sterling Assets India

Calculations this year are a sum of three categories of UK funds inflow

- Equity FDI that came from the UK directly
- Through re-investment from British firms already in India
- Through firms of UK parentage, a majority of which are the top 25 investors from offshore financial centres like Mauritius and Singapore.

This research estimates that UK companies re-invested $7.9bn between April 2000 and September 2016. It is estimated that one in every ten jobs created by FDI in India between April 2000 and September 2016 were created by UK FDI.

RAJASTHAN DECKS UP FOR INVESTORS

India's largest state has caught the attention of investors of late but has a long way to go.

In one of his earliest interactions with the press after the formation of Niti Aayog, India's premier think tank, two years ago, Vice-Chairman Arvind Panagariya took exception to Rajasthan being referred to as a "BIMAROU" state. The oft-used acronym means diseased or sick in Hindi and is made up of the Indian states of Bihar, Madhya Pradesh, Rajasthan, Odisha and Uttar Pradesh. It was coined in the 1980's by prominent demographer and economic analyst Ashish Bose to refer to the poor economic conditions in these states.

Panagriya said: "The term 'BIMAROU' is a fictitious term to be used for Rajasthan. In real perspective there is nothing like BIMAROU. There are several states which lag behind Rajasthan in terms of development and in the years to come it will be ahead of even West Bengal in terms of its GDP.

"At the end of the day, employment and growth are important. Manufacturing contributes 10 per cent in GDP in Rajasthan and the state is now progressing in this sector."

Panagariya had not spoken off the cuff or too soon. In a survey conducted by the Department of Industrial Policy and Promotion (DIPP) and World Bank Group last year, Rajasthan was placed eighth out of the list of 32 states in ease of doing business. The state scored 96.43 per cent against 98.78 per cent of Andhra Pradesh and Telangana, which were the top two states in the survey. Not only had it improved its score from 2015, it had also left behind in its wake more affluent states like Tamil Nadu and Delhi.

"Our implementation score has increased by over 30 per cent compared to last year, and four of our reform activities have been recognised as national best practices," says state industries minister Gajendra Singh Khimsar.

> "We have learnt some lessons from our first Resurgent Rajasthan of 2007. This time, we have been carefully scrutinising investors and want to ensure that only those serious about investment sign memorandums with us."
>
> *Gajendra Singh,*
> *Minister of Industries, Rajasthan*

"These achievements are testament to the effectiveness of the Rajasthan model of development. We will continue to build on the success."

The change albeit has been gradual and did not happen overnight. Even though Rajasthan is the largest state in India in terms of size, a significant portion of the land is arid and sparsely populated. Traditionally it relied on mineral deposits of limestone, marble and precious stones, agriculture and tourism for its economy. Industrialisation is a recent phenomena in Rajasthan. In 1987-88, the manufacturing sector contributed a mere 1.3 per cent to the state Gross Domestic Product (GDP). Today, its contribution stands at over 13 per cent.

2004: The Eureka moment

Tucked far away on the Western border of the country in Rajasthan surrounded by the barren Thar desert from all sides, Barmer has always been the quintessential sleepy little town. Despite being the fifth-largest district in the country in terms of size, its population of just 2.6 million makes it one of those places bookmarked for punishment postings for bureaucrats, civil servants or police officers. Yet, the destiny of the city changed forever in 2004 when British firm Cairn discovered oil deep within its sandy top soil.

That particular block of land had been earmarked for oil exploration but had been given up for good by global oil major Shell. Scottish explorer Cairn Energy then bought out the block in 2002 and struck gold two years later. With initial estimates for the oil in the range of 450 to 1,100 million barrels, it was the biggest oil discovery in India for over two decades and anywhere in the world that year.

As the company set up its camp offices and started acquiring land for the project, the landscape of the region changed. Property prices soared, infrastructure development kicked off and hotels and malls mushroomed in the city. Oil put Barmer and with it Rajasthan on the world map.

"Land prices have shot through the roof. The discovery has changed the city forever," says Lalit Kumar Kiri, a local who was a beneficiary from the oil discovery by providing supplies and services to Cairn.

The 2004 oil discovery happened early in Vasundhara Raje's first stint as the Chief Minister of the state between 2003 and 2008. It showcased the impact private investment and industrialisation can have in ushering development in the region and pulling people out of poverty.

India Inc was warming up to the prospect of investing in the state and in 2007 Raje decided to host the first edition of Resurgent Rajasthan Investors summit. It generated assurances of 357 projects with commitment of Rs 1.67 lakh crore ($15bn). As is the norm with these summits, not all of them have fructified. Till date, only 40 per cent of the projects that were promised have been completed or are under process that amount to a total investment of Rs 39,000 crore ($5.8bn). It was a start nevertheless.

