Ready for low-powered thermoelectrics?

Several types of experimental thermoelectric generators are being tested out in labs, and under real-life conditions

TECH-ENABLED

DEVANGSHU DATTA

Solar energy is one of the cornerstones of the green movement. While the manufacture of solar equipment does have negative environmental impacts, it has undoubtedly reduced the need for fossil fuels.

But solar has one big drawback: It is intermittent. Apart from the hiatus caused by night, there are regions near the poles where the sun is not visible for months. This means that other power sources are also necessary.

One of those alternative power sources could exploit a phenomenon known for over 200 years. This is thermoelectricity — the generation of power from temperature differences. Several types of experimental thermoelectric generators are being tested out in labs, and under real-life conditions.

In the 1790s, Alessandro Volta (the volt is named after him) found electric current flowed through a circuit, if there were temperature differences. Conversely, if an electric current was flowing, temperature differences are created. This insight was refined by Thomas Seebeck and Jean-Charles Peltier, who researched it in the 1820s and 1830s. Lord Kelvin also studied it in the 1850s and derived key equations defining the effects.

Natural temperature differences can arise, between say, the outer and inner walls of houses. These natural differences can be used cleverly to build thermoelectric generators. A team of researchers at Stanford University (California) led by Wei Li has described how they made a simple generator that generates enough power to light LED bulbs *(https://www.cell.com/joule/fulltext/S2542-4351(19)30412-X)*.

This generator has two aluminium plates. The bottom plate is exposed to the elements, and thus, influenced by ambient air temperature. The top plate is vacuum-sealed in a transparent cover that allows solar radiation to pass. The top plate is also insulated to prevent it being warmed (or cooled) by air. At night, this sealed plate rapidly cools as it radiates heat in the infrared. Meanwhile the bottom plate continues to be warmed by ambient air.

A temperature difference of 2 degrees Celsius was seen in December, in California, in this device. This difference was enough to produce 25 milliwatts of power per square metre of plate. The team believes that this output could be scaled up by better design, smarter use of materials etc, to target about 500 milliwatts/ square metre of generation (1 watt=1000 milliwatts).

Even that would be much less than with solar panels, which produce 100 watts or more per square meter. However, assuming space is not a constraint, such "night-panels" could be put up across large areas in regions where solar doesn't work.

As the paper says, "The ability to generate electricity at night could be fundamentally enabling for a wide range of applications, including lighting and low-power sensors" of the type used in remote weather stations. If this design can scale, it would elegantly use natural coolness at night to generate power.

There are many engineering challenges to scaling up thermoelectric generators and making them commercially viable. One is that the materials used must have high electrical conductivity and ideally, low thermal conductivity. The former allows easy current flow, while the latter ensures differences in temperature don't quickly equalise. Most such materials are very expensive. However, this Stanford design may have gotten around that problem, by using aluminium. Nanotechnology also promises solutions to cost-effectively lower the thermal conductivity of materials, without affecting the electrical conductivity.

Thermoelectric generators have certain advantages too. They have no moving parts, which means less maintenance is required. They also don't need fuel, or lubricants, and they can convert waste heat into electricity, which could be a big deal with cars and many industrial processes.

NASA and other space agencies use these extensively. These devices are also more efficient in space, where there is a big temperature difference between something kept in direct sunlight, versus something kept in shade.

The global market for thermoelectric generators was just $320 million in 2015 but it's said to be growing at about 15 per cent compounded. One driver is adoption of thermo-electrics by automobile manufacturers to convert waste heat from internal combustion engines and thereby increase fuel efficiency.

Another killer app may be wearable technology. It is possible to use body heat to power small devices. Sony has demonstrated a pocket air-conditioner, the Reon Pocket, which was crowd-sourced. This is due for commercial release in 2020. It fits into a coat pocket and uses thermoelectric effects to heat, or cool, the wearer. There are claims that it can reduce temperatures by 13C, or raise them by 8C.

The Internet of Things is also expected to be a driver for low-powered thermoelectrics. IoT mostly uses low-powered sensors and another advantage is the lack of need for maintenance. This could be another big market.

Financial sector stability & our cook Lilu-*tai*

PMC Bank cannot create systemic instability but the triumvirate of banks/UCBs, shadow banks and realty firms can play havoc with the Indian financial system

BANKER'S TRUST

TAMAL BANDYOPADHYAY

Last week our cook Lilu-*tai* asked me whether her money is safe in her bank. She is 75, can barely sign her name. She is scared that all her savings might get wiped out overnight. Lilu-*tai* has stopped trusting her bank — a large government-owned, over 100-year old institution. This conversation happened around the same time the Reserve Bank of India (RBI) issued a release saying the Indian banking system was safe and stable.

