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ON INDIA'S DEMOCRACY Congress leader, Dr Manmohan Singh

Nothing is more important than the unity and integrity of our nation. India is indivisible. Secularism is the bedrock of our nationhood. It implies more than tolerance. It involves an active effort for harmony

Linking loan-rates to repolike rate simply won't work

Surely RBI Governor knows banks can't re-price loans at will; and banks will just raise spreads if RBI forces them

IVEN HOW SO many economists, along with those in the government, believe than an interest rate cut is the silver bullet the flagging economy needs, it is not surprising that, with RBI having cut reporates by 85 bps since February, Governor Shaktikanta Das is once again talking of the need to speed up transmission; banks have cut lending rates by around less than half this amount. At the Fibac conference on Monday, the Governor spoke of the possibility of speeding up transmission by formally linking lending rates with an external benchmark like the reporate. While the government will welcome such a move, it is a bad idea and simply won't work.

For banks to remain profitable while cutting lending rates, they need to be able to borrow at rates that fall in tandem with the reporate, or whichever external benchmark the RBI finally zeroes in on. A little over a third of bank funds are got from savings deposits, so it is vital these get re-priced immediately. Given how much pressure the political class put to get banks to raise savings deposit rates to where they are today, will the government allow banks to link savings deposit rates to the repo? Or will the government argue that small savers—and this includes millions of retired people—need to be protected from the vagaries of the market? Certainly, by not reducing interest rates on small savings, the latter would appear to be the government's view. In which case, it is unfair to ask banks to cut lending rates immediately while they continue to pay the same rate to their depositors.

Another 30-35% of bank funds come from bulk deposits, which are funds that large corporates, among others, deposit with banks or other bodies to earn interest on till they need them; since interest rates on these are unregulated and there is enough competition to get them, the rates on these bulk deposits are typically higher than even those on fixed deposits at most times. As for the reporates that RBI cuts, or raises, just 2-3% of bank borrowing—even less at most times—comes from the central bank; the repo applies to these loans. In other words, most of the money that banks have, and use to give loans, is borrowed at interest rates that are fixed. If banks are then forced to cut lending rates, their losses will soar.

Cutting into bank profits is a bad idea at most times, but it is least desirable at a time when, as now, banks are desperately trying to shore up their balance sheets; ironically, if PSU banks make losses by being forced to cut lending rates even as their borrowing rates remain broadly unchanged, the government will have to make good these losses. Banks can, of course, lower lending rates by reducing their spreads; but this is not easy since the spread is determined by, among other factors, the size of their work force, which cannot be reduced in even the medium-term for PSU banks, the costs of maintaining an expensive legacy branch network, etc. What is more likely, should the central bank force their hand by going ahead with the linking, is that banks will just increase the spread between the repo-linked MCLR rate and the one charged to lenders; once this is done, even if the MCLR falls, the lending rate will remain the same. A better course for RBI is to encourage banks to link some loan products—some banks have done this for home loans recently—to the repo, but not to insist on an across-the-board linkage.

Rural stint a must for doctors

Govt medical education hugely subsidised

HE SUPREME COURT, in an order upholding compulsory rural service bonds imposed by states for admission to PG and specialty medical courses, has stressed on the need for a uniform policy on this. The Centre and the successor regulatory system to the Medical Council of India should take heed. The apex court has fixed the compulsory rural service period upon passing the courses at government medical colleges at two years, and the bond-release amount at ₹20 lakh. Given how both compulsory service periods and bond amounts varied from state to state—from two to five years, and up to ₹50 lakh, respectively—a uniform service period and bond-release amount across the country is a good idea. Those challenging the compulsory service norm had contended that the condition is illegal and arbitrary. The SC pointed out that the government spends a large amount in training each medical graduate and post-graduate in government medical colleges—AIIMS calculates the cost of producing one MBBS at ₹1.7 crore—but just a fraction of this is paid for by students. Besides, the public-sector allopathic doctor-population ratio stands at 1:11,082 against the WHO recommended ratio of 1:1,000—this translates into a shortage of 600,000 doctors—and the brunt of this is borne by rural areas. Some of the country's least-developed states fare the worst; as per data from the directorates of state health services and the National Health Profile 2018, Bihar, Uttar Pradesh, Odisha, Chhattisgarh, Jharkhand, and Madhya Pradesh have worse government doctor penetration than the overall India figure. Primary health centres that serve the rural populace are short of at least 3,000 doctors, with 1,974 PHCs operating without a single doctor. The community health centres, the first port of call for the rural population for specialist care, are short of nearly 5,000 surgeons. So, a compulsory rural service clause that ensures specialist healthcare is extended to rural areas is welcome.