Delhi Mumbai Industrial Corridor: Rajasthan's highway of growth

Much of the infrastructure development in the state in the recent past has happened in lieu of government of India's ambitious flagship project of developing an industrial corridor between Delhi and Mumbai. Around 40 per cent of the 1,500 odd kilometer corridor that is being developed with a cumulative investment of nearly $100 billion, passes through Rajasthan. The state will have two investment and three industrial areas as a result of that.

In her current stint, Raje has been exhorting businessmen, both homegrown and foreign – those from Bengal with origins in Rajasthan as well as South Korea, Japan and Singapore — to invest in the state along the industrial corridor.

"Every state has its advantages and disadvantages. Our problem is we do not have much water as it is an arid state. However, we are uniquely placed geographically as you would have to transit through Rajasthan if you want to get to the coast from the North," says Veenu Gupta, Principal Secretary, Industries.

"We have good connectivity and by 2018 the freight corridor will greatly reduce transportation time to Kandla and Mundra ports."

Already, there has been a spurt in investments along this corridor. Japanese car major Honda recently started its factory in Tapukara while world's largest two wheeler manufacturer Hero MotoCorp also set up its state of the art factory at Neemrana. Hero has also set up its global R&D facility in

Kukas near Jaipur. As is the case with automobile factories, many other ancillary units have also sprouted in the region. Construction equipment maker JCB and Saint Gobain are some of the others to invest in Rajasthan.

Beyond the industrial corridor, there are many other smaller steps that the government has taken to lure the investors. In 2014, Indian President Pranab Mukherjee used a rare provision in the Constitution under Article 254 (2) to give his consent to Rajasthan's amendments in the labour law. The new labour laws over-ride laws of the union, and indicated the intent of the government to pave the way for easing processes for business. Since then, the laws have been tweaked multiple times to facilitate investors. In all, 61 article laws have been repealed, and 187 amendments have been enacted till now.

By the time Raje resurrected the Resurgent Rajasthan summit in 2015, she had laid the foundation. The homework had been done. The summit saw 295 proposals being signed for a cumulative investment of Rs 3.3 lakh crore ($44bn). The projects included Aditya Birla Group's promised investment of nearly Rs 11,000 crore ($1.6bn), including Rs 7,000 crore ($1bn) for setting up two new cement plants and Rs 3,000 crore ($448mn) for establishing a 500 MW solar power plant in the state and Adani Group's Rs 10,000 crore ($1.4bn) over four years for the expansion of its thermal and solar power plants in the state.

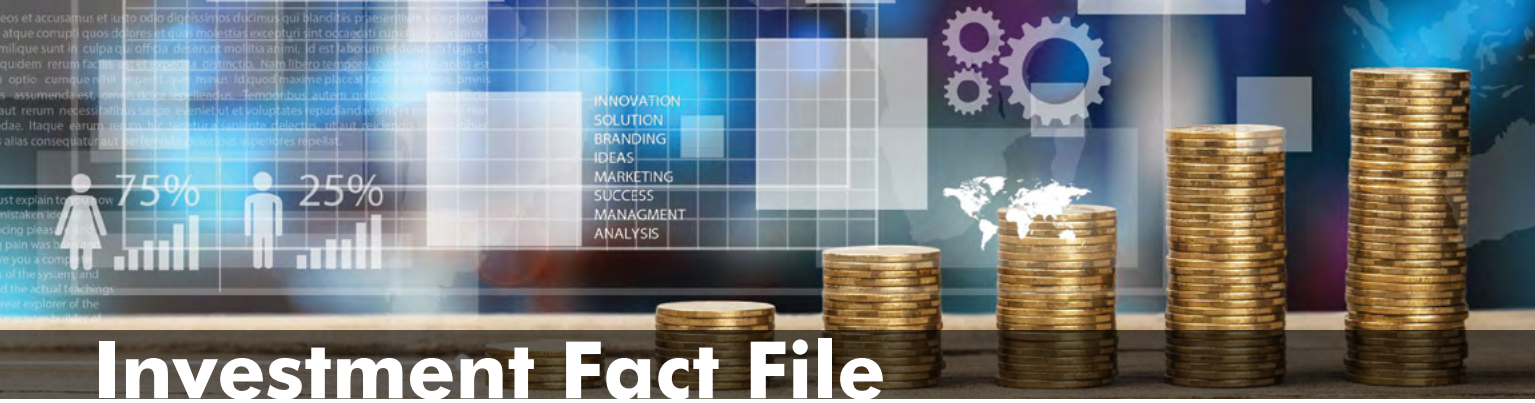
"We have learnt some lessons from our first Resurgent Rajasthan of 2007. This time, we have been carefully scrutinising investors and want to ensure that only those serious about investment sign memorandums with us," says Industries Minister Gajendra Singh. "If we get even 60 per cent of this investment, it would mean a lot of money."

