3RD TO 9TH OCTOBER, 2021

CURRENT AFFAIRS FOR UPSC

DreamIAS

INTERNATIONAL

ANGRY TAIWAN SLAMS CHINA'S 'AGGRESSION'

Taiwan on Saturday hit out at China's "military aggression" and said it had scrambled aircraft in response to a record incursion by 38 Chinese aircraft in two waves on Friday. Reports on Friday had initially said China's military had sent 25 aircraft, coinciding with China's October 1 National Day, towards Taiwan. Taiwan's Defence Ministry said on Saturday a further 13 aircraft, in a second wave, had also entered the Air Defence Identification Zone. The first incursion included 18 J-16s, four Su-30s, two nuclear H-6 bombers and one anti-submarine aircraft. The later incursion had 10 J-16s, 2 H-6s and an early warning aircraft. The Ministry said another incursion was reported on Saturday of 20 aircraft. Taiwan Premier Su Tseng-chang was quoted as saying by Reuters that China had been "wantonly engaged in military aggression, damaging regional peace". The incursions on Friday and Saturday followed China on September 23 sending 19 aircraft into the ADIZ.

China's signalling

Beijing has in the past used its air force incursions as a form of signalling. The September 23 incident coincided with Taiwan saying it had submitted an application to join the 11-nation CPTPP (Comprehensive and Progressive Agreement for Trans-Pacific Partnership) trade deal, days after China said it had formally applied to join the Pacific pact. Beijing previously also dispatched fighters to coincide with visits of U.S. diplomats to Taiwan. The latest show of force came on China's National Day and ahead of the October 10 National Day to be celebrated by Taiwan, and was aimed at sending a message to both Taipei and Washington. China views Taiwan as its province, although both have been ruled separately since the end of the Chinese Civil War in 1949 when the Kuomintang (KMT) fled to the island. Tensions across the straits have been growing with Beijing accusing the ruling Democratic Progressive Party (DPP) and President Tsai Ing-wen, who was re-elected for a second term last year, of pursuing "independence". Prior to the DPP coming to power in 2016, tensions had cooled under the KMT's Ma Ying-Jeou, who held a landmark meeting with Chinese President Xi Jinping in 2015 and backed an economic cooperation agreement that was signed in 2010. Beijing has increasingly sought to push back against Taiwan's presence in international bodies and to wean away the few remaining countries that continue to maintain diplomatic ties with Taiwan. It has also sought to respond strongly to any moves it sees from Washington, such as the presence of U.S. vessels in the straits, with Taiwan one of the key issues that China and the U.S. have been clashing over. The Chinese Foreign Ministry last month strongly hit out at Taiwan's application to join the CPTPP. "There is only one China in the world," spokesperson Zhao Lijian said, "and Taiwan is an inalienable part of China's territory."

BIDEN PROMISED TO DEFEND DISPUTED ISLANDS

New Japanese Prime Minister Fumio Kishida said on Tuesday that he received a "strong" message from President Joe Biden about the United States' commitment to defending the disputed East China Sea islets, known as the Senkaku Islands in Japan. In phone talks on Tuesday that lasted roughly 20 minutes, the allies also confirmed their cooperation towards achieving a free and open Indo-Pacific, Mr. Kishida told reporters. The call came a day after Mr. Kishida called a

parliamentary election for October 31, and vowed to bolster the country's response to the pandemic. He was voted in by lawmakers last week as the nation's Prime Minister. "We confirmed that we would work together toward the strengthening of the Japan-U.S. alliance and free and open Indo-Pacific," Mr. Kishida said. "We also confirmed we would work closely on issues related to China and North Korea." "Especially, the President made a strong comment on the U.S. commitment to defend Japan, including the Article 5 of the U.S.-Japan security treaty," Mr. Kishida added, referring to U.S. defence obligations to Japan, which cover the uninhabited island.

THE MAN ON THE THRONE

As Japan stands on the cusp of a significant change in political leadership, the man of the hour is former Foreign Minister and newly elected leader of the Liberal Democratic Party, Fumio Kishida (64). As Japan's 100th Prime Minister, Mr. Kishida will be stepping into the shoes of his predecessor Yoshihide Suga, after the latter's approval ratings plunged precipitously in the wake of Japan's tepid coronavirus pandemic response, including on the economic front. Mr. Kishida is expected to take charge in his new capacity after the Diet, the Japanese Parliament, convenes in October. When he does so, he will find the task ahead of him to be near gargantuan. He will inherit responsibility for managing the world's third-largest economy. Add to this the pre-existing structural problems of an ageing population, soaring public debt, and extreme vulnerability to climatic shocks and natural disasters, and it is evident that his plate is full.

Reworking the blueprint

At the heart of this challenge is the imperative for Mr. Kishida's party, the LDP, to back a transformative fiscal programme that can boost spending through stimulus packages. Industries reeling from the impact of nearly six months of lockdown restrictions could certainly use a shot in the arm of considerable magnitude. Being a moderate and liberal voice within a party known for conservatism and Japanese nationalism at a broad level, Mr. Kishida is ideally positioned to shepherd such reforms through the Diet. He has already indicated his inclination to increase public expenditure to give the Japanese economy a leg-up as it limps back to commercial normalcy; yet he has hinted that he will avoid immediate tax hikes even if the deficit expands. This puts his approach in sharp contrast to a Japan's longest serving Prime Minister, Shinzo Abe, whose 'Abenomics' was focused on delivering economic growth led by rising corporate bottom lines. In this regard, making a name for himself through a distinct style of political leadership will be important for Mr. Kishida, primarily because he will likely have to contend with a general election at the latest by November 28 under the Japanese Constitution, following the end of the term of the lower house of Parliament on October 21. In facing the hurdles ahead in his new role, the Kishida family's long involvement in politics may be an asset. Both Mr. Kishida's father as well as grandfather were members of Japan's powerful lower house, the House of Representatives. When, in 1993, the mantle passed to Mr. Kishida from his father, who held the parliamentary seat from Hiroshima, he succeeded in winning that constituency. This would mark the early days of a strong career in mainstream Japanese politics, which culminated in Mr. Kishida serving as the longest standing Foreign Minister in the country since World War II. In this capacity, he was also likely drawing on his experience living in the U.S. as a child, and his exposure to other cultures during that time. In the early 1960s, his father, who was at the time a trade official in the Japanese government, secured a role in New York, leading to the young Mr. Kishida, then six years old,

relocating there with his family and studying at a public school in Elmhurst, Queens. Later, he wrote that despite occasionally brushing up against subtle racism in certain contexts, as a student he mingled with a diversity of ethnic people, including white, Indian, Native American, and Korean, and although "the U.S. was an enemy of Japan during the war and the nation that dropped the nuclear bomb on Hiroshima… I was young, and to me, the U.S. was nothing but a country that was generous-hearted and filled with diversity."

In China's backyard

The obvious focal point in Japanese foreign policy going forward will be Japan-China relations. During his tenure as Foreign Minister, Mr. Kishida made it very clear that Tokyo would always foster warm relations with the U.S., India, Australia, and other democratic Asian powers, both strategically and economically. Yet with Beijing pursing aggressive territorial policies relating to Taiwan and the South China Sea, and North Korea once again veering towards testing ballistic missiles, Mr. Kishida will have to work assiduously and creatively to successfully walk the tightrope across regional political rivalries.

CRACKDOWN THERE, HOPE HERE

Last year, China stopped Ant Group's blockbuster initial public offering. This came as a shock to the world as Ant Group, Alibaba's fintech arm, was on track to raise $37 billion and its valuation was reportedly nearing more than $300 billion. This episode was perceived as an attempt to rein in the successful entrepreneur, Jack Ma. Prior to this incident, he had committed one of the cardinal sins in modern China, which was to publicly criticise the government's tech policy for stifling innovation.

Clampdowns galore

A year since, hardly a week goes by without the world hearing of yet another high-profile crackdown on a Chinese tech company. China has foisted sweeping regulations, antitrust and anti-monopoly lawsuits, cyber security probes, and algorithm controls on the entire tech segment, ranging from e-commerce websites, search engines, ride sharing and food delivery apps to e-learning portals. These clampdowns are estimated to have wiped off over $1.5 trillion of value from Chinese tech stocks. China's obsessive efforts to ensure that no private entity gains enough data to ever be in a position to even remotely challenge Chinese Communist Party-led state dominance, and that no competing country gains access to the citizen database through any unforeseen means, drive much of this overhaul. We should not overlook the fact that these efforts are limited only to the consumer tech sector. State support to manufacturing and 'hard' tech industries, which are perceived to be of higher value, including 5G/6G, semiconductor chips, artificial intelligence, biotechnologies, batteries, aviation and space tech, has only increased. We are witnessing a conscious redirection of efforts to areas that would maximise China's geopolitical and geo-economic gains. It would not be surprising to see more state-owned enterprises like ZTE and state-supported heavyweights like Huawei focus on strategic high technology and attempt to be pioneers in the global market. These developments could be beneficial for India. The rate of digitisation accelerated during the pandemic in India. Start-ups here raised a record $10.46 billion in the first half of this year alone. India's tally of unicorns has crossed 60. This trajectory and India's projected growth will make the country the first destination of the funds fleeing Chinese

stocks during these crackdowns. However, mirroring the U.S. start-up ecosystem, India's emphasis too is on consumer tech, from which China is tactically distancing itself. Not to be forgotten, the U.S. also has a far-reaching system for research and development of strategic technology. The recently concluded Modi-Biden talks as well as the Quad summit emphasised technological cooperation. The U.S. undoubtedly remains China's lone rival in the high tech space, and the extent of this partnership will be important for India. U.S. interests will more likely be inclined towards the possibilities of market entry and penetration of its firms. India should strive to move beyond this to complementary collaborations.

Open to partnerships

India should also remain open to partnerships with friendly nations, keeping the enhancement of its internal capacity as the objective. An example would be the ongoing talks with Taiwan to bring in a semiconductor chip manufacturing plant to India. If successful, this could drive next-generation industries, including 5G devices and electric vehicles. The strides India has made in sectors including biotech and space tech have shown that with the right political will and private participation, India could be self-sufficient and also reach global competitiveness. Similar concerted efforts to develop indigenous manufacturing and hard technology are vital if India is to retain its strategic autonomy and securely reach its stated goal of being among the largest three economies by the later stages of this decade.

N. KOREA THREATENS UN BODY AFTER EMERGENCY MEET

North Korea has warned the UN Security Council against criticising the isolated country's missile programme, in a statement on Sunday that included unspecified threats against the international body. During an emergency closed-door meeting of the top UN body on Friday, France circulated a proposed statement that expresses concern over North Korea's missile launches and calls on it to fully implement council resolutions that ban its ballistic missile firings. On Sunday, Jo Chol Su, a senior North Korean Foreign Ministry official, warned the UNSC it "had better think what consequences it will bring in the future in case it tries to encroach upon the sovereignty" of North Korea. Mr. Jo also accused the UN body of a "double-dealing standard" because it doesn't equally take issue with similar weapons tests by the U.S. and its allies, according to the statement circulated by state media.

Six-month break

After a six-month hiatus, North Korea resumed missile tests in September, launching newly developed missiles, including nuclear-capable weapons that place South Korea and Japan within their striking distances. The country still offered conditional talks with South Korea, in what some experts call an attempt to pressure Seoul to persuade Washington to relax crippling economic sanctions on it. Under multiple UN Security Council resolutions, North Korea is banned from engaging in any ballistic missile activities as the country aims to mount nuclear weapons on its ballistic missiles. North Korea has argued its nuclear programme is meant to cope with U.S. military threats, though Washington has said it has no hostile intent toward Pyongyang. Despite its recent launches, North Korea maintains a 2018 self-imposed moratorium on a long-range missile directly threatening the American homeland, a sign that it still wants to keep alive chances for future diplomacy with the U.S.

NS2, A WIN-WIN PROPOSITION?

While the Iran-Pakistan-India gas pipeline, the Iran-India undersea pipeline, and the Turkmenistan-Afghanistan-Pakistan-India pipeline remain pipe dreams, the Nord Stream 2 (NS2) running from Russia to Germany across the Baltic Sea is now complete despite controversy. NS2's manufacture began in 2016 and construction in 2018. The 1,224 km, $11-billion underwater link is the shortest, most economical and environment-friendly route to double Russia's gas export to Germany. The pipeline offers stability to the strategically important energy trade because Russia's dependence on the European Union and vice-versa are increased and this should promote realism.

Ukraine's concerns

Energy is never removed from politics. Russian authorities say NS2 can transport 55 billion cubic meters of gas each year, cover the needs of about 26 million households, and restock storage inventories, but both Germany and Russia are subject to conditions arising from a compromise between the U.S. and Germany, and EU regulations. European gas prices have broken records this year, edging close to an unprecedented $1,000 per thousand cubic meters which places many industries and food supply chains under stress. This is due to lack of viable alternatives to gas, low storage levels because of a severe winter and the post-COVID-19 economic surge. Ukraine offered extra transit capacity for Russian gas to Europe at 15 million cubic meters per day for October but Russia booked only 4.3% of this, citing domestic demand. Some European politicians accuse Russia of pressure to expedite the start of NS2, but the project needs European certification, which could take up to four more months. Germany has yet to issue an operating licence, blandly stating that it would rule on this next January. German Chancellor Angela Merkel is accused, mainly by Poland and Ukraine, of weakening the EU's political unity and strategic coherence by giving Russia greater leverage through NS2. Ukraine's leadership is unhappy as it believes the pipeline is a Russian geopolitical weapon aimed at depriving Ukraine of political traction and crucial revenue. These concerns have been largely disregarded by the EU, which has refused to yield to the demands of a third party. What Ukraine's President Volodymyr Zelensky has secured are assurances from the U.S. that it will impose more sanctions if Russia abuses the advantages of its new pipeline and Germany's undertakings to help Ukraine develop its energy sector and exert pressure on Moscow to keep its gas transiting through Ukraine even after the current contract ends in 2024. Russian President Vladimir Putin has made it clear that this is acceptable but would depend on purchase contracts from European customers. Behind the argument of protecting Western interests against Russia, the Ukraine case is that if Russia cuts its transportation of gas through Ukraine, Kiev would lose billions of dollars in transit fees, and fears that Russia could reduce energy supplies by cutting those needed for Ukraine's own consumption. Ukraine has not diversified its economic fundamentals, whose viability is dependent on Russia moving fossil fuels through its territory. But the loss of cheap money gained through transit fees could in the long run benefit its economy. The completion of NS2 suggests that no third party can affect the project's outcome. Any flagrant violation of the commercial rationale of NS2 by Russia would enable Ukraine to invoke the assurances it has been given; it is accordingly in Moscow's interest to proceed in a manner that avoids friction.

Assistance to Ukraine

To enable a consensus on NS2, Germany has promised assistance to Ukraine for development of hydrogen energy, but such commitments are less robust in their detail; Berlin seems to offer a modest €206 million as seed money to attract a potential corporate investment envisaged to be €1 billion. President Zelensky considers this proposal inadequate, and his Foreign Minister Dmytro Kuleba has been forthright saying, "This country has learnt a number of bitter lessons that Western promises are possibly unfulfilled. We do not believe in promises." Despite the lack of certitudes in Germany's financial promise, there is reason to take it seriously. The German elections could result in a coalition including the Greens, in which case the Greens might drop their opposition to NS2 in return for more substantial compensation for Ukraine. Since the hydrogen option is environmentally friendly, this presents scope for accommodating the requirements of German coalition politics and support for the Ukrainian budget and turning NS2 into a win-win proposition. It's an ill wind that blows nobody any good.

TUNISIA'S FIRST WOMAN PM

On September 29, Tunisia's embattled President Kais Saied, faced with growing criticism of his power grab, made a surprise move by appointing a little-known geologist as the country's first woman Prime Minister. Mr. Saied had dismissed the Prime Minister and suspended Parliament in July. Ever since he consolidated power in his hands and announced that he would rule by decree, moves his opponents call a coup. With the appointment of Najla Bouden Romdhane, the 63-year-old professor at the Tunis National School of Engineering with practically no political experience, Mr. Saied is seeking to put his rule by decree in an administrative frameworks. In a video message released on September 29 introducing Ms. Bouden to Tunisians, the President said: "This is a historic moment, an honour for Tunisia and a tribute to Tunisian women." Ms. Bouden did not speak in the video. When Mr. Saied ousted the government of Prime Minister Hichem Mechichi that was backed by the Islamist Ennahda party, the largest bloc in the suspended Parliament, many Tunisians welcomed the move. Mr. Mechichi had faced widespread public criticism over his handling of the Covid-19 pandemic and the country's economic woes. Tunisia, a country of 11 million people, has one of the highest per capita Covid mortality rates. But when Mr. Saied moved to suspend much of the 2014 Constitution, and awarded himself near total powers, resistance started building up. Tunisia was seen the only country among those hit by Arab street protests in 2010-11 that successfully transitioned into a multi-party democracy from dictatorship. Mr. Saied's moves raised questions and worries about Tunisia's transition story.

Angry opposition

If Mr. Saied hoped that the appointment of Ms. Bouden would placate the opposition, he was wrong. The new Prime Minister will not have the backing of Parliament, a Constitutional requirement. Ennahda legislators have asked their leader, Speaker Rached Ghannouchi to convene the Assembly in defiance of President Saied and question the legality of the appointment of Ms. Bouden as the Prime Minister. The influential UGTT labour union has also spoken against Mr. Saied's power grab. But Mr. Saied appears determined to go ahead with his plans and Ms. Bouden emerges as his lieutenant. Born in the central Kairouan province in 1958, Bouden holds a doctorate in geology. The Paris-educated academic has held several senior positions in Tunisia's education sector. In 2011, she was appointed Director General in charge of Quality at the Ministry

of Higher Education, according to the official TAP news agency. In 2016, she headed the 'management by objectives unit' for the implementation of the higher education reform project. Currently, she is serving as the World Bank's Programme Implementation Officer at the Ministry of Higher Education. According to Turkey's Anadolu news agency, Ms. Bouden doesn't have any known political affiliations. It's not clear what led Mr. Saïed to pick a university professor for the Prime Minister's job, nor is there any clarity on Ms. Bouden's vision for governance. The President's critics say that by choosing a technocrat with no political experience and popular base, Mr. Saïed could make sure that there's no challenge to his authority from the Cabinet. Under the Tunisian Constitution, the Prime Minister, the President and the Speaker are the three pillars of the State and the Cabinet is responsible to Parliament. But Mr. Saïed's decree made it clear that the PM and the Cabinet would be responsible to him. The new Prime Minister's mandate, according to the President, is to "combat corruption and chaos that pervaded in many state institutions". Ms. Bouden's surprise elevation to the top echelons of power comes at a particularly challenging time. The country's public debt stands at 88% of GDP. The dinar, it currency, has lost half its value over the past 10 years. Unemployment is high at 18%. The government had initiated talks with the IMF for a bailout, but those discussions were paused after Mr. Saied's power grab. Domestically, the opposition is trying to mobilise support for a lasting showdown with Mr. Saied and his cherry-picked PM. All these suggest that the North African Arab country's first woman PM could get the going tough.

'YOU ARE PLAYING WITH FIRE':EU IN CRISIS AFTER POLISH COURT RULING

A Polish court ruling challenging the supremacy of European Union law has plunged the bloc into an existential crisis, increasing fears among EU policymakers and many Poles that Poland could eventually quit the EU. Politicians across Europe voiced dismay on Friday at the ruling by Poland's Constitutional Tribunal on Thursday that parts of EU law are incompatible with the Polish constitution, undermining the legal pillar on which the 27-nation EU stands. Ursula von der Leyen, president of the European Commission, said she was "deeply concerned" and that the EU executive she leads would do all in its power to ensure the primacy of EU law. She said in a statement that the EU's 450 million citizens and its businesses need legal certainty, and the Commission would carry out a swift analysis to decide its next steps. Though Warsaw and Brussels have been at loggerheads since the Law and Justice (PiS) party came to power in 2015, they are now on a full collision course.

'Playing with fire'

"We have to state clearly that this government in Poland is playing with fire," Luxembourg's minister for foreign affairs, Jean Asselborn, said on arrival for a meeting of EU ministers in Luxembourg. "The primacy of European law is essential for the integration of Europe and living together in Europe. If this principle is broken, Europe as we know it, as it has been built with the Rome treaties, will cease to exist." Officials in Brussels said on Thursday's court ruling could lead to a series of fines and legal cases against Warsaw that will take months, if not years, to play out. PiS says it has no plans for a "Polexit" and – unlike Britain before its Brexit referendum in 2016 – popular support for membership of the EU is high in Poland. Poland's membership of the bloc since 2004 has helped drive some of the fastest economic growth in Europe. With an increasingly assertive Russia unnerving some central and eastern European states that were for decades under

communist rule, many Poles see the EU as an essential part of national security. But, welcoming the court ruling, Polish Prime Minister Mateusz Morawiecki said each member state must be treated with respect and the EU should not be "a grouping of those who are equal and more equal".

Poles' concerns

Populist governments in Poland and Hungary have found themselves increasingly at odds with the European Commission over issues ranging from LGBTQ rights to judicial independence. The Constitutional Tribunal took on the case after Morawiecki asked it whether EU institutions could stop Poland from reorganising its judiciary. Poland is due to receive some 770 billion zlotys ($193bn) from the bloc by 2028, and critics say the government is putting that funding at risk. Poland's nominal gross domestic product (GDP) was 2.3 trillion zlotys ($577bn) in 2020. A Eurobarometer survey carried out in June and July 2021 showed that almost twice as many Poles trust the EU as trust their national government. "I think ... there is a risk that we could exit the EU, because all of these actions which are happening can lead to that step-by-step," said Warsaw pensioner Grazyna Gulbinowicz. "I think it would have a very negative impact on our overall situation, because things are not easy and without EU funds it will be even more difficult, not to mention the fact that we will feel isolated."

3.3 LAKH CHILDREN WERE VICTIMS OF CHURCH SEX ABUSE

A major French report released Tuesday found that an estimated 3,30,000 children were victims of sex abuse within France's Catholic Church over the past 70 years, in France's first major reckoning with the devastating phenomenon. The president of the commission that issued the report, Jean-Marc Sauve, said the estimate, based on scientific research, includes abuses committed by priests and others clerics as well as by non-religious people involved in the church. He said about 80 per cent are male victims. The 2,500-page document prepared by an independent commission comes as the Catholic Church in France, like in other countries, seeks to face up to shameful secrets that were long covered up. The report says an estimated 3,000 child abusers — two-thirds of them priests — worked in the church during that period. Sauv said the overall figure of victims includes an estimated 2,16,000 people abused by priests and other clerics. Olivier Savignac, head of victims association 'Parler et Revivre' (Speak out and Live again), who contributed to the probe, told The Associated Press that the high ratio of victims per abuser is particularly "terrifying for French society, for the Catholic Church." Sauv said 22 alleged crimes that can still be pursued have been forwarded to prosecutors. More than 40 cases that are too old to be prosecuted but involve alleged perpetrators who are still alive have been forwarded to church officials. The report comes after a scandal surrounding now-defrocked priest Bernard Preynat rocked the French Catholic Church. Last year, Preynat was convicted of sexually abusing minors and given a five-year prison sentence. He acknowledged abusing more than 75 boys for decades. French archbishops, in a message to parishioners read during Sunday Mass across the country, said the publication of the report is "a test of truth and a tough and serious moment." "We will receive and study these conclusions to adapt our actions," the message said. "The fight against pedophilia concerns all of us ... Our support and our prayers will keep going toward all the people who have been abused within the church."

GRUMPY BOND

Daniel Craig's 007 is no longer in Her Majesty's Secret Service. He would have gotten off Bond duty earlier, had Covid-19 not pushed back the release of his fifth and final Bond film, No Time to Die, by over a year. Fifteen years ago, when Craig's Casino Royale was released, the British actor seemed an unlikely candidate for the role of the secret agent — too sullen and unflamboyant, too working-class even compared to Sean Connery and Roger Moore, and a mite less toxic in his masculinity. But he will be remembered by Bond-lovers for giving the franchise what it desperately needed: An update. By 2006, neither the unbelievable toys — cigarettes that launch rockets and cars that come front-loaded with machine guns — nor the high-adrenaline action were enough to hide the datedness, the sexist swagger, the emotional stunting and the apologia of being the empire's "last super-hero" at the heart of the Bond myth. Craig dropped most of the gadgets, found some vulnerability. The films became slicker and better produced, the action less incredulous, even if the Aston Martin B5 still hung around. Agent 007 now had a back story — of being raised by a foster father, of having his heart broken by spirited women. Through the five films, Craig appeared to grow wearier and more sneering of the conventions of the franchise. In an interview to The New York Times, he has said he would be satisfied if he is remembered as the Grumpy Bond. Given the surprises in store in No Time to Die, he might be remembered for much more. And so, the inevitable question: Who will be the next Bond? A section of the fandom is rooting for a woman or a black man as 007; others are shuddering in distaste at the thought of such subversions. Craig has an interesting suggestion, in keeping with the spirit of the time. "Don't women and actors of colour deserve better roles than James Bond?"

QATARIS VOTE IN FIRST POLLS TO SHURA COUNCIL

Qataris voted on Saturday in the Gulf Arab state's first elections for two-thirds of the advisory Shura Council, a process that has stirred domestic debate about electoral inclusion and citizenship. Turnout for the election of 30 members of the 45-seat body was 44%, the elections' Supervisory Committee said. The ruling emir will continue to appoint the remaining 15 Council members. The Council will have legislative authority and approve general state policies and the budget, but has no say in the setting of defence, security, economic and investment policy for the small but wealthy gas producer, which bans political parties. "With the chance to vote, I feel this is a new chapter," Munira, who writes children's books and asked to be identified by only one name, told Reuters. "I'm really happy about the number of women standing as candidates." Government lists showed 26 women among 233 candidates across 30 districts in the country, which has for several years held municipal polls.

'Symbolic act'

Men and women voted in separate sections. Ahead of closing, a large crowd cast their ballots in a marquee in the outskirts of the capital Doha, including members of a main tribe, some of whose members had protested over narrow voting eligibility. The vote indicates the ruling al-Thani family is "taking seriously the idea of symbolically sharing power, but also effectively sharing power institutionally with other Qatari tribal groups," said Allen Fromherz, director of Georgia State University's Middle East Studies Center. The election, approved in a 2003 constitutional referendum, comes ahead of Doha hosting the World Cup soccer tournament next year. Qatar's

Deputy Prime Minister and Foreign Minister, Sheikh Mohammed bin Abdulrahman al-Thani, last month described the vote as a new "experiment" and said the Council cannot be expected from the first year to have the "full role of any parliament". The huge number of foreign workers in Qatar means nationals make up only 10% of the population of 2.8 million. Even then, not all Qataris are eligible to vote.