But, while compulsory rural service is a good idea, there are other potential solutions to the chronic doctor/specialist shortage that the government should consider. It could work on converting district hospitals into medical colleges. This can be a cure for the high costs of medical education—on land, equipment, utilities, teaching staff, etc—that force the government to significantly subsidise this, by supplying ready infrastructure. Indeed, the UPA-II government had proposed an undergraduate degree in Rural Medicine and Surgery, for which students were to be trained at district and sub-divisional hospitals, but this never really took off. Nations with much better doctor-population ratios have got there, in part, because they were not hindered by the cumbersome norms that medical education in India has. This is not to say that the norms are summarily undesirable, but there is space for reform. And, in case the government of a state is not able to spend the amount required to upgrade a district hospital into a medical college, there are around 330 private/trust-run hospitals with 300-800 beds already conducting postgraduate training that, as Dr Devi Shetty recommends, can be partnered for undergraduate training through problem-based learning, or learning through cases rather than lectures. It is also important that the government encourages enough quality private colleges to come up. The increased supply in trained doctors will cause some to shift to the rural market.

Whining DINING

Restaurants wanting to renegotiate terms with Zomato is ok, but surely they knew what they were signing on to?

ITH ANOTHER BODY of restaurants joining the fight with food aggregator Zomato, the battle is well and truly joined and, going by the tweets of the firm's founder, Deepinder Goyal, it would appear Zomato will renegotiate. The fight centres around Zomato Gold, a subscription service that offers massive discounts on dining; those signing up at a price of ₹1,199would get, for instance, either one-plus-one on food, or two-plus-two on drinks at partner restaurants. According to Zomato, in damage-control mode after 1,200 of its partner restaurants quit, the problem was caused by 'bargain hunters'; Goyal has assured action and has asked restaurants to stop the #logout movement.

The furore started after Zomato launched Infinity Dining—all-you-can-eat deals for ₹750 per person; it is still not clear what the restaurants were expecting. They signed up for services to increase footfall, so how didn't they anticipate the deep discounting? When the entire model of e-tail and food delivery is based on discounting—whether this is healthy or not is a different matter—how did they believe this wouldn't apply to them? Zomato can either reduce its discounts or put in a fair-usage policy, like mobile phone companies have, but this could also result in it losing customers. Both Zomato as well as the restaurants are learning their lesson the hard way. Zomato could afford the discounting because it had VC money; the restaurants, however, didn't have this luxury, so they couldn't sustain the discounting for too long. With no one refusing a free lunch, the problem is that someone has to pay for it. Eventually.

TAXING TIMES

INDIAN BUSINESSES STRUGGLE WITH MORE THAN 9,000 COMPLIANCES AND 600+ FILINGS, AND THERE HAVE BEEN MORE THAN 600 UPDATES OVER THE PAST YEAR

Tax compliance complexity is the challenge

NDIA'S TAX CHALLENGE is not the rates per se, it lies in the complexity of compliance. This point appears to have been addressed by the Task Force report on revamping the Direct Tax Code. As reported in this newspaper on August 20, 2019, the recommendations are not yet public, but appear to be directed toward reducing tax rates, and changing the assessment and litigation management processes to simplify and share information among the various tax departments.

While details of the report and the government's responses are awaited, it is important to understand that the government is currently facing a constrained fiscal space and may not be eager to cut rates so easily. We have a tax conundrum on our hands. First, these are indeed tough times—our tax/GDP ratio has dropped and was 10.9% last year, according to the Economic Survey 2018-19; total expenditure/GDP stood at 12.2%. The last quarter of FY19 saw tax revenues grow at an abysmal 1.4% year-on-year, as per estimates from the Controller General of Accounts. In fact, tax collections were the lowest for the June quarter in ten years.

Second, India's effective corporate tax rates are quite high—with indicative estimates running between 26% and 30%. Hit by the slowdown, industry is pleading for relief and our finance minister has assured corporate leaders that the tax rates will come down, but only after revenues begin growing again.