Yet, these are only baby steps and the full potential of the state is yet to be exploited. According to a study done by ASSOCHAM, Rajasthan does not even figure in the top 10 investment destinations in the country and neighbouring states like Gujarat, Madhya Pradesh and Haryana consistently attract more investments.

In a survey conducted by the Department of Industrial Policy and Promotion (DIPP) and World Bank Group last year, Rajasthan was placed eighth out of the list of 32 states in ease of doing business.

"We are just at the tip of the iceberg," Raje had said while inaugurating the summit in 2015. "A lot more work has to be done."

The story of the resurgence of Rajasthan is still being written.

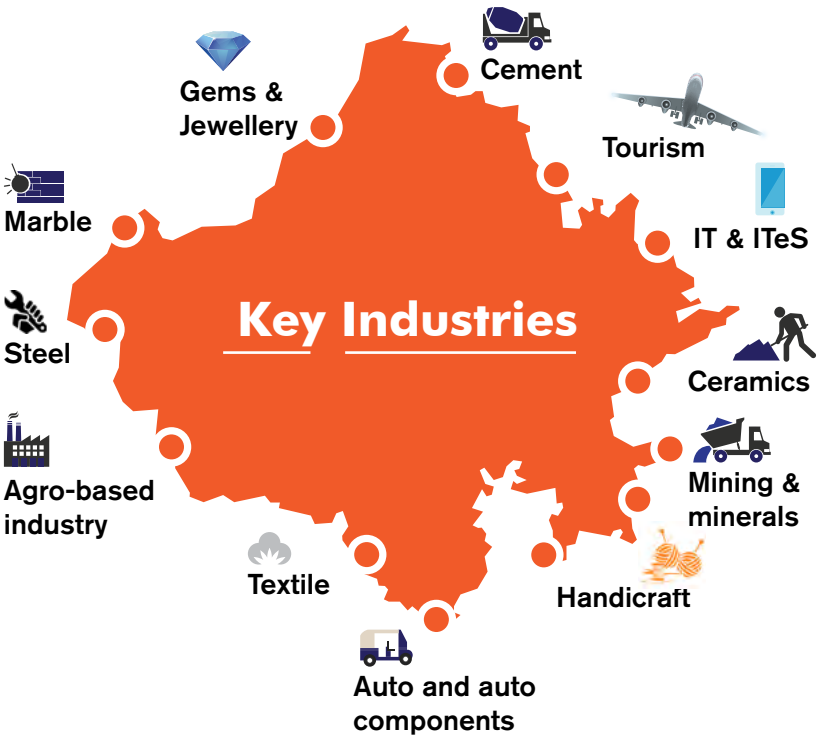


Investment Fact File

- Rajasthan is the largest producer of rapeseed, bajra and mustard; second largest producer of oilseeds and spices, and third largest producer of soya bean and coarse cereals in India.
- Rajasthan is a leading producer of limestone, silver, gold, copper, marble, sandstone, rock phosphate, and lignite.
- The state is the largest producer of cement in India. It has 21 major cement plants, having a total capacity of 55 million tonnes per annum (MTPA).
- Rajasthan is also the second-largest producer of milk and the largest producer of wool in India.
- Rajasthan has reserves of numerous precious and semi-precious stones and is the largest manufacturer of cut and polished diamonds in the country.
- The world's largest centre for gemstone cutting and polishing is located in Jaipur.
- The Alwar and Jaipur districts are close to major auto production hubs of the country such as Noida (Uttar Pradesh), Gurgaon and Dharuhera (Haryana); offering excellent advantages for setting up of auto and auto ancillary units.
- Over 100 units are currently functional in Bhiwadi, Neemrana and Pathredi in Alwar district, Rajasthan. These are the 3 main auto clusters in Rajasthan.
- 8,380 sq km of Rajasthan falls in the National Capital Region (NCR), which is around 24.5% of the total NCR.
- To catalyse industrialisation, the Corporation has developed 327 industrial areas acquiring 74,228 acre land throughout the State.
- About 60% of the state's area falls within the Delhi-Mumbai Industrial Corridor project influence area.
- The state comprises several Special Purpose Industrial Parks like Agro Food Parks (Kota, Jodhpur, Sri Ganganagar and Alwar), Stone Parks (Bharatpur & Jodhpur), Leather Park (Jaipur), IT Parks (Jaipur, Jodhpur and Alwar), Bio-tech Park (Jaipur), and Export Promotion Industrial Parks (Jaipur, Alwar and Jodhpur).
- Special Japanese Zone at Neemrana (Alwar) spread in 1167 acres where Japanese majors such as Nissin, Mitsui, Nippon, Daikin, TPR Auto, Mitsubishi, Dykie Colour, Toyota Kirloskar Motor have been allotted land and a number of units are already operational. Another Japanese Investment Zone over 500 acres at Ghiloth is being developed.
- An exclusive Korean Industrial Zone spread in approximately 263 acres of area is being developed at Ghiloth near Neemrana, Rajasthan. This zone will attract Korean entrepreneurs and boost trade between India and Korea.
- With a high level of solar radiation, the state is uniquely placed to tap into solar energy profitably. The state government also decided to construct 1,000 bore wells based on the solar energy for which $6.64 million was allocated.