When was such a release issued last time? In 2008, the RBI had issued a statement when a large private bank (with a small exposure to Lehman Brothers Holdings Inc which collapsed) feared a run on it, saying the bank had enough liquidity and that the RBI was ready to make more cash available to the bank, should it need. The regulator has never issued any release, at least in this century, assuring the safety of the Indian banking system.

At the epicentre of the current crisis is PMC Bank, a multi-state cooperative bank, which has broken every possible banking rule and ran as a bank of a bankrupt realtor for over a decade. Hours after the RBI dismissed its board, froze its operations and appointed an administrator, Joy Thomas, its managing director for the past two decades (before that, for 12 years, as a general manager he enjoyed the powers of MD), said the RBI action was "harsh".

He also wrote a letter to the regulator, explaining how the bank created "dummy accounts" to conceal its exposure in Housing Development and Infrastructure Ltd (HDIL) and could not classify it as bad for fear of making losses. Thomas claimed the entire responsibility of all the wrongdoing, keeping the bank's board, its auditors and RBI in the dark, for "fear of reputational loss".

His letter reminds one of Satyam Computer Services Ltd founder and chairman B Ramalinga Raju's confession in January 2009 on forging balance sheets to inflate profits. As a promoter, holding a relatively small stake, he feared poor performance would lead to the takeover of the company by a rival. "It was like riding a tiger, not knowing how to get off without being eaten," Raju had said.

Thomas is not the promoter of PMC Bank. Why did he do this? Why did he write such a letter? Was he running a chocolate factory, oblivious of the ₹11,000 crore public deposits? Is his confession a mercy plea? Or, an attempt to become an approver to implicate his former chairman Waryam Singh? Singh was director in nine associate firms of the HDIL group between April 2006 and March 2015 during which the bank had sanctioned multiple loans to the group and bought premises from it, violating the cardinal principle of connected lending.

PMC Bank violated many other banking rules. In March 2019, its exposure to the HDIL group was ₹6,226.01 crore (only ₹439.58 crore was disclosed to the RBI and the auditors) — close to 75 per cent of total advances of the bank against the 15 per cent single-borrower exposure limit. To cover this up, the bank had created 21,049 dummy loan accounts outside its core banking platform. They were just entries in the advance ledger to fool the RBI inspectors. The bank had submitted false off-site surveillance or OSS returns to the RBI for several years, grossly underreporting its exposures in HDIL, and, of course, showing bad assets well.

Was the banking regulator sleeping all these years? Misgovernance, fraud and the inter-connectedness between Singh and the HDIL group have been under the RBI scanner for some time. In fact, the RBI had declared Singh unfit to head the bank but the central registrar of cooperative societies did not act on the warning, media reports suggest.

The multi-state cooperative banks, such as PMC Bank, are regulated and supervised by the RBI and the director credit, department of agriculture and cooperation, ministry of agriculture

Joy Thomas, former MD, PMC Bank, claimed the entire responsibility of all the wrongdoing, keeping the bank's board, its auditors and RBI in the dark, for "fear of reputational loss"

manage them. Other urban cooperative banks (UCBs) are managed by the respective state governments which are also responsible for audit and elections. The state and district cooperative banks are regulated by the RBI and supervised by National Bank for Agriculture and Rural Development.

There are 1,545 UCBs, of which 44 are multi-state cooperative banks. At least 31 UCBs are under the so-called all inclusive directions (AID) of the RBI which bans fresh advances and restricts withdrawals by depositors to a particular amount. This is normally imposed when the RBI sees flight of more than 5 per cent deposits. Between July 2018 and June 2019, four licences were cancelled and a few UCBs got merged. Forty-seven UCBs have negative net worth. All of them are covered under deposit insurance scheme, up to ₹1 lakh per depositor.

The total advances of all UCBs are ₹2.9 trillion against ₹97 trillion of the Indian banking system; they have a ₹4.7 trillion deposit portfolio against ₹127 trillion in the banking system. The western zone is the hotbed of their activities.

PMC Bank cannot create systemic instability but the sinking real estate sector can. The triumvirate of banks/UCBs, shadow banks and realty firms can play havoc as trillions of rupees are locked in unsold/unfinished projects across India. As many builders and developers cannot pay back, banks' bad assets will grow and adventurers like PMC will go belly up, leaving millions of depositors in the larch. Unless the government addresses the root of the problem, the banking regulator will have a tough job at hand.

It's also time to bring the UCBs in the mainstream banking system. The depositors of PMC Bank can withdraw up to ₹25,000. The amount covers 72 per cent of the depositors. If the amount is raised to ₹1 lakh, 80 per cent will be covered. Cooperative banks are meant for people with small means. Why do people keep crores of rupees in UCBs many of which are a fiefdom of politicians? Treating such banks as an investment vehicle for higher returns has its own risks.

Let some of the UCBs become small finance banks and change the regulations for the rest, capping the amount of deposits and advances to avoid misuse by relators and politicians.