Third, our tax base is narrow and quite skewed. Less than 10% of Indian adults file or pay income tax. The top 1% individual taxpayers contribute nearly one-third of India's income tax. There are just around 12 lakh GST reg-



tributed 52% of corporate tax last fiscal. Surcharges on this narrow top segment hurt more. As a welfare state, the Indian government needs revenues for growth and development goals, but this calls for a prudent and judicious choice of

tax rates and tax base. For India to become a \$5 trillion economy, investment has to rise significantly. Studies show that high tax rates impact investment and formalisation of the economy—a 10 percentage point increase in the effective corporate income tax rate has been shown to be associated with a reduction in investment/GDP ratio of up to 2 percentage points; a tax rise equal to 1% of GDP can reduce output over the next three years by nearly 3%. At the present juncture, the government may be reluctant to cut rates, but the current narrow, skewed tax base, with high effective tax rates, is definitely not the recipe for higher growth.

There is a way out of this conundrum—and the answer lies in easing compliance. There is considerable global evidence that shows that compliance costs can be large, particularly for small businesses. When it comes to finance and taxation, Indian businesses struggle with more than 9,000 compliances and 600+ filings; there have been more than 600 updates over the past year. For small businesses, managing this paperwork and keeping up with frequent changes can put a heavy strain on resources and lead to businesses staying under the radar—either not registering for relevant taxes or worse, reducing activities to a level at

In the present

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which tax is not payable. Either way, productivity and growth are hit.

India desperately needs a holistic review of the compliance burden on firms. We rank 121 out of 190 countries in the Paying Taxes category of the World Bank's Ease of Doing Business Index, recording 275 hours per year in time paying taxes last year; China clocked

142 hours, and ranked 114. A simple exercise shows that, all else remaining constant, just by halving the number of hours firms spend in paying taxes, India's rank in this category jumps to 99 while the overall rank goes three places, up to 74.

In June, there were reports of a proposed National Ease of Doing Business Policy, where ministries and departments were to be made accountable for the paperwork they inflict on companies, and were to measure the time and

cost incurred by companies on compliance. The re-engineering of tax compliance should take place within the three-vector frame of "Rationalisation, Simplification, Digitisation". The finance ministry has been the leader in easing compliance so far, through this framework-digitisation of tax returns, straight-through-processing of GST filings, e-assessments, etc. If the finance ministry moves ahead immediately to measure the costs and time spent by firms, especially small ones, in paying taxes, it would make for a radical reform, with a significant impact on incentivising firms to emerge from under the radar and count themselves within the formal sector.

> The finance minister could also consider removing the mandate of Corporate Social Responsibility (CSR) for this year Apart from raising compliance costs, at a time when India needs to raise investment and growth, businesses should focus their attention on what they know and do best. In the present atmosphere, making CSR voluntary would go a long way in

regaining the goodwill of industry. CSR rules can be reviewed in consultation with industry and implemented once the economy picks up steam.

These are difficult times indeed but we do not really need big-bang reforms. Easing compliance is the game-changing move India needs for the economy to grow to its \$5 trillion goal. The finance ministry can lead, as it has done before. It is hoped that the new Direct Tax Code will show the right way forward now.

Criminalisation of corporate India

The penal provisions, especially those involving imprisonment, in the Companies Act, 2013 are disproportionate retributive measures compared to the acts of omission by companies or their officers

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JOHN LOCKE, IN his seminal work *Two* Treatises on Government, highlighted that punishments should be governed by three legitimate motives: reparation, restraint and deterrence. The legitimacy of punishment is upheld when "laws of nature", the inveterate body of moral principles that forms the basis for all human conduct, is violated and not for the violation of an arbitrary rule. Of the motives stated above, reparation is the first preference since it is restorative, often taking the form of a pecuniary punishment or a restoration of property. Restraint is advocated only to secure mankind "from injury and violence, being slighted and broken by him". With this, Locke honours the liberal principle of honouring freedom as paramount necessitating its restriction only in cases most egregious.

Thus, incarceration and criminalisation, which strip the perpetrator of the bare basics of citizenship and freedom, is considered the "ultima ratio"—the last resort. However, in India, especially in our corporate laws, the last resort of imprisonment seems to be, in many

cases, the first response. The insertion of a three-year imprisonment term for violating Corporate Social Responsibility (CSR) norms in India is the latest in a litany of 50-odd criminal measures instituted against officers in default, which could include directors, in the Company's Act 2013 the primary statute governing corporate law in India. This Act, instituted by the previous UPA government, arbitrarily mandates, for seemingly civil offences, imprisonment sentences that are harsher than those in the Indian Penal Code. For instance, the sentence for violating CSR is longer than the sentence for causing death by negligence (Section 304A, IPC—2 years).