Ineligible voters

The polls have stirred tribal sensitivities after some members of a main tribe were ineligible to vote under a law restricting voting to Qataris whose family was present in the country before 1930. Human Rights Watch has said thousands of Qataris are excluded from voting. The organisation said Qatar arrested about 15 demonstrators and critics of the electoral law during the protests. The Foreign Minister has said there is a "clear process" for the electoral law to be reviewed by the next Shura Council.

ROBOCOP

For the lovers of efficient, consumerist authoritarianism, Singapore is indeed a paradise. The streets are clean, the restaurants swanky and the worldly cosmopolitanism is complemented by a "strong" state. There are no privacy laws to speak of, so the objections by some citizens to the 90,000 police cameras — set to double by 2030 — carry little bite. But cameras, jail time and crippling fines alone are not enough to perfect a well-ordered city-state Utopia. There is advanced facial recognition software on lampposts in addition to the cameras. And to perfect the panopticon, Singapore now has its very own Robocop. Singapore has initiated a pilot programme in which robots on wheels, each outfitted with seven cameras and microphones, animated by advanced software, are patrolling residential areas and shopping complexes. The 'Xavier' robocops blast warnings at denizens engaging in "socially undesirable behaviour". The list of prohibited acts that can lead to a tongue-lashing from an inanimate object include smoking in public, flouting Covid-19 norms and parking your bicycles improperly. For many, there is nothing disturbing about the imposition of discipline using robots — it usually takes a sci-fi fan to spot the impending machine-led apocalypse. And, the acts the Xavier robots are shouting at people for are similar to those that annoy the over-zealous office bearers of housing societies in urban India as well. The point of surveillance, however, isn't really to catch a criminal in the act. It is, in fact, to make sure that people always act as if they are being watched. The robots, like the cameras and facial recognition software, aren't meant to make you afraid of the police. They are meant to place a policeman in your head. And, perhaps, in what is a sign of things to come, the Singapore government describes its surveillance ambitions as turning the city-state into a "smart nation".

NATION

A STRATEGY FOR INDIA IN A WORLD THAT IS ADRIFT

New situations require fresh thinking. A few of us — Yamini Aiyar, Sunil Khilnani, Prakash Menon, Nitin Pai, Ajit Ranade, Srinath Raghavan, and Shyam Saran — some of whom were authors a decade ago of Non-Alignment 2.0, were prompted by the tectonic shifts in India's internal and external environment to take another look at India's path to power in a world between orders. The outcome of our conversations is a discussion paper hosted on the Centre for Policy Research and Takshashila Institute websites called "India's Path to Power; Strategy in a World Adrift". It is our hope that we will receive comments, suggestions and criticism of the paper and that it will contribute to the national debate on our country's course.

Many power centres

The world is today adrift. We are neither in a bipolar Cold War nor in a multipolar world, though perhaps tending towards a world of several power centres. We are in a world between orders. The lack of a coherent international response to the COVID-19 pandemic is proof of an absence of international order and of the ineffectiveness of multilateral institutions. So is the ineffective international response to climate change and other transnational threats. Secular stagnation in the global and Indian economies and a retreat from globalisation, the regionalisation of trade, a shifting balance of power, the rise of China and others, and structural China-United States strategic rivalry have shifted the geopolitical and economic centres of gravity from the Atlantic to Asia. Inequality between and within states has bred a narrow nationalism and parochialism. We are entering a new polarised information age, and face ecological crises of the Anthropocene, making climate change an existential threat. The COVID-19 pandemic has accelerated some of these changes and transformed others. All in all, we can no longer take the success of our development model for granted.

Asia as the nucleus

Over the next decade we expect Asia to remain the cockpit of geopolitical rivalries, and that the U.S. remains the most formidable power, though its relative power is declining. China sees a window of opportunity but acts in a hurry, suggesting that she believes that window may close or is already closing due to pushback from the West and others. China's crowded geography constrains her both on land and at sea. We see a slim prospect of Chinese hegemony in Asia, but expect her profile and power to continue expanding, particularly in our periphery. The result is likely continued friction, some cooperation, and quasi-adversarial relations between India and China, which others will take advantage of. As neighbours and in the present situation, a mix of confrontation and cooperation is likely to continue to mark India's relations with China. Overall, we do not expect conventional conflict between the great powers in Asia, though other forms and levels of violence and contention in the international system will rise, with Taiwan a special case.

Challenges, opportunities

The uncertainty and changing geopolitical environment clearly pose considerable challenges to Indian policy but also throw up certain opportunities, enhancing our strategic options and

diplomatic space, if we adjust policies internally and externally, particularly in the subcontinent. Increasing security congruence with the U.S. could enable growing cooperation in fields significant for India's transformation: energy, trade, investment, education and health. Other areas in which India and the U.S. could increase cooperation are: climate change and energy, on tech solutions for renewable energy, and on digital cooperation. Several middle powers are now India's natural partners. There is also an increasing possibility of working with partners in the developing world building broader coalitions on issues of common interest. This time of transition between orders is also when new standards and norms are being developed, particularly in the digital space. India can and must be present at the creation. There are opportunities in other domains as well. At sea, the balance is today more favourable to us than before, possibly more so than on the continent. We suggest the creation of a Maritime Commission, a Bay of Bengal Initiative with partner countries, and increasing what we do with South East Asia in maritime security, cybersecurity and counter-terrorism. We should aim for multipolarity in Asia. The way forward that we suggest is based on the core strategic principles in Non-Alignment 2.0 which are still relevant: independent judgement, developing our capacities, and creating an equitable and enabling international order for India's transformation. Today's situation makes India's strategic autonomy all the more essential. At the same time, we must adjust to changing circumstances. We have no choice but to engage with this uncertain and more volatile world. One productive way to do so would be through issue-based coalitions including different actors, depending on who has an interest and capability.

Revive SAARC

We also suggest initiatives to craft and reinvigorate regional institutions and processes in the neighbourhood, reviving the South Asian Association for Regional Cooperation (SAARC) for instance. India could be the primary source of both prosperity and security in the neighbourhood — the subcontinent and the Indian Ocean Region. The over securitisation of policy towards our neighbours has driven trade underground, criminalised our borders, and enabled large-scale entry of Chinese goods destroying local industry in the northeast. While lessening dependence on China, and seeking external balancing, our primary effort has to concentrate on self-strengthening. If there is one country which in terms of its size, population, economic potential, scientific and technological capabilities can match or even surpass China, it is India.

Self-strength is key

Our paper also suggests several steps that we can take in India to ensure that India's role and influence abroad continue to serve the task of transforming India. Economic policy must match political and strategic engagement. Globalisation has been central to India's growth. A more active regional and international role for India is incompatible with a position on the margins of the global economy. Self-reliance in today's world and technologies can only be realised as part of the global economy. We should not imitate China's claims to being a civilisational state and its adoption of victimhood. Instead we should affirm our own strength and historic national identity. In sum, we see self-strengthening as an absolutely essential precondition as also safeguarding the foundational sources of India's international influence. We cannot separate our domestic trajectory from the external course we need to pursue to transform India into a strong, secure and prosperous country.

U.S. EXPRESSES UNEASE OVER S-400 DEAL

India and the U.S. are on the same page on Afghanistan and the threat to the region from terrorism, said visiting American Deputy Secretary of State Wendy Sherman, calling the partnership "indispensable" for both countries and the world. Striking a discordant note on the impending delivery of the Russian S-400 missile systems to India, however, Ms. Sherman, who described the deal as "dangerous", expressed the hope that the two sides could "solve" the issue arising from possible U.S. sanctions over the defence purchase. "We've been quite public about any country that decides to use the S-400. We think that it is dangerous and not in anybody's security interest," Ms. Sherman said in response to a question from The Hindu at a roundtable with journalists on Wednesday. "That said, we have a strong partnership with India; we want to be very thoughtful about the ways ahead and discussions between our countries try to solve problems," she added, hoping that the talks in the weeks ahead would resolve this issue as well. According to sources, Ms. Sherman, who met NSA Ajit Doval and External Affairs Minister S. Jaishankar on Wednesday, also "raised" the S-400 purchase during her talks with Foreign Secretary Harsh Shringla. Her comments come a day after Indian Air Force chief Air Chief Marshal V.R. Chaudhari confirmed that the $5.43 billion S-400 system deal, signed in 2018, is "on track" and the "first regiment" is expected to be inducted "within this year", or by end-December 2021.

LOCKED IN A STALEMATE

In the coming week, military commanders from India and China are expected to hold the 13th round of talks to continue the effort to find a way out of the LAC crisis. Sharp exchanges between Beijing and New Delhi have served as a reminder that relations are undoubtedly at their lowest since 1988. On September 24, the Chinese Foreign Ministry, while responding to a question about new border management protocols, laid the blame for last year's border crisis entirely on India's doorstep, saying India's "illegal trespass" caused the dispute. The Foreign Ministry repeated this charge in even stronger language, describing, on September 29, India's actions last year as a "forward policy", implicitly invoking the 1962 war. New Delhi in turn reminded Beijing that it was its "provocative behaviour", and amassing of troops in April 2020 following annual military exercises, that led to the flashpoints. The envoys of both countries have also made statements, at a virtual dialogue, that suggest a gulf in the state of relations. The Chinese envoy to India, Sun Weidong, called on both countries to "place the border issue in an appropriate position" and said "it is not the whole story of bilateral relations". His Indian counterpart, Vikram Misri, said the Chinese side was "shifting goalposts" in how both countries have, for three decades, managed the border areas peacefully. This, he said, was predicated on "a well-understood distinction" between managing the border areas and resolving the boundary question. It is clear that this understanding, along with the four border agreements, has now broken down on account of China's actions last year to unilaterally re-draw the LAC in Ladakh in the Western Sector. This week's military commanders talks will take up disputes in Hot Springs, while disputes in Demchok and Depsang remain unresolved. Since the crisis last year, both sides have set up buffer zones in Galwan Valley and on the north bank of Pangong Lake, and have disengaged on the south bank and in Gogra. This temporary arrangement has helped prevent the recurrence of clashes, but with past agreements in disarray, a longer term understanding to keep the peace still eludes both sides. Recent incidents in Uttarakhand, and a continued military build-up in the Eastern Sector,

underline the pressing need for reaching one. Mr. Misri suggested a way out of this stalemate, saying "it cannot be that only one side's concerns are of relevance..." and acknowledging that "safeguarding territorial integrity and national security holds equal value for both sides." He maintained both sides still had the space to cooperate on issues including tackling the pandemic, concerns about terrorism in the region and the situation in Afghanistan. Doing so will certainly build trust. Finding that space, however, will hinge on first restoring normalcy along the border.

SC QUESTIONS INCOME LIMIT FOR EWS QUOTA

The Supreme Court on Thursday asked the government to explain how it zeroed in on the figure of '₹8 lakh' as the annual income criterion to identify Economically Weaker Sections (EWS) among the forward classes of society for grant of 10% reservation in medical admissions under the all-India quota (AIQ). The Supreme Court's query is significant as the One Hundred and Third Constitutional Amendment of 2019, which introduced the 10% EWS quota, is itself under challenge before a larger Bench. The amendment is under question for making economic criterion as the sole ground for grant of reservation benefits. The court was hearing a batch of petitions filed by NEET aspirants challenging a July 29 notification of the Centre announcing 27% quota to OBCs and 10% reservation to EWS in the all-India quota category. The three-judge Bench led by Justice D.Y. Chandrachud did not agree with the suggestion from Additional Solicitor General K.M. Natraj, appearing for the government, to leave the "larger" issue of what led to income criterion of ₹8 lakh for the Constitution Bench. Mr. Natraj said the three-judge Bench should confine itself to the limited problem of whether or not to stay the July 29 notification. "What is being referred to a larger Bench is the validity of the 103rd Constitution Amendment, we are here confronted with the implementation of that Amendment... No, no Mr. Natraj, you have to tell us what exercise was done before ₹8 lakh was decided as the cut-off," Justice Chandrachud said firmly. The Bench, also comprising Justices Vikram Nath and B.V. Nagarathna, asked the Centre to file an affidavit explaining the "basis" on which ₹8 lakh was arrived at as the economic cut-off to be applied uniformly across the country to identify beneficiaries for reservation under the EWS quota. "Tell us what is the basis of ₹8 lakh... You can't just say it is a matter of policy... What is the indicia of backwardness for EWS which has been applied and what exercise has been done for arriving at this by the government," Justice Chandrachud asked the government side. Mr. Natraj responded that the Union Cabinet had decided on the ₹8 lakh criterion "with proper notings and everything". "But everything has to be approved by the Cabinet. That is the Rules of Business. We are on something more fundamental... like what was the study done? You have to demonstrate what is the data before you, who carried out the study, what were the contemporaneous statistics which the government had borne in mind while deciding on ₹8 lakh as cut-off to be applied for EWS quota uniformly…" Justice Chandrachud said. The Bench said even the 103rd Amendment had said "each State will define economic backwardness with reference to income". The court said it had been left to each State.

Nuanced analysis

"Can you say ₹8 lakh everywhere qualifies as EWS or is there a need to have a more nuanced analysis to EWS of having different yardsticks to different parts of the country based on cost of living, HRA, etc," Justice Chandrachud asked the government. Mr. Natraj conceded that economic

parameters could change even within a single State. Earning capacity might differ from town to town within a State.

WHY IS THE GOVERNMENT AGAINST CASTE CENSUS?

In an affidavit filed in the Supreme Court on September 23, the Union government has ruled out conducting a Socio-Economic Caste Census (SECC), stating that a caste census (except that for the Scheduled Castes and the Scheduled Tribes done traditionally) was unfeasible, "administratively difficult and cumbersome". The affidavit was in response to a writ petition by the Maharashtra government seeking directions to the Union government to collect data on the Backward Class of Citizens (BCC) of rural India during the enumeration of the 2021 census. The petition also wanted the Centre to disclose the raw caste data on other backward classes (OBCs) collected during SECC-2011. Several political parties, and the Bharatiya Janata Party's Bihar ally, Janata Dal (United) led by Nitish Kumar, have urged the Centre to reconsider its decision.

What is the substance of the Centre's affidavit?

The government's affidavit covers three different aspects of the caste census issue, as reflected in the writ petition. It first explains why it cannot make public the caste data collected under the SECC-2011. Then it argues that the judiciary cannot direct the government to conduct a caste census because it is a "policy decision" not to do so, and the judiciary cannot interfere with government policy. And finally, it elaborates on why it is neither practical nor administratively feasible to attempt a caste census.

What is the status of the data collected under the SECC-2011?

In its affidavit, the government acknowledges that the SECC-2011's caste data of 130 crore Indians have been with the Ministry of Social Justice and Empowerment for five years. Due to flaws in the data, it was decided to form an expert committee headed by the then Vice-Chairman of the NITI Aayog, Arvind Panagariya. But since other members of the committee were not named, the committee never met, and as a result, no action was taken on the raw data to collate it into publishable findings.

Why won't the government make raw data public?

The flaws in the data stem primarily from the fact that no registry of castes was prepared before conducting the 2011 caste census. This resulted in mistakes by enumerators, who spelt the same caste in dozens of different ways. With no consistent way to aggregate or segregate same or similar castes with variant spellings, the number of caste categories ballooned. In Maharashtra, for instance, the existing SC, ST and OBC categories, as per government records, are only 494. But the 2011 caste census yielded 4,28,677 castes. While the State's population was 10.3 crore, about 1.17 crore (more than 11%) were found to be of 'no caste'. Also, 99% of the castes enumerated had a population of less than 100 persons. At the national level, whereas the total number of castes as per the last caste census of 1931 was 4,147, the SECC-2011 showed the presence of 46 lakh different castes. Since the total number cannot be "exponentially high to this extent", the government has said this entire data set is flawed and the census unreliable, rendering it unusable

for the purposes of reservations and policy. For these reasons, it has refused to make public even the raw caste data of the SECC-2011.

Why will castes not be counted along with the regular 2021 census?

The government has cited numerous administrative, operational and logistical reasons to argue that collecting caste data during the 2021 census — postponed to next year due to COVID-19 — is unfeasible and attempting it could endanger the census exercise itself. It begins by pointing to the difference in caste categories according to different lists. While the Central list contained 2,479 OBC castes, there were 3,150 OBC castes as per the lists of all the States and Union Territories taken together. If a caste-related question is included, it would "return thousands of castes as the people use their clan/gotra, sub-caste and caste names interchangeably". Since enumerators are part-timers with 6-7 days of training and "not an investigator or verifier", the affidavit states, "it would be difficult to meaningfully tabulate and classify caste returns." Secondly, the preparatory work for a census starts three to four years earlier. As for the census, the questionnaires have already been finalised and field-tested. It is, therefore, not possible to add additional questions about caste now. Third, unlike in the case of the SCs and the STs, there is no constitutional mandate for the Registrar-General and Census Commissioner, India, to provide the census figures of the OBCs and the BCCs. And lastly, it has cited the 2014 Supreme Court judgment setting aside two orders of the Madras High Court directing the Centre to conduct a caste census. As per this Supreme Court judgment, what information to collect in a census is a policy decision of the government, and while the court may find a certain policy untenable, it was "legally impermissible" for the court to dictate to the government what policy it ought to follow.

What are the arguments of those demanding a caste census?

Political parties batting for the caste census cite the need for caste-wise data to justify the extension of reservations to various communities. On the other hand, there is also a large body of scholarly work, done by sociologists, political scientists and historians, which bypass the welfare argument to assert that India's fundamental mistake in its battle to overcome caste was not doing a caste census. According to these scholars, formal blindness to caste in a casteist society results in a denial of the web of caste-based privileges that continue to funnel opportunities to those at the top of the caste hierarchy. They point out that while the very term 'caste' has come to be associated with 'lower castes', the SCs or the OBCs, the upper castes tend to appear "casteless". They argue that in order to abolish caste, it is essential to first abolish caste-derived privileges, and in order to do that, the state must first map castes and their socio-economic status privileges/deprivations, which is what a caste census seeks to do.

Does a caste census enumerate only the OBCs or all castes?

The 2011 caste census collected data on all castes, and not just of the OBCs. Though the demands of the OBC-dominated political parties typically focus on expanding the socio-economic mapping of the census from the SCs and the STs to include the OBC castes, they want the caste census to cover the upper castes as well.

What next?

Opposition parties have criticised the government's stand, with three Chief Ministers – Bihar's Nitish Kumar, Jharkhand's Hemant Soren, and Odisha's Naveen Patnaik — reiterating their support for the caste census. The BJP does not want to be seen as opposing the caste census. So the Opposition, especially the regional caste-based parties, can be expected to keep reiterating their demands for a caste census, which has, in the electoral context, become inextricably mixed up with the question of OBC entitlements.

GIRLS CAN TAKE RIMC TEST IN DEC.

The Supreme Court on Thursday allowed girls to appear in the entrance examination scheduled for December 2021 for admission to the Rashtriya Indian Military College (RIMC). The exam is taken for entry to Class 8 at the RIMC. A Bench led by Justice S.K. Kaul did not agree with the government's proposal to allow girls to sit for the exam next June rather than on December 18, 2021. "Is it necessary to deny girls the opportunity to take part in the examination scheduled on December 18, 2021," the court asked the government. It reasoned that if the government had not shied away from admitting girls into elite military institutions for a career in the armed forces, it should not have problems in making the necessary preparations for having them write the entrance exam in December 2021 itself. "The respondent [government] has walked a mile and should walk a step ahead," Justice Kaul observed in the order. The court reasoned that if girls were allowed to take the exam in December, their intake into the RIMC would be in next June. On the other hand, the government's proposal in an affidavit to have the girls skip the December exam and appear in the June exam would delay the actual entry of successful candidates into the RIMC to January 2023.

'Advertise in two days'

The court said the government needed only to modify the entrance exam notification, without changing any of the dates, to inform that girls would be allowed to take the exam in December. It ordered the government to issue the advertisement within two days. Referring to an affidavit of the Ministry of Defence (MoD) detailing a two-phase plan authorising additional vacancies, along with other associated infrastructure and administrative support for girl students in the RIMC and Rashtriya Military Schools (RMS), the court asked whether it could not be "paced up to increase the number of entry of girls". Additional Solicitor-General Aishwarya Bhati said the government was not "running away" from its obligations to allow girls entry into the RIMC. "Initially, yes, there was some reluctance, but with My Lords' advice we are going ahead with it. We are not shying away." The military establishment was only seeking some time, she said. But the court said six months were adequate for preparation for admission.

OBJECTION

When the Supreme Court questions the continuing farmers' protests against the Centre's farm laws on grounds that the matter is sub judice, when it asks if the right to protest is an absolute right, it lets down the farmers, the citizenry and, also, itself. It is true that the right to protest is not a separate right in the Indian Constitution. And yet, it is there, shining through, clearly and unmistakably. It is implicit in Article 19(1)(a), which guarantees the freedom of speech and

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expression, and in Article 19(1)(b), the right to assemble peacefully. It is integral to the right to protection of life and personal liberty enshrined in Article 21. Surely, the court's argument cannot be that once a dispute enters its domain, there is a gag order on it. By that logic, the public sphere will fall silent and lifeless. The right to protest is not just necessary in and of itself — it is also inalienable from the articulation and assertion of other rights and freedoms. Of course, it is also true that all rights are subject to reasonable restrictions. But for the apex court to question if the right to protest is "absolute" in the context of the farmers' protest, even as the state puts hurdles in its path or seeks to delegitimise it, is ill-judged. Coming in the immediate aftermath of the incident in Lakhimpur Kheri where a minister's convoy ran over protesting farmers, killing four of them, and setting off retaliatory violence that killed four more, the court's intervention is insensitive — and deeply disturbing. For, it seems not just to pass too lightly over Articles 19 and 21, it appears to see them in conflict with Article 32, the right to constitutional remedy. Protest, dialogue and debate, challenge before courts — these are not at odds or mutually exclusive. Taken together, they help to secure the citizen against an arbitrary or transgressing state. By framing the choice as one between the court and the road, the SC bench of Justices AM Khanwilkar and CT Ravikumar takes a very constricted view of the rich and layered spaces that the Constitution affords to every citizen. The SC bench also goes against the apex court's own expansiveness in upholding and expanding citizens' liberties in the past. In Ram Lila Maidan Incident vs Home Secretary, Union of India and Others, 2012, the court had said: "The people… have a right to raise their voice against the decisions and actions of the government or even to express their resentment over the actions of the government… The government has to respect and in fact encourage exercise of such rights." In the matter of the farmers' agitation, the court has stepped in before — in January, it constituted a committee, while suspending implementation of the farm laws. The committee submitted a report, but the SC has yet to take cognisance of it. Several other crucial issues — from the constitutionality of electoral bonds to the abrogation of Article 370 — are still waiting for their day in court. It cannot be the court's argument, can it, that plaintiffs and defendants in courtrooms across the country should give up their constitutional right to speak out? The right to protest in and on Lakhimpur Kheri needs to be protected, the legal quibble can come later.

TOXIC FIRECRACKERS

The Supreme Court on September 29, 2021 observed that six major fireworks manufacturers had violated orders requiring them not to use prohibited chemicals such as Barium salts and to label the firecrackers in compliance with the law. In a warning to the manufacturers, the court felt that it had to take a balanced view of the production and use of firecrackers, because so much of it was being burst, and people could not be allowed to suffer and die from pollution. It directed the Environment Ministry to serve a copy of an inquiry report of the CBI, which found violations after conducting a court-ordered probe. The case has been posted for October 6.

What did the Supreme Court rule three years ago?

Three years ago, the court ruled out a full ban on firecrackers and issued orders stipulating that only reduced emission and green crackers be allowed, with tight restrictions on timings when they could be burst. The latest orders, in continuation of others, relate to a petition — Arjun Gopal and Others vs Union of India and Others — filed on behalf of three children in 2015, seeking

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measures to mitigate air pollution and asserting their right to clean air under Article 21 of the Constitution.

What is the controversy?

Firecrackers use fuel and oxidisers to produce a combustion reaction, and the resulting explosion spreads the material in a superheated state. The metal salts in the explosive mix get 'excited' and emit light. In an explanatory article on 'The chemistry behind fireworks', University of Pennsylvania inorganic chemist Eric Schelter says the interaction between the firecracker fuel and the oxidiser releases energy. Metals in the mix, which have a varying arrangement of electrons in shells outside their nucleus, produce different wavelengths of light in this reaction, generating spectacular colours. Barium compounds, for example, produce green light and Strontium and Lithium salts, red. But as many studies show, the burning of firecrackers is an unusual and peak source of pollution, made up of particles and gases. One study in Milan, Italy, quantified the increase in the levels of several elements in the air in one hour as 120 times for Strontium, 22 times for Magnesium, 12 times for Barium, 11 times for Potassium and six times for Copper. The Central Pollution Control Board conducted a study in Delhi in 2016, and found that the levels of Aluminium, Barium, Potassium, Sulphur, Iron and Strontium rose sharply on Deepavali night, from low to extremely high. For instance, Barium rose from 0.268 microgrammes per cubic metre to 95.954 mcg/m3. Similar episodic spikes have been recorded in China and the U.K. Pollution from firecrackers affects the health of people and animals, and aggravates the already poor ambient air quality in Indian cities. This has resulted in litigation calling for a total ban on firecrackers, and court orders to restrict the type of chemicals used as well as their volume. Many crackers also violate legal limits on sound.

Can green crackers make a difference?

The Central government says the Council of Scientific and Industrial Research, through its National Environmental Engineering Research Institute (CSIR-NEERI), Nagpur, has come out with firecrackers that have "reduced emission light and sound" and 30% less particulate matter using Potassium Nitrate as oxidant. These crackers are named Safe Water Releaser , which minimises Potassium Nitrate and Sulphur use, but matches the sound intensity of conventional crackers, Safe Minimal Aluminium , where Aluminium use is low and Safe Thermite Crackers with low Sulphur and Potassium Nitrate. These crackers are to be identified using unique QR codes to guide consumers. The Supreme Court had also previously ordered that the Petroleum and Explosives Safety Organisation should certify the composition of fireworks only after being assured that they were not made of banned chemicals.

What is the state of the industry?

The petitioners argue that out of about 2,000 manufacturers, only 120 had the capacity and inclination to work with the court to green the crackers; the respondents, who are part of an industry that seeks light regulation because it provides jobs to many, must now present their case. Evidently, the new cracker formulations have not had many takers. Firecrackers are not labelled with information on the person responsible for legal compliance, as ordered by the court. At the recent hearing, the Supreme Court Bench of Justices M.R. Shah and A.S. Bopanna took on record the CBI report and noted that there had been a "flagrant violation" of previous orders. It took note

of the large volume of crackers burnt almost every day and felt inclined to fix responsibility. "If liability is fixed on the Commissioner of Police, only then can this happen," it remarked.