Rajasthan Fact Sheet

Rajasthan, literally 'Land of Kings' or 'Land of Kingdom', is India's largest state by area. The state is located in the north-west part of the country and is famous worldwide for its forts and palaces. The state was formed in March 1949 when Rajputana was merged into the Dominion of India and Jaipur being the largest city was declared the capital of the state. Jaisalmer, Udaipur, Jodhpur, Ajmer, Bikaner, Alwar, Amber and Chittorgarh are some of the key cities and towns in the state.



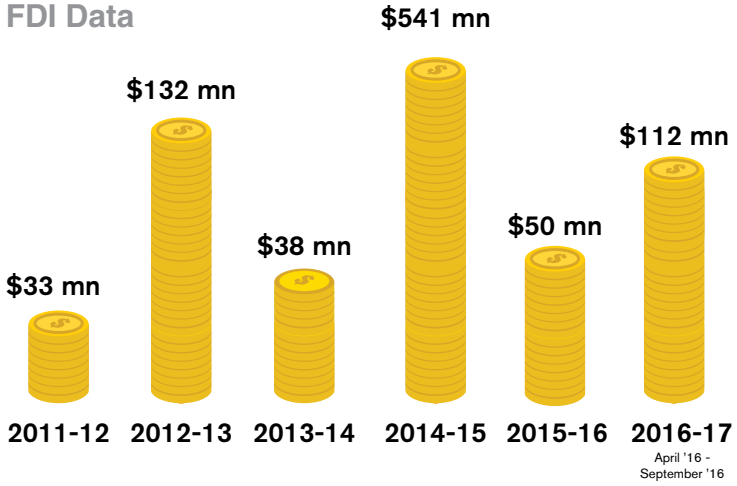
Major State Policies

1. Policy for Promoting Generation of Electricity from Wind, 2012
2. Rajasthan Solar Energy Policy, 2014
3. Policy for Promoting Generation of Electricity from Biomass, 2010
4. Rajasthan Industrial and Investment Policy, 2010
5. Rajasthan State Environment Policy, 2010
6. Policy for Promotion of Agro-processing and Agri-business, 2010
7. E-Governance and IT/ITeS Policy, 2015
8. Tourism Policy of Rajasthan
9. Biotech Policy
10. Rajasthan Mineral Policy 2015
11. Rajasthan Investment Promotion Scheme-2014
12. Rajasthan MSME Policy 2015

Advantage Rajasthan

- GSDP grew at a CAGR of 12.38% between 2004-05 and 2015-16
- Stable political environment
- Rich labour pool and infrastructure support
- Investments in capacity building
- Higher education institutions producing thousands of skilled professionals
- Sector-specific infrastructure, such as special purpose industrial parks and special economic zones (SEZs), for exports of handicrafts, IT and electronic goods
- Abundant mineral resources and location advantage
- Unexploited agricultural and mineral resources, which is indicative of the scope for value addition and exports
- Natural corridor between the wealthy northern and the prosperous western states, making it an important trade and commerce centre