This criminalisation of civil offences that has seeped into corporate statutes belies a virulent distrust of businesses and businessmen. Criminal law deals with offences against the public, society, or the state, and acts of moral opprobrium or acts of violence against individuals; civil offences in

contrast, involve damage to property of an individual or group of individuals and each should follow the legitimate purposes of punishment that is restorative and act as a deterrent. Yet, the Companies Act disregards this and affords criminal sentences to civil offences by companies, some examples of which are listed below:

■Violation of share buyback norms (Sec 68)—up to 3 years ■ Failure to repay deposits or inter-

ests (Sec 74)—up to 7 years ■Declaration of dividend without

paying it (Sec 127)—up to 2 years ■Violating CSR norms (Sec 135) up to 3 years

tees (Sec 178)—up to 1 year ■Contravention of inter-corporate loans and investments (Sec 186)—up

■Default in constituting commit-

to 2 years ■ Failure to provide the government statistical infor-

A key question to ask here is *Cui Plagalis*—who loses, and is this loss permanent? For default in constituting committees of the board or failure to provide statistical information to the government, a criminal sen-

mation (Sec 405)—up to

6 months

disproportionate measure of retribution, compared to the act of omission by the company or its officers. In such matters, what is the purpose of imprisonment? Reparation?—it doesn't resituate any property to the shareholders or government; restraint?—these acts don't pose the threat of violence to anyone; deterrence?—unless these are wilful acts of fraud, these penal clauses demonise rather than deter directors.

A law is only as effective as its enforcement. Enforcement of penal provisions in corporate India is not only erratic but also cyclic and comes into focus only in the aftermath of prominent scandals. In other periods, noncompliance is either not systematically

pursued and punished, or consciously ignored for reasons of being impractical, like what is being advocated in the case of imprisonment for CSR lapses, without amending the law by revoking the impractical provision. Further, lenient treatment accorded to non-compliances by public sector companies, by not enforcing penalties, puts to question the deterrence value of the example being set for Indian corporates.

In UK, from where we can trace Indian corporate law, penal provisions with imprisonment as punishment are preceded by the words like "knowingly", "recklessly", "misleading", "false or deceptive". Further, they provide an exit clause where the officer in default is exempt from this harsh punishment if he/she can show that they acted honestly. In a civil society, acts that deprive a

person of their freedom should be

reserved for the most egregious of crimes. Instead, in India it looks like criminal sentences are a signal to show how seriously lawmakers take an issue. Further, this renders these punitive measures prone to misuse. The Shri Injeti Srinivas committee to review offences under the Com-

pany's Act also echoed

the same in its report submitted on August 14th, 2018, and made numerous suggestions to decriminalise our corporate laws. Full translation of their recommendation to law is still awaited.

In a July 2018 speech, the honourable Prime Minister said, "...the efforts of industrialists too have a role in nation building. Should we insult them, call them thieves and robbers? Is this the way?" If this thought is to be translated into action, it is time that India reviews the penal provisions, especially the one related to imprisonments, in the Companies Act, 2013, and make laws that honour the efforts of industrialists and entrepreneurs in nation-building.

LETTERS TO THE EDITOR

Benchmarking banks' bulk deposit rates

Apropos of "Time for bench-marking bulk deposits rates of banks?", in 2008-2009, few banks had introduced floating interest rates on deposit. It may be noted that, in India, interest rates on fixed deposits are much sought-after and a deciding factor in choosing a bank to park deposits. Not in savings bank accounts, which are daily-need based. It is about time savings bank deposits rates call for embracing floating interest rates. It is imperative to note savings deposits serve our routine needs. A large chunk of salary credit, bulk of PF contribution on salary disbursal day, government subsidies and CSR funds also find way giving spikes to savings deposit balances. Linking savings bank accounts with floating rate of interest would further give boost to sluggish savings bank deposits growth. Majorly, customers use savings bank accounts for taking care of day to day transactions. It is a shield against interest rate flections. We need to educate customers about the floating rate savings bank accounts. It would be interesting to update them about the importance of how spikes, at times, will help good interest in their savings account balances. Customers can hold their savings to reap the benefits of high floating interest rates and put on hold heavy withdrawal for some time, if any. — NK Bakshi, Vadodara