The columnist, a consulting editor of Business Standard, is an author and senior adviser to Jana Small Finance Bank Ltd.
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CHINESE WHISPERS

Disillusioned Congress

The Assembly polls in Uttar Pradesh are about two and a half years away and the leadership crisis facing the Congress seems to be becoming worse. It has left senior leaders and cadres disillusioned. Now UP Congress Vice-President Siraj Mehdi, who is also the minorities wing chief, has written to the general secretary in charge of UP, Priyanka Gandhi Vadra, airing his disenchantment with the state of affairs in the party. Mehdi, a former legislator, said while the BJP cadres had started preparing for the 2022 polls, the Congress was merely fighting through Twitter and newspapers. He also talked of the alleged sidelining of state leaders more than 50 years old.

Flood challenge

This is the kind of challenge the Congress is known to face. After the Prime Minister tweeted about the travails of Bihar following the recent floods, many BJP leaders in Karnataka started questioning why the party that was in power at the Centre and in Karnataka did not show the same concern for the flood-hit state for two months. It's 60 days since the floods affected 22 districts in Karnataka. On Friday, the Centre approved an additional financial assistance of about ₹2,000 crore for Karnataka and Bihar. BJP MLA Basanagouda Patil Yatnal told a news channel that he feared his party would lose its standing with the dominant Lingayat community in the state because of the government's alleged lack of concern. Following his outburst, he received a show-cause notice from the party's disciplinary committee.

Scindia voices disenchantment

Congress leader Jyotiraditya Scindia (*pictured*) has expressed his unhappiness over the Madhya Pradesh government's survey of crops destroyed by rain and flood. This is not the first time that Scindia has gone public against his own party or the state government. First, he disagreed with his party position on the reading down of Article 370. Later, when ego clashes within the party's state unit made media headlines, he advised Chief Minister Kamal Nath to address members' concerns and settle their differences. Evidently, Scindia wants a bigger say in party affairs. But sources say Nath and former chief minister Digvijaya Singh, who is also general secretary of the All India Congress Committee, are determined to keep him out of state politics.

AS I SEE IT

How the Supreme Court let us down

When Kashmiris needed it the most it responded with reluctance and apparent lack of concern

KARAN THAPAR

This is a tale of two Supreme Courts. The first has won international applause but severely displeased its own government. The other dismayed many of its fellow citizens but provided great relief to the country's rulers. At the heart of both stories is the contrast in their response to critical constitutional issues and violations of human rights.

The issue before the British Supreme Court was whether Boris Johnson's decision to prorogue Parliament was lawful. In turn, that raised the question had he misled the Queen. Together these two raised further fundamental concerns: Can the courts inquire into the Prime Minister's advice to the Sovereign and are there legal limits to the exercise of his prerogative? In a country without a written Constitution and, instead, reliant on convention and precedents, these are not easy issues to handle.

What made them yet more complex is the court's decision would also have serious implications for three other constitutional relationships. It would touch upon the powers of Parliament versus those of the judiciary. It would determine where the jurisdiction of the legislature ends and that of the executive starts. Finally, it could encroach on the constitutional role of the Queen. It's hard to think of a more important judicial pronouncement by the British legal system in recent memory.

Yet the British Court decided this case in one week. The hearings lasted for three days. They concluded on a Friday evening and the following Tuesday morning the Court delivered a unanimous verdict. All 11 judges found Boris Johnson's prorogation "unlawful, void and of no effect".

Now, let's come to the Indian Supreme Court. It's required to respond to two separate set of petitions on the government's decision to change the constitutional status of Kashmir. The first challenges the constitutionality of what's been done. It, therefore, raises fundamental concerns about the federal character of our country and our democracy.

The second set concerns the rights of Kashmiris who are under lockdown, denied access to mobile phones and the internet with, perhaps, as many as 4,000 detained. Several are habeas corpus petitions, the most definitive way of raising the right to life.

Both matters have been admitted by the Court. On August 28, the Chief Justice said he would create a five-judge constitution bench to handle the case pertaining to Kashmir's status. But he did not act till September 28. For a whole month pressing concerns of fundamental importance were left hanging in the air. Finally, the constitution bench met on October 1 and, at the government's request, deferred further hearings to November 14, two and a half months since the case was admitted.

Meanwhile, the human rights petitions were repeatedly postponed. Eventually on September 30, a three-judge bench was appointed to handle them. It too deferred hearings, to October 16.

So even though the issues before them are of utmost importance these benches saw nothing wrong in lengthy postponements. Rather than act they've kicked the can down the road.

Now, can you see the difference between the two Supreme Courts? The one in Britain acted expeditiously and an issue of critical importance was decided in seven days. In India the Chief Justice delayed action, sometimes for four weeks. Clearly, he was in no rush. When those benches met, they too saw no need for haste. This is despite the fact the rights of Indian citizens are at stake and on October 31 the status of Kashmir will change.