FDI Data

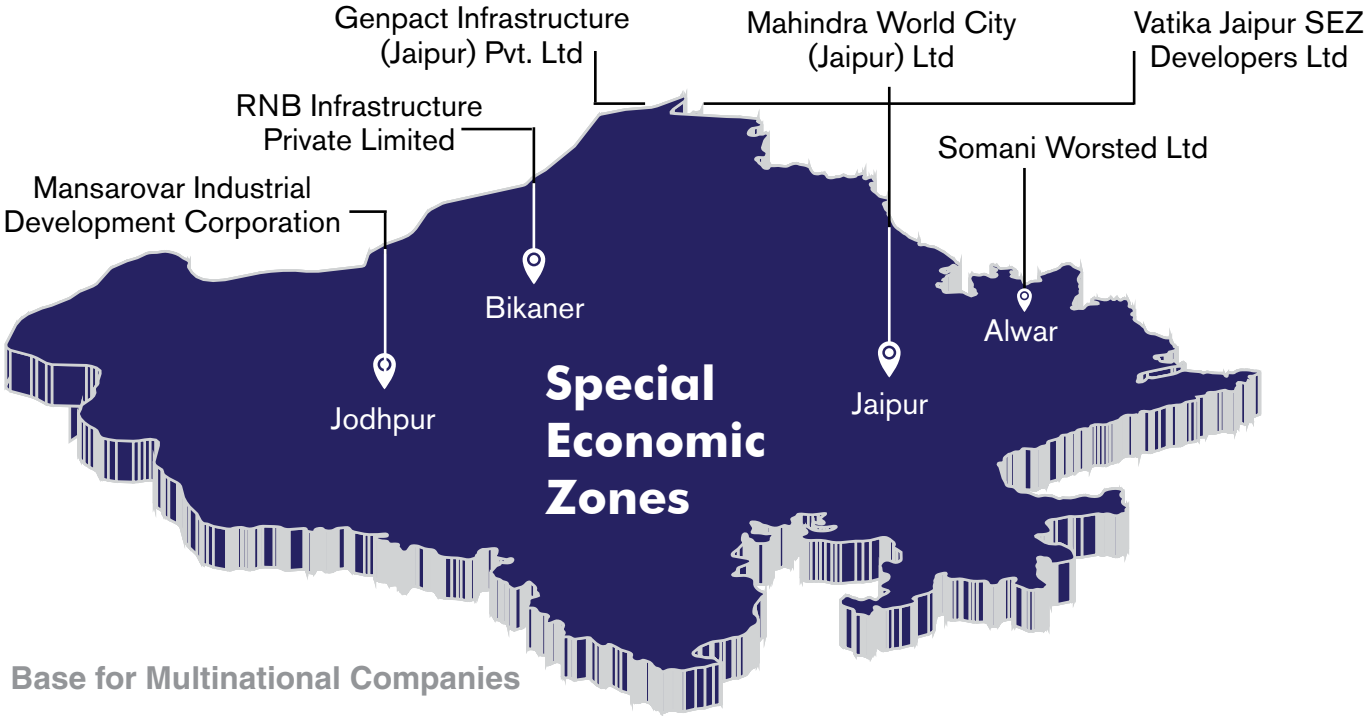


FDI Ranking

The state ranks **9th** with FDI inflows of

$1,457 mn

(April 2000 - Sept 2016)



Base for Multinational Companies

- Ericsson
- GE Capital
- Ford
- Bausch & Lomb
- Mico-Bosch
- Electrolux
- Gillette
- Honda
- Pepsi
- Saint Gobain
- Ray Ban

Ease of doing business rankings 2016

2016 Rank: 8th **Score: 96.43%**

Rajasthan is among the top 10 states which had implemented over 90% of the reforms

Top 5 reforms implemented by the state

- Access to Information and Transparency Enablers
- Single Window
- Availability of Land
- Construction Permit Enablers
- Environmental Registration Enablers

Rajasthan investment incentives include

- Subsidies
- Power concessions
- Land and building tax exemption
- Special land package for IT industries

FACT SHEET: An Expat's Guide to Jaipur

Jaipur, the largest city of Rajasthan, prides itself for its magnificence and vibrancy. Popularly known as the **Pink City** because of the colour of the stone used exclusively in the walled city, Jaipur's creation dates back to 1727 – when Jai Singh II established it as India's first planned city. With splendid fortresses, majestic palaces, tranquil temples and beautiful havelis, Jaipur has proved an attractive tourist destination over centuries. Other than these captivating attractions, Jaipur is also home to exquisite handicrafts and spectacular jewellery.

Popular Fairs & Festivals

- Beneshwar Fair
- Nagaur Fair
- Desert Festival
- Mewar Festival
- Teej Festival
- Pushkar Fair
- Camel Festival
- Kite Festival
- Dhulandi Festival (Festival of Colours)

Popular Local Dishes

- Dal Batti Churma
- Mawa Kachori
- Ghevar
- Mirchi Bada
- Gatte ki subji
- Laal maans
- Rajasthani kadhi

Popular Restaurants

- Jal Mahal Restaurant
- Okra
- Peacock Rooftop Restaurant at Hotel Pearl Palace
- Baluchi
- Jaipur Pavilion - ITC Rajputana Hotel

The Oberoi Rajvilas

Babaji Ka Modh, Goner Road, Jaipur, Rajasthan 302 031
Telephone: +91 141 268 0101
Fax: +91 141 268 0202
Website: www.oberoihotels.com/hotels-in-jaipur-rajvilas-resort

Jas Vilas

C-9-A, Sawai Jai Singh Highway, Bani Park, Jaipur - 302016, Rajasthan
Telephone: +91 141 2204638
Website: www.jasvilas.com

Royal Heritage Haveli

Khatipura Tiraya, Khatipura Road, Khatipura, Jaipur, Rajasthan 302012
Telephone: + 91 141 408 2121
Website: www.royalheritagehaveli.com

Pearl Palace Heritage The Boutique Guesthouse

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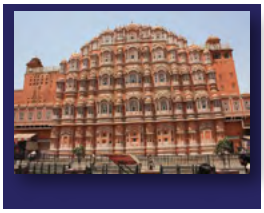
Top Attractions – In and Around Jaipur

Jaipur City Palace

Located in the heart of Jaipur, the City Palace Complex was conceived and built by Maharaja Sawai Jai Singh, the founder of Jaipur. A beautiful fusion of Mughal and Rajput architecture, the palace is still home to the last ruling royal family which lives in a private section of the palace. The City Palace Complex includes the Mubarak Mahal (the palace of reception) and the Maharani's Palace (the palace of the queen).