DETAIL IN RELIEF

The most welcome feature of the Supreme Court of India's order detailing the modalities for payment of ex gratia financial assistance to the families of those who died of COVID-19 is the stern caveat that no State shall deny the benefit solely on the ground that a person's death certificate did not specify the cause of death as due to the novel coronavirus disease. Thanks to the Court's assertiveness, the Union government shed its initial wariness about incurring the financial burden of compensating the next of kin of the over 4.49 lakh people officially recorded as having died due to the virus infection. The National Disaster Management Authority issued guidelines last month, specifying that ₹50,000 be paid for each death. While the primary requirement to avail of this assistance is that the death should be certified as having been caused by COVID-19, the Court has rightly ruled that the cause mentioned in the death certificate would not be conclusive by itself, and that if other documents are provided, the family shall be entitled to the ex gratia payment. Experience over the last year-and-a-half has shown that hospitals tend to attribute some deaths to co-morbidities rather than the infection; and many died after testing negative during a spell of hospitalisation or after discharge. It has now been made clear that deaths occurring within 30 days from the date of testing or from the date of being clinically determined a COVID-19 case shall be treated as eligible for the aid, "even if the death takes place outside the hospital/in-patient facility". Given the fact that independent data analysis has revealed a possibly huge undercount in the official COVID-19 toll maintained by the State governments and the Centre, the view that only a certified COVID-19 death should be eligible for compensation has been rightly discarded. Of course, some documentary evidence will still be required to establish the cause, but once it is submitted, the payment should be disbursed within 30 days. It is a matter of consolation to those likely to have their claims rejected or disputed that the Court has created an appeal mechanism in the form of Grievance Redressal Committees at the district level. These panels can issue amended official documents to certify COVID-19 deaths, as well as the power to call for records or information from the hospitals where the deceased were admitted. To buttress the need for a humane approach, the Court has included those who took their own lives under the shadow of the pandemic in the ambit of the scheme. It has also advised the authorities to avoid technicalities in processing claims. The assistance will be welcomed by those affected, not because it will be enough to address the adverse impact that numberless families have suffered due to the pandemic, but as a sign that there is some recognition of their plight and immediate succour available.

REFLECTIONS ON THE 'QUASI-FEDERAL' DEMOCRACY

Events coinciding with the jubilee of India's Independence draw attention to the federal structure of India's Constitution, which is a democratic imperative of multi-cultural India, where the constituent units of the sovereign state are based on language, against competing identities such as caste, tribe or religion. This built-in structural potential for conflict within and among the units, and that between them and the sovereign state, need imaginative federal craftmanship and sensitive political management. The ability of the Indian Constitution to keep its wide-ranging diversity within one sovereign state, with a formal democratic framework is noteworthy. Possibly,

with universal adult suffrage and free institutions of justice and governance it is nearly impossible to polarise its wide-ranging diversity within any single divisive identity, even Hindutva; so that, despite its operational flaws, the democratic structure and national integrity are dialectically interlinked. But its operational fault lines are increasingly denting liberal institutions, undermining the federal democratic structure as recent events have underscored.

Some fault lines

First, the tempestuous Parliament session, where the Rajya Sabha Chairperson broke down (in August 2021), unable to conduct proceedings despite the use of marshals; yet, the House passed a record number of Bills amidst a record number of adjournments. Second, cross-border police firing by one constituent State against another, inflicting fatalities, which also resulted in retaliatory action in the form of an embargo on goods trade and travel links with its land-locked neighbour. Such unfamiliar events of federal democracy are recurrent in India, except their present manifest intensity. Legislative disruption was described by a Union Law Minister (while in Opposition) as a 'legitimate democratic right, and duty'. In the 1960s, the Troika around Lohia claimed its right to enter Parliament on the Janata's shoulders to exit on the Marshals; posters with labels such as 'CIA Agent' were displayed during debates; 'suitcases' were transferred publicly to save the government; occasionally, "Honorable Members" emerged from debates with injuries. This time, in the "federal chamber", "Honorable Members" and Marshals are in physical contact — both claiming 'casualties' — official papers vandalised and chairpersons immobilised. Even inter-State conflict has assumed a new dimension.

Key changes

Such empirical realities have led scholars to conceptualise India's "Post-colonial democracy", and federalism, differently from their liberal role-models. Rajni Kothari's "one party dominance" model of the "Congress system" has now been replaced by the Bharatiya Janata Party; Myrdall's "soft state" is reincarnated in the Pegasus era with fake videos and new instruments of mass distraction and coercion. Galbraith's "functioning anarchy", now has greater criminalisation in India's democracy, which includes over 30% legislators with criminal records, and courtrooms turning into gang war zones; it is now more anarchic, but still functioning, bypassing any "Dangerous Decade" or a "1984". Federal theorist K.C. Wheare analyses India's "centralized state with some federal features" as "quasi-federal". He underscores the structural faultlines of Indian federalism not simply as operational. So, while many democratic distortions are amenable to mitigation by institutional professionalism, Indian federalism, to be democratically federal, needs institutional amendment despite being a "basic structure". Wheare's argument merits consideration.

Many deficits

Democratic federalism presupposes institutions to ensure equality between and among the units and the Centre so that they coordinate with each other, and are subordinate to the sovereign constitution — their disputes adjudicated by an independent judiciary with impeccable professional and moral credibility. But India's federal structure is constitutionally hamstrung by deficits on all these counts, and operationally impaired by the institutional dents in the overall democratic process. Like popular voting behaviour, institutional preferences are based either on

ethnic or kinship network, or like anti-incumbency, as the perceived lesser evil, on individual role-models: T.N. Seshan for the Election Commission of India, J.F. Ribeiro for the police or Justices Chandrachud or Nariman for the judiciary. India's federal structure, underpinned on the colonial '1935 Act' which initiated 'provincial autonomy', attempted democratising it by: renaming "Provinces" to autonomous "States"; transferring all "Reserved Powers" to popular governance; constitutionally dividing powers between the two tiers; inserting federalism in the Preamble, and Parts 3 and 4 containing citizens' "Fundamental Rights" and "Directive Principles"; but nothing about States' rights, not even their territorial boundaries. This has enabled the Centre to unilaterally alter State boundaries and create new States. The Indian Constitution itself has been amended 105 times in 70 years compared with 27 times in over 250 years in the United States. With 'nation-building" as priority, the constitutional division of power and resources remains heavily skewed in favour of the Centre; along with "Residual", "Concurrent" and "Implied" powers, it compromises on the elementary federal principle of equality among them, operationally reinforced by extra-constitutional accretion. While the judiciary is empowered to adjudicate on their conflicts, with higher judicial appointments (an estimated 41% lying vacant), promotion and transfers becoming a central prerogative, their operations are becoming increasingly controversial.

Structural conflicts

The story is not different for the "all India services", including the State cadres. What is operationally most distorted is the role of Governors:appointed by the Centre, it is political patronage, transforming this constitutional authority of a federal "link" to one of a central "agent" in the States. Thus, the critical instruments of national governance have been either assigned or appropriated by the Centre, with the States left with politically controversial subjects such as law and order and land reforms. Thus, most of India's federal conflicts are structural, reinforced by operational abuses. Yet, there is no federal chamber to politically resolve conflicts. The Rajya Sabha indirectly represents the States whose legislators elect it, but continue even after the electors are outvoted or dismissed; with no residential qualification, this House is a major source of political and financial patronage for all political parties, at the cost of the people of the State they "represent". Possibly, this explains its continuity. Constituting roughly half the Lok Sabha, proportionately, it reinforces the representative deficit of Parliament, which, through the Westminster system of 'winner-take-all', continues to elect majority parties and governments with a minority of electoral votes. The second chamber is not empowered to neutralise the demographic weight of the populous States with larger representation in the popular chamber; it cannot veto its legislations, unlike the U.S. Senate. It can only delay, which explains the disruptions. Joint sessions to resolve their differences are as predicable and comical as the "voice votes" in the Houses. India's bicameral legislature, without ensuring a Federal Chamber, lives up to the usual criticism: "when the second chamber agrees with the first, it is superfluous, when it disagrees, it is pernicious". Historically, party compositions decide when they agree or disagree. Whenever any party with a massive majority in any state finds itself marginalised in the central legislature, it disrupts proceedings, just as popular issues not reflected in legislative proceedings provoke undemocratic expressions and reciprocal repression. Such examples abound in India's "quasi-federal" democracy till now.

Lessons to learn

Empirical and scholarly evidence suggest Wheare's prefix about federalism arguably applies to other constitutional goals (largely operationally), while the federal flaws are structural, reinforcing conflicts and violence, endemic in the distorted democratic process. It is a threat to national security by incubating regional cultural challenges to national sovereignty, and reciprocal repression. We might learn from the mistakes of neighbouring Sri Lanka and Pakistan rather than be condemned to relive them. India's national security deserves a functional democratic federal alternative to its dysfunctional "quasi-federal" structure, which is neither federal nor democratic but a constitutional "basic structure".

THE DYSTOPIC REALITY OF A HINDUTVA STATE

In a recent taunt against Muslims, Uttar Pradesh Chief Minister Yogi Adityanath railed against "people who say abba jaan", falsely claiming that earlier governments provided them alone with subsidised rations while depriving others of the same. He wears his hatred of Muslims, his bigotry, intolerance of dissent, and impatience with constitutional niceties as badges of honour. The State he helms has veered dangerously far from the inclusive, free and egalitarian guarantees of the Constitution. He also raged about alleged "shameless" sympathisers of the Taliban in India. The irony — surely unintended — is that his administration mirrors some of the religious intolerance and encouragement of violence that are hallmarks of the Taliban.

Priorities of the administration

Years before he became Chief Minister, Mr. Adityanath founded a hard-line Hindu youth militia, the Hindu Yuva Vahini. There is in his administration a blurring of the lines between militant Hindutva groups and the U.P. police as vigilantes are appointed "police mitr" or friends of the police. This endows them with social authority and legitimacy and enables the police to function officially with vigilante groups. This works in both directions: vigilantes devoted to cow protection and preventing 'love jihad' believe they enjoy impunity for their violent attacks and the police are routinely deluged with toxic anti-Muslim propaganda. Cow slaughter, or allegedly trading in beef, has been elevated to high treason against the nation. The U.P. government has frequently used the National Security Act (NSA) for 'cow slaughter': out of 139 people jailed under the NSA in 2020, 76 were charged with cow slaughter. Even if their engagement in the beef trade is proved, it is hard to understand how this attracts a law empowering the government to detain those who threaten the security of the country. The U.P. police proudly reported to the media its peerless "achievement" over three years, of 6,476 "encounters" or extra-judicial shootouts against alleged criminals, mostly maiming them for life. The majority were petty criminals if not innocents; and many were charged with the crime of 'cow slaughter'. Another major 'crime' high on the priorities of the U.P. administration is inter-faith marriages between Muslim men and Hindu women, alleged to be 'love jihad'. Mr. Adityanath directed senior police officials to investigate these alliances, and in November 2020, the cabinet passed an ordinance against what it described as an "unlawful conversion from one religion to another". The Assembly later passed a Bill prohibiting conversion by misrepresentation, force, undue influence, coercion, allurement, fraud or marriage. But loose terms enable loose interpretation, allowing the police and vigilante groups to threaten and target Muslim men who are in consensual relationships with Hindu women. Within just a month of the ordinance, 86 people were booked in 16 cases involving allegations of conversion for love or

marriage of Hindu women to Muslim men. But there have been no attempts to criminalise Hindu men who marry Muslim women; this does not fit the narrative of 'love jihad'. The U.P. administration does not hide its hostility to its Muslim citizens — "people who say abba jaan". In recent months in the run-up to the State elections early next year, the temperatures of campaigns — official and social — targeting Muslim citizens, and indeed sundry subalterns and dissenters, have risen dangerously. Muslim families "voluntarily" agreed to give up their homes in the periphery of the Gorakhnath Temple ostensibly to help enhance its security. Incidentally, the head priest of the temple is the Chief Minister of the State. The next month, the anti-terror squad of the State claimed to have busted a conversion racket in which more than 1,000 people had been forced to convert to Islam. This was shrilly reported by television channels and Hindi newspapers. But many people who were contacted by independent journalists affirmed that they had converted to Islam voluntarily. The sale of meat and liquor has been completely banned in Mathura. Lynching has risen, mostly with the tacit protection of the police. It is not just Muslims who are threatened by the strong arm of the U.P. state. People who speak of or report uncomfortable truths, who peacefully protest, Dalits, and survivors of sexual violence face the ire of such power. But in times of calamity, like the COVID-19 tragedy, all citizens are left abandoned by the hubris of an uncaring state.

Smelling conspiracies

The shameful rape of impoverished and Dalit girls is not new in U.P., but the open exertions of the police to terrorise the victims and protect the socially and politically influential rapists stand out. Unnao and Hathras have become part of the disgraceful lexicon of state indifference to sexual crimes against disadvantaged castes. In Unnao, it took the threat of the rape survivor to immolate herself outside the Chief Minister's home for the police to act against the BJP MLA she charged with her rape, but the police thrashed in custody her father, who died. And in Hathras, after a teenaged Dalit girl was gang-raped, allegedly by 'upper-caste' men, and died, police investigations seemed geared to prove she was not raped, and her body was hastily cremated at night. The administration alleged an "international conspiracy" to defame the government and provoke caste-riots and arrested under anti-terror laws a journalist who had travelled from Kerala to report the case. Speaking, writing or organising people against state actions has also become dangerous in U.P. The mostly peaceful protesters against the Citizenship (Amendment) Act were slammed in U.P. with 10,900 FIRs. Twenty-two people were killed in police firings, 41 minors were arrested, 500 notices were slapped for recovery from those alleged to have damaged public property, and hoardings displaying photographs of activists and civil society members accused of instigating violence and damaging public property were put up. My colleagues and I visited several towns at that time and found that the police had ransacked and looted like rioters hundreds of homes of Muslims, and their places of worship. Infamously, as reports emerged during the second COVID-19 wave in the State of lack of oxygen, testing and hospital beds, the Chief Minister once again saw only a sinister conspiracy to defame his government, and threatened to detain under the NSA and seize the properties of those who "spread rumours" of shortages on health provisioning. He even angrily dismissed the stories about floating bodies in the Ganga, claiming that it is customary for certain communities to throw corpses of their loved ones into rivers. He refused to postpone the U.P. panchayat elections, and at least 1,600 teachers who were on poll duty died because of exposure to the virus. Once again, their grieving families were offered no regret, only angry denials. There are ominous signs that this model of Hindutva machismo is being

emulated by Chief Ministers of other States such as Assam, Haryana and Madhya Pradesh. Meanwhile, U.P. has evolved into the dystopic reality of a Hindutva state, untrammelled by constitutional morality.

GRIM TURN

The killings of seven civilians in Srinagar in six days mark a grim turn in the situation in the Kashmir Valley. This vicious, mindless violence against commoners, owned up by a group that calls itself the Resistance Front — believed to be a shadow organisation of the Pakistan-based LeT — is yet another reminder of the pathological hatred transnational radical Islamism inspires. The victims include local Muslims who were branded traitors, but the targeting of the Hindu Pandit and Sikh minority communities is unmistakable. Srinagar's prominent Kashmiri Pandit chemist, Makhan Lal Bindroo, whose decision to stay on through the violent 1990s was seen as a positive omen by the displaced community, was gunned down. The killers used epithets such as 'RSS stooge', 'police informer' and 'traitor' for the victims. Majid Ahmad Gojri and Mohammad Shafi Dar were killed on October 2. On October 7, a Sikh principal and a Kashmir Pandit who had returned to the Valley after taking up a job under the Prime Minister's special job package for migrant Pandits, were gunned down. Islamist terrorists have sought an ethnic cleansing of the Valley for long. The Pandits had to leave in large numbers in 1990 following violence. After 1994, attacks on minorities became episodic, but not without periodical outrages such as the Wandhama massacre, when 23 Pandits were shot dead in January 1998 and the Chittisinghpura massacre, in which 35 Sikhs were killed in Anantnag in March 2000. The wave of violence is taking place against the backdrop of an uptick in tourist inflow to the Valley and the Centre's push to promote a raft of development schemes. The administration is also encouraging the Pandits to return. A nine-week-long outreach of the Centre in J&K where Union Ministers are visiting remote districts, including those closer to the LoC, is under way. Union Home Minister Amit Shah could make a visit later this month. Strict directives were issued to unfurl the national flag in all government buildings, including schools, on August 15. There is also a higher level of intolerance by the administration, which does not spare even the political activities of mainstream parties. There is an aggressive drive too to punish government staff suspected to be separatist sympathisers. Civilians are soft targets for the terrorists in this milieu. According to police figures, J&K saw 28 civilian killings, surpassing the 22 casualties of security personnel so far this year. Of the 28 killings, four were local Hindus, one Sikh, two non-local Hindu labourers and 21 local Muslims; 23 were political workers, with most from the BJP. No society can tolerate such violence. But while pursuing terrorists, the administration should also engage with political parties and civil society organisations.

STRONGER AT THE GRASSROOTS

The Panchayati Raj, first adopted by Nagaur in Rajasthan on October 2, 1959, has expanded vastly. There are now 2,60,512 Panchayati Raj Institutions (PRIs) represented by about 31 lakh elected members across India. This system of local self-governance, where people in the villages participate in the decision-making process, is the backbone of democracy. The People's Plan Campaign and Vibrant Gram Sabha Dashboard, rolled out this year, aspire to strengthen the Panchayati Raj system by making gram sabhas more vibrant.

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A bottom-up approach

Unlike other disasters like earthquakes, COVID-19 is an unusual crisis as it is long-drawn and affects people everywhere. When the traditional top-down disaster response system was compromised during the bad months of the pandemic, it was PRIs that played a remarkable role. They helped reduce risks, responded swiftly and thus helped people recover quickly. The PRIs provided essential leadership at the local level. They performed both regulatory and welfare functions. For instance, during the nationwide lockdown, PRIs set up containment zones, arranged transport, identified buildings for quarantining people and provisioned food for the incoming migrants. Moreover, effective implementation of welfare schemes like MGNREGA and the National Rural Livelihood Mission quickened the pace of recovery while ensuring support to the vulnerable population. Gram sabhas act as a sounding board for diverse ideas and opinions. They provide a platform to build consensus and make resolutions in the community's interest. During the pandemic,, gram sabhas resolved to adhere to COVID-19 norms. In addition, regular engagement with frontline workers like ASHA workers and Anganwadi workers through committees bridged the trust gap between the community and the officials. By representing diverse communities, PRIs mobilise them effectively. During the COVID-19 crisis, they organised community-based surveillance systems involving village elders, the youth and self-help groups (SHGs) to keep a strict vigil in quarantine centres and monitor symptoms in households. More recently, their role in mobilising citizens for COVID-19 vaccination is exemplary.

Building capacity

The Yokohama strategy during the International Decade for Natural Disaster Reduction in May 1994 emphasised that it is important to focus on disaster prevention, mitigation and preparedness rather than disaster response alone, to reduce vulnerability. In this respect, certain initiatives can be taken to build the capacity of PRIs. One, it is crucial to include disaster management chapters in Panchayat Raj Acts and make disaster planning and spending part of Panchayati Raj development plans and local-level committees. This will ensure citizen-centric mapping and planning of resources. Various insurance products customised to local needs will build financial resilience of the community. Two, conducting regular location-specific training programmes for the community and organising platforms for sharing best practices will strengthen individual and institutional capacities. Assigning roles to individual members and providing them with the necessary skills can make such programmes more meaningful. Three, since the community is usually the first responder in case of a disaster, community-based disaster management plans would help. These would provide a strategy for resource utilisation and maintenance during a disaster. Such plans should tap the traditional wisdom of local communities which will complement modern practices. Moreover, financial contributions from the community should be encouraged through the establishment of community disaster funds in all gram panchayats. It is imperative to make disaster resilience an inherent part of the community culture now more than ever.

A FISHING EXPEDITION

For the Narcotics Control Bureau, once bitten is not twice shy. Last year, it got a rap on the knuckles from the Bombay High Court, which while granting bail to actor Rhea Chakraborty, described as "unreasonable" and without basis, the central agency's contention that she was part

of a "drug syndicate" and had financed her late friend and film star Sushant Singh Rajput's drug habit. This year, as the NCB seeks to implicate the 24-year-old son of Bollywood star Shah Rukh Khan in an "international" drug racket, it seems to have learnt few lessons from 2020. The NCB lawyer submitted in court that the star son was not found in possession of any narcotic drugs when a team of the agency raided a cruise ship on a tip-off that there was going to be a "drugs party" on board. Arresting a person during a narcotics raid even though no drugs were found on him, nor a blood test carried out to determine if he had taken any narcotic substances, and justifying the arrest on the basis of WhatsApp messages obtained from his phone after detaining him, is highly questionable. Even before all this, as exposed by the NCP, it turns out that the NCB was accompanied on the raid by a BJP member and a private detective. The NCB has said that the two were "independent witnesses", but their conduct appeared more suited to law enforcing officials. They were seen holding the hands of the accused as if to prevent escape, and leading them into the agency's office in Mumbai. The NCB has yet to provide a credible explanation for how a politician, who claims to have given the tip-off, and a private detective who is facing a criminal case, are nominated to be independent witnesses. There are set rules about who can be named as a panchnama witness, and these two clearly do not qualify. In an environment in which central agencies are perceived as blunt weapons wielded by the ruling party at the Centre against those it wishes to target, the NCB cannot gloss over the fact that the politician who it took along for the raid was a member of the BJP. Last year, as it argued against granting bail to Chakraborty, the NCB said that celebrities and role models should receive "harsh" punishment in order to set an example to youngsters. By the same token, a law enforcing agency of the NCB's stature should uphold the highest standards of investigation and best practice, so that it does not set a bad example for other law enforcers.

NEEDLESS ESCALATION

The deaths of eight people, four of whom were mowed down by a vehicle that was part of the convoy of Union Minister of State for Home Affairs and BJP MP Ajay Kumar Mishra, in Lakhimpur Kheri in north-central Uttar Pradesh, marks an escalation of violence in a movement that has tried to remain peaceful. While the agitators and the BJP have traded charges on who is responsible, the incident has also worsened chances of a rapprochement between the farmers protesting against farm laws introduced last year and the Union government. There has been little headway since January this year, when the Government agreed to a few demands and also promised to keep the farm laws in abeyance, and after the Supreme Court stayed their implementation. But the distrust between the unions representing the agitators and the Government has remained high, with the farmers refusing to budge from their maximalist position seeking a repeal of the three laws passed last year — the Farmers' Produce Trade and Commerce (Promotion and Facilitation) Act, Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Act, and the Essential Commodities (Amendment) Act. The farmers are also willing to continue the protest indefinitely, with its intensity increasing after the harvest season even as their methods have come to the unfavourable notice of Supreme Court judges. A Court-appointed committee to facilitate dialogue with the farmers submitted its report on the laws in March but it is yet to be made public. The experience of the economic reforms since 1991 has shown that rushing them through without political consensus — even if they have merits — by ignoring crucial stakeholders creates severe discontent. Farming in much of India has largely been dependent upon State subsidies, procurement and support pricing — and any sudden change in

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these inputs may jolt the sector, which has been prone to crises in the last few decades, even if the Government claims that liberalising the farm sector will enhance agricultural incomes. It is true that the protesting farmer unions are concentrated in Punjab, Haryana and western U.P., where the involvement of the State in agricultural procurement, awareness of minimum support prices and the presence of mandis is more robust. But it is also true that institutional redress mechanisms to take into account farmers' concerns have not been put in place. After all, the laws were passed without sufficient deliberation through parliamentary committees and public hearings even as the Bills were rushed, by voice votes, in the Upper House of Parliament. This, no doubt, is the reason for the lingering trust deficit. The U.P. government must impartially investigate the incident in Lakhimpur Kheri but it is also imperative for the BJP-led Union government to restore mechanisms of procedural democracy to bridge the trust deficit. Restarting talks with the unions will be a good beginning.

HARYANA CM'S VIDEO KICKS UP ROW

Haryana Chief Minister Manohar Lal on Sunday courted fresh controversy over his advice to the BJP cadre to take tit-for-tat action against farmers opposing the farm laws and not mind spending a few months in jail. In an over one-minute-long video that went viral on social media platforms, Mr. Lal, in an interaction with the BJP cadre, is seen advising them to raise groups of 500-700 volunteers armed with lathis in each district of north and west Haryana and retaliate against the farmers. "Tit-for-tat. Pick up the lathis," chuckled Mr. Lal, amid faint laughter from the audience. He also advised the cadre not to worry about securing bail if they decided to retaliate. "If you stay inside [in jail] for a few months, you will learn more than what you learn at these meetings," Mr. Lal told the party's State Kisan Morcha leaders, amid applause. State Congress chief Kumari Selja slammed the Chief Minister for "publicly provoking people against the agitating farmers and endorsing violence".

Farmers seek apology

The Samyukt Kisan Morcha demanded that the Chief Minister step down and tender an apology. "It is clear where officials like Ayush Sinha (who purportedly directed police personnel to "crack the heads" of anybody trying to cross the barricades during a protest by farmers in August) get their impunity from," it said. Mr. Lal's media adviser in a statement claimed that only a portion of the video was being circulated to create a wrong impression.

FOUR FARMERS KILLED AS CAR IN MINISTER'S CONVOY RUNS AMOK

Protests against the visit of Uttar Pradesh Deputy Chief Minister Keshav Prasad Maurya to Lakhimpur Kheri district on Sunday took a grim turn with farmers' groups alleging that at least four farmers were killed and several injured after they were deliberately run over by a vehicle that was part of the convoy of Union Minister of State for Home Affairs and BJP MP Ajay Kumar Mishra. Four persons in the Minister's convoy were killed in violence that followed, Kheri Additional SP Arun Kumar Singh said. Farmers in Tikonia area of Kheri had gheraoed the helipad at Maharaja Agrasen ground to prevent Mr. Maurya from landing, and the incident allegedly took place as the farmers were dispersing on the Tikonia-Banbirpur road from the protest site. The Samyukt Kisan Morcha, the umbrella group representing the protesting farm unions said the one

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of the victims was shot, and identified the dead as Lovepreet Singh, 20, Nachattar Singh, 60, Daljeet Singh, 35, and Gurwinder Singh, 19. The SKM also alleged that the car was driven by the Union Minister's son Ashish. Following the incident, angry farmers set on fire and vandalised vehicles of the BJP leader leading to the death of four persons. In a late evening statement, Chief Minister Yogi Adityanath said the Lakhimpur Kheri incident was unfortunate. He added that the government would investigate the reasons for the incident, "unmask the elements" involved and take tough action against the guilty. Official statements from the police and the BJP leaders accused by the farmers for the incident are still awaited.