Finally, what's the reason these benches gave for postponement? In the Constitution case it said "it can't hear such a matter without getting a response from the government". But how long does the government need? By giving it 75 days altogether the court has discredited itself.

The explanation from the second bench is "personal liberty will have to be balanced with national security". This is a lazy, superficial and shallow argument. It doesn't reflect judicial thinking. Instead, it seems like cover for what the government has done.

Frankly, our Supreme Court has let us down. When Kashmiris needed it most it responded with reluctance and apparent lack of concern. On the other hand, the British Supreme Court earned a place in history by setting an example that's unlikely to be forgotten.

LETTERS

The big picture

Compliments for your editorial "Clearing the air" (October 4). The Airports Authority of India (AAI) seeking the solicitor general's opinion — on essentially a non-issue — is indeed for the sake of "abundant caution", to protect against the remote possibility of someone raking up the issue 10 years from now.

The matter is very clear from all angles: (a) the ultimate authority, the Competition Commission of India (CCI), has cleared it; (b) post investment by the Tata group in GMR Airports (GAL), the former's stake in DIAL will be only 12.8 per cent — almost half of what is needed to block any board resolution; and (c) there is a precedence by way of Air India (deemed to be) holding 26 per cent in DIAL. Even without taking into consideration the "pledges" given by GAL and the Tata group, there's no way the Tatas would be able to influence any decision favouring Vistara or Air Asia India. In any case, as clearly mentioned by the CCI, the allocation of slots is done by a coordination committee which has representatives from the government and all airlines. So what is there to discuss? Only, as you say, a review of the (irrelevant) rule as a matter of principle. Let the 2006 agreement between AAI and GMR be amended soon.

The clincher here is what you mention in the closing para of your editorial: chronic congestion at the Delhi airport leading to long queues for takeoff and incessant circling for landings have to be addressed in national interest and this ₹8,000 crore investment by the Tata group can facilitate that. Let's not miss the big picture.

Krishan Kalra Gurugram

Good diplomacy

Ever since United States President Donald Trump pulled his country out of the Joint Comprehensive Plan of Action or the Iran nuclear deal of 2018, which was signed by Tehran (Iran) and the US, the UK, France, Russia, China and European Union, there has been no dearth of escalation of brinkmanship on the ground.

The imposition of punitive economic sanctions by the Trump administration with an intent to usher in a regime change in Iran now seems to have only strengthened the resolve of the country's leadership to strengthen its ambitious nuclear programme. Its recent announcements that it had the ability to enrich uranium up to 20 per cent and launching advanced centrifuges is a case in point. Under these circumstances, Iranian President Hassan Rouhani expressed his willingness to the talks, proposed by French President Emmanuel Macron, with the US.

It indeed is a good diplomatic opening. The two countries should not squander this opportunity. Sustained dialogue — and not threats of military confrontation — will help resolve the issues related to the Iran nuclear programme.

M Jeyaram Tamil Nadu

Rate cut no panacea

With reference to "Monetary Policy Review: Another rate-cut may not help Indian economy" (October 3), one tends to agree with the author's well-argued observations on this highly contentious matter even as the nation and the Reserve Bank of India (RBI) grapple with the challenges faced by the economy. It may be recalled that RBI Governor Shaktikanta Das had clearly stated that there's enough room for a rate cut, especially when growth has slowed down. The government had also responded to the worrisome economic scenario with fiscal measures that are likely to stress its finances, including a big cut in the corporate income tax rate last month. Mind you, the latest GST collection data too has revealed a significant decline, which may add more fuel to the fire. No wonder the government has sought ₹30,000 crore as 'interim' dividend from the RBI for the current financial year. Who knows the same may be used to bridge the widening fiscal gap.

Since the earlier RBI cuts haven't yielded the desired results, it would be highly naive to count much on that this time. Ironically, all that the RBI proposes, the government eventually disposes with some other obligations ranking high on its mind.

Kumar Gupt Panchkula

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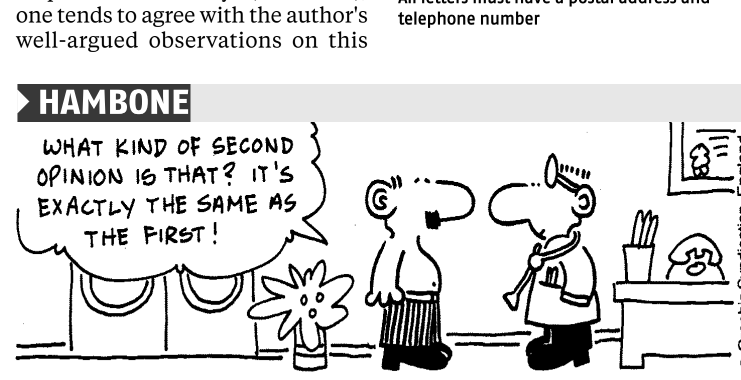
HAMBONE