Hawa Mahal

Built by Maharaja Sawai Pratap Singh in 1799, Hawa Mahal is a five-storey extension in the form of a honeycomb. This unique building has 953 small windows, called jharokhas, decorated with intricate lattice work. The entire palace represents the crown of the Hindu God, Lord Krishna. Even though this palace was built during ancient times, it reflects the scientific vision of Maharaja Sawai Pratap Singh in a distinct way. The windows of this palace have been designed in such a way that irrespective of the time or season of year, cool breeze always persists inside the palace.

Jantar Mantar Observatory

Declared as a World Heritage Site by UNESCO, the Jantar Mantar in Jaipur is considered to be the largest of the five astronomical observatories built by Maharaja Sawai Jai Singh II, the founder of Jaipur. It contains fourteen geometric devices, designed to measure time, track celestial bodies and observe the orbits of the planets around the sun. Samrat Yantra is the largest instrument in this observatory and it was used to forecast time. Samrat Yantra is also the largest sundial in the world.

Amer Fort

Located amidst the picturesque and rocky Aravalli Hills, Amer Fort is one of the most famous forts of Rajasthan. The Amer Fort was built in red sandstone and marble and the Maotha Lake adds a certain charm to the entire Fort. Sheesh Mahal or the 'Palace of Mirror' is also one of the captivating halls to visit within Amber Palace. Decorated with numerous pieces of mirror tiles, this hall was designed in such a way, even a single ray entering into it can illuminate the entire hall.

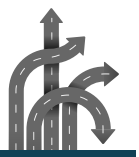
Birla Temple

Built on an elevated platform, this comparatively modern temple is built entirely of white marble and dominates the skyline of south Jaipur. The temple was commissioned and built by renowned Indian industrialists, the Birlas, in 1988. The temple is a work of art and has a marvellous display of exquisite carvings and sculptures covering many mythological themes. The temple is dedicated to Lord Vishnu, also called Narayan, and his companion, Lakshmi, the Goddess of wealth and good fortune.

Chokhi Dhani

Chokhi Dhani, the only five-star rated ethnic village resort in India, is one of the best places to visit in Jaipur. Located in the neighborhood of Jaipur, Chokhi Dhani is the replica of a traditional Rajasthani village. Chokhi Dhani opened its cultural door to tourists in 1989 and since then, it has been entertaining its visitors with all the colours of Rajasthan's ethnicities from traditional Rajasthani foods and folk music to popular puppet shows of Rajasthan.

Accessibility



Rajasthan has the second largest network of National Highways in the country, providing excellent connectivity to cities like Delhi, Ahmedabad, Vadodara, Mumbai, Jabalpur, Bhopal, Agra, Gwalior, Indore, Amritsar.

The railway network connects the state to all major cities in India and links the State to ports in Mumbai, Kandla and Mundra in Gujarat.

The state has a fully operational international airport at Jaipur, with direct flights to Dubai, Sharjah, Abu Dhabi and Muscat. Rajasthan has airports at Jodhpur, Udaipur and airstrips in other major districts.

SHORT TAKES

Bhiwadi gets electronics cluster

The new ELCINA Electronics Manufacturing Cluster (EMC), spread over 100 acres in Bhiwadi, Rajasthan, has been inaugurated recently and is to be completed in two phases.

It is expected to attract electronic component makers with major investment plans.

"The space in the cluster has been allocated to 19 domestic electronic components makers as of now. Together they are planning to invest over Rs 1,000 crore [$150mn] in phase 1 which is expected to be completed by October this year," ELCINA Secretary General Rajoo Goel said.

The companies investing in EMC are involved in sectors such as consumer appliances, PCB Assembly, contract manufacturing, mobile phone accessories, solar lanterns, plastic molding, LED Lighting Products and TVs.

Units that will be set-up in this cluster will get various incentives including capital subsidy up to 25 per cent of capital expenditure of the project besides refund of indirect taxes paid on capital equipment.

Rajasthan clears e-auction for all mines

The Rajasthan state government has decided to allocate all types of mines through e-auctions only.

While the mining department was resisting e-auctions for minor mineral mines, the finance department wanted competitive bidding for every type of mineral mines, as is being done by the central government.

A recent Cabinet meeting, presided over by chief minister Vasundhara Raje, approved amendments in the Rajasthan Mines Policy-2015 and decided to allot mines for a period of 50 years. "Small quarries will be allotted for 30 years and could subsequently be granted extensions of up to 10 years," Rajendra Rathore, the state's parliamentary affairs minister told reporters.