For a fiscal overreach Apropos of "Raising deficit by cutting

tax rates...", consumption is no longer fuelled by the lower income sector that lacks purchase power, even as the middle one keeps away from white goods on uncertainties of the future. Spending does not create wealth, production does, and that needs a healthy pool of savings. The burden of investment for growth should revert to the government. A mix of policies that channel funds to lower strata for consumption, enable savings to the next and calibrated tax incentives for the job-creating capital should help revive the economy. — R Narayanan, Mumbai

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FINANCIAL EXPRESS



JAPAN-KOREA TRADE WAR

History comes back to haunt trade ties

Trade wars appear to be becoming the norm rather than exceptions, and the new conflict between Japan and South Korea is set to worsen the effects of the US-China trade war

> tury, leading up to the Second World War. The Japanese control of the Korean peninsula, the subsequent 'forced' Korean contribution to the Japanese Imperial Army and its pursuits during the Second World War have left indelible impressions on both the countries.

> It was several years after the Korean independence in 1945, and the separation of the Korean peninsula into North

(the Democratic People's Republic of Korea) and South (Republic of Korea), that Japan and South Korea connected diplomatically in 1965. Sour ties with the Soviet Union-controlled North Korea, and military alliance with the US, were political glues binding the countries. A more powerful bonding force was robust economic exchanges. Both Japan and South Korea, along with Taiwan and Hong Kong, were shining examples of the 'Flying Geese' economic paradigm of labour-intensive, export-oriented industrialisation. As Asian entrants into the elite group of advanced first-world economies, both have achieved high industrial sophistication and remarkable development of economic, financial and regulatory institutions, while having a large presence in the global lists of top business corporations.

Trade has intricately bound Japanese and South Korean economies. South Korea is one of Japan's main export destination for goods as well as commercial services. The goods trade relationship is largely inclined towards South Korea being a major importer of Japanese products, while on commercial services the relation is more balanced, with both serving as major sources of export and import for each other. It's on goods trade, though,

that both the countries have got into a spat, and that is now assuming alarming proportions.

Following the South Korean Supreme Court's ruling last year directing Japanese companies to pay compensation for forced Korean labour during the Second World War, Japan has begun taking trade actions against the country. The first of these comprised imposition of stricter screening for Japanese export of some chemicals—essential in the production of smartphones and semiconductors—to South Korea. Following these controls, announced on July 4, 2019, earlier this month, the Japanese cabinet approved removal of South Korea from the 'White List' of countries maintained by Japan. The White List includes countries to which Japanese exporters can export items that can also be used in the manufacture of weapons, without rigorous scrutiny. Removing South Korea from the White List implies that Japanese exports of such items to the country will henceforth be subject to case-by-case detailed screening for eliminating possibilities of potential military end-use. Japan has justified the tighter export controls on national security grounds. By doing so, it joins the US and Russia, who, in recent years, have similarly justified unilateral trade actions.

The ruling by the World Trade Organ-

isation (WTO), earlier this year, on the use of national security for trade actions—in the context of the Russia-Ukraine dispute—was somewhat ambiguous. While clarifying that it is empowered to review such actions, it also specified that countries are best judges of circumstances pertaining to national security. Thus, while South Korea may complain against Japan at the WTO, the possibility of obtaining an effective response is limited.

There are further reports of South Korea looking to retaliate by removing Japan from its own 'White List' of trusted trade partners. It might also withdraw from a military intelligence sharing arrangement it has with Japan, in connection with both the countries' maintenance of American military bases.

The Japan-South Korea trade conflict

For both Japan and

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demonstrates the increasing lack of 'trust' amongst countries in world trade. The White Lists maintained by both the countries enable extension of preferences to others primarily on the basis of 'trust' that sensitive exports won't be diverted to unsanctioned uses. Once trust dissolves, and is replaced by cynical scrutiny, trade relations no longer remain the same. For Japan and Korea, trade was a way of overcoming the misgivings and lack of trust

produced by history. Unfortunately, the same history has come back to haunt trade relations, and is looking set to create irreparable damage.