Business Standard
Volume XXIV Number 38
MUMBAI | MONDAY, 7 OCTOBER 2019

An appropriate call

Significant fiscal slippage could affect monetary policy

The monetary policy committee (MPC) of the Reserve Bank of India (RBI) on Friday reduced the policy repo rate by 25 basis points (bps), largely in line with expectations, though some participants were looking forward to a bigger cut. The MPC has done well by not going overboard with a deeper cut to address the economic slowdown. The central bank also reduced the projected growth in gross domestic product (GDP) for the current fiscal year to 6.1 per cent from the previous forecast of 6.9 per cent.

It could be argued that a sharp downward revision in the growth forecast warranted a bigger rate cut, especially when the inflation rate is likely to remain under 4 per cent. Even without a sharp downward revision in the GDP growth projection in its last meeting, the rate-setting committee had lowered the policy rate by 35 bps. However, there were strong reasons why a rate cut of 25 bps was more appropriate this time. Before last week's policy action, the MPC had reduced the policy rate by 110 bps in the current cycle, which has not been transmitted fully into the system. While the weighted average lending rate on fresh loans of commercial banks between February and August came down by only 29 bps, the rate for existing loans went up by 7 bps. Since the transmission is extremely slow, it made sense to preserve some policy space and allow the system to adjust. The linking of lending rates to external benchmarks for a set of borrowers should improve transmission, even though it could lead to a different set of challenges for the banking system. Also, it is sensible to conserve some policy space in an increasingly uncertain global environment. The Monetary Policy Report — also released on Friday — showed that a decline in global growth by 50 bps from the baseline could pull down growth in India by 20 bps.

Furthermore, although RBI Governor Shaktikanta Das argued that the central bank had no reason to doubt the government's commitment to contain the fiscal deficit within the stated limit, it is possible that members of the MPC would have considered the possibility and implications of a fiscal slippage. MPC members have expressed concerns over fiscal management in the past. Chetan Ghate in the August meeting, for instance, noted: "I continue to worry that fiscal imbalances embodied in our large public sector borrowing requirement (roughly 8-9 per cent of GDP) will lead to detrimental outcomes for the economy. While a fiscal glide path should be seen as a limit ... Convergence to the limit happens, and a form of 'creative accounting' kicks in." Indeed, a significant fiscal slippage could affect the inflation outlook and monetary policy choices.

Nonetheless, both stock and bond prices fell after the rate decision, partly because of concerns about lower growth and expectations of a deeper cut. Although the MPC has stated it will "continue with an accommodative stance as long as it is necessary to revive growth", the markets would now want to know as to what extent the policy rate could be reduced. Clearly, an accommodative stance doesn't mean that the MPC will cut the policy rate every two months. It is not clear how far the central bank would be willing to lower the real rate to support growth. The MPC would soon need to deliberate on this issue. More clarity will not only help improve transmission but will also anchor longer-term inflationary expectations. Communication is a powerful instrument in the toolkit of modern central banks and should be used effectively.

Too many errors

Procedure for legislation & cabinet notes should be respected

A couple of weeks ago, the Union Ministry for Law and Justice was forced to issue a corrigendum to the Jammu and Kashmir Reorganisation Act, which gave legal force to the de facto revocation of Article 370, which had mandated a special relation between the Centre and the erstwhile state. The corrigendum had to correct as many as 52 errors in the Act, from simple spelling mistakes to incorrectly referenced laws. This was not an isolated incident. The ministry has had to issue such corrigenda frequently, particularly when it came to Ordinances, such as those amending the corporate income-tax law, which appear to have been drafted in haste and without due consultation. On other occasions, no official amendments or corrigenda are issued, with a verbal assurance made by the minister concerned to the Parliament that any deficiencies in the wording of the law would be corrected at the time of issuing the relevant rules.

Errors in drafting, if not caught, can have ramifications much later in the future. Mistakes in tax laws are particularly dangerous because they can leave loopholes, which private lawyers and accountants can exploit, and closing them retroactively would have a strongly negative effect on public opinion and investor confidence. It is unfortunate, therefore, that the incidence of such slapdash drafting seems to have become frequent. It is, in fact, a reflection of the lack of application of mind that appears to have crept into the law-making process within the executive. Another, and more worrying, cause is the constant short-circuiting of due process in policy making and legislation. The Cabinet Secretariat has been forced to take note of this problem, writing earlier this month to the various Union ministries and departments to point out that they are required to share drafts of Cabinet notes well in advance, so that any deficiencies and inconsistencies may be spotted before the legislative process begins. At least 15 days should also be set aside for the Cabinet Secretariat and the Prime Minister's Office to examine the notes in question, as well as for standard inter-ministerial consultations, which is the recommended time for finalising notes in the Handbook, which governs the writing of Cabinet notes.