'He was on the stage'

Union Minister Mishra claimed that his son was not present at the spot where the farmers were killed. Speaking to The Hindu, Mr. Mishra said, "My son was present on the stage where the function was being held, over 2,000 people were present, there is video evidence also. Had he been there (near the helipad where the killings took place), he would have also been lynched." Mr. Mishra alleged that anti-social elements from Nanpara village threw rocks at a vehicle going to receive Mr. Maurya, the chief guest at a function in the Minister's ancestral village. "Stones came flying at the vehicle when it was on the way to receive the chief guest, the driver lost balance... and some could have died in that accident. My driver and three BJP workers who were in the vehicle were chased and attacked with rocks, sticks and swords... they were lynched," Mr. Mishra said. The unions, however, denied there was any stone throwing by the farmers. Mr. Mishra said it was a lie. Denying the Minister's allegations, Jai Kisan Andolan founder Yogendra Yadav said, "There was no provocation whatsoever by the farmers. There was no stone throwing. This is completely false." The SKM said around 10 farmers, including SKM leader Tajinder Singh Virk, were seriously injured in the incident. In a virtual press conference in the evening, the SKM outlined three immediate demands. "One, Ajay Kumar Mishra should be immediately removed from the Council of Ministers. Two, an FIR under Section 302 should be registered immediately against his son and the other goons he brought with him. Three, the case should be investigated by a sitting judge of the Supreme Court," said Krantikari Kisan Union leader Darshan Pal. The SKM has also called on farmers across the country to protest peacefully in front of district magistrats offices between 10 a.m. and 1 p.m. tomorrow.

U.P'S 'PUNJABI' FARMERS: HISTORY, CONTRIBUTION

The four farmer protesters killed in Lakhimpur Kheri of Uttar Pradesh on Sunday had Punjabi names — Lovepreet Singh, Daljeet Singh, Nachattar Singh and Gurvinder Singh. This may have come as a surprise to some, but Punjabis have settled in UP and Uttarakhand since Partition when they were allotted land in the Terai region, then a thickly forested region unwanted by locals. Despite their long association with the land that they have tamed and cultivated, they are sometimes stereotyped as "outsiders", especially when trouble breaks out.

Post-Partition migration

The first wave of farmers who settled in the region were from Shekhpura and Sialkot regions of East Punjab, Pakistan. They were allotted land in the Terai by the Indian government following Partition. In the initial years, they struggled to cultivate the land, then mostly forested and inhabited by wild animals. Later, as they made the land cultivable, it attracted farmers from

Punjab, where agricultural land was becoming scarce and expensive. A farmer in Punjab could buy 10 acres in Terai after selling his one acre back home. Punjab was the first state to adopt novel farming techniques to increase crop production as part of the Green Revolution. Many small farmers migrating from Punjab to Terai grew new high-yielding varieties of wheat and rice with the help of machines.

Sikhs in UP

There are Sikhs in UP who have no link to Punjab. Sikh Gurus travelled through UP and Uttarakhand, and both states are the site of many historical gurdwaras. Many Sikhs today have ancestors who had adopted Sikhism when the Gurus had visited. Many Sikhs from Punjab had migrated to UP during the 18th century, too. However, mass migration from Punjab only for farming started after 1947. This peaked in the 1960s and 1970s, but never stopped completely.

Political representation

The first Mayawati government acknowledged the importance of Punjabis by naming a district after Shahid Udham Singh of Punjab, a martyr of the Freedom Movement. The district, which has a significant Sikh population, now falls in Uttarakhand. The Assemblies of both UP and Uttarakhand have Sikh representatives. Baldev Singh Aulakh is a minister in the UP government. The Samajwadi Party had made Punjabi politician Balwant Singh Rammowalia a minister in Akhilesh Yadav's government.

Proposed eviction

Last year, the UP government had asked police to remove migrants from Punjab from their homes and lands in parts of UP due to land-related issues. Then Punjab Chief Minister Captain Amarinder Singh and the Shiromani Akali Dal (Badal) eventually raised the issue with Uttar Pradesh Chief Minister Yogi Adityanath. Jasbir Singh Virk, president of Sikh Sangathan, UP and Uttarakhand, says around 33,000 acres cultivated by migrants in 36 villages is at stake. "Most of them were allotted this land during Partition, and now it is being cultivated by the third or fourth generation. Some of them have lost the allotment papers," he said. "In those days, this was unwanted land and no one had imagined it could be used for farming. These migrants gave their sweet and tears to cultivate this land. Today it is developed. So now government and locals want to grab this land by making legal excuses. We protested and the state government responded to our plea. A decision is pending but we are hopeful that the government will decide in our favour."

Lakhimpur Kheri

Lakhimpur is the one of farthest districts of UP to which farmers from Punjab migrated. It's not the first time that farmers from the Terai region have taken part in the farm agitation. On January 26, Navreet Singh from Rampur had died during violence in Delhi. A farmer from Pilibhit had committed suicide on the Delhi border during the agitation. Navreet's grandfather Hardeep Singh Dibdiba, who is also a writer, said, "Although migrant farmers responded to farmer unions' call, the latter disowned Navreet after January 26. They realised their mistake later. The unions must weigh the long-term impact of their actions on farmers who have migrated to UP."

WHY PUNJAB, HARYANA FARMERS ARE UPSET ABOUT PADDY PROCUREMENT DELAY

The Centre has postponed paddy procurement from October 1 to October 11 in Punjab and Haryana, on the ground that heavy rainfall in these two states has delayed maturity of paddy and left the moisture content in fresh arrivals beyond the permissible limit. Farmers in both states have announced an agitation; in Haryana they said that they would gherao the homes of BJP leaders and take paddy-laden tractor trolleys there.

How much paddy have the two states grown?

The official dates for paddy sowing this year were June 10 in Punjab and June 15 in Haryana. This year, around 31 lakh hectares has come under paddy (non-basmati parmal rice) in the two states — around 25- 26 lakh hectares in Punjab and the rest in Haryana — and nearly 11-12 lakh hectares under basmati rice, including 4.61 lakh hectares in Punjab. Only the paddy crop is procured by the government on minimum support price, while basmati is purchased by private players/basmati exporters in both states.

At what time should the crop ideally mature?

Today, farmers opt for any of several short-duration varieties that offer high yield. Farmers mainly in Punjab prefer varieties that mature in 93 to 110 days — excluding a nursery period of 25-20 days when seeds are grown into young plants and then transplanted to the fields from the date fixed (June 10 and June 15). The shorter varieties will have started maturing by the end of September. According to Punjab Agriculture University (PAU), Ludhiana, over 70% of the paddy area in Punjab is under short-duration varieties now, with very little area under traditional varieties such as PUSA-44 that mature in 160 days. Also, a combined around 6 lakh hectares in the two states is under direct seeding of rice (DSR). Although the formal date of DSR sowing was June 1, farmers sowed after May 20 itself, because DSR does not require a puddling process as well as stagnant water in the field at least for three weeks after sowing.

Why are farmers upset with the government move?

If farmers delay harvesting of already ripened crop by 11 days, the grain will fall from the panicle and the yield will go down. And if they sell it to private players, they will not be paid at the MSP of Rs 1,960 per quintal. Not many farmers have the capacity to store all their rice after harvesting it on time. "By delaying procurement, the government wants farmers to sell already ripened crop to private players first, and only then will it enter the market," said Jagmohan Singh, general secretary, Bharti Kisan union (BKU), Dakaunda. He noted that paddy procurement had never been delayed in the past, even after heavy rains in the entire first week of October in 2019. Farmer Kirandeep Singh from Attari village in Amritsar said, "All my paddy on 16 acres is ready to harvest and I was waiting for October 1 to come. Now I am confused, because delayed harvesting would cause a loss of yield, and a private player offered me just Rs 1,500-1,600 per quintal, a loss of Rs 460-360 per quintal compared to MSP." Jagdeep Singh of Sangrur district said potato and green pea sowing, too, will be delayed as these are sown in the first week of October after paddy harvesting. When all short- and long-duration varieties, which too will mature by October 15, reach the mandis on October 11, there would be a glut and hardly any place to keep the crop. Even when procurement follows the normal schedule, there are days when the mandis witness a glut.

What could be the post-harvesting complications?

Delayed procurement raises concerns about increased stubble burning this year. This is because farmers, who get only 20 to 25 days between paddy harvesting and wheat sowing to manage the paddy stubble during normal procurement time, will get only 9-15 days this. To manage the stubble from over 3 million hectares in this time is just impossible, many of them said. Paddy harvesting takes 20 to 25 days and if farmers start it on October 11, it will stretch into the beginning of November. The ideal time of wheat sowing is from November 1 to 15, and planting for normal varieties should not be done later than November 25. To clear the fields for wheat sowing, farmers are certain to go for burning of the paddy stubble, which stands 12 to 15 inches in the fields after harvesting.

NO WORD ON PARLIAMENTARY PANELS

Nearly a month after the tenure of the parliamentary standing committees ended on September 12, there is no word on reconstitution of these panels, with sources pointing it to bureaucratic delays. Opposition leaders stated that the delay was yet another way to subvert an important parliamentary instrument. The government has a tardy record in the constitution of the panels. In 2019, the committees were constituted in October, nearly five month late. In 2014, the panels were notified on September 1, less than three months after the process was started. In 2009, during the UPA term, it was notified on August 31. And in 2004, it was constituted by August 5. Even though the composition of the committees largely remain the same, yet every year, more than a month is spent in renominating the panels.

Submission of lists

The sources said political parties took a long while in submitting their list of nominees and the BJP was the last to submit the list. Derek O'Brien, floor leader of the Trinamool Congress in the Rajya Sabha, pointed out that the number of Bills scrutinised by the parliamentary panels had declined under the present regime. In the 14th and the 15th Lok Sabha, during the UPA years, 60% and 71% of the Bills, respectively, were vetted by the standing committees. In comparison to this, the figures for the 16th Lok Sabha was 25% and the current one a dismal 11%. "With these figures do you think Modi-Shah's BJP cares two hoots about the standing committees," he asked. RJD MP Manoj K. Jha observed that the delay was a textbook example of the government's approach towards Parliament and the instruments attached to it. Congress Lok Sabha member Manish Tewari alleged that the government had broken several conventions, including the one on leaving the committees on External Affairs and Finance for the Opposition to lead. "This convention has been in place keeping in view the parliamentary practice of providing checks and balances to the everyday functioning of the government through legislative oversight." The practice of circulating verbatim minutes of the meeting had also been dispensed with, he noted. Accepting that the delay imposed unnecessary pause on the functioning of the parliamentary panels, BJD MP Bhartruhari Mahtab questioned the limited and indifferent participation in the panel meetings. "How many members actually take part in these deliberations," he asked.

REIMAGINING FOOD SYSTEMS WITH LESSONS FROM INDIA

The first and historic United Nations Food Systems Summit (UNFSS) 2021 which was held in September this year, concluded after an intense 'bottom-up' process conceived in 2019 by UN Secretary-General António Guterres to find solutions and 'catalyse momentum' to transform the way the world produces, consumes, and thinks about food and help address rising hunger. In terms of larger goals, the food system transformation is considered essential in achieving the sustainable development agenda 2030. This makes strong sense as 11 Sustainable Development Goals (SDGs) out of 17 are directly related to the food system. The summit involved several activities before the run-up to the meeting of the Head of States on September 23. While the dialogues on the five tracks identified have been under way for the past 18 months, the world has seen the fragility and vulnerability of food systems, highlighted by the disruptive impact of the COVID-19 pandemic that is projected to double the global hunger figure. Why the Food Systems Summit and what is the expectation from its outcome? Global food systems — the networks that are needed to produce and transform food, and ensure it reaches consumers, or the paths that food travels from production to plate — are in a state of crisis in many countries affecting the poor and the vulnerable. The flaws in food systems affect us all, but most of all they are affecting 811 million people in the world who go to bed hungry each night. The summit created a mechanism for serious debates involving UN member states, civil society, non-governmental organisations, academics, researchers, individuals, and the private sector, which is to evolve transformative themes and ideas for reimagining food systems to enhance satisfaction of all stakeholders including future generations. The debate and response focused on five identified action tracks namely: Ensure access to safe and nutritious food for all; Shift to sustainable consumption patterns; Boost nature-positive production; Advance equitable livelihoods, and Build resilience to vulnerabilities, shocks, and stress. The summit provided a historic opportunity to empower all people to leverage the power of food systems to drive our recovery from the COVID-19 pandemic and get us back on track to achieve all 17 SDGs by 2030. The Statement of Action emerging from the summit offers a concise set of ambitious, high-level principles and areas for action to support the global call to "Build back better" after the COVID-19 pandemic. India constituted an inter-departmental group under the Chairmanship of one of us , with representatives from the Ministries of Agriculture and Farmers' Welfare, Rural Development, and others. Delhi-based U.N. agencies namely the Food and Agriculture Organization (FAO), the World Food Programme (WFP), and the International Fund for Agricultural Development (IFAD) were also actively involved in the dialogue process. The group conducted national dialogues with various stakeholders of agri-food systems to explore national pathways towards creating sustainable and equitable food systems in India. Several individuals and civil society organisations contributed ideas to the portal which was created for this purpose.

Helping the developing world

There are lessons from India's tryst with food insecurity. Several themes that have emerged in the discussions and dialogues leading up to the summit find resonance with India's past and ongoing journey towards creating and improving food and livelihood security. The long journey from chronic food shortage to surplus food producer offers several interesting lessons for other developing countries in Asia, Africa, and Latin America in the area of land reforms, public investments, institutional infrastructure, new regulatory systems, public support, and

intervention in agri markets and prices and agri research and extension. The period between 1991 to 2015, saw the diversification of agriculture beyond field crops and brought greater focus on the horticulture, dairy, animal husbandry, and fishery sectors. The learnings encompassed elements of nutritional health, food safety and standards, sustainability, deployment of space technology, and the like.

Safety nets, challenges

One of India's greatest contributions to equity in food is its National Food Security Act 2013 that anchors the Targeted Public Distribution System (TPDS), the Mid-Day meals (MDM), and the Integrated Child Development Services (ICDS). Today, India's food safety nets collectively reach over a billion people. Food safety nets and inclusion are linked with public procurement and buffer stock policy. This was visible during the global food crises 2008-2012 and more recently during the COVID-19 pandemic fallout, whereby vulnerable and marginalised families in India continued to be buffered against the food crisis by its robust TPDS and buffer stock of food grains. A look at the challenges and the way forward towards 2050. Climate change and unsustainable use of land and water resources are the most formidable challenges food systems face today. The latest Intergovernmental Panel on Climate Change (IPCC) report has set the alarm bells ringing, highlighting the urgency to act now. Dietary diversity, nutrition, and related health outcomes are another area of concern as a focus on rice and wheat has created nutritional challenges of its own. India has taken a bold decision to fortify rice supplied through the Public Distribution System with iron. Agricultural research institutes are about to release varieties of many crops having much higher nutrition as a long-term solution for undernutrition and malnutrition.

Surplus and low nutrition

It is ironic that despite being a net exporter and food surplus country at the aggregate level, India has a 50% higher prevalence of undernutrition compared to the world average. But the proportion of the undernourished population declined from 21.6% during 2004-06 to 15.4% during 2018-20. The high prevalence of undernutrition in the country does not seem to be due to food shortage or the low availability of food. The Government of India and States are seriously concerned about this paradoxical situation of being food surplus and at the same time, having 15% of the population undernourished. They are trying to address other possible reasons for low nutrition through several nutritional interventions. As announced recently, the supply of fortified rice in PDS and Poshan Abhiyan are the two steps among many to address the challenge of undernutrition and malnutrition. Reducing food wastage or loss of food is a mammoth challenge and is linked to the efficiency of the food supply chain. Food wastage in India exceeds ₹1-lakh crore. Why the world must eliminate hunger is the next point. An alarming escalation in global hunger is unfolding, with the 'dramatic worsening' of world hunger in 2020, much of it likely related to the fallout of COVID-19. While the pandemic's impact has yet to be fully mapped, 'The State of Food Security and Nutrition in the World' report, estimates that around a tenth of the global population was undernourished last year. It is important to reiterate that hunger and food insecurity are key drivers of conflict and instability across the world. 'Food is peace', is a catchphrase often used to highlight how hunger and conflict feed on each other. The Nobel Peace Prize 2020 conferred on the United Nations WFP highlighted the importance of addressing hunger to prevent conflicts and create stability. The citation communiqué articulated this well by quoting the line: "Until the day we have a medical vaccine, food is the best vaccine against chaos."

For equity, sustainability

We are on the cusp of a transformation to make the world free of hunger by 2030 and deliver promises for SDGs, with strong cooperation and partnership between governments, citizens, civil society organisations, and the private sector. We must collaborate to invest, innovate, and create lasting solutions in sustainable agriculture contribution to equitable livelihood, food security, and nutrition. India has so much to offer from its successes, and learning also, to prepare itself for the next 20 to 30 years. This surely requires reimagining the food system towards the goal of balancing growth and sustainability, mitigating climate change, ensuring healthy, safe, quality, and affordable food, maintaining biodiversity, improving resilience, and offering an attractive income and work environment to smallholders and youth. Achieving the goal of "Advancing equitable livelihood" requires that the food systems transformation is anchored around small- and medium-scale production, family farmers, indigenous peoples, women, and workers in food value chains.

ROAD ACCIDENTS CAN BE REDUCED

Fifty-one passengers of an overcrowded bus died in an accident on the morning of February 16 when it fell into a canal near Sarda Patan village in Sidhi district, Madhya Pradesh. A griha pravesh (house-warming) ceremony for the beneficiaries of one lakh houses constructed under the Pradhan Mantri Awas Yojana in Bhopal, which was to be attended virtually by Union Home Minister Amit Shah, was cancelled due to the incident. Two days earlier, fourteen persons were killed when a minivan they were travelling in hit a divider on a National Highway (NH) near Madarpur village in Kurnool district, Andhra Pradesh. The van carrying 18 passengers was on its way to Ajmer in Rajasthan from Chittoor, when the driver lost control and hit the divider, tumbling on the other side of the road where a speeding truck crashed into it. According to a study conducted by the Ministry of Road Transport and Highways, 1,51,113 persons were killed and 4,51,361 injured in road accidents across the country in 2019. NHs and State Highways, which account for about 5% of the total road length, claimed 61% of the deaths related to accidents. Around 35,606 deaths were reported on the NHs, which come under the National Highway Authority of India (NHAI). Speaking at a webinar organised by the International Road Federation on February 9, Union Transport Minister Nitin Gadkari said India topped the fatality figures in road accidents in the world, with 415 deaths each day. While commending Tamil Nadu for taking effective road safety measures that had resulted in the reduction of road accidents by 38% and deaths by 54%, he asked other States to emulate Tamil Nadu. It is small wonder that he actively pursued the Motor Vehicles (Amendment) Act, 2019, with the well-intentioned motive of bringing down the death rate due to road accidents by 50% by 2020. This was agreed to by all participating nations in the United Nations Brasilia Declaration, of which India was a signatory. Though the number of deaths due to accidents declined to 1.20 lakh in 2020 due to COVID-19, Mr. Gadkari shifted the deadline to 2025. But the steep hike in the fines imposed for traffic violations in the Act was met with stiff opposition, with some States dismissing it as too harsh and, hence, not willing to implement it. What seems to have been ignored while drafting the law was the fact that a good number of those driving vehicles to earn their livelihood were from economically poor backgrounds. West Bengal decided not to implement the new law and continued with the West Bengal Motor Vehicle Rules, 1989. The Madras High Court recently struck down the April 6, 2018 notification of the Union Government wherein the speed limit was hiked to 120 and 100 km/hour on expressways and highways, respectively. This was done as 66.7% of accidents was attributed

to overspeeding in 2017, 55.73% in 2018 and 64.4% in 2019. Studies carried out by various organisations have also come out with the causes for accidents and ways to curb them. The Accident Research Cell of the Delhi Traffic Police carried out an analysis of accidents and created a database that facilitates the formulation of policies to prevent accidents. While probing an accident that led to the death of former Union Rural Development Minister Gopinath Munde in New Delhi, the cell concluded that hedges along a road obstructed the visibility of drivers coming from the other direction. After the hedges were pruned, the stretch became free from accidents. While the strict enforcement of traffic safety laws would go a long way, educating citizens about the impact of accidents on the kin of the victims through public discourse could help in reducing accidents. Improving road infrastructure with coordinated efforts by the police and civic authorities, identification of black spots that are prone to accidents and deploying an adequate number of police personnel, particularly during peak hours, could bring down accident rates. Highway patrols with police personnel trained in first aid and ambulances every 10 km could also help save precious lives.

RECOGNISING ALTRUISM

The initiative of the Ministry of Road Transport and Highways to award Good Samaritans who save lives of road accident victims with a cash prize is a welcome attempt to reduce India's staggering annual death toll from mishaps. Ranking third among 20 nations that have the highest number of accidents, India fares far worse on an important metric — cases to fatalities ratio — compared to the U.S. and Japan, which have more recorded crashes but fewer deaths. During 2020, even with severely disrupted mobility due to COVID-19, National Crime Records Bureau data show 1,33,715 lives were lost in 1,20,716 cases attributed to negligence relating to road accidents. Under the Motor Vehicles law, a Good Samaritan voluntarily helps an accident victim with no expectation of payment or reward, and has no legal obligation to record his involvement or aid the investigation in the case. In spite of an entire chapter being added to the Motor Vehicles Act last year to sensitise police forces and hospitals on this, altruism is affected by the perception of harassment and legal complications. The Ministry's latest move seeks to overcome reticence by rewarding socially minded individuals who offer immediate assistance and rush a victim with certain kinds of injuries to hospital, with ₹5,000 and a certificate of recognition for saving a life. State governments are responsible for the plan, with the Centre providing an initial grant, but the Union Transport Ministry will give its own award of ₹1 lakh each to the 10 best Good Samaritans in a year. Achieving a reduction in mortality on India's largely lawless roads warrants determined action on several factors, beginning with scientific road design and standards, and zero tolerance enforcement. It was only on September 3 that the Centre notified the long-pending National Road Safety Board, with a mandate to formulate standards on, among other things, safety and trauma management, to build capacity among traffic police, and put crash investigation on a scientific footing. Yet, on enforcement, State police forces generally appear to favour a populist approach of least engagement; regional transport bureaucracies — compared by Union Transport Minister Nitin Gadkari in 2015 to looting Chambal dacoits — can also benefit from a shake-up. As a steadily motorising country, the goal must be to reduce accidents and the ratio of deaths and injuries to cases. The Good Samaritan plan can work well if District Committees tasked with awarding these individuals readily recognise their contribution, aided by the police, hospitals and RTOs. Many more people will continue to be impelled by sheer altruism to help road users involved in a crash, and governments should get bureaucratic barriers out of their way.

language. We have already referred to the work being done at the Jadavpur and Presidency Universities at Kolkata, and also the Osmania University at Hyderabad, in certain areas of science and technology, besides language, literature and economics should be mentioned.

Private universities

Recently, several non-profit private universities have been started and are doing excellent service in software sciences (Azim Premji University), genetics, molecular biology and virology, sociology and history (Ashoka University), and SRM University in Chennai and Amaravati. May there be more such private and non-governmental universities!

PEACE AT THE HEART OF EDUCATION

On October 2 every year, everyone gathers to celebrate the ideals of peace by marking the birthday of Mahatma Gandhi and the International Day of Non-Violence. The day presents an opportunity to explore the causes of violence and reassert a commitment to building a culture of dialogue through education. The COVID-19 pandemic has introduced new forces of division globally. Levels of hate speech and fear of the 'other' have grown, as people have assigned blame for the virus. Forms of structural violence – the economic, racial and gendered forms of injustice built into social systems – have been exacerbated as marginalised groups, including displaced persons and racialised groups, have been disproportionately affected. Around the world, the consequential surge in inequality is driving instability and tension, fuelling potential social unrest. In order to rebuild in solidarity, we must understand the root causes of human animosity and make peace with one another. We must think about the structures, attitudes and skills that create and sustain peace. In 'Pathways for peace', a flagship 2018 report by the World Bank and the United Nations, it was shown that many of the world's conflicts arise from exclusion and feelings of injustice. The question therefore is: how can ignorance and fear of the unknown be overcome through understanding and dialogue?

A policy to strengthen equity

For UNESCO, education is a significant part of the answer because it can impart the skills and values necessary to recognise and prevent potential conflicts and promote tolerance. As the educator Maria Montessori put it: "Preventing war is the work of politicians, establishing peace is the work of educationists". Education for peace has a rich history in India. The philosophies of various religions, cultures and of Gandhi have non-violence, syncretism and tolerance at their core. The National Education Policy (NEP) of 2020 also presents a unique opportunity to contribute to strengthening equity, justice and social cohesion. The policy has a broad focus on value-based and experiential education, including promoting critical thinking, cultural exchanges, teaching in regional languages, and a commitment to education for all. This landmark document also advocates for reforms in curricula and pedagogy. As schools reopen, we believe that peace education can be even more integrated within national curricula and the broader learning environment to promote non-violence, conflict resolution and compassion. Equipping children from a young age with the skills to respect the dignity of others is key to building resilient and peaceful societies. Teachers and educators also need to be equipped with skills to promote peace through experiential and interactive methods. Intercultural competencies, like empathy and

critical thinking, are best learned through intercultural exchanges and scenario-based learning and not rote learning.

A way forward

Global best practices, promoted through UNESCO, can offer a way forward. Our organisation's approaches to global citizenship, education and intercultural dialogue reinforce the idea that peaceful societies are those that embrace diversity and difference. UNESCO's work to promote media and information literacy and sports for peace equips youth with skills to eradicate harmful stereotypes and stand up against injustice. Focusing on inclusion, UNESCO highlights the need to recognise and improve opportunities for disadvantaged groups, like women and girls and persons with disabilities. UNESCO also promotes schools as safe and non-violent spaces. One year into the NEP 2020 and almost two years into the COVID-19 pandemic, it is important to assess priorities in education. Beyond discussions around innovation, technology and smart future schools, we need to understand the potential of education systems and schools in building peaceful societies. In times of crisis, education has the ability to provide hope and confidence.

INFUSING PUBLIC HEALTH INTO INDIAN MEDICAL EDUCATION

The country has witnessed the menace of two COVID-19 waves and stares at a third. While COVID-19 has been presented as an overarching public health calamity, the influence of medical doctors in the health policy response to COVID-19 has been particularly profound. This is symptomatic of our long-standing tendency to confound medicine with public health which permeates even the highest policy-making echelons. If anything, both the scope and consequence of medicine in the overall health of the population is significantly limited. COVID-19 entails that this fact leaves the libraries and academia, and manifests as tangible policy measures that help consolidate public health in the country.

Distinct specialty, stagnation

In the 1950s, a global consensus and a concomitant national consensus on the importance of socially-oriented physicians in population health resulted in the establishment of community medicine as a distinct medical specialty, both at the undergraduate and postgraduate levels. Vast swathes of the community medicine curriculum are devoted to tackling major public health challenges through a plethora of vertical disease control programmes which have always driven the national public health discourse. The larger medical curriculum has remained more or less stagnant since post-Independence. Similarly, hardly any attempt has been made to reform the community medicine curriculum, from one that primarily provides technical inputs to technocratic health programmes — to one which can also take on the larger questions related to health policy and health systems, and inculcate critical thinking along lines that are divergent from clinical medicine.