There are multiple implications of the Japan-South Korea trade war. The first of these is the inevitable adverse impact on the functioning of global supply chains embedded out of Japan and South Korea. Functioning of several of these would be adversely affected by export controls and tighter retaliation. The second impact is on regional and global trade prospects, which would have to brace for further contraction and slowdown. The third, and probably much less noticed impact, is on the prospects of the ongoing trade negotiations, most notably the Regional Comprehensive Economic Partnership (RCEP). The RCEP is at a greatly advanced stage, and the Japan-South Korea trade spat at this juncture is particularly bad news. Both the countries are important actors in the RCEP process. A trust deficit between the two might have the 'herd' effect of spilling on to the rest of the group. In one respect, though, India should be enjoying a quiet laugh at the development: for once, at least, the region would find it difficult to label it the 'spoiler' at the RCEP. Having said that, it is a clear that trade wars are here to stay, and more such skirmishes might be in the offing. Future trade negotiations need to prepare for such wars.

DATA CAFE

Investing in a greener future

Investments in coal-fired projects declined by 90% in 2018, and in renewable energy projects rose 10%

NDIA IS TAKING strong steps towards realising its commitments made at the Paris climate summit. A recent report from the Centre for Financial Accountability (CFA), Coal vs Renewables Finance Analysis, shows coal-fired projects have seen a decline of 90% in investments from 2017 to 2018. The report highlights the incredible transition of energy investment in India, towards renewable projects from coal projects, by analysing 54 energy projects—comprising both renewable and coalfired projects—that reached their financial closure in 2018. The report finds that the projects attracted a total funding of ₹30,524 crore, 80% of which went to renewable energy projects and 20% to coal power projects. The high-scale investment in renewable energy in India has been noted by the

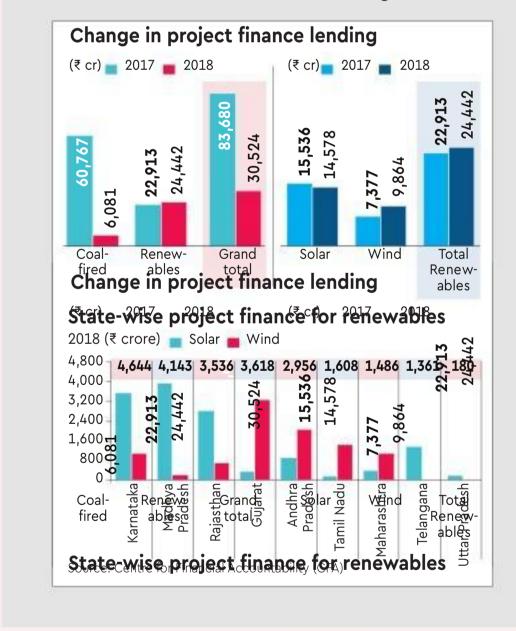
International Energy Agency (IEA), according to which India is the largest growing market for renewables in the world and the country's investment in the renewable energy sector grew

at a rate of 12% in 2018. The report shows that, in 2018, five coal-fired projects having a combined capacity of 3.8GW had received investments worth ₹6,081 crore, as opposed to 12 such projects with a combined capacity of 17GW—getting a financing of ₹60,767 crore in 2017. As far as the renewable energy sector is concerned, it saw an increase in

In 2018, five coal projects having a combined capacity of 3.8GW received investments worth ₹6,081 crore. While renewables saw a rise in investments of ₹1,529 crore in 2018 over 2017

investments of ₹1,529 crore in 2018 over 2017. Of the 54 projects assessed, 49 were renewable energy projects, having a combined capacity of 4.7GW, and received loans of ₹24,442 crore in 2018—60% were for solar PVs and 40% for wind projects. The CFA also noted that primary financing for coal-fired power projects shrank by 93%, whereas for renewable projects it increased by 10% in 2018.

In coal projects, investment amounting to ₹3,938 crore came from majority government and majority governmentowned financial institutions in 2018, while for renewable energy projects majority investments came from privatelyowned commercial banks, who contributed three-quarters of the funding, i.e. ₹18,263 crore. However, there is a disparity when it comes to region-wise investments. States such as Karnataka, Madhya Pradesh and Gujarat attracted around half of the entire country's renewable projects—23 such projects, both for solar PVs and wind energy—and others like West Bengal and Chhattisgarh didn't get any (the CFA report only studies solar PV and wind energy projects, and not the entire renewable energy ecosystem). The trend reflects India's ongoing efforts towards enhancing green energy, and reducing pollution caused by fossil fuels. Even as some developed countries such as the US have backed out from the Paris agreement, India is setting the tone for a development model that is needed to tackle climate change.