While the Cabinet Secretariat is to be commended for acting to remind the line ministries and departments of this issue, the real problem lies in the nature of decision-making. Too many major policy changes with deep legal implications are being made in relative secrecy, without proper or adequate consultation within the government or with the Parliament. Unrealistic and imprudent timelines for major changes are being forced on the bureaucracy for decisions that could easily have been prepared and drafted in advance or in which a few weeks' delay makes little difference. Paranoia about leaks and public discussions of major changes is contrary to the principles and spirit of representative liberal democracy — and also has clear, negative implications for the quality of governance. The process underlying legislation and policy changes has evolved to minimise error and maximise efficiency. It should be respected. Most importantly, drafting capacity within the government should be enhanced, public discussion formalised, and cabinet notes and draft legislation treated with the respect they deserve.

ILLUSTRATION: AJAY MOHANTY

Resolving stressed financial firms

A resolution corporation is required for the failure of banks, insurance companies, and systemically important firms

The resolution of stressed financial firms is a key bottleneck in economic policy today. Such resolution is no different from that of non-financial firms when the firm in question has not made intense promises to unsophisticated households. For financial firms such as non-banking financial companies (NBFCs), the plain Insolvency and Bankruptcy Code (IBC) is the right way to do resolution. A specialised statutory financial resolution corporation is for the limited class of problems, where the plain IBC approach will work poorly.

SNAKES & LADDERS

AJAY SHAH

From 2011 onwards, a major problem in India has been stressed firms. When a firm has its back against the wall, normal business activities take the backseat, which adversely affects the economy. The credit market freezes when there is widespread fear that lenders will lose money. Efficient resolution procedures are essential in every market economy. India began on that journey with the enactment of the IBC in 2016. At the time, the IBC covered non-financial firms.

Consider a stressed NBFC such as IL&FS or Dewan Housing Finance. These firms have borrowed from professionals. They have no borrowing from unsophisticated households. Neither of these firms is systemically important. As a thumb rule, systemically important firms must have a balance sheet of at least 2 per cent of GDP. In India today, that is a balance sheet size of about ₹4 trillion. HDFC is systemically important, but IL&FS or Dewan Housing Finance are not.

Under these circumstances, the plain IBC approach would work correctly. An NBFC would reach its first default. At that point, any one creditor would go to the National Company Law Tribunal (NCLT), and control of the firm would shift to the committee of creditors. The committee of creditors would comprise banks, mutual funds, and other professional lenders to the NBFC. The committee of creditors would think about what is in its best interests: Selling the firm, first raising cash by selling parts of the book, restructuring its debt, or a liquidation. It has the right incentives and the right ability to solve the problem. In the event that the bankruptcy process imposes a loss, this would fall upon these professionals. Within about a year after the default, we could put the problem behind us.

At present, absent a resolution framework, lenders are plagued with uncertainty. The promoter decides the order of priority in which lenders get paid. In contrast, the IBC offers a predictable set of rules through which the resolution will proceed. Without the IBC, each creditor tries to get its own money out, and does not care about the resolution of the NBFC. A creditor today even pushes for harmful actions by the NBFC as long as such actions get it cash.

Under the IBC, all the creditors will negotiate a single solution to their shared problem under the auspices of the committee of creditors. The energy of all creditors will be channelled into finding the best resolution plan, which is able to achieve a super-majority in the committee of creditors.

This happy picture breaks down, particularly for banks, when there are unsophisticated households in the picture. Bank depositors are in a unique position — unlike lenders to NBFCs — in that they can take their money out at any time. The use of the IBC for banks would go wrong at two levels. First, it would make depositors jittery and prone to take their money out at the first hint of trouble. Second, it is hard to organise a negotiation between a large number of lenders in the committee of creditors.

This calls for a specialised statutory "resolution corporation" (RC) that will take control of a stressed financial firm. There are three unique features of such an RC. First, it will act pre-emptively, and swing into action slightly before the net worth has become negative: This is unlike the IBC, which only kicks in after default. Second, it will move faster than the IBC process as a lengthy negotiation between creditors is not required. Third, it will pay out deposit insurance to unsophisticated households, or reassign insured households to a new insurance provider.

Such a statutory financial RC was part of the design of the Financial Sector Legislative Reforms Commission (FSLRC). The design was done before the IBC. Now that the IBC is here, we should be careful to see the restricted role for this RC. An RC is required for the failure of banks, insurance companies, and systemically important firms (such as HDFC). It is not required for an ordinary NBFC such as IL&FS, where a plain IBC would suffice.