Multidisciplinary science

Some experts have advocated the establishment of public health departments in medical schools, inspired by the COVID-19 pandemic. Community medicine, while frequently equated with public health, fails to embrace multiple facets of the multidisciplinary assemblage of competencies that

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is public health. Juxtapose the community medicine curriculum with that of any of the few bastions of socially-oriented public health courses, and the distinction becomes readily apparent. But proponents of community medicine have not been in denial of this essential distinction — eventually, community medicine is a medical specialty while public health is a multidisciplinary science. Since public health is a multidisciplinary science, why do we emphasise instilling public health competencies in medicine, and not so much for other allied fields such as engineering or anthropology? The pragmatic answer is that medical doctors, de facto, are likely to continue to be the most influential players in public health policy at least in the foreseeable future. This makes it imperative that medical doctors imbibe multidisciplinary public health thinking right since their formative days. Recent medical curricular reforms in India have laid a stress on inculcating clinical empathy, early clinical exposure, and at least ritualistically, on greater community exposure.

The Cuban example

However, none of these confers the competencies necessary to critically assess the larger public health and health systems landscape of the country. For a medical curriculum to be steeped in clinical medicine and not inculcate a broader public health orientation is least desirable where health policy is largely shaped by doctors. At the postgraduate level, re-emphasising multidisciplinary public health principles would be equally important to ensure that we create not just community medicine technocrats but also well-rounded advocates of health system reform. While health-care reform is a complex process with numerous interacting elements, the role of formative medical education in it is quite often underrated. Countries such as Cuba demonstrate how a medical curriculum attuned to public health can strongly influence the whole philosophy of health-care provision in a country. Despite the considerable overlap between them, the non-substitutability of community medicine and public health cannot be ignored, at least in the current Indian context. Community medicine will always defend its exclusivity as being a fundamentally medical specialty meant only for doctors, and public health courses will rightfully need to be open to students from diverse backgrounds.

Looking ahead

A middle ground can be struck by upgrading community medicine to 'community medicine and public health' both at the undergraduate and postgraduate levels. This will involve revamping the community medicine curriculum through incorporation of or emphasising those areas of public health which are presently left out or under-emphasised, such as social health, health policy and health systems. At the same time, representation of experts other than doctors and from fields allied to public health will be essential in the refurbished 'community medicine and public health' departments.

HEALTH BENEFIT PACKAGE UNDER AYUSHMAN BHARAT REVISED

The National Health Authority (NHA), the apex body for implementing Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY), has revised the Health Benefit Package (HBP) Master under the scheme. In the revised version of Health Benefit Package (HBP 2.2), rates of some packages have been increased by 20% to 400% under the PM-JAY. Rates of around 400 procedures have been revised and one new additional medical management package related to black fungus has also been added, according to a release issued by the Health Ministry on Tuesday.

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The HBP 2.2 is expected to be rolled out from November this year. Health Minister Mansukh Mandaviya said HBP 2.2 would enable the empanelled hospitals to provide better services to the beneficiaries under Ayushman Bharat PM-JAY. "The revised packages for oncology will enhance cancer care for the beneficiaries in the country. Addition of new packages related to black fungus will be a huge relief. The rationalised HBP will further improve the uptake of schemes in private hospitals leading to reduced out-of-pocket expenditure," he added. Dr. R. S. Sharma, CEO, NHA, said new packages had been added to cover more disease conditions and regular rates of the packages were being revised to provide better services.

WHAT ARE THE CONCERNS OF DIGITAL HEALTH MISSION?

The Ayushman Bharat Digital Mission (ABDM), launched on September 27, aims to give every citizen a unique digital health ID which involves their health records being digitally protected and making health a "holistic and inclusive model". Under the mission, users can access and link personal records with their unique ID to create a longitudinal health history. "The model will stress preventive healthcare and, in case of disease, easy, affordable and accessible treatment," said the Health Ministry. Inaugurating the mission, Prime Minister Narendra Modi said it will not only simplify processes of hospitals but also increase ease of living.

How will it work?

In order to be a part of the ABDM, citizens will have to create a unique health ID – a randomly generated 14-digit identification number. The ID will give the user unique identification, authentication and will be a repository of all health records of a person. The ID can also be made by self-registration on the portal, downloading the ABMD Health Records app on one's mobile or at a participating health facility. The beneficiary will also set up a Personal Health Records (PHR) address for the issue of consent, and for future sharing of health records. The Ministry said the Digital Ecosystem will enable a host of other facilities like digital consultation, consent of patients in letting medical practitioners access their records, and so forth. It's also geared up to connect the digital health solutions of hospitals across the country with each other. The nationwide implementation of the digital health ID coincides with the third anniversary of the Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (PM-JAY).

Where was the pilot project launched?

The pilot project was announced by the Prime Minister during his Independence Day speech last year. So far, over 1 lakh unique health IDs have been created across select Union Territories as part of the pilot project. Now, the mission is looking at rolling out features that will support health ID creation with a PAN card or a driving licence. For those wanting ID creation through mobile or Aadhaar, the beneficiary will be asked to share details of name, year of birth, gender, address, mobile number and Aadhaar. The government has also allowed use of one's mobile number for registration, if a person doesn't have an Aadhaar card.

What about privacy issues?

The citizen's consent is vital for all access. A beneficiary's consent is vital to ensure that information is released. Records are stored under retention policies and can be accessed only with

the consent of users, said the Health Ministry. Besides, users can delete and exit the service any time they want. The account could be reactivated after which the user can share the ID at any health facility or share health records over the ABDM network. However, there are concerns according to experts. Dr. Sudarshan Ballal, chairman, Manipal Hospitals, said: "The introduction of a unique health identification card at the national level would be a game changer in monitoring, providing and managing healthcare for all citizens. But we will have to wait and see the implementation of the project while making sure that the privacy of an individual is maintained at all costs."

What are some of the challenges?

"India has been unable to standardise the coverage and quality of the existing digital cards like One Nation One Ration card, PM-JAY card, Aadhaar card, etc., for accessibility of services and entitlements. The data migration and inter-State transfer are still faced with multiple errors and shortcomings in addition to concerns of data security. The defence of data security by expressed informed consent doesn't work in a country that is plagued by the acute shortage of healthcare professionals to inform the client fully. With the minuscule spending of 1.3% of the GDP on the healthcare sector, India will be unable to ensure the quality and uniform access to healthcare that it hoped to bring about," said K.R. Antony, paediatrician and a public health professional who served UNICEF and the State Health Resource Centre, Chhattisgarh. He pointed out that personalised data collected at multiple levels are a "sitting gold mine" for insurance companies, international researchers, and pharma companies. "COVID-19 has taught us that the availability of the private sector is not homogeneous and it can't provide quality service which is charged transparently and is affordable to the common man. India's public health system has to be strengthened and rejuvenated much more before we bring in the fancy Digital Health Mission," he added. Other experts add that lack of access to technology, poverty, and lack of understanding of the language in a vast and diverse country like India are problems that need to be looked into. "Just like we saw people reluctant to take COVID vaccination, here too people will accept the system only if it's tried and tested and is known to have some benefit," said another expert. Meanwhile, for private hospitals wanting to be part of the system, "the National Health Authority certifies and empanels the private hospital. It has to be given access, integrate and test its software and get a nod from the NHA," according to the Health Ministry. It added that it would want all healthcare providers and allied services, including laboratories, to be part of the mission.

A LEG-UP FOR SPACE

Although India started early in launching a space programme and built impressive capabilities against great odds over the decades, it remains a laggard in realising its full potential. At the heart of the problem is the fact that the programme remains a governmental enterprise. Meanwhile, the rest of the world has moved on letting the private sector run ever larger parts of the space programme. India was not an exception to state monopolies in the space sector in the 20th century. The sophisticated nature of technologies involved, the military implications, and the international prestige associated with them meant that the state led the space sector around the world. In India, the developmental imperative added another justification for state control. But continuing with that framework in the 21st century is a losing proposition. As space technologies find a growing number of commercial uses, the size of the global space economy has grown

rapidly. It is estimated to be around $450 billion and is expected to grow to $1.4 trillion by the end of this decade. India has barely 2 per cent share of the global space commerce today. The only way Delhi can boost India's weight in the global economy is by ending the monopoly of the Department of Space. Although the NDA government did announce some reforms in encouraging private sector activity in 2020, the Department of Space and its agencies continue to exercise paternalistic control. India needs space legislation that will provide a sustainable framework for space commerce, even though critics say a space bill under consideration by the government does not go far enough. The longer Delhi takes to come up with a sensible regulatory framework, the harder it will be for India to catch up with the rapidly changing commercial dynamic in outer space. Consider, for example, telecommunication, an area that saw the early deployment of space technologies for commercial purposes. A number of western companies are planning to launch hundreds of low-earth satellites to provide broadband internet around the world. Beijing has plans for a Space Silk Road. New economic activities are emerging — from innovative uses of space-based earth observation to manufacturing specialised products in gravity-free environments, space tourism, and possible mining of Moon and other celestial bodies. The expanding commercial use of outer space has been marked by deeper involvement of private actors. The long-standing state monopoly on rocket launches has finally been broken by Elon Musk's SpaceX company. The time is now apt for Delhi to mandate government space agencies to focus on basic research, while allowing the private sector to take the lead in the full range of activities relating to the space business.

HAL DELIVERS HEAVIEST PROPELLANT TANK TO ISRO

The heaviest semi-cryogenic propellant tank (SC120- LOX) ever fabricated by Hindustan Aeronatics Limited (HAL) has been delivered to the Indian Space Research Organisation (ISRO). The semi cryo-liquid oxygen (LOX) tank — the first developmental welded hardware — is a part of the SC120 stage intended for payload enhancement by replacing the L110 stage in existing Mk-III launch vehicle, said a release from HAL. Last year, HAL had delivered the biggest ever cryogenic liquid hydrogen tank (C32-LH2), four meters in diameter and eight meters in length, much ahead of contractual schedule. The propellant tank was handed over by M.K. Mishra, General Manager, Aerospace Division, HAL, to T.K.B. Kumaresh Babu, General Manager, LHWC, head of the resident team of the Liquid Propulsion Systems Centre, ISRO. Till date, HAL's Aerospace Division has delivered 244 propellant tanks and 95 water tanks to ISRO for the space programmes of PSLV, GSLV Mk-II and GSLV Mk-III of diameter 2.1, 2.8 and 4 meters, where the length of the tank varies from 2.5 meters to 8.0 meters. As a strategic reliable partner, HAL has been associating with ISRO for India's prestigious space programmes for five decades. HAL has delivered critical structures, tankages, satellite structures for the PSLV, GSLV-Mk II and GSLV-Mk III launch vehicles. Various new projects are being taken up at HAL, for which installation and commissioning of unique infrastructure is nearing completion.

VIKRANT TO SAIL OUT FOR PHASE 2 TRIALS

The maiden sea trials of the indigenous aircraft carrier Vikrant have progressed very well and the second phase of trials are expected to begin by October-end, with the third phase planned in December, a defence official said. "Vikrant is expected to be delivered to the Navy in April and likely to be commissioned in August 2022," the official said which would also coincide with 75

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years of Independence. Simultaneously, work is under way on the aviation complex of the carrier for which a Russian team is here. The aviation trials will continue once the carrier is commissioned and they would be done with the MiG-29K jet in service with the Navy, the official said.

'Extremely satisfactory'

During the maiden sea trial in August, Vikrant's performance, including hull, main propulsion, power generation and distribution and auxiliary equipment, were tested. The results were extremely satisfactory and the engine showed 100% performance and some issues that had come up were being addressed, the official said. Vikrant, designed by the Navy's Directorate of Naval Design and built by Cochin Shipyard Ltd., has more than 76% indigenous content. There are 14 decks, including five in the superstructure and over 2,300 compartments designed for a crew of around 1,700 people, with separate accommodation for women officers. In the Phase 2 of the trials, the complete habitat, including each of the over 2,300 compartments, would be thoroughly checked, the official said. The Navy had floated a Request For Information (RFI) issued in 2017 to procure 57 twin-engine carrier-borne fighters and the responses are being evaluated. As reported by The Hindu earlier, the number was to be downsized from 57 to 36. A final decision is awaited and the number could be downsized further, it has been learnt. This is in the backdrop of a new indigenous Twin Engine Carrier Based Deck Fighter (TEBDF) being designed and developed by the Defence Research and Development Organisation (DRDO) and Aeronautical Development Agency (ADA). Concurrently with sea trials of Vikrant, plans are afoot for the trials of the fighter jets in the fray for the tender. "Initially, trials will be done on the Shore Based Test Facility (SBTF) at Goa and then on the aircraft carrier," the official said. The aircraft likely to be tested are Boeing F/A-18 Super Hornet, Dassault Avaition Rafale and Saab Gripen-E. In preparation for the trials, Boeing had last December shown the comparability of its F/A-18 Super Hornet with the Navy's Short Takeoff but Arrested Recovery (STOBAR) system by launching it from a ski-jump from a shore based facility at Naval Air Station Patuxent river in Maryland, U.S..

ONLINE SYSTEM FOR AVIATION SAFETY

The Directorate General of Civil Aviation (DGCA) has introduced a Web-based system for voluntary reporting of incidents that pose a potential threat to flight safety. It said that to encourage voluntary safety reporting, besides e-mail and postal mode, Web-based reporting had been introduced on the eGCA platform, which made the reporting mechanism more accessible to persons engaged in aviation related activities. However, the Voluntary Safety Reporting System was not a substitute for Mandatory Safety Reporting System that would continue to function. As part of the state safety programme, the DGCA had voluntary safety reporting system to facilitate collection of information on actual or potential safety deficiencies that may not be captured by the mandatory safety reporting system.

Non-punitive

The DGCA said that the reporting system would be non-punitive and would protect the source of the information. Anyone witnessing or involved or having knowledge of an occurrence, hazard or situation which he or she believes possesses potential threat to flight safety could report the same through the system on eGCA or email or postal mode the contact details made available on the official website of the DGCA, it said in a circular. The information collected through voluntary

safety reporting system would be handled in a manner so as to prevent its use for purposes other than safety and shall appropriately be safeguarded. The confidentiality about the identity of the person making the report would be maintained. While anonymous reports would be accepted, the person may disclose his/her identity to enable contact if any part of the report needed clarification, the DGCA said.

RAGA OF THE ROAD

Imagine being stuck in a traffic jam and hearing the music of the sitar. Nitin Gadkari, the Union Minister of Road Transport and Highways, has mooted the idea of a law that would replace the honk of car horns with the sound of musical instruments such as the flute, tabla, violin or harmonium. The idea, apparently, is to make the traffic experience more pleasant, with the minister also suggesting that the "irritating" sound of the siren on an ambulance or an official vehicle could be replaced with the melodious composition that served as All India Radio's signature tune. The idea is well-intended for sure. Prolonged exposure to the noise caused by traffic has been linked to hearing loss, increase in blood pressure and heart rate, greater risk of stroke and diabetes, not to mention a clear impact on general stress and anxiety. A Danish study recently published in the British Medical Journal has even linked it to a higher risk of developing dementia, especially Alzheimer's. In India, especially, there is no doubt that this problem needs urgent and serious consideration. Whether one is a driver or a passenger, the typical Indian road experience is maddening and exhausting, and bad for both mental and physical health. So it would seem like any suggestion for improvement, even one that might have been concocted by a satirist, would be welcome. However, the problem with the minister's idea is that even the most melodious of musical instruments is, finally, only an instrument and whether it annoys or soothes depends on the person who wields it. If that person is the average Indian driver — impatient and scornful of both traffic rules and ordinary courtesy — the result won't be any different from the current din on our roads. So unless some form of musical training becomes a compulsory part of driver training courses across the country, traffic jams are unlikely to transform into impromptu concert venues.

SEEDING A DATA REVOLUTION IN INDIAN AGRICULTURE

In June this year, two significant documents relating to the Indian agriculture sector were released. The first is a consultation paper on the India Digital Ecosystem of Agriculture (IDEA) from the Ministry of Agriculture and Farmers' Welfare (MoA&FW) and the second on Indian Agriculture: Ripe for Disruption from a private organisation, Bain and Company. The first talks about a digital revolution in the agriculture sector and later predicts a revolutionary investment growth in agri-logistics, offtake, and agri-input delivery by 2025; these are, surprisingly, highly complementary. The fact is that every segment of present-day life is data-hungry. The MoA&FW report describes creating data to fuel the growth predicted by Bain and Company.

The forecast

The Bain report is a data-based prediction on agri-business scenarios, anchored to the agricultural set-up at present and predicting its future trajectories in another 20 years. It includes targeting the production of alternative proteins, and food cell-based food/ingredients and initiating ocean

farming, etc. The report has a 'today forward– future back approach' and predicts a drastic investment opportunity development by 2025. The agriculture sector (currently worth $370 billion), is estimated to receive an additional $35 billion investment. The two enabling conditions for such investment opportunities are the changes in the regulatory framework, especially recent changes in the Farm Acts and digital disruption. The report argues that benefiting from the huge investments into the agri-ecosystem, doubling farmers' income targets can be achieved in near future.

The idea of integration

The IDEA-consulting paper is based on the Task Force and Working Group report constituted by the MoA&FW to design the blueprint of "digital agriculture" — which is similar to the digital disruption mentioned in the Bain report. Eventually, the farmer and the improvement of farmers' livelihood is the aim of the IDEA concept and it is proposed to happen through tight integration of agri-tech innovation and the agriculture industry ecosystem to farming and food systems. To be precise, the IDEA concept profounds the creation of second enabling conditions (which is described in the Bain report). The IDEA principles explicitly talk about openness of data, which means open to businesses and farmers, indicating the kind of integration it aims at. Value-added innovative services by agri-tech industries and start-ups are an integral part of the IDEA architecture. Beyond the architecture, these services listed in the document (to be available on the platform) are equally important data for farmers and businesses. The Indian agriculture sector in future will encompass farm to fork and pave the way for a single national market with a national platform with better connection between producer and consumers. Through their work, the management experts, Parijat Jain, Prashant Sarin and Shalabh Singawne (the authors of the Bain report) have depicted the agriculture reforms announced by the union government as a game-changer in the agriculture sector.

A thread of digital disruption

The IT industry has opposition to IDEA mainly due to the ethics of creating a Unique Farmer ID based on one's Aadhaar number and also the potential for data misuse. Beyond the news coverage about the prospects of achieving the goal of Doubling Farmers Income on which the present government has almost lost its hope, the Bain report has not been widely discussed — at least in the public domain. The assumptions used by authors of the Bain report, especially for its 'future back approach', need more or less focusing on widespread food production in controlled environments. No doubt, the emission, energy, and other resource footprints and sustainability issues around these techniques must be carefully studied to confirm the projected trajectory (which is not a part of the report). However, the report has convincingly demonstrated the business opportunity available in supply chains between farm to Agricultural Produce Market Committee (APMC) mandi and mandi to the customer, which can be realised with the support of digital disruption and the latest agriculture reforms. Both these reports heavily rely on digital disruption to improve farmers' livelihoods, without discussing how much farmers will be prepared to benefit from these newly emerging business environments. Hinting that the Union government is serious about this digital support to the agriculture sector — the Union Minister of Agriculture and Farmers Welfare, Narendra Singh Tomar, has emphasised the significance of the farmer's database being prepared and has sought the support of States.

An unconvincing 'how'

However, the fact is that a majority of small and marginal farmers are not technology-savvy. That most of them are under-educated for capacity building is ignored amidst these ambitious developments. The Bain report relies on the general assumption that more investments into the agriculture sector will benefit farmers; 'but how' has not been convincingly answered. Similarly, how the technology fix will help resolve all the nine issues of Indian agriculture listed at the beginning of the report is unclear in the IDEA concept. Together, the two reports look forward to benefiting from the recent agriculture legislature changes without perceiving the capacity-building required at a farmer's end. Politically, these two reports ignore the protest of farmers against the reforms without considering it as a barrier or risk factor resulting in a repealing of these new farm laws.

Focus on the farmer

While agreeing on the fact that a data revolution is inevitable in the agriculture sector, given its socio-political complexities, we cannot just count on technology fixes and agri-business investments for improving farmers' livelihoods. There need to be immense efforts to improve the capacities of the farmers in India – at least until the educated young farmers replace the existing under-educated small and medium farmers. This capacity building can be done through a mixed approach – preferably building the capacities of individual farmers or coping with the new situation by establishing support systems, through FPOs and other farmers associations where technical support is available for farmers. Considering the size of the agriculture sector of the country this is not going to be an easy task but would need a separate programme across the country with considerable investment.

WITH A BANG

The southwest monsoon has officially ended in India with 87.4 cm of rainfall between June and September, or just 0.7% short of the historical average of 88 cm. In many ways this was an exceptional year. By August end, India was staring at an all India monsoon rainfall deficit of nearly 9%. This was primarily due to monsoon rain in August, usually the second rainiest month, being short by 24%. Early in the monsoon, the India Meteorological Department (IMD) had forecast "normal" rains with "a tendency towards the positive side" and the August failure had it backtrack a little. It forecast — correctly in hindsight — strong rains in September but maintained that the overall monsoon rainfall while still "normal" would be towards the lower end. However, September rainfall — 35% more than the monthly normal — was so munificent that it completely closed the deficit and was well beyond the IMD's expectations. Normally, India gets about 17 cm of rain in September, but at 22.9 cm this year, it was more than the 19 cm in August. Monsoon 2021 capped a rare three years of healthy rain. In 2020, India received 109% of the long period average (LPA) and in 2019, 110% of the LPA and not since 1996, 1997 and 1998 has India got three consecutive years of normal or above normal rain. Much of the rain was focused on southern India, with large parts of northeast and eastern India receiving below normal rainfall, but this is not concerning for two reasons: the base level of monsoon rains is higher in the northeastern regions than the rest of India and the region also gets the retreating monsoon which normally commences by October end. Three years of good rains have boosted storage in India's key reservoirs. The monsoon, however, proved erratic for agriculture. The two key months for kharif

crop sowing, July and August, were the ones when the monsoon failed and the excess September rains meant there are real fears of crop damage due to excessive moisture. The Government is expecting record crop output with kharif crops expected to yield 150.5 million tonnes until June 2022, which is slightly higher than the 149.56 million tonnes harvested last year. There are record surpluses expected for rice, pulses and oilseeds. While this could advantage exports it might also mean demands by farmers for more remunerative prices. These excess rains may be a rare event but the Government should capitalise on it and ensure adequate stocks for next year. The IMD should not be content that it got its overall prediction right but must analyse how its models could be improved to forecast shortfall as well as excess rains.

WHY IS COAL SHORTAGE CHOKING THERMAL POWER PLANTS?

India's thermal power plants are facing a severe coal shortage, with coal stocks having come down to an average of four days of fuel across an increasing number of thermal stations. Union Power Minister R K Singh has said that while the supply crunch has not yet led to any power cuts in the country, the coal supply situation is likely to be "uncomfortable" for up to six months.

What is the extent of the coal shortage that thermal power plants are facing?

The average level of coal stocks at an increasing number of India's thermal power plants have come down to four days worth of stock compared to the government recommendations that thermal power plants hold 14 days worth of coal stock. On October 4, 16 thermal power plants with a power generation capacity of 17,475 MW (mega watts) had zero days of coal stock. An additional 45 thermal power plants with a power generation capacity of 59,790 MW had coal stock only sufficient for up to two days of generation. In total, plants with a power generation capacity of 132 Gigawatts (1GW is 1,000 MW) of the 165 GW of capacity monitored daily, had critical or super critical levels of coal stock. The shortage of coal is more acute in non-pithead plants or plants which are not located close to coal mines with such plants accounting for 98 of the 108 plants seen to have critical levels of stock i.e under eight days. India's coal fired thermal power plants account for 208.8 GW or 54 per cent of India's 388 GW installed generation capacity.

What is the reason behind India's coal shortage?

A sharp uptick in power demand as the economy recovers from the Covid-19 pandemic coupled with supply issues have led to the current coal shortage. India consumed 124 billion units of power in August 2021 compared to 106 billion units of power in August 2019 which was not impacted by the pandemic. Coal fired thermal power plants have also supplied a higher proportion of the increase in demand leading the share of thermal power in India's power mix increasing to 66.4% from 61.9% in 2019. Singh said the government has connected an additional 28.2 million households and these households are buying lights, fans and television sets leading to an increase in power demand. "We touched 200 Gigawatts during the Covid period, and the demand has been hovering around 170-180 GW. I expect it to go up again to near about 200GW, and stay there," Singh told The Indian Express in an interview.

What measures is the government taking to address the situation?

An inter-ministerial team, including representatives of the Power and Railway Ministries, Coal India Ltd, the Central Electricity Authority and Power System Operation Corporation, is monitoring the supply of coal to thermal power plants.

SCIENCE OVER SMOG TOWERS

Two new smog towers have been recently inaugurated in Delhi. Bengaluru and Chandigarh also installed smog towers this year. Mumbai's clean air plan indicates a financial requirement of ₹25 crore for installing air filtration units at major traffic intersections in the city. While these efforts indicate that governments are taking cognisance of air pollution, the deployments are often driven by symbolism rather than science. For example, the Delhi government claims that the newly installed smog tower in Connaught Place could reduce air pollution levels by 80%. But there is no scientific evidence of smog towers or any other outdoor air filtration units improving air quality in cities. The smog tower installed China's Xi'an and another one installed in Beijing did not prove to be effective and were not scaled up. Smog towers create an illusion of progress towards clean air while diverting crores of public money away from proven solutions. Moreover, they misdirect policymakers and citizens by deflecting attention from areas that call for urgent action. Therefore, governments looking at investing in outdoor filtration systems should defer their deployment plans. Further, the data on the effectiveness of the newly installed smog towers should be made available publicly for independent evaluation. Until there is scientific consensus on their effectiveness, every new tower installed is just a violation of taxpayers' money and citizens' trust.

What we can do

Meanwhile, governments must ramp up investments in proven solutions to reduce air pollution. First, policymakers should expand air pollution monitoring in areas with limited or no air quality monitoring and strengthen forecasting capacity across cities. Of the 132 cities in the country that currently don't meet the National Ambient Air Quality Standards, 75 do not have a single real-time monitoring station. For areas with no monitoring infrastructure, alternatives like low-cost air quality monitors in combination with satellite observations should be explored to plug the existing data gaps. Simultaneously, cities should strengthen their air quality forecasting systems by collaborating with scientific institutions that are transparent about their approach and findings. These forecasts should be used in rolling out preventive measures such as travel restrictions, pausing commercial activities or encouraging working from home, on anticipated high pollution days. Second, city-level emission inventories must be updated periodically. Until last year, over 75% of our city clean air plans did not contain vital information on emissions from different polluting sources. These data are critical to identify key sources of air pollution and design effective clean air plans as per the local context. While several academic institutions carry out emission inventory and source apportionment studies, these studies should not become a one-time exercise. Third, targeted efforts must be made to improve air quality for urban slum dwellers who have no access to clean cooking energy. In a recent study, we found that nearly half the urban slum households in six States still rely on biomass and other polluting fuels for their cooking needs. Also, household emissions increase during winter, especially when fuel requirement for non-cooking tasks like space heating increases. This increases exposure to indoor air pollution

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and poses health risks. Hence, policymakers must focus on providing LPG connections to these households along with ensuring sustained usage of LPG as the primary fuel. Finally, and most importantly, cities should strengthen their enforcement capacity by investing in people and systems that can keep a round-the-clock watch on both egregious and episodic polluters. India is witnessing a rising democratic demand for clean air. But this cannot be met by unproven technological fixes. Instead, we must vigorously pursue solutions that are rooted in science to bring back blue skies.