LOBALLY, ELECTRIC VEHI-**CLES** (EVs) continue to gain in popularity. As of 2018, according to the International Energy Agency (IEA), over 50 lakh electric passenger cars were in operation, with approximately 52 lakh charging points worldwide.

For large-scale adoption of EVs, a hassle-free charging experience is crucial. With EVs suffering from high upfront costs and an inability to travel over a long distance on a single charge, buying them remains an unattractive proposition at present. In India, since 2015, the Faster Adoption and Manufacturing of (Hybrid and) Electric Vehicles (FAME) scheme has introduced subsidisation of EVs. However, four years hence, only 2.8 lakh EVs have been supported under FAME. In comparison, automobile sales in India crossed 2.67 crore in 2018. It is clear that the subsidies on EV sales alone will not be sufficient to meet the ambitious target set by the government. This is essentially so because of the inconvenience caused to EV adopters due to a shortage of charging stations, hindering EV deployment. The installation of a reliable, grid-friendly, and accessible network of public chargers is, therefore, a necessary prerequisite for the success of EVs.

ESPITE BEING NEIGH-

BOURS and military allies

of the US, Japan and South

Korea—Asia's economic

powerhouses with strong

export-oriented and globally-integrated economies—have had rocky bilateral ties.

The strains are inherited from the

uncomfortable history of the region dur-

ing the early decades of the previous cen-

This has been highlighted by the government in both the Union Budget and the Economic Survey. The Phase 2 of the FAME scheme has laid emphasis on the installation of a robust public charging infrastructure. In terms of deployment, the

Charging up for electric mobility

For EVs, there is no 'one-size-fits-all' charging solution, and different options must be weighed carefully

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Energy Efficiency Services Ltd has led the way by commissioning 300 AC and 170 DC chargers across India. The government has installed 51 public charging points that are operational in Delhi NCR. While a promising start has been made, a few key factors must be considered to develop a large-scale EV charging network.

Currently, multiple charging standards are being adopted. The Department of Heavy Industries has introduced the Bharat AC-001 and DC-001 standards for EV chargers. The DC-001 standard relies on Chinese GB/T connector standards.

There are two other major standards—CCS and CHAdeMO. Guidelines from the ministry of power indicate that a public charging station must be able to cater to EVs that adhere to any of the above standards. However, the development of a national standard for chargers and connectors will be more beneficial; it will also provide more clarity to the manufacturers, buyers and service providers. As the current Bharat standards are limited by a maximum power rating of 15kW, EVs with larger batteries that need to be charged at higher power levels, such as electric buses, will

require different standards. The Bureau of Indian Standards is currently developing comprehensive standards for EV charging.

The choice of charging method and technology is another key consideration. Different categories of EVs have different operational constraints. Generally, commercial vehicles cover longer distances than personal vehicles in a day. They also require frequent and fast recharging, for which low-powered AC- and DC-based charging systems are not suitable. While larger on-board batteries may reduce the need for frequent recharge, they will add

significantly to the upfront costs of EVs, and additional weight. Given this, the role of alternate charging solutions must be explored. These can be grouped into three categories—opportunity charging, battery

swapping, and hybrid trolleybus systems. In 'opportunity charging', EVs top-up their batteries during very short stops, through high power DC-based charging.A high amount of energy can be transferred to the battery in a very short span of time. This can be beneficial for electric buses with smaller battery packs. However, frequent fast charging can degrade batteries faster than usual.

'Battery swapping' involves the removal and replacement of the on-board battery. This allows the EV to replace a discharged battery in a few minutes, by visiting a swapping station, where batteries are charged and stored. While this has been demonstrated to work across different vehicle categories, issues pertaining to the interoperability of batteries and related connectors need to be addressed.

'Hybrid trolleybus systems' are buses that draw power from overhead lines during operations. They have small on-board batteries that enable operation even when disconnected from overhead power lines. Each of these solutions have unique

advantages, making them better suited to certain categories of EVs more than others. For instance, battery swapping-based electric two-wheelers have been successful in Taiwan, whereas a large number of electric bus projects in Europe utilise opportunity charging and hybrid trolleybus systems. It is also important to note that these solutions need significant capital investment to build the required infrastructure. However, once built, the return on investment will increase with usage. Thus, for EVs, there is no 'one-size-fits-all' charging solution, and different options must be weighed carefully.

That said, the future of EVs looks bright in India. As the technology matures, India must prepare itself to make the most of this opportunity to move towards a cleaner and greener future.