The establishment of an RC was attempted through the Financial Resolution and Deposit Insurance (FRDI) Bill, which was shelved. This remains an important policy priority and it should be pushed through. But we should recognise the limitations of this path. The RC will be a new government bureaucracy. Most government agencies in India work poorly, and the broad failures of public administration in India will hamper the RC also.

The RC features a remarkable power: It can initiate resolution of a bank before the bank has defaulted. It will take us many years to clad this power with adequate checks and balances, to avoid misuse. It will be difficult for officials in the RC to correctly intervene in a financial firm, just before its equity capital is about to become negative, and to find the optimal methods in resolution. Under good project management, it will take about three years to find its feet.

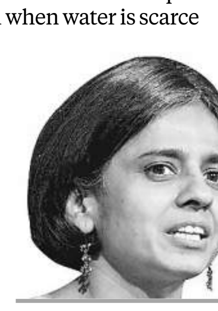
To summarise, for two kinds of problems in the resolution of financial firms — systemically important firms such as HDFC or firms that have made intense promises to unsophisticated households such as banks or insurance companies — there is no running away from the RC. This is a multi-year journey that should commence soon. But for all other financial firms, the interests of lenders who negotiate within the committee of creditors will work better than the bureaucracy of the RC. We need to do more on making the IBC work well, and need to place the resolution of a large class of financial firms in it.

The writer is a professor at National Institute of Public Finance and Policy, New Delhi

Rivers too have rights

The World Water Prize for 2019 was awarded to South African Jackie King for her work on establishing the need for ecological flows in rivers. In our world of today, this is a critical issue — how to establish the rights of our rivers in an age of growing demand for water and growing risks for climate change insecurity?

We must understand that the issue of river flow is really about the politics of power. The question of the rights of the river becomes much more complicated and much more political when water is scarce and rights are contested.



DOWN TO EARTH

SUNITA NARAIN

In India and many like it, water was allocated to farmers — millions of people who work the land and need water to grow our food. But now cities and industries are growing. The fight is over the re-allocation of this resource among the old and the new users. This is a tough. The re-allocation creates tensions and even leads to bloodshed in some cases. It is also important to understand our difference with the rest of the world. In the already developed world, for instance, in countries of Europe, water moved to cities and industries because people and livelihoods also moved. But in India, millions still work on the land; they continue to need water for their livelihoods.

The problem also is that cities and industries take water, but return waste and pollution. They destroy the river, and in this way, the available and scarce resource of water is further diminished.

So, in this fight, the river then has no rights — there is no water for flow. But there is then an additional problem. Because the river has no water, it cannot assimilate the waste of humans. It cannot clean itself. It dies many deaths.

And, all this is happening in an age of climate change. The fact is today we need to re-think everything we know and understand about water management. Today when it rains, it does not pour; it is a deluge. In the monsoon this year, we have seen more than 1,000 instances of heavy and extreme rain events; many places have had 1000-3000 per cent more rain in a single day over their average. So, there is flood. But worse, after the flood, there is drought because regions, cities, and villages do not have the capacity to hold the rain; the drainage systems, ponds, and tanks have been destroyed; and the streams have been filled up. In this way, we have flood at the time of drought. This is not the new normal. This is completely abnormal. And remember, climate change impacts are only just beginning. Temperatures will rise further.

We will even have to re-think the role of dams in this extreme rain age. Dams were built to hold water and modulate the flow. But now this holding of water is becoming the biggest risk because dam managers have no option but to release the water when there is such high rainfall — all unpredicted — and this then makes the flood a deluge. It destroys lives, massively.

So, this is why we need to go back to the drawing-board of Jackie King so that we begin to face the reality of deciding the rights of rivers. This is where the opportunity lies as well because if we give the river its rights to water, we will learn to do more with less.

First, agriculture will have to be much wiser with its water use. But this does not only mean using drip irrigation. It also means that we will have to change our diets so that we eat food that uses less water and that we do not grow our meat using the industrial farming methods of rich countries. This requires the government to prioritise the procurement of crops that are water-prudent, such as millets, against rice.

Secondly, cities will have to learn to take water from rivers and return water and not waste. This is where there is a huge opportunity to do excreta management, which is affordable and so sustainable. This is where cities need to be told that they have to recycle and reuse every drop of the sewage they generate. In fact, cities should be asked to take their drinking water downstream of their sewage discharge points. It will make them clean up their waste. Return water to the hydrological cycle. Add to our water security.

Thirdly, and most critically, we must realise that the only way we can cope with extreme and variable rain is to harvest every drop and to build deliberately for drainage. Every waterbody and every drain must be deepened, protected, and used to store the flood water. India has extraordinary and diverse traditions of building water storage systems. These structures must become our new temples — every drain, every ditch, and every waterbody must be protected so that the flood water can be used to recharge groundwater and this can be used in the coming season of drought.