U.P. TOPS LIST OF STATES EMITTING FINE PARTICULATE MATTER

Uttar Pradesh is the largest emitter of PM2.5, the class of particulate matter considered most harmful to health, according to an analysis by the Council on Energy, Environment and Water (CEEW). The council, a research body, looked at five of the most reliable data sources — international and national — that have tracked and measured the quantum and sources of air pollution in India. The high emissions from U.P. were largely due to a significant share of PM2.5 emissions from solid-fuel use in households and, by virtue of being India's most populous State, it had a higher proportion of households relying on this form of fuel. Maharashtra, Gujarat, Odisha, West Bengal, Madhya Pradesh, Bihar, Tamil Nadu, and Rajasthan too feature in the list of top polluters but are differently ranked by the five sources. Only Uttar Pradesh is at the top of the lists from all sources.

Data sources

The five data sources used are: Emissions Database for Global Atmospheric Research (EDGAR), maintained by the European Commission's Joint Research Centre; Evaluating the Climate and Air Quality Impacts of Shortlived Pollutants (ECLIPSE), maintained by the International Institute for Applied Systems Analysis (IIASA); Regional Emission Inventory in Asia (REAS), maintained by the National Institute for Environmental Studies, Japan (NIES); Speciated Multipolluter Generator (SMoG), maintained by the Indian Institute of Technology (IIT Bombay); and spatially resolved pollution emission inventory for India, maintained by The Energy and Resources Institute (TERI).

Common pollutants

There are differences in the periods over which these sources track the emissions as well as the pollutants, but most track the important ones: PM2.5, PM10, NOx (nitrous oxides), SO2 (sulphur dioxide), CO (carbon monoxide), NH3 (ammonia), and NMVOC (non-methane volatile organic compounds). The CEEW analysis found "significant variation" in the estimates by various sources going up to as much as 37% for particulate matter (PM2.5 and PM10), nitrogen oxide (NOx), sulphur dioxide (SO2) and carbon monoxide (CO). The overall variation in residential PM2.5 emissions was less than 25%. However, SMoG's residential PM2.5 emission estimates are approximately 50% higher than those estimated by TERI. Because of the extent of variation, the Council said India ought to "develop and maintain a comprehensive inventory of baseline emissions". India has a National Clean Air Campaign (NCAP) that aims to reduce pollution in 122 of the most polluted cities by 2024. "To meet the NCAP target of 20-30% reduction in particulate concentration by 2024, we need to estimate emission reductions needed across sectors. Estimating these reductions will only be possible when we have an official, representative

emission inventory for India," said Tanushree Ganguly, Programme Lead, CEEW, and lead author of the study.

CITIES ARE TAKING CLIMATE ACTION

On September 23, Maharashtra's Environment Minister, Aaditya Thackeray, announced that 43 cities across the State will join the UN-backed 'Race to Zero' global campaign, which aims to create jobs while meeting goals of climate change and sustainable development. This is laudable and timely – Maharashtra has repeatedly been identified as a State that experiences multiple risks (floods, drought, sea-level rise to name a few) and reports abysmally inadequate policy action on climate-resilient development.

Are cities doing enough?

Indian cities have often been singled out for not doing enough on climate change. To examine this, we assessed climate action in 53 Indian cities with a population of over one million and found, promisingly, that approximately half these cities report climate plans, i.e., they have a climate resilience plan or set of projects in place. Of these, 18 cities have moved beyond intention to implementation. These numbers highlight an encouraging first step, signalling that recurrent experiences of floods, water scarcity, cyclones and storm surges are filtering up into urban development policy. However, a lot of interventions are being implemented through sectoral projects focusing on particular, isolated risks. For example, most cities report targeted projects to deal with heat waves and water scarcity, followed by inland flooding, extreme rainfall, and growing disease incidence. Coastal flooding, sea-level rise, and cyclones are discussed less often despite India's long coastline and highly vulnerable coastal cities and infrastructure. This focus tends to overlook how multiple risks converge and reinforce each other — for example, seasonal cycles of flooding and water scarcity in Chennai. Importantly, solutions exist and many of them can simultaneously meet climate action and sustainable development goals. Front-runners in this space have been cities such as Ahmedabad, which has had a Heat Action Plan (HAP) since 2010, its success evident from reduced heat mortality. The HAP involves key government departments, NGOs, researchers and citizens and focuses on high-risk social groups like wage labourers, low-income groups, women and the elderly. Combining infrastructural interventions (for example, painting roofs white) and behavioural aspects (building public awareness on managing heat), the model has now been scaled up to 17 cities across the country. Nature-based solutions such as mangrove restoration in coastal Tamil Nadu and urban wetland management in Bengaluru have demonstrated how restoring ecosystem health can sustain human systems as well. For example, urban parks provide cooling benefits and wetlands regulate urban floods.

Bottlenecks and ways forward

Many have identified how inadequate finances and political will at city scales constrain developing sustainable Indian cities. However, what is less discussed is inadequate institutional capacity in existing government departments to reorient ways of working. This would entail moving away from looking at risks in isolation and planning for multiple, intersecting risks. This would mean transforming the ways our cities operate and expand. Undertaking long-term planning needs resilience planners in every line department as well as communication channels across departments to enable vertical and horizontal knowledge sharing. Another key aspect inherent in

transforming cities is focusing on changing behaviours and lifestyles. This is tougher and less understood because the norms we adhere to, the values we cherish, and the systems we are familiar with tend to stymie change. One emerging example of slow but steady behavioural change is bottom-up sustainable practices such as urban farming where citizens are interpreting sustainability at a local and personal scale. This can mean growing one's own food on terraces and simultaneously enhancing local biodiversity; composting organic waste and reducing landfill pressure; sharing farm produce with a neighbour, bringing communities closer and creating awareness about food growing. India is becoming increasingly urban. Its cities or city-like villages are sites where the twin challenges of climate change and inclusive development will be won or lost. Pledges like Maharashtra's are a welcome addition to ongoing climate plans. It remains to be seen how they translate into action. While gloom and doom dominate climate reportage, a range of solutions with co-benefits for climate action and development exists. How to leverage these solutions and equip our city planners and citizens to implement them is what we should focus on.

THE STORY OF CORBETT NATIONAL PARK, AND THE MAN BEHIND THE NAME

With Union Minister of State for Environment, Forest and Climate Change Ashwini Kumar Choubey proposing to change the name of Corbett National Park to Ramganga National Park, a look at the origins of the park and the legacy of the man who lent it its name.

The name

Jim Corbett's name has lent itself to India's oldest and most celebrated national parks and to the cottage industry that has grown around it. From guesthouses to hair saloons, from general stores to gift shops, Corbett's name lives on in and around the forests of Uttarakhand where the celebrated hunter-naturalist once lived and whose efforts led to the establishment of the national park. But the Park was not always called Corbett. Set up in 1936 as India's — and Asia's — first national park, it was called Hailey National Park after Sir Macolm Hailey, the governor of the United Province. It was renamed Ramganga National Park, named after the river that flows through it, shortly after Independence and was rechristened yet again as Corbett National Park in 1956. "This was one of the few instances when something was named after an Englishman after Independence. Usually, things named after the English were renamed after Independence but this was the other way around," says Stephen Alter, author of In the Jungles of the Night: A Novel About Jim Corbett (2016, Aleph Book Company). "It was at the insistence of Corbett's friend, the great freedom fighter from Kumaon and the first chief minister of Uttar Pradesh, Govind Ballabh Pant, that the park was renamed after him, to honour his conservation efforts," says Alter, whose book draws on many Corbett stories to paint a sparkling portrait of the man.

The park

Located in the Himalayan foothills near the tourist hill station of Nainital, Corbett National Park is spread over 520 sq km and is part of the Corbett Tiger Reserve which is over 1,288 sq km. The national park along with the neighbouring 301-sq km-Sonanadi Wildlife Sanctuary together make the critical tiger habitat of the Corbett Tiger Reserve. With its hills, grasslands and streams, it is ideal tiger territory. The place from where Project Tiger was launched in 1973, with its tiger population at 163, it boasts of a single largest tiger population in a tiger reserve and one of the

highest tiger densities in the country. Home to a number of species, including 600 elephants and over 600 species of birds, the majestic forest is a big draw with tourists.

Jim Corbett, the hunter, the naturalist

Born in Nainital in 1875, Edward James Corbett lived in India till Independence, after which he left for Kenya where he died in 1955. India's best known hunter, Corbett earned fame after he tracked down and killed a number of man-eating tigers and leopards (he is said to have killed over a dozen). But he was known equally well as a storyteller whose shikar yarns and forest tales kept his audience under a spell, and, later, as a conservationist. An ace shot, Corbett was called upon regularly by the government to track and shoot man-eaters in the villages of Garhwal and Kumaon in Uttarakhand. Son of a postmaster and one of many siblings, Corbett along with his family would come down from the hills every winter to their winter home in Kaladhungi in the foothills, which houses a museum now. The foothills would be his training grounds, where he would learn — or as he would say "absorb" — the ways of the forest, jungle lore and much more. "I have used the word 'absorbed', in preference to 'learnt', for jungle lore is not a science that can be learnt from textbooks," he wrote. He would absorb the forest like the back of his hand, a skill that would hold him in good stead in his hunting expeditions, captured so vividly in the Man-eaters of Kumaon (1944), The Man-Eating Leopard of Rudraprayag (1948), The Temple Tiger and More Man-eaters of Kumaon (1955), and other gripping accounts. His books are as much an account of nature as they are of people. My India (1952) is an intimate account of the people he met both in the hills and in the plains — in Mokameh Ghat in Bihar, where his work in the Railways took him while Jungle Lore (1953) meanders through forests in sun and shadow to capture the calls of animals and birds and even an occasional banshee. From the racket-tailed drongo who "can imitate to perfection the calls of most birds and of one animal, the cheetal" to himself understanding and imitating the calls of birds and animals, Jungle Lore shows you just how much of a riveting storyteller Corbett is, letting you absorb the forest rather than learn it. Corbett, who volunteered in both the World Wars and was given the honorary rank of colonel, spent much of his life with his sister Maggie. In his later years, he all but gave up hunting, turning instead to wildlife photography and conservation. Corbett was one of the first persons to take cine-films of tigers in the wild, writes Alter.

His legacy

"When the park was made (in 1936, hunting was prohibited in 1934), there was no dearth of forest nor of prey base, so the contribution of Jim Corbett was that he saw much before anyone else that because of the spread of roads, motor car and loosening of control of arms, the tiger did not stand much of a chance," says Rajiv Bhartari, who was director of Corbett Tiger Reserve from 2005 to 2008 and is now principal chief conservator of forests (head of forest force), Uttarakhand. "So, he used all his skills, contacts and resources to work towards the establishment of Asian mainland's first national park. It was Corbett's vision that the tiger needed protection. The national park today presents over eight decades of conservation." Corbett's legacy, perhaps, lies in his early understanding of the link between conservation and community. "This path between protection and local welfare is a very tough path and Jim Corbett had a coherent philosophy. Not only did he try to work towards protection of tigers but he was equally sensitive and compassionate towards the villagers," says Bhartari who has supervised research both on Corbett's legacy and the history of Corbett National Park at the Wildlife Institute of India. "He was instrumental in setting up

Chhoti Haldwani as a model Kumaoni village. In Corbett, there has been a connection between conservation and local people. When Corbett National Park was formed, the initial boundary was very carefully determined that no rights of villagers were affected. From its inception, it has enjoyed the goodwill of people, because of Jim Corbett. I think that's his legacy, the unique relationship between people and conservation. Today we talk of development, of agriculture, but Corbett spent much of his latter life in trying to improve agriculture in Chhoti Haldwani by spreading seeds, strengthening irrigation and encouraging villagers to grow not just for consumption but for sale. In his house itself, he let a worker run a tea shop to give him a source of living and finally when he went to Kenya, he gifted all his land to the villagers he had settled in Chhoti Haldwani," says Bhartari. The proposed renaming, says Alter, is insignificant, "so long as Corbett's legacy of conservation continues." "You can call Connaught Place Rajiv Chowk, but it doesn't change people's memories of the place. What's important is not the name but that conservation efforts in the Park are strengthened," says Alter.

TAPROOTS TO HELP RESTORE INDIA'S FADING GREEN COVER

Covering nearly 30% land surface of the earth, forests around the globe provide a wide variety of ecosystem services and support countless and diverse species. They also stabilise the climate, sequester carbon and regulate the water regime. The State of the World's Forests report 2020, says that since 1990, around 420 million hectares of forest have been lost through deforestation, conversion and land degradation. Nearly 178 million hectares have decreased globally due to deforestation (1990-2020). India lost 4.69 MHA of its forests for various land uses between 1951 to 1995. Despite various international conventions and national policies in place to improve green cover, there is a decline in global forest cover. This is the prime reason for forest restoration activities including tree planting to become increasingly popular and declaring 2021-2030 as the UN Decade on Ecosystem Restoration for improving environmental conditions and enhancing human communities. Restoration in laymen's terms is bringing back the degraded or deforested landscape to its original state by various interventions to enable them to deliver all the benefits. Building and maintaining activities help to improve ecological functions, productivity and create resilient forests with multifarious capabilities. India's varied edaphic, climatic and topographic conditions are spread over 10 bio-geographical regions and four biodiversity hotspots, sheltering 8% of the world's known flora and fauna. However, dependence on forests by nearly 18% of the global human population has put immense pressure on ecosystems; in India, this has resulted in the degradation of 41% of its forests. To combat this, India joined the Bonn Challenge with a pledge to restore 21 MHA of degraded and deforested land which was later revised to 26 MHA to be restored by 2030. The first-ever country progress report under the Bonn Challenge submitted by India by bringing 9.8 million hectares since 2011 under restoration is an achievement. However, continued degradation and deforestation need to be tackled effectively to achieve the remaining target of restoration by addressing various challenges.

Key challenges

Local ecology with a research base: forest restoration and tree planting are leading strategies to fight global warming by way of carbon sequestration. However, planting without considering the local ecology can result in more damage. Similarly, planting a forest in the wrong places such as savannah grasslands could be disastrous for local biodiversity. Luckily recent research has shown

that naturally regenerated forests tend to have more secure carbon storage. Being less tech-sensitive, cost-effective and conserving more biodiversity, natural forest restoration is becoming more widely accepted. However, it is fundamental to consider the local ecology before implementing any restoration efforts to retain their biodiversity and ecosystem functions. Restoration, being a scientific activity, needs research support for its success. Whether one goes for active restoration which includes planting or passive restoration with more focus on halting environmental stressors or adopting an intermediate approach of aided natural regeneration, it needs critical examination before putting restoration interventions into practice.

Situation in India

Nearly 5.03% of Indian forests are under protection area (PA) management needing specific restoration strategies. The remaining areas witness a range of disturbances including grazing, encroachment, fire, and climate change impacts that need area-specific considerations. Further, much of the research done so far on restoration is not fully compatible with India's diverse ecological habitats hence warranting due consideration of local factors. So, the relevance of local research duly considering ecological aspects, local disturbances and forest-dependent communities is vital to formulate guidelines for locally suitable interventions and to meet India's global commitment. Though India's increasing economic growth is helping to eliminate poverty, there is continued degradation and a growing scarcity of natural resources. The intricate link between poverty and environmental degradation was first highlighted by India at the first UN global conference on the human environment in Stockholm. Out of its 21.9% population living under the poverty line, nearly 275 million people including local tribals depend on the forest for subsistence.

Fundamental to the strategy

Further, encroachment of nearly 1.48 MHA of forest and grazing in nearly 75% of forest area is also linked to the livelihood of local communities. Linked with the degradation of forests, this dependency, along with various social-political and economic factors, complicates the issue manifold. The participation of local communities with finances for incentives and rewards is essential to redress this complex riddle. There have been remarkable initiatives to involve local people in the protection and development of forests by forming joint forest management committees (JFMC). More than 1,18,213 JFMCs involving around 20 million people manage over 25 MHA of forest area. However, a review of their functionality and performance is essential to make them more dynamic and effective to scale up their involvement. Therefore, negotiations with a wide range of stakeholders including these committees for resolving conflicts and fulfilling restoration objectives are a must and a challenging feat to reach a suitable trade-off. Adequate financing is one of the major concerns for the success of any interventions including restoration. The active approach of restoration which includes tree planting and the involvement of communities seeks incentives and rewards and make the whole affair quite cost-intensive. The contribution of corporates in restoration efforts so far has been limited to 2% of the total achievement. Hence, alternate ways of financing such as involving corporates and dovetailing restoration activities with ongoing land-based programmes of various departments can help to make it easy for operation. Apart from these specific challenges, the common barriers to restoration as identified globally also need critical review before placing the required methodologies and area-specific strategies in place. The involvement of multiple stakeholders in

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forest restoration is bound to cause a conflict of interests among different stakeholders; along with low priority and insufficient funding, it becomes even more challenging. Active engagement of stakeholders including non-governmental organisations, awareness and capacity building of stakeholders with enabling policy interventions and finance can help a lot to achieve the remaining 16 MHA restoration objectives for India. The need of the hour is an inclusive approach encompassing these concerns with the required wherewithal.

GOVT. MOOTS CHANGES TO FOREST CONSERVATION ACT

The Union Government has proposed absolving agencies involved in national security projects and border infrastructure projects from obtaining prior forest clearance from the Centre as part of amendments to the existing Forest Conservation Act (FCA). The FCA, which first came in 1980 and was amended in 1988, requires such permission. The proposed amendment is part of a larger rationalising of existing forest laws, the government has said. The document is open to public discussion for 15 days after which it could be readied for Cabinet and parliamentary approval. There is also a plan in the document that is now available on the Environment Ministry's website, to exempt land acquired before 1980 — before the FCA came into effect — by public sector bodies such as the Railways. Currently, the document notes, there was "strong resentment" among several Ministries on how the Act was being interpreted over the right of way of railways, highways. As of today, a landholding agency (Rail, NHAI, PWD, etc.) is required to take approval under the Act and pay stipulated compensatory levies such as Net Present Value (NPV), Compensatory Afforestation (CA), etc. for use of such land which was originally been acquired for non-forest purposes. The Environment Ministry also proposes adding a clause to make offences under the modified Act punishable with simple imprisonment for a period which may extend to one year and make it cognisable and non-bailable. They also propose provisions for penal compensation to make good for the damage already done. The document also proposes removing zoos, safaris, Forest Training infrastructures from the definition of "non-forestry" activities. The current definition restricts the way money collected as part of compensatory cess can be spent towards forest conservation purposes. Previous attempts to amend acts linked to forest laws have been controversial. There was a plan to amend the Indian Forest Act, 1927, that deals with the rights of forest dwellers, in an attempt to address contemporary challenges to the country's forests. The draft law had been sent to key forest officers in the States for soliciting comments and objections. It drew flak from activists as well as tribal welfare organisations. The government withdrew the draft and has said that a newer updated version was on the anvil.

CHOLA INSCRIPTIONS ON CIVIC OFFICIALS' ELIGIBILITY

At a time when the rural local bodies in nine newly constituted districts are going to the polls, some Chola-era inscriptions bear testimony to the qualifications required for members of the village administrative council. The inscriptions at Thenneri village in Kancheepuram district also shed light on how farm produce was taxed. "I had a chance to visit the temples and read the inscriptions when I was campaigning for the local bodies elections in the district," said Industries Minister Thangam Thennarasu, who also holds the portfolio of Archaeology. The inscriptions of Uthiramerur in Kancheepuram district that dwells upon 'Kudavolai' — a system to elect members to annual committee ('variyam'), garden committee, tank committee and other committees for 30 wards — are well-known. But very little is known about the Thenneri inscriptions laying down

qualifications for candidates to village administrative committees ('perumkuri sabai'). The village is located between Walajah and Sunkuvarchathiram. The Kanthaleeswarar temple and the Abathsaheswarar temple are on the banks of the 3.80-km-long Thenneri. They were constructed by Sembian Mahadevi, the grandmother of Chola King Rajaraja, in memory of her son Uthama Chola. The inscriptions are on the walls of the Kanthaleeswarar temple, Mr. Thennarasu said. The temple which offers picturesque scenes are under the control of the Archaeological Survey of India (ASI). S. Sridharan, former Deputy Superintending Archaeologist of the Archaeology Department, said that according to the inscriptions, candidates should own land and should not have any case pending against them. "He should be highly educated and should have maintained his accounts in a transparent manner." Mr. Thennarasu said the rulers were considerate while taxing agricultural produce. "For areca nuts, only 50% tax would be collected for the first 10 years after cultivation. Farmers would pay full tax only after the trees started yielding fruits. Similarly, 50% tax was imposed on banana crops until the yield," he said, citing the inscriptions. The lake bears testimony to Thenneri's ancientness. Perumpanattrupadai, a Sangam-era literary work, refers to the king who created the lake as 'Thondaiman Ilanthiraiyan'. The copper plates of the Pallava period found at Kaasakudi refer to the lake as 'Thiraiyan Eri'. Over centuries, it has become Thenneri, Mr. Sridharan said.

FUTURE-PROOFING LANGA-MANGANIYAR HERITAGE

Considered the repository of the Thar region's rich history and traditional knowledge, the ballads, folklore and songs of the Langa-Manganiyar artistes are being preserved through an initiative for documentation and digitisation. The project is aimed at saving the rapidly disappearing narrative traditions of these communities. The Jodhpur-based Rupayan Sansthan, established by an eminent folklorist, the late Komal Kothari, and writer Vijaydan Detha, has extended support to the initiative taken by the Archives and Research Centre for Ethnomusicology at the American Institute of Indian Studies (AIIS) in the research project. The Langas and Manganiyars are hereditary communities of Muslim musicians residing mostly in western Rajasthan's Jaisalmer and Barmer districts and in Pakistan's Tharparkar and Sanghar districts in Sindh. The iconic and internationally acclaimed folk artistes have, however, been hit hard by the COVID-19 pandemic that stopped their performances in India and abroad and poses a challenge to the very survival of the popular art form. The music of the two marginalised communities, who were supported by wealthy landlords and merchants before Independence, forms a vital part of Thar desert's cultural landscape. Apart from the pandemic, this vital heritage is also facing a threat from changes in patronage and increased urbanisation in these districts. The Rupayan Sansthan has a collection of 20,000 hours of audio recordings of Langa-Manganiyar performances in analog form. The recordings, dating from 1980 to 2003, comprise a wide range of heroic ballads, romantic epic tales and the Sufi spiritual stories, Sansthan's secretary Kuldeep Kothari told The Hindu on Saturday. The performances are in multiple languages and dialects including Marwari, Sindhi, Saraiki, Dhatti and Thareli. In addition to digitisation of the cassette collection at Rupayan Sansthan as part of the project, the researchers have been travelling to the remote villages in Jodhpur, Barmer and Jaisalmer districts to record the performances of Langas and Manganiyars. Mr. Kothari said the preservation of oral traditions would encourage the local communities' involvement in the efforts to nurture audiences and protect the history of the desert region. The romantic tales revolving around legendary lovers such as Umar-Marvi, Heer-Ranjha, Sohni-Mahiwal, Moomal-Rana and Sorath-Rao Khangar have traditionally captivated audiences. "Our emphasis in the collaboration

with the AIIS is on the preservation of katha, gatha, varta (tales, epics, talk) forms. The material derived from recordings will be made available for research and utilised for training of younger generation of performers," Mr. Kothari said.

Training for future

In another initiative, Shafi Mohammed Langa is training young underprivileged boys from the musician communities at the School of Folk Music, set up by the Rupayan Sansthan. Stating that the nuances of ragas and presentation with proper expression and diction were being taught to children, Mr. Langa said the school would gradually emerge as a resource centre for western Rajasthan's folk music. Famous Barmer-based vocalist Anwar Khan, a recipient of Padma Shri in 2020, said the artistes needed a greater support because their global performances having been halted in the pandemic.

BRITISH-ERA BUNGALOW IS HOME TO BRAHMAPUTRA HERITAGE CENTRE

A British-era bungalow on a hillock that used to be the 17th century military office of the Ahom rulers has been converted into a heritage centre depicting life along the Brahmaputra. Vice-President M. Venkaiah Naidu on Sunday inaugurated the Mahabahu Brahmaputra River Heritage Centre on Guwahati's Barphukanar Tila, meaning Barphukan's Hillock. A Scottish-type wooden bungalow standing since 1850 was renovated and converted into the heritage centre. Barpukhan was a post equivalent to Governor General created by Ahom king Pratap Simha or Susengpha (1603-1641). The hillock by the Brahmaputra, mentioned in ancient scriptures as Mandrachal, was from where Ahom General Lachit Barpukhan launched the Battle of Saraighat in March 1671 to inflict the most crushing defeat on the Mughals. Saraighat is regarded as the "greatest naval battle ever fought in a river". Captain Archibald Bogle, posted as the Assistant Commissioner and Collector of Kamrup district in the 1850s, had the bungalow built. Post-Independence, it continued to be the Deputy Commissioner's Bungalow until 2011.

Significance of rivers

"Standing as a grand tribute to the majestic river and capturing its significance to the region, the Brahmaputra River Heritage Centre has been set up in a nearly 150-year-old bungalow after an elaborate restoration," Mr. Naidu said. He called for a national campaign for rejuvenating Indian rivers and the inclusion of lessons on water conservation in the school curricula. The centre has on display the history of the Battle of Saraighat, the heritage of Assamese war boats, an amphitheatre, an exhibition space, a cafeteria and two viewing decks. The other attractions include a collection of traditional fishing equipment, photographs and artefacts related to the history of Guwahati and river transport, installations depicting the textile designs, ethnic motifs and indigenous musical instruments of communities inhabiting the banks of the Brahmaputra.

BUSINESS & ECONOMICS

WHY DO THE PANDORA PAPERS MATTER?

What are the Pandora Papers?

These are 11.9 million leaked files from 14 global corporate services firms which set up about 29,000 off-the-shelf companies and private trusts in not just obscure tax jurisdictions but also countries such as Singapore, New Zealand, and the United States, for clients across the world. These documents relate to the ultimate ownership of assets 'settled' (or placed) in private offshore trusts and the investments including cash, shareholding, and real estate properties, held by the offshore entities. There are at least 380 persons of Indian nationality in the Pandora Papers. Of these, The Indian Express has so far verified and corroborated documents related to about 60 prominent individuals and companies. This is an ongoing investigation.

What do the Pandora Papers reveal?

The Pandora Papers reveal how the rich, the famous and the notorious, many of whom were already on the radar of investigative agencies, set up complex multi-layered trust structures for estate planning, in jurisdictions which are loosely regulated for tax purposes, but characterised by air-tight secrecy laws. The purposes for which trusts are set up are many, and some genuine too. But a scrutiny of the papers also shows how the objective of many is two-fold: i) to hide their real identities and distance themselves from the offshore entities so that it becomes near impossible for the tax authorities to reach them and, ii) to safeguard investments — cash, shareholdings, real estate, art, aircraft, and yachts — from creditors and law enforcers.

How is Pandora different from the Panama Papers and Paradise Papers?

The Panama and Paradise Papers dealt largely with offshore entities set up by individuals and corporates respectively. The Pandora Papers investigation shows how businesses have created a new normal after countries have been forced to tighten the screws on such offshore entities with rising concerns of money laundering, terrorism funding, and tax evasion. The Pandora Papers pierce the corporate veil and reveal how trusts are prolifically used as a vehicle in conjunction with offshore companies set up for the sole purpose of holding investments and other assets by business families and ultra-rich individuals. The trusts can be set up in known tax havens such Samoa, Belize, Panama, and the British Virgin Islands, or in Singapore or New Zealand which offer relative tax advantages, or even South Dakota in the US, the biggest economy.

What is a trust?

A trust can be described as a fiduciary arrangement where a third party, referred to as the trustee, holds assets on behalf of individuals or organisations that are to benefit from it. It is generally used for estate planning purposes and succession planning. It helps large business families to consolidate their assets — financial investments, shareholding, and real estate property. A trust comprises three key parties: 'Settlor' — one who sets up, creates, or authors a trust; 'trustee' — one who holds the assets for the benefit of a set of people named by the 'settlor'; and 'beneficiaries' — to whom the benefits of the assets are bequeathed. A trust is not a separate legal entity, but its

legal nature comes from the 'trustee'. At times, the 'settlor' appoints a 'protector', who has the powers to supervise the trustee, and even remove the trustee and appoint a new one.

Is setting up a trust in India, or one offshore/ outside the country, illegal?

No. The Indian Trusts Act, 1882, gives legal basis to the concept of trusts. While Indian laws do not see trusts as a legal person/ entity, they do recognise the trust as an obligation of the trustee to manage and use the assets settled in the trust for the benefit of 'beneficiaries'. India also recognises offshore trusts i.e., trusts set up in other tax jurisdictions.

If it's legal, what's the investigation about?

This is a very valid question. True, there are legitimate reasons for setting up trusts — and many set them up for genuine estate planning. A businessperson can set conditions for 'beneficiaries' to draw income being distributed by the trustee or inherit assets after her/ his demise. For instance, while allotting shares in the company to say, four siblings, the father promoter set conditions that a sibling can get the dividend from the shares and claim ownership of the shares, but not sell it without offering the first right of refusal to the other three siblings. This could be to ensure ownership of the enterprise within the family. But trusts are also used by some as secret vehicles to park ill-gotten money, hide incomes to evade taxes, protect wealth from law enforcers, insulate it from creditors to whom huge moneys are due, and at times to use it for criminal activities. The Indian Express investigation reveals this.

So, why are trusts set up? And why overseas? What should you also know?

Overseas trusts offer remarkable secrecy because of stringent privacy laws in the jurisdiction they operate in. A lot depends on the intention behind setting up an offshore trust — and if the taxman can provide evidence that suggests mala fide intent by the trust, then the courts tend to back the tax department in their attempt to recover the taxes due. From the investigation, some key tacit reasons why people set up trusts are:

i) Maintain a degree of separation: Businesspersons set up private offshore trusts to project a degree of separation from their personal assets. A 'settlor' (one who sets up/ creates/ authors) of a trust no longer owns the assets he places or 'settles' in the trust. This way, he insulates these assets from creditors. This is best illustrated through an example: A real estate promoter sets up an offshore trust, which sits on top of four offshore entities holding some assets. Now, private equity investors drag various entities of the real estate group to the National Company Law Tribunal under the bankruptcy law. So do homebuyers who have invested in residential properties by this company. But the Pandora Papers show the promoter moved tens of millions of dollars in assets to the trust amid police complaints in Delhi by his foreign investors, alleging siphoning off funds to the tune of hundred-plus million dollars. His wealth moved to an offshore trust remains safe from creditors.

ii) Hunt for enhanced secrecy: Offshore trusts offer enhanced secrecy to businesspersons, given their complex structures. The Income-Tax Department in India can get to the ultimate beneficial owners only by requesting information with the financial investigation agency or international tax authority in offshore jurisdictions. The exchange of information can take months.

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iiii) Avoid tax in the guise of planning: Businesspersons avoid their NRI children being taxed on income from their assets by transferring all the assets to a trust. The ownership of the assets rests with the trust, and the son/ daughter being only a 'beneficiary' is not liable to any tax on income from the trust. In many business families, children have one foot abroad, hence family patriarchs have increasingly looked at trusts to ensure a hassle-free transfer of assets into their children's hands.

iv) Prepare for estate duty eventuality: There is pervasive fear that estate duty, which was abolished back in 1985 when Rajiv Gandhi was Prime Minister, will likely be re-introduced soon. Setting up trusts in advance, business families have been advised, will protect the next generation from paying the death/ inheritance tax, which was as high as 85 per cent in the more than three decades after its enactment (The Estate Duty Act, 1953). Although India does not have a wealth tax now, most developed countries including the US, UK, France, Canada, and Japan have such an inheritance tax.

v) Flexibility in a capital-controlled economy: India is a capital-controlled economy. Individuals can invest only $250,000 a year under the Reserve Bank of India's Liberalised Remittance Scheme (LRS). To get over this, businesspersons have turned NRIs, and under FEMA, NRIs can remit $1 million a year in addition to their current annual income, outside India. Further, the tax rates in overseas jurisdictions are much lower than the 30% personal I-T rate in India plus surcharges, including those on the super-rich (those with annual income over Rs 1 crore).

vi) The NRI angle: Offshore trusts, as noted earlier, are recognised under Indian laws, but legally, it is the trustees — not the 'settlor' or the 'beneficiaries' — who are the owners of the properties and income of the trust. An NRI trustee or offshore trustee taking instructions from another overseas 'protector' ensures they are taxed in India only on their total income from India. Of late, NRIs are under greater scrutiny of the Income-Tax Department; they have been receiving notices to prove their non-resident status of past years, to check if they made the required disclosure of 'foreign assets' in years when they were ordinarily resident in India.

Can offshore Trusts be seen as resident Indian for tax purposes?

There are certain grey areas of taxation where the Income-Tax Department is in contestation with offshore trusts. After The Black Money (Undisclosed Foreign Income and Assets) and Imposition of Tax Act, 2015, came into existence, resident Indians — if they are 'settlors', 'trustees', or 'beneficiaries' — have to report their foreign financial interests and assets. NRIs are not required to do so — even though, as mentioned above, the I-T Department has been sending notices to NRIs in certain cases. The I-T Department may consider an offshore trust to be a resident of India for taxation purposes if the trustee is an Indian resident. In cases where the trustee is an offshore entity or an NRI, if the tax department establishes the trustee is taking instructions from a resident Indian, then too the trust may be considered a resident of India for taxation purposes. For instance, in one case, an Indian wealth manager has been appointed a 'protector' (with powers to supervise the trustee) by an offshore trust, leaving a window open for the taxman.

TRADE MULTILATERALISM AT RISK

The World Trade Organization (WTO) — the global trade body — is facing a serious existential crisis. The upcoming WTO ministerial meeting scheduled for next month in Geneva provides an opportunity to rescue this critical global institution from irrelevance. Created in 1995, during the heyday of neoliberalism, the WTO became a shining example of triumphant free-market capitalism. Critics of neoliberalism chastised the WTO for pushing the American imperialist agenda. Paradoxically, more than two-and-a-half decades later, the United States seems to have lost interest in it. The feeling in Washington is that the WTO hasn't served the American national interest by failing to stem China's rise and regularly indicting the U.S. in several trade disputes. President Joe Biden has continued with the same policy towards the WTO that Donald Trump practised. The continuation of the U.S. policy on the WTO is most evident in the sustained crippling of the Appellate Body (AB). The AB is part of the WTO's dispute settlement mechanism. It is a permanent body with seven members, and acts as an appellate court hearing appeals from the decisions given by WTO panels. However, since December 2019, the AB has stopped functioning due to rising vacancies. Over the years, the U.S. has consistently blocked the appointment of AB members. The U.S. also vetoes proposals to find solutions to this impasse, including stalling the proposal of the European Union to establish an alternative interim appellate arbitration mechanism. The number of pending appeals to the AB has increased sharply to around 20 cases. Countries now have an easy option not to comply with the WTO panel decisions by appealing into the void.

Other challenges

Additionally, there are four other challenges that the WTO faces. First, no solution has been found to the public stockholding for food security purposes despite a clear mandate to do so in the 2015 Nairobi ministerial meeting. This is of paramount concern for countries like India that use Minimum Support Price (MSP)-backed mechanisms to procure foodgrains. The WTO rules allow countries to procure, stock and distribute food. However, if such procurement is done at an administered price such as the MSP that is higher than the external reference price, then the budgetary support provided shall be considered trade-distorting and is subject to an overall cap. With rising prices and the need to do higher procurement to support farmers and provide food to the poor at subsidised prices, India might breach the cap. Although countries have agreed that legal suits will not be brought if countries breach the cap, it is imperative to find a permanent solution such as not counting MSP-provided budgetary support as trade-distorting. Second, the WTO member countries continue to disagree on the need of waiving the Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement for COVID-19 related medical products. It was exactly a year back when India and South Africa proposed a TRIPS waiver to overcome intellectual property (IP)-related obstacles in increasing accessibility of COVID-19 medical products, including vaccines. The WTO needs to adopt a waiver in the upcoming ministerial meeting. Third, the WTO is close to signing a deal on regulating irrational subsidies provided for fishing that has led to the overexploitation of marine resources by countries like China, which is the largest catcher and exporter of fish. However, this agreement should strike a balance between conserving ocean resources and the livelihood concerns of millions of marginal fishermen. An effective special and differential treatment provision that accords adequate policy space is what India and other developing countries should insist on. Fourth, the gridlock at the WTO has led to the emergence

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of mega plurilateral trade agreements like the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) — a treaty between 11 countries. Another key trade treaty is the Regional Comprehensive Economic Partnership (RCEP) agreement between Asian economies and countries down under. These plurilateral agreements not only fragment the global governance on international trade but also push the multilateral order to the margin, converting the WTO to what some call an "institutional zombie". Prime Minister Narendra Modi, during his recent U.S. visit, rightly pleaded for a rule-based global order. Institutional multilateralism would be the ideal antidote to unilateralism and economic nationalism. Notwithstanding its flaws, the WTO is the only forum where developing countries like India, not party to any mega plurilateral trade agreements, can push for evolving an inclusive global trading order that responds to the systemic imbalances of extant globalisation. What is at stake is the future of trade multilateralism and not just an institution.

THE RECENT QES ESTIMATES ARE UNRELIABLE

Last week, the Ministry of Labour and Employment released the results of a new Quarterly Employment Survey (QES) for April-June 2021 for the organised (formal) sector. It represents establishments (or units) employing ten or more workers. The surveyed sectors were manufacturing, construction, trade, transport, education, health, accommodation and restaurant, Information Technology/Business Process Outsourcing (IT/BPO), and financial services. The survey reported the following. First, "It is heartening to note that the estimated total employment in the nine selected sectors from the first round of QES works out as 3 crores and 8 lakhs approximately against a total of 2 crores and 37 lakhs in these sectors taken collectively, as reported in the Sixth Economic Census (2013-14), implying a growth of 29%." Secondly, employment fell from 3.078 crore before the first nationwide lockdown in March 2020 to 2.848 crore post the lockdown on July 1, 2020. Thus, the report showed that 24 lakh jobs lost during the lockdown in 2020 came back by the first quarter of 2021. The new QES is a welcome step as it will help generate timely employment estimates for the larger units. However, the above analysis is fraught with caveats and the interpretation of the survey results calls for caution.

Limited coverage

As is widely known, establishments with ten or more workers account for a small proportion of all non-agricultural establishments — a mere 1.66% as per the Economic Census (EC) of 2013-14. Also, a disproportionately large share of workers — 81.3% as per the Periodic Labour Force Survey (PLFS, 2018-19) — worked in the unorganised sector. With its limited coverage, the QES based on data for formal sector enterprises cannot provide a total picture of employment dynamics. Hence, drawing inferences about overall job losses during the lockdown based on this survey is simply misleading. Data from the Centre for Monitoring Indian Economy (CMIE) showed that during April 2020, 12.1 crore workers lost their jobs. Most of these workers were informally employed — 9.1 crore job losses reportedly occurred amongst small traders and casual labourers. The official PLFS indicated the extent of distress in the labour market during the nationwide lockdown. The unemployment rate by current weekly status (i.e. the activity status during seven days preceding the survey date) in urban areas increased from 9.1% in January-March 2020 (before the lockdown) to 20.8% in April to June 2020. Significantly, the new QES data suffer from many methodological shortcomings such as an outdated sample frame, non-comparability of

employment numbers obtained from the EC-2013 with sample estimates obtained from the QES for only a quarter, and differences in methods used for gathering the information. We elucidate these problems below. Conducting a scientific sample survey requires a "sample frame", i.e. the list of units (e.g., persons, households, businesses, etc.) in the survey population. Since the basis for sample selection is this list, the frame is of utmost importance for the survey design. To generate a frame for its enterprise surveys, India has been conducting the ECs since 1977, albeit at long and irregular intervals. The most recent one was in 2013-14, which the QES has used. The new QES has a sample of approximately 11,000 establishments. The datedness of the frame implies that the QES does not include units set up after 2013. Further, the EC-2013 has based itself on the "enumeration blocks" of the Population Census, 2011 as the primary geographical units. The outdated nature of the sample frame, which has been acknowledged for a while now, renders the new QES employment estimates irrelevant. To understand the QES's origin, the Labour Bureau (LB) conducted the first such survey in 2009, with a modest sample size of around 2,000 manufacturing units for eight select labour-intensive and export-oriented industries in 11 States. The survey sought to assess the employment effects of the global financial crisis and was conducted till December 2015. In April 2016, the LB replaced this series with another quarterly series, which had a larger sample size and enhanced sectoral coverage. The EC-2013 served as the sampling frame for this survey, too. However, it was soon abandoned as a government-appointed Task Force on Improving Employment Data (2017) recommended doing away with the QES on grounds of its limited coverage and an outdated sample frame. Given the above background, the rush to produce a new QES that draws its sample from the EC-2013 frame seems baffling. It would have been more prudent to await the release of a newly updated frame in the EC-2020 and then canvass for the QES. In fact, given the outdated frame, drawing inferences about employment changes even for the organised sector during the lockdown is misleading. It is also worth noting that QES was primarily a telephonic survey and verification of responses of establishments has not been done (as has been the usual practice for the LB's quarterly surveys). Moreover, the comparison of the employment estimates obtained from the new QES for April to June 2021 with the employment number based on the EC-2013 reported in the first paragraph is confounding. The latter is a census, conducted over an entire year, to provide a frame. The former is a sample survey conducted with a short reference period. The questionnaire of the QES asks establishments about employment details for a specific quarter, in this case, April 1, 2021. In contrast, the EC-2013 questionnaire asks establishments about the number of persons working on the last working day prior to the date of fieldwork in the establishment.

Conceptual problem

In addition, there is a conceptual problem in comparing employment numbers of the EC with the QES. Although the former asks questions about the number of persons working in an enterprise, it is not a good instrument for estimating the size of the workforce or for analysing employment trends as the principal objective of the EC is generating a frame, not estimating employment. The initiative to produce quarterly employment data for selected industries in the organised sector is desirable. However, in a rush to generate high-frequency estimates, there cannot be a compromise on data quality and its reliability. Hence, the inference drawn using the new survey data, as reported in the opening paragraph, is misleading. The LB's hurried effort has only created (avoidable) confusion and undermined the potential value of the QES.

GOVT. NOTIFIES NEW RULES TO CLEAR RETRO TAX MESS

Firms such as Cairn and Vodafone disputing retrospective tax demands in India will not only have to withdraw all legal proceedings and waive all rights to claim costs or attach Indian assets but also indemnify the government on costs and liabilities from any action pursued by other interested parties in future. Setting the stage for a closure of the retrospective tax disputes over indirect transfer of assets situated in India, the Union government late on October 1 notified new rules under the Income Tax Act for specifying the process to be followed by affected taxpayers to settle these long-brewing disputes.

New section

The Income-Tax (31st Amendment) Rules, 2021, introduce a new portion pertaining to 'indirect transfer prior to May 28, 2012 of assets situated in India', and lay out the conditions and formats for undertakings to be submitted by all 'interested parties' to the tax department in order to settle their tax disputes. The affected taxpayers, along with all the interested parties (such as their shareholders, for instance), will have to give up all claims in any ongoing legal proceedings, including arbitration, mediation efforts and attachment proceedings, with an undertaking that such initiatives will not be reopened. An indemnity bond would have to be furnished that the taxpayer and interested parties "fully assume the risk of any omission or mistake with respect to identification and procurement of authorisations and undertakings from any related parties or interested parties as provided in the undertaking". In early September, after draft rules were issued to resolve these tax disputes, the worst-affected player, U.K.-based Cairn Energy said it was working with the Indian government to expedite 'documentation and payment of refund' of $1.06 billion of retrospective taxes at the centre of its high-stake dispute with India. After years of dithering, the government amended the Income Tax laws earlier this year to scrap the retrospective tax provisions introduced in 2012-13, under which Cairn was taxed in 2014 for a corporate restructuring undertaken in 2006-07. The tax department had subsequently frozen the firm's shares as part of the proceedings and sold them off to recover the claimed tax dues. An international arbitration tribunal scrutinising the tax dispute had ruled in Cairn's favour last December and awarded it $1.2 billion in damages. While the government has filed an appeal against the arbitration verdict, Cairn has filed lawsuits in several overseas jurisdictions to enforce the tribunal's award. In France, the company has secured a court's permission to freeze at least 20 Indian properties in Paris. In the U.S., it is pressing for securing Air India's assets by arguing that the national carrier is the 'alter ego' of the government in an ongoing legal process. All such proceedings will have to be dropped and an undertaking be given to that effect as per the I-T Rules for burying these tax disputes.

'OPENING UP COMPETITION IN DISCOM KEY TO EFFICIENCY, NEARLY ALL STATES ON BOARD'

Nearly all states are on board with the government's intention to open up the power distribution sector to competition through the Electricity Amendment Bill, a move that will ensure that consumers get a choice and service providers have to compete with each other, Union Power Minister R K Singh told The Indian Express. Singh added the opening up of competition in power distribution was the best solution to the efficiency issues faced by the sector, which is clearly the

weakest link in India's power sector and that is fundamental to the financial viability of the upstream generation and distribution sectors. Issues such as poor billing, collection efficiency and high receivables from state governments have led to state-owned discoms (distribution companies) consistently struggling with high losses, raising question marks over the financial viability of investments in the entire sector. "I've had consultations with the states, all the principal secretaries, division wise … I think only one state probably said that this will be difficult, everybody else has discussed the mechanics of it, not the principle of it," Singh said on the plan to introduce competition for discoms, which currently have monopoly on distribution in their service areas, be it state-owned discoms or private service providers. West Bengal Chief Minister Mamata Banerjee had in August written to the Prime Minister, citing opposition to the move, calling the Bill "anti-people". Banerjee said the Bill would lead to private sector players "cherry picking" areas with high paying industrial and commercial consumers, leaving state discoms "sick" and having to provide services to only rural and agricultural consumers whose consumption is subsidised. Singh said the allegation of cherry picking by service providers is unfounded. He said new players would prioritise entry in areas where there is wide room for efficiency and bringing down lower prices, noting that the cross-subsidisation of rural and agricultural consumers through higher tariffs charged to industrial and commercial consumers would continue. "So, what happens is that if in a particular area, there are more payers of cross-subsidy than the consumers of the cross-subsidy, there will be a cross-subsidy surplus that will be deposited with that organisation (subsidy holder appointed by states) and that cross-subsidy goes to finance areas where the demand for the cross-subsidy is more than the cross-subsidy collection," he said. The principle is something that has been tried out in the telecom sector by way of the USO Fund, where resources for meeting the service obligation in remote, unviable areas were to be generated through a universal access levy at a stipulated percentage of the revenue earned by the telecom licensees, with service providers operating in remote, unviable areas to be duly reimbursed from this fund. Multiple Central government schemes to reduce discom losses and improve operational efficiency have not been able to ensure a sustained turnaround of discoms. High outstanding government department dues to discoms valued at Rs 97,088 crore in June and subsidies payable by state governments to discoms at Rs 60,743 crore are also putting severe stress on discom finances. Low billing efficiency is a key issue in the distribution sector, with discoms registering an efficiency of only 85.4 per cent in FY20. Financial instability of discoms has also led to a delay in payments to power generation companies, with major companies such as state-owned NTPC Ltd, threatening to regulate power supply to major discoms over payment delays. In June, discoms had payables of about Rs 1.76 lakh crore to state and Central power generation companies and transmission companies. "So, one thing is clear that if power bills are not paid for 45 days, which is the payment time, then regulation will happen. This is going to happen. I have told every genco (generation company) that no payment means no electricity. Otherwise, discipline will not come," Singh said. The government has recently announced a new Rs 3.03-lakh-crore discom reform scheme to bring down aggregate technical and commercial losses to 12 per cent, down from a national average of about 22 per cent currently, and to eliminate the gap between the cost of supply and average revenue realised by discoms. The new scheme is linked to improved operational performance by discoms with the release of funds by the Centre being contingent on achievement of reduction in losses and installation of modern infrastructure, including smart meters. Singh also noted that privatisation of power distribution as an alternative to delicensing was a "sub-optimal" solution to improve discom efficiency and service for consumers. "… privatisation is that you are replacing a government monopoly with a private monopoly. So it's a

sub-optimal solution. Some would say that a private monopoly is worse than a government monopoly," he said, adding the amendment would just open the door for competition and that existing discoms would continue as they are. Privatisation of state discoms in certain areas including Delhi, Ahmedabad, Kolkata and Mumbai has led to increase in operational efficiency and improvements in financial stability, though the concept of ushering in competition within a service area is still to be achieved.

MOODY'S GIVES 'STABLE' RATING TO INDIA

Rating agency Moody's Investors Service has upgraded India's sovereign rating outlook to 'stable' from 'negative', citing an ebbing of risks from COVID-19 and the negative feedback between the real economy and the financial system. While it retained India's rating at Baa3, reflecting the lowest investment grade rating, Moody's said it expects real GDP to surpass pre-pandemic levels of 2019-20 this year itself, as the ongoing economic recovery is picking up steam with activity upticks broadening across sectors. It expects 2021-22 to record 9.3% growth in GDP, followed by 7.9% next year. In June 2020, Moody's downgraded India's rating to Baa3 from Baa2 with a negative outlook. On Tuesday, it said that downside risks to growth from subsequent coronavirus infection waves were mitigated by rising vaccination rates and more selective use of restrictions on economic activity. Moreover, higher capital cushions and greater liquidity suggests banks and non-bank financial institutions pose much less risk to the sovereign than Moody's previously anticipated. "While risks stemming from a high debt burden and weak debt affordability remain, Moody's expects that the economic environment will allow for a gradual reduction of the general government fiscal deficit over the next few years, preventing further deterioration of the sovereign credit profile," it said. Over the medium term, Moody's expects real GDP growth to average around 6%, reflecting a rebound in activity to levels at potential as conditions normalize. "The growth projections take into account structural challenges, including weak infrastructure, rigidities in labour, land and product markets that continue to constrain private investment and contribute to post-pandemic economic scarring," it explained. The normalisation of growth levels will enable a 'gradual fiscal consolidation and stabilisation of the government's debt burden, albeit at high and above pre-pandemic levels', the rating agency said.

Debt levels

However, Moody's said the higher debt burden and weaker debt affordability compared to pre-pandemic times is expected to persist, which is a key factor in its rationale for retaining the Baa3 rating as it would contribute to 'lower fiscal strength'. This would offset India's recent strong points such as narrower current account deficits and historically high foreign exchange reserves that have reduced the country's vulnerabilities to external shocks. "India's main credit challenges, its low per capita income and its weak fiscal position, which has been exacerbated by the coronavirus shock. India's general government debt burden increased sharply from 74% of GDP in 2019 to an estimated 89% of 2020 GDP, significantly higher than the Baa median of around 48%. Meanwhile, interest payments are about 26% of general government revenue, the highest among Baa-rated peers and more than three times the Baa median of 8%," it pointed out. "Looking ahead, Moody's expects the debt burden to stabilise at around 91% over the medium term, as strong nominal GDP growth is balanced by a gradually shrinking, but still sizeable, primary deficit," the agency said in a statement. The upgrade in outlook to 'stable', Moody's said, was driven

by the 'lower susceptibility' to event risk from 'a negative feedback loop between the financial sector and the real economy'. "Bank provisioning has allowed for the gradual write-off of legacy problem assets over the past few years. In addition, banks have strengthened their capital positions, pointing to a stronger outlook for credit growth to support the economy," it averred.

WHAT SPIKE IN CRUDE PRICES MEANS FOR ECONOMY, MARKETS

The recent spike in global crude oil prices above the $80-per-barrel mark led to a dip in key indices in the stock market as concerns rose over the impact on inflation, currency and input cost for companies across sectors. However, as prices eased, indices in India recovered Thursday in line with global markets.

Why are oil prices rising?

Since hitting a low of $16 per barrel on April 22 last year, the price of Brent crude oil has been rising steadily. Since the beginning of the year, it has risen nearly 58% from about $51.8 per barrel to about $81 at close on Wednesday. The rise has been sharp over the last six weeks, from $65 per barrel on August 20. According to analysts, prices are nearing their intermediate top level of $86 per barrel, around which some cooling off is expected even though the broader trend remains rising. Crude prices have risen sharply in 2021 on the back of a recovery in global demand as the world economy recovers from the pandemic. Supply restrictions maintained by the OPEC+ grouping , too, have kept international oil prices high. So far, these oil-producing economies have signalled only slow production increases, which is leading to a rise in gas prices as well. A shortage of gas in Europe and Asia has boosted demand for oil for power generation. The rise in crude prices has contributed to petrol and diesel prices hitting all-time highs in India. Prices of petrol and diesel in India are pegged to a 15-day rolling average of the international prices of these fuels. High taxes by the central and state governments too have contributed to retail prices being far higher.

How will this impact stocks and bonds?

While a sharp surge in oil prices can create short-term panic in the equity markets, historical precedents show that equity markets often bottom out alongside a bottoming out of oil prices. When oil futures turned negative last year at the peak of the pandemic, stock markets bottomed out, but since then they have been on a rising spree in line with surging oil prices. Analysts point out that increasing oil prices reflect growing demand in the economy, and equities often deliver more than the expected inflation that the oil surge may lead to. In line with oil, prices of other commodities including coal has been rising sharply. The BSE Basic Materials Index has risen more than three times from a low of 1,761 on April 3, 2020 to 5,725 at Wednesday's close. This reflects the general view that economic recovery will strengthen going forward. As for bonds, the situation can get tricky: Any hint of sustained high inflation can result in rising yields and falling bond prices. So, debt investors need to be watchful whether the interest rate cycle is moving upwards in case the central bank tries to contain inflation. If inflation remains transitory and rising oil prices do not lead to a broad-based increase in prices, the monetary policy is expected to remain accommodative, keeping in check the surge in yields. For bonds, central bank policies will play a far greater role than the direct impact of rising oil prices. As for equity investors, they can increase

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their exposure to upstream oil companies, which benefit from rising prices. In sectors where oil is a major cost component, a negative reaction on returns can be expected.

How does it impact currency and the economy?

Rising crude prices tend to depress the rupee, as India being a major importer of oil needs more dollars to buy the same amount of crude. Winter tends to put pressure on prices in normal times too. Of late, the power shortage in some geographies, especially China, has been caused by supply chain issues regarding coal. This in turn has increased the demand for oil, aggravating the situation. CARE Ratings Chief Economist Madan Sabnavis said surging prices will lead to expansion in the import bill and a downward pressure on the rupee. "It is expected now that Brent crude can test the $ 90/barrel mark... Intuitively $10/barrel will mean an increase in the import bill by $ 8.2-$ 9.1 billion for this period (October-March). In FY20 the oil bill was $ 130 billion and in FY21 $ 82.4 billion. In the first 6 months of FY22, oil imports were $ 70.5 billion, and hence, assuming a similar quantum would be imported in the second quarter, there would be an increase in the half-yearly bill by 11.6% to 12.9%. This will tend to impact the trade deficit too," he said. The rupee has already started slipping and is moving towards the $ 75 per dollar mark. "At this stage this may be a welcome development as it would aid exports, though imported goods will tend to be more expensive. In the short run a range of Rs 75-75.5 per dollar may be expected before clarity descends on OPEC+ action," Sabnavis said.

How can it hurt inflation, government finances, and the markets?

Crude import accounts for nearly 20% of India's import bill. The fuel import bill jumped from $8.5 billion for the quarter ended June 2020 to $24.7 billion for the quarter ended June 2021. A rise in prices could lead to a surge in inflation, forcing the RBI to go for liquidity tightening measures followed by rate hikes. Besides its use as a fuel and a key commodity for the transportation sector, oil is a necessary raw material for several industries. An increase in crude prices means an increase in the cost of producing and transporting goods. It thus adds to inflation; economists say an increase of $10/barrel in crude oil prices could raise inflation by 10 basis points. A surge in crude prices tends to increase India's expenditure and adversely affects the fiscal deficit. On the other hand, a rise impacts the current account deficit — a measure of value of imported goods and services exceeding the value of those exported, and indicates how much India owes in foreign currency. Investors with an exposure to equity markets will have to carefully watch the crude price movement. Sectors including refining, lubricants, aviation and tyres are sensitive to oil price movement. As a rise in crude oil prices impact their input raw material cost, their profitability comes under pressure, thereby hurting their share prices.

RBI SUSPENDS GSAP, HOLDS INTEREST RATES

The Reserve Bank of India (RBI) on Friday said it was halting its bond buying under the G-Sec Acquisition Programme (GSAP) for now, with Governor Shaktikanta Das stressing that the measure had succeeded in ensuring adequate liquidity and stabilising financial markets. "Coupled with other liquidity measures, it facilitated congenial and orderly financing conditions and a conducive environment for the recovery," Mr. Das said after announcing the Monetary Policy Committee's decision to keep interest rates unchanged and retain an 'accommodative' policy stance. "The total liquidity injected into the system during the first six months of the current

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financial year through open market operations (OMOs), including G-SAP, was ₹2.37 lakh crore, as against an injection of ₹3.1 lakh crore over the full financial year 2020-21," he noted. "Given the existing liquidity overhang, the absence of a need for additional borrowing for GST compensation and the expected expansion of liquidity in the system as Government spending increases in line with budget estimates, the need for undertaking further G-SAP operations at this juncture does not arise," Mr. Das added. The RBI, however, remained ready to undertake G-SAP as and when warranted by liquidity conditions, and would also continue to flexibly conduct other liquidity management operations including Operation Twist (OT) and regular open market operations (OMOs). Stating that the growth impulses seemed to be strengthening, supported by ebbing of infections, the robust pace of vaccination, expected record kharif foodgrains production, the government's focus on capital expenditure and buoyant external demand, Mr. Das said the inflation trajectory was also turning out to be more favourable than anticipated.

Lowers inflation outlook

The RBI retained its growth forecast for this fiscal at 9.5% and cut its projection for average inflation for the full year to 5.3%, from 5.7% earlier, even as it flagged core inflation that 'remains sticky'. Elevated global crude oil and other commodity prices combined with an acute shortage of key industrial components and high logistics costs, were adding to input cost pressures, it added. "Headline inflation continues to be significantly influenced by very high inflation in select items such as edible oils, petrol and diesel, LPG and medicines," the RBI Governor said.

'Rate hike by FY22-end'

"Like many other central banks, the RBI is signalling a gradual move towards 'normalising' its monetary policy as the economy emerges from the shadow of the second wave," Crisil Research said in a report. "We expect this normalisation to continue in the coming months and a hike in the repo rate by 25 basis points by fiscal 2022-end, assuming strengthening economic recovery and elevated inflation risks," it added.

AMENDED LICENCE NORMS: PENALTY AXED, INTEREST ON DELAYED PAYMENT RATIONALISED

Setting in motion the reforms announced for the telecom sector, the Department of Telecommunications (DoT) has amended licence norms to clarify and rationalise the interest rates for delayed payments of licence fee and done away entirely with the penalty on late payment of the dues. *As per the new norms, the DoT will now charge 2 per cent interest above the one-year marginal cost of lending rate (MCLR) of State Bank of India (SBI) for delay in payment of licence fees or any other statutory dues instead of the 4 per cent that was being levied.* Additionally, the interest will also be now compounded annually and not monthly, as was the norm. "Any delay in payment of licence fee or any other dues payable under the licence beyond the stipulated period will attract interest at a rate which will be 2 per cent above the one- year MCLR of SBI existing as on the beginning of the financial year (namely 1st April) in respect of the licence fees or any other dues pertaining to the said financial year," the DoT said. These amendments have come into effect from October 1. Industry body Cellular Operators Association of India (COAI) welcomed the rationalisation of interest rates, saying it would promote ease of doing business.

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Last month, the Union Cabinet approved reform proposals for the telecom sector, entailing nine structural and procedural measures that are aimed at alleviating sectoral stress by addressing near-term liquidity concerns. Among the steps approved for the telecom sector, the one that is likely to provide immediate relief to debt-laden companies such as Vodafone Idea was the decision to provide a four-year moratorium on payment of all dues arising due to the Supreme Court's September 1, 2020, judgment on adjusted gross revenue (AGR). A moratorium of four years on payment of spectrum purchased in past auctions, barring the auction of 2021, has also been offered to the telcos. All these measures are prospective in nature. The telecom sector will also be able to receive 100 per cent foreign direct investment (FDI) through the automatic route, up from the 49 per cent permitted right now.

IMPS LIMIT RAISED TO RS 5L FROM RS 2L

The Reserve Bank of India (RBI) has raised the transaction limit in Immediate Payment Service (IMPS) from Rs 2 lakh to Rs 5 lakh. IMPS offers instant domestic funds transfer facility 24×7 through banking channels. The RBI has also proposed to introduce a framework for retail digital payments in offline mode across the country. This will further expand the reach of digital payments and open up new opportunities for individuals and businesses. A scheme to test technologies that enable digital payments even in remote places where internet connectivity is either absent or barely available was announced in August 2020.

RBI MICROFINANCE PROPOSALS THAT ARE ANTI-POOR

In June 2021, the Reserve Bank of India (RBI) published a "Consultative Document on Regulation of Microfinance" (https://bit.ly/3ixTIH3). While the declared objective of this review is to promote the financial inclusion of the poor and competition among lenders, the likely impact of the recommendations is unfavourable to the poor. If implemented, they will result in an expansion of microfinance lending by private financial institutions, in the provision of credit at high rates of interest to the poor, and in huge profits for private lenders.

The recommendations

The consultative document recommends that the current ceiling on rate of interest charged by non-banking finance company-microfinance institutions (NBFC-MFIs) or regulated private microfinance companies needs to be done away with, as it is biased against one lender (NBFC-MFIs) among the many (commercial banks, small finance banks, and NBFCs). It proposes that the rate of interest be determined by the governing board of each agency, and assumes that "competitive forces" will bring down interest rates. Not only has the RBI abandoned any initiative to expand low-cost credit through public sector commercial banks to the rural poor, the bulk of whom are rural women (as most loans are given to members of women's groups), but, in addition, it also proposes to de-regulate the rate of interest charged by private microfinance agencies. *According to current guidelines, the 'maximum rate of interest rate charged by an NBFC-MFI shall be the lower of the following: the cost of funds plus a margin of 10% for larger MFIs (a loan portfolio of over ₹100 crore) and 12% for others; or the average base rate of the five largest commercial banks multiplied by 2.75'. In June 2021, the average base rate announced by the RBI was 7.98%. A quick*

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look at the website of some Small Finance Banks (SFBs) and NBFC-MFIs showed that the "official" rate of interest on microfinance was between 22% and 26% — roughly three times the base rate.

Crucial for rural households

Microfinance is becoming increasingly important in the loan portfolio of poorer rural households. In a study of two villages from southern Tamil Nadu, done by the Foundation for Agrarian Studies, we found that a little more than half of the total borrowing by households resident in these two villages was of unsecured or collateral-free loans from private financial agencies (SFBs, NBFCs, NBFC-MFIs and some private banks). There was a clear differentiation by caste and socio-economic class in terms of source and purpose of borrowing. First, unsecured microfinance loans from private financial agencies were of disproportionate significance to the poorest households — to poor peasants and wage workers, to persons from the Scheduled Castes and Most Backward Classes. Second, these microfinance loans were rarely for productive activity and almost never for any group-based enterprise, but mainly for house improvement and meeting basic consumption needs. Our data showed that poor borrowers took microfinance loans, at reported rates of interest of 22% to 26% a year, to meet day-to-day expenses and costs of house repair. How does this compare with credit from public sector banks and cooperatives? Crop loans from Primary Agricultural Credit Societies (PACS) in Tamil Nadu had a nil or zero interest charge if repaid in eight months. Kisan credit card loans from banks were charged 4% per annum (9% with an interest subvention of 5%) if paid in 12 months (or a penalty rate of 11%). Other types of loans from scheduled commercial banks carried an interest rate of 9%-12% a year. As even the RBI now recognises, the rate of interest charged by private agencies on microfinance is the maximum permissible, a rate of interest that is a far cry from any notion of cheap credit.

A loan breakup, violations

The actual cost of microfinance loans is even higher for several reasons. First, on account of the method of repayment: a loan of, say, ₹30,000 from an NBFC-MFI has to be repaid in 24 equal monthly instalments of ₹1,640. Every month, a principal of ₹1,250 and an interest of ₹390 is repaid. In the first month, the simple interest on this loan is 15.6% per annum but by the end of the first year, the interest rate is 31%. This is because every month the principal is reduced (by ₹1,250) but the interest charge is the same. In short, an "official" flat rate of interest used to calculate equal monthly instalments actually implies a rising effective rate of interest over time. In addition, a processing fee of 1% is added and the insurance premium is deducted from the principal. As the principal is insured in case of death or default of the borrower or spouse, there can be no argument that a high interest rate is in response to a high risk of default. Does the borrower understand this mechanism? In line with RBI regulations, we found that all borrowers had a repayment card with the monthly repayment schedules. On their regular visit, the loan collector would tick off the instalment paid. This does not mean that borrowers understood the charges. Further, contrary to the RBI guideline of "no recovery at the borrower's residence", collection was at the doorstep. Note that a shift to digital transactions refers only to the sanction of a loan, as repayment is entirely in cash. Many borrowers said the debt collector used bad language in a loud voice, shaming them in front of their neighbours. If the borrower is unable to pay the instalment, other members of the group have to contribute, with the group leader taking responsibility. In our survey, there was no organic connection of microfinance to any group

activity or enterprise. As an agent of a NBFC-MFI told us, "we have used the groups formed earlier for other activities solely to show that we lend to a group".

The shift now

While microfinance lending has been in place since the 1990s, what is different about the recent phase of growth of financial services is that the privately-owned for-profit financial agencies are "regulated entities". In fact, they have been promoted by the RBI. Lending by small finance banks (SFBs) to NBFC-MFIs has been recently included in priority sector advances. And, post-COVID-19, the cost of funds supplied to NBFC-MFIs was lowered, but with no additional restrictions on the interest rate or other parameters affecting the final borrower. In the 1990s, microcredit was given by scheduled commercial banks either directly or via non-governmental organisations to women's self-help groups, but given the lack of regulation and scope for high returns, several for-profit financial agencies such as NBFCs and MFIs emerged. By the mid-2000s, there were widespread accounts of the malpractices of MFIs (such as SKS and Bandhan), and a crisis in some States such as Andhra Pradesh, arising out of a rapid and unregulated expansion of private for-profit micro-lending. The microfinance crisis of Andhra Pradesh led the RBI to review the matter, and based on the recommendations of the Malegam Committee, a new regulatory framework for NBFC-MFIs was introduced in December 2011. A few years later, the RBI permitted a new type of private lender, SFBs, with the objective of taking banking activities to the "unserved and underserved" sections of the population. Today, as the RBI's consultative document notes, 31% of microfinance is provided by NBFC-MFIs, and another 19% by SFBs and 9% by NBFCs. These private financial institutions have grown exponentially over the last few years, garnering high profits, and at this pace, the current share of public sector banks in microfinance (the SHG-bank linked microcredit), of 41%, is likely to fall sharply. The proposals in the RBI's consultative document will lead to a further privatisation of rural credit, reducing the share of direct and cheap credit from banks and leaving poor borrowers at the mercy of private financial agencies. This is beyond comprehension at a time of widespread post-pandemic distress among the working poor. The All India Democratic Women's Association, in its response to this document, has raised concerns about the implications for women borrowers and demanded that the rate of interest on microfinance not exceed 12% per annum. To meet the credit needs of poorer households, we need a policy reversal: strengthening of public sector commercial banks and firm regulation of private entities.

AFTER 68 YEARS, TATAS WIN BACK AIR INDIA WITH ₹18,000 CR. BID

After 68 years, Air India is all set to return to the Tata fold. Tata Sons subsidiary Talace Pvt. Ltd. emerged as the winning bidder for the debt-laden national carrier after quoting an enterprise value of ₹18,000 crore. The government will take a hit of ₹28,844 crore. The Tatas will own a 100% stake in Air India, as also 100% in its international low-cost arm Air India Express and 50% in the ground handling joint venture, Air India SATS. Apart from 141 aircraft and access to a network of 173 destinations, including 55 international ones, Tatas will also have the ownership of iconic brands such as Air India, Indian Airlines and the Maharajah.

Handover by Dec.

The Group of Ministers led by Home Minister Amit Shah approved the winning bidder in its meeting on October 4. The government aims to complete the transaction by December 2021, when it will transfer its shares and hand over the airline to the new buyer. "Talace quoted an enterprise value of ₹18,000 crore. Of this, ₹15,300 crore is the debt component of Air India to be taken on by the winner, and the remaining ₹2,700 crore will be cash paid to the government," DIPAM Secretary Tuhin Kanta Pandey said at a press briefing. "Tata will have the opportunity of regaining the image and reputation it enjoyed in earlier years. Mr. JRD Tata would have been overjoyed if he was in our midst today," Ratan Tata, Tata Group's Chairman Emeritus, said. He added that it would take "considerable effort" to rebuild Air India, though at the same time "it will provide a very strong market opportunity to the Tata Group's presence in the aviation industry". Tata Sons owns 84% share in Air Asia, which has a market share of 5.2%, and 51% stake in Vistara, which has a market share of 8.3%. Together with Air India's market share of 13.2%, Tatas could be in control of 26.7% market share, and be the second biggest player after IndiGo. The second bidder, a consortium led by Ajay Singh, had quoted an enterprise value of ₹15,100 crore. The reserve price fixed by the government before opening the bids on September 28 was ₹12,906 crore. The government will absorb the balance debt of ₹46,262 crore, which will be transferred to a special purpose vehicle (SPV) set up by it — Air India Assets Holding Ltd. When adjusted against non-core assets such as land and buildings worth ₹14,718 crore that will also be parked in the SPV and the cash amount of ₹2,700 crore from Tatas, the net liability on the government comes to ₹28,844 crore. "The taxpayers have put in ₹1,10,277 crore in Air India since 2009-10, which includes ₹54,584-crore cash support and ₹55,692 crore as guarantee support for loans," Mr. Pandey said. "There are no underlying assets as such. This is all loss being funded through the debt guaranteed by the government. AI has a loss of ₹20 crore a day," Mr. Pandey said on the government's decision to sell the airline for ₹18,000 crore. "The government has addressed all the concerns of employees. The winning bidder will retain all employees for a period of one year. In the second year, if anyone has to be removed, they will be offered the Voluntary Retirement Scheme. They will be provided gratuity and provident fund as per the applicable law of the land. The post-retirement medical benefits of those who have retired and those who will be retiring will also be taken care of by the government," Secretary, Ministry of Civil Aviation, Rajiv Bansal said. Air India and Air India Express have a total of 13,484 permanent employees. "It is a great day for Indian aviation. The sale of Air India is one of the biggest reforms in the aviation sector. It is a win-win for all, though there is a long road ahead for rebuilding Air India which will require very long term and patient capital. Its turnaround will take time," said Kapil Kaul of CAPA India.

CABINET CLEARS ₹4,445-CR. TEXTILE PARKS

The Union Cabinet on Wednesday approved the setting up of seven Mega Integrated Textile Region and Apparel (PM MITRA) Parks at an outlay of ₹4,445 crore. The mega parks scheme will include brownfield and greenfield projects, spread over five years, said Textiles Minister Piyush Goyal. The parks would be developed by a Special Purpose Vehicle (SPV) owned by the Central and State governments and would get two kinds of support. Development Capital Support, aimed at helping develop infrastructure, would fund 30% of the project cost with a cap of ₹500 crore for greenfield projects and ₹200 crore for brownfield projects. A separate Competitiveness Incentive Support would be limited to ₹300 crore per park.

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'TN, Gujarat interested'

As many as 10 States including Tamil Nadu, Telangana and Gujarat had already shown interest, Textiles Secretary Upendra Prasad Singh told The Hindu. States offering the cheapest land (contiguous and encumbrance-free land of minimum 1,000 acres) and facilities such as adequate electricity and water would be selected through a transparent challenge route. The SPV would select a Master Developer to set up and maintain the park for a specified period. Of the park's area, 50% would be earmarked for manufacturing activity, 20% for utilities, and 10% set aside for commercial development. The parks are expected to generate 7 lakh direct jobs and provide indirect jobs to almost 14 lakh people. Mr. Singh said industries in the parks would comprise four categories — units investing ₹300 crore or more, units investing ₹100-300 crore, investors of less than ₹100 crore and tenant units.

LIFE & SCIENCE

IAO HANLE: A PROMISING ASTRONOMICAL OBSERVATORY

The Indian Astronomical Observatory (IAO) located at Hanle near Leh in Ladakh is becoming one of the globally promising observatory sites, according to a recent study. This is due to its advantages of more clear nights, minimal light pollution, background aerosol concentration, extremely dry atmospheric condition and uninterrupted monsoon, the Department of Science and Technology said. The researchers used reanalysis data combined from assimilation and observation extending over 41 years, along with 21 years of data from satellites. The study classified the quality of observable nights for different astronomical usages like photometry and spectroscopy on a daily basis.

Eight observatories

They analysed datasets for the Indian Astronomical Observatory (IAO) in Hanle and Merak (Ladakh), and Devasthal (Nainital) in India, Ali Observatory in the Tibet Autonomous Region in China, South African Large Telescope in South Africa, University of Tokyo Atacama Observatory and Paranal in Chile, and the National Astronomical Observatory in Mexico. The research led by Dr. Shantikumar Singh Ningombam of Indian Institute of Astrophysics (IIA), Bengaluru, has been published in the Monthly Notices for Royal Astronomical Society. They found Paranal, in Chile, to be the best site in terms of clear skies with around 87% of clear nights in a year. IAO Hanle, and Ali observatories, which are located around 80 km from each other, are similar to each other in terms of clear night skies. They found that Devasthal has a slightly larger number of clear nights compared to the other sites in the subcontinent but are affected by monsoons for about three months in a year. However, night observations at IAO Hanle from 2m-Himalayan Chandra Telescope (HCT) are possible throughout the year without any interruption due to monsoon.

A TINY PLANT THAT CAN 'DIGEST' LOW DENSITY PLASTIC SHEETS

Researchers from University of Madras and Presidency College, Chennai, have isolated an alga species that shows promise as an agent of biodegradation of plastic sheets. It is a preliminary study that has been published in Scientific Reports and needs further research and development before it can be translated to the industry. *According to the Central Pollution Control Board's annual report for the year 2011-12, the plastic waste generated in a year amounted to 5.6 million metric tonnes. Only 60% of the plastic used in India was collected and recycled. The metros alone contributed some 21.2% of the total waste, led by Delhi, followed by Chennai, Kolkata and Mumbai. The usual means of disposal of plastic waste involves incineration, land-filling and recycling.* These methods have limitations and also sometimes produce side-effects that are hazardous to the environment. Hence, researchers are on the lookout for biodegradation methods that are safe and environment friendly. It is in this context that the present study gains importance.

Common alga, epiphyte

In earlier studies, species of bacteria that degrade plastic have been studied. In the present study, this role is played by the *microalga Uronema africanum Borge*. This is a species of microalgae that

is commonly found in Africa, Asia and Europe. In Rangoon, Burma, it was noted to be an epiphyte, attaching itself to other algae and plants. Sanniyasi Elumalai, Professor in the Department of Biotechnology, University of Madras, and his graduate students Preethy P. Raj and Dinesh Kumar Gunasekar, along with post-doctoral fellow Rajesh Kanna Gopal from Presidency College, came upon a plastic bag which was colonised by, as they came to know later through study, three species of microalgae. "We collected a polyethylene carry bag colonised by green, luxuriously grown photosynthetic microalgae and samples of water," says Prof. Elumalai. "Viewing the collected polyethylene sample under a light microscope showed that it was colonised by microalgae… Abrasions were seen on the surface of the polyethylene sheet at different magnifications."

Showed potential

The samples were collected at the Kallukuttai lake area near Taramani railway station, in Chennai. When they did a closer examination of the microalgal growth, they found one species, Uronema africanum Borge, showed potential to degrade plastic. They first had to identify which species the alga belonged to, and in this they were helped by Dr. B. Babu of Madras Christian College, Chennai, whom they acknowledge in the paper. In the experiments, they tested the microalga on low-density polyethylene, in sheets which are highly resistant to degradation, into simpler molecules. "We saw that the isolated algae Uronema africanum produced enzymes, hormones, and some polysaccharides which slowly degrade [the sheets], and the structural integrity of the polymer [breaks down] and it disintegrates into monomers," says Prof. Elumalai. *After incubation of the algae in the polyethylene sheet for thirty days, they noticed under the microscope that there were aberrations, grooves, ridges and furrows in the material of the sheets. Following it up with gas chromatography and mass spectrum analysis, they found that there was a huge difference in the composition of supernatant fluids of controls and experimental sample.*

Breaking down plastic

"The microalgae produce different kinds of extra cellular polysaccharides, enzymes, toxins such as cyanotoxins, hormones which react with the polymer sheets (polymer bonds) and break them up into the simpler monomers which will not have harmful effect in the atmosphere," says Prof Elumalai. In their analysis, the researchers used the facilities of Central Leather Research Institute, Chennai, and Vellore Institute of Technology, Vellore. The researchers are planning to collaborate with industry to take up this technology in to a pilot scale and finally large-scale study.

WHAT IS DEEP BRAIN STIMULATION?

Physicians at the University of California, San Francisco (UCSF) have successfully treated a patient with severe depression by recognising and tapping into the brain circuits linked with depressive brain patterns. The physicians have tried to reset these patterns, which they have said is the equivalent of using a pacemaker for the heart. The work, which represents a landmark in the use of neuroscience to treat psychiatric disorders, has been published in the journal Nature Medicine. *The doctors used an existing technique called deep brain stimulation (DBS), customising it for this patient's case.* DBS is a surgical procedure in which electrodes are implanted into certain brain areas. These electrodes, or leads, generate electrical impulses that control abnormal brain activity, according to the American Association of Neurological Surgeons (AANS). "The electrical impulses

can also adjust for the chemical imbalances within the brain that cause various conditions," the AANS says on its website.

A DBS system has thee components (see illustration):

* The electrode, or lead. This is a thin, insulated wire inserted through a small opening in the skull and implanted into a specific brain area.

* The extension wire. This too is insulated, and is passed under the skin of the head, neck and shoulder, connecting the electrode to the third component of the system.

* The internal pulse generator (IPG) is the third component. It is usually implanted under the skin in the upper chest, according to the AANS.

Conditions that are traditionally treated using DBS include dystonia, epilepsy, essential tumour, obsessive-compulsive disorder and Parkinson's disease. In treating depression, however, previous clinical trials with DBS has shown limited success because most devices are only able to deliver constant electrical stimulation to one area of the brain, UCSF noted in a press release. During this treatment, UCSF physicians customised a new DBS device, which would stimulate the brain whenever it recognised the depressive pattern. Additionally, the team of physicians had also found a neural biomarker that indicated the onset of symptoms. Using the customised DBS device, they were able to stimulate a different area of the brain, which in turn created immediate therapy for the brain.

WHAT CAUSED THE WHATSAPP, INSTAGRAM OUTAGE?

Social media giant Facebook and its family of apps WhatsApp and Instagram were inaccessible to billions of users for around six hours Monday, in what was one of the longest outages for Facebook at a group level. While there were speculations of a cyberattack on Facebook's systems, the company has said it was a configuration error that led to the disruption.

So, what happened?

Shortly after 9 pm IST on Monday, Facebook's services including WhatsApp, Instagram and Oculus VR went down and did not come up till early morning on Tuesday. The outage affected users across the globe, and according to some reports, even impacted Facebook employees as the company's internal systems were affected, preventing the staff from accessing internal e-mail clients, etc.

Did Facebook identify the cause for this problem?

In a blog post