Daikin's new unit in Rajasthan soon

Japanese air conditioner maker Daikin is considering setting up a third manufacturing plant in India to meet the growing demand for its products in the country.

The company is in talks with Maharashtra, Andhra Pradesh and Telangana governments on the location of the third unit, a decision on which is expected after March 2018, Daikin Airconditioning India managing director Kanwal Jeet Jawa has indicated.

He said: "We have one manufacturing facility at Neemrana in Rajasthan. Already we have decided to put up a second factory also at Neemrana. The second unit will be operational from September this year," Jawa said.

With the firm's second plant, the company says its production capacity will go up to 120000 room air-conditioners a year, from the present 500,000 units.

The company, which enjoys over 60 per cent market share in variable refrigerant volumes (VRVs), aims to increase its market share from 15 per cent to 18 per cent in the room air-conditioning segment.

Honda drives out new model

The smallest crossover from Japanese automakers Honda is being produced at the company's plant in Tapukara, Rajasthan.

The WR-V sub four-metre crossover gets high ground clearance as compared to the Jazz on which it is based, while new body cladding, sunroof, rugged over all stance and the presence of roof rails are also form a part of its exterior design.

The latest model is set for its India launch in mid-March and is essentially a hatchback with rough road ensembles. The new Honda WR-V variant of the previous gen hatchback was exclusive to the Brazilian market but it is now set for more international markets. India will be one of the first markets after Brazil to get a WR-V.

Larger alloy wheels, wrap around headlamps, and a more prominent honeycomb mesh front grille give the new Honda WR-V some added aggression.

India Inc. yoga expert decodes the ancient Indian practice of erring pupils being made to pull their ears as punishment.

HOW OUR EARS CONNECT US WITH OUR BRAIN

by Keerti Mathur

In the Vedic tradition of education, disciplinary action on students was based on the principle that students made mistakes because of a lack of awareness. The Guru's job was therefore simply to address that issue in order to bring the student back on track. In the seemingly infinite wisdom of these sages, they developed techniques that increased awareness allowing students to better grasp their scholarly endeavours. How did they do it? They made their students pull their ears.

In last month's column, I shared some exercises that one can perform at the desk to alleviate the build-up of tension from sitting and staring at a computer screen all day. This month we are going to go into a little detail about the how and the why and we're going to develop the techniques a little further.

You can begin to understand why in the ancient days, the wise didn't judge, didn't scold, they just made the student pull their ears to enliven the minds of their students.

Our ears are incredibly sophisticated structures that manipulate sound frequencies funnelling and filtering them into the ear canal, separating frequencies, creating better resolution and bringing about clarity in what we hear. The device responsible for doing this is referred to as the "Pinna". This is the component of the ear that is external to the head and we see as these flappy odd looking projections that some people feel the need to decorate with rings and studs. Have you ever taken the time to study your ear? They are totally ridiculous and if they are anything like mine, one sticks out more than the other in the most deplorable architectural manner.

Grab your ears and have a play around with them. You'll notice that the lobe is softer and free compared with the upper more cartilaginous structure. There are ridges and folds that appear to be very purposeful and they are. The soft tissue that forms our ears are connected to an incredibly delicate and intricate collection of tissues inside the head called dura mater. Dura mater is a tough but thin membrane that provides a protective covering over the whole brain. Part of that membrane is a section referred to as the Falx cerebri or the Tentorium Cerebelli. This membrane separates the rear (occipital) lobe of the brain from the cerebellum providing mechanical and physiological division and support to the brain inside the bony cage of the cranium.

The tissues forming your ears are connected to these membranes and as you play around with your ears there will be a sense of relief in your head and behind your eyes. The reason is that the nerves that innervate this membrane are division of the ophthalmic nerve and other cranial nerves supplying the cranium.

Just like when we have a massage, the tissues are invigorated and innervated, we are doing the same to our brain when we gently pull on the ears and play with them, massaging them and the temporal regions. You can begin to understand why in the ancient days, the wise didn't judge, didn't scold, they just made the student pull their ears to enliven the minds of their students.

Let's start by sitting upright with both your feet flat on the floor. Ensure your thighs and abdomen are relaxed. Start to pull on both your ears as you are very slowly micro-millimetre by micro-millimetre pulling them apart. Observe the sensations in your head especially behind your eyes, when you feel complete gradually release. Remember you're not pulling your ears off, just apart. Imagine there's a band in-between them (which I've just explained there actually is) and you're pulling that band taught.

Next I want you to repeat the above but by grabbing different parts of the ear and observing the difference in the sensation and build-up of tension in the head. You can pull the lobes, pull on the tougher middle and upper parts of the ear, just do each section one at a time.

Now grabbing the middle section of your ear between your thumb and the medial (inside) aspect of your index fingers' knuckle, pull one ear up towards the ceiling and the other down towards your shoulder.

Now move your ears in a circular motion as though your cycling using your hands as feet and the ears as peddles. I am totally aware of how ridiculous that sounds, but just do it and carry on concentrating/observing the feeling in your head. You are pulling your ears in opposing directions in a circular motion. Once you've done that three-five times in one direction, switch and do the same in the other direction.

Now massage the Tragus, this is the prominence of skin that stands in front of the canal which when you push blocks the canal preventing you from hearing. Push your Tragus into the ear canal gently occluding the ear massaging away in a circular motion.

Gently massage away into the temples. Don't push into the bone, just stretch the skin and the thin layers of muscle up and down and into the TMJ (tempero mandibular joint), otherwise known as the jaw joint.

When you feel complete, take your fingers behind the ears towards the back of the head and stretch the skin forming the scalp at the back of the head into the occipital region or the base of the skull into the upper neck. You can repeat this ensuring that you're not digging into the cranium, nor pushing against it, rather stretching the skin and the scalp.

SCALP is a word formed from an acronym – Skin, Connective tissue, Aponeurosis, Loose connective tissues and Pericranium. Each of the components are individual layers of tissue with its own specialised function, be it nervous, cardio vascular or as an anchor/ligament for muscles. But they work as a collective and if you press to hard, you'll by-pass the layers and press it against the bone of your skull. When you lightly palpate and stretch it locally, like pulling the skin on the back of your hand, you will feel the layers come away from one another and it will be deeply relaxing.

Practicing the above will give you an opportunity to increase your alertness and therefore your awareness. In last month's column, we spoke about dullness and being drained. It's a professional hazard when working hard and focussing deeply on your goals. Now you have a technique that allows you to stay fresh and can potentially prevent you from making mistakes.

Keerti Mathur is an associate at the Gait and Posture Centre at Harley Street in London and has been practicing Osteopathy for 10 years. He is part of the Art of Living faculty and a keen musician. Under the guidance of Art of Living Founder Sri Sri Ravi Shankar, Keerti worked to set up India's first school of Osteopathic medicine in Sri Sri University Orissa.

OPPORTUNITIES, NOT SOPS PAY OFF IN INDIA

It took its time coming, but in the end Bharat (more on that later) trumped the so-called political experts from New Delhi's gin-n-tonic cocktail circuit. And how!

The recently concluded round of elections to five State assemblies returned a verdict that can only be described as a thumping endorsement of Prime Minister Narendra Modi's leadership of India.

The final tally reads BJP: 4 states; Congress: 1 state. Of the five states in question, Uttar Pradesh was undoubtedly the most important. Occupying about the same area as the UK, the state would have displaced Brazil as the fifth most populous country in the world had it been independent. Conventional wisdom has it that the road to power in New Delhi runs through this crucial state and that whoever rules Uttar Pradesh rules India.

So, the overwhelming victory (325 out of 403 seats) in the state has sealed Prime Minister Narendra Modi's reputation as India's most popular politician and the BJP's status as the most prominent pole in Indian politics. Many analysts have called this round of elections, considered the semi-final before the 2019 General Elections, a watershed – and with good reason. For it marks a decisive rejection of the sluggish and corruption riddled top-down development model followed by the Congress and the many regional parties that have sprung up over the last quarter of a century to fill up the political vacuum caused by its decline.

That space has now been occupied by the BJP across most of India. Addressing party workers, as well as the nation, following the landslide win, Modi said: "A new India is emerging… The poor seek opportunities, not sops. The more opportunities you give them, the more the country will shine..." Modi was once again reaching out to the last person in the queue – the people of Bharat, the person who toils hard in small towns and villages.

Since Independence, the Congress had perfected the art of giving hand-me-downs that tied multiple communities and special interest groups to the its party (and its first-family) for generations and created captive vote banks.

I interpret the mandate as Bharat's thank you note to a Prime Minister who at last understands their struggles and their aspirations.

The results have also clearly demonstrated that Prime Minister Modi's inclusive slogan of Sabka Saath Sabka Vikaas (Development for all, discrimination against none) still resonates with the electorate, who have rejected the obstructionist policies of the opposition parties led by the Congress.

These elections were held in the immediate aftermath of the demonetisation (dubbed Demo by the media) of high value currency notes that, according to anecdotal evidence, had caused great economic dislocation.

The results show that Modi was able to convince voters that the long-term benefits of Demo would far outweigh its short-term pain.

Does this mean Modi's re-election as Prime Minister in 2019 is a foregone conclusion? A week is a long time in politics; so, it is impossible to forecast a verdict two years in advance. But suffice to say that the 2017 election results show that the BJP government under Modi is far better placed than its rivals to return to power.

Indeed, Modi is already talking of his 2022 vision for India, which coincides with India's 75th anniversary.