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Upheaval in the US workplace

BOOK REVIEW

ZEPHYR TEACHOUT

There's an enormous upheaval in the American workplace right now, and those who tell you they know how the next decade will pan out — for good or ill — don't know their history. That's one of the main lessons of *Beaten Down, Worked Up*, the engrossing, character-driven, panoramic new book on the past and present of worker organizing by the former *New York Times* labour reporter Steven Greenhouse.

At the beginning of this decade, less than seven per cent of private-sector workers belonged to a union, and support for organised labour unions was at an all-time low. Corporations were using illegal tactics to stop unionisation, tactics unheard-of in other countries, and new hires at the biggest companies were often required to watch anti-labour propaganda depicting unions as greedy and self-interested.

It was in this climate that 40 fast-food employees met in a New York City teachers' union hall in August 2012. The meeting was organised by the grass-roots group New York Communities for Change and the Service Employees International Union after the community group, canvassing door to door on housing issues, kept unearthing worker complaints. The people at the August meeting were angry at how little they were being paid, some stuck at \$7.25 an hour after 10 years of work. One woman spoke about being fired for eating a chicken nugget. When one man raised his arms to show burns, the room came alive, arm after arm being raised, each worker sharing scars from McDonald's, Domino's, Burger King, KFC.

At a second meeting a month later, 75 workers showed up and debated what demands they should make. They settled on something that seemed impossible, but was the bare minimum they needed to live and work with respect: \$15 an hour, and a union.

The "Fight for \$15" was born, leading to huge rallies and predawn fast-food walkouts across the country. The workers lacked union protection, and big corporations shelled out cash telling lawmakers that raising the wage would cause small businesses to collapse and result in economic disaster. Nonetheless, the workers won. A wave of minimum wage raises passed. In New York, the rate hit the magic number of \$15 an hour.

Those 2012 meetings and the Fight for \$15 almost didn't happen; this was not the kind of organising work that labor unions like SEIU had been doing for decades. This required unions to spend money on organising people who would most likely never pay dues. You'll have to read Mr Greenhouse's book to learn why the union did it, and how a \$50 million failure by one of the country's biggest unions led to one of its greatest recent successes.

Mr Greenhouse probably knows more about what is happening in the American workplace than anybody else in the country, having covered labour as a journalist for two decades. He achieves a near-impossible task, producing a page-turning book that spans a century of worker strikes, without overcondensing or over-simplifying, and with plausible suggestions for the future.

In his telling, history is made by human beings facing difficult choices about whether or not to strike, how long, how much to demand and when to compromise. As such, this is a book that breathes hope based on contingency. If history wasn't overdetermined in 1930, 1981 or 2012, it isn't overdetermined now.

Just because history is not foreordained does not mean it is random, however. One powerful lesson of the UAW sit-down is the importance of radical vision and the bravery of a few workers; another is that elected and appointed officials can make a huge difference in private labour disputes. At one point, Secretary of Labour Frances Perkins yells over the phone at the head of GM: "You are a scoundrel and a skunk, Mr. Sloan! ... You don't deserve to be counted among decent men! ... You have betrayed the men who work for you." Alfred Sloan apparently retorted: "You can't talk like that to me! I'm worth \$70 million, and I made it all myself!"

With the breaking of the air traffic controllers' strike in 1981, the Reagan years are generally understood as *the* tipping point in labour history. It would be tempting to write about that strike through the lens of Reagan's ideology alone or, alternatively, to blame the strikers for their defeat. But Mr Greenhouse gives the events leading up to the strike the respect and context they deserve, making it possible even for a reader who knows exactly how it turns out to hope that things might go differently, because the world from inside the minds of the strikers seems so coherent.

Mr Greenhouse's greatest anger is for the large companies — and their Wall Street owners — that have no human connection to the workplace and that are pushing the limits with new tactics to demoralize workers and strip them of their power and dignity. When a unionisation flier was found in a Walmart bathroom, the company sent in a SWAT team the next day to nip empowerment in the bud.

They don't seem to hesitate to break the law, either. On the books, it is illegal to fire leaders of a unionisation effort, or to threaten employees with the loss of benefits if they engage in union activities. But studies show that a third of companies fire union supporters, and that union organizers may face up to a one-in-five chance of being fired for demanding a union.

Toward the very end, Mr Greenhouse shifts from storytelling to polemic, a *cri de coeur* vision of what labour could be. To get there, he argues that a critical first step is publicly financed elections; labour laws won't change without breaking the grip of big money on politics, and if we ignore campaign finance law, we do so at workers' peril. It will also require union leaders to embrace and invest in the hard work of organising, and to organize workers who will never pay dues. And it will require putting the stories of work — and of working men and women — at the centre of our news.

BEATEN DOWN, WORKED UP
The Past, Present, and Future of American Labor
Steven Greenhouse
Alfred A Knopf; \$27.95; 397 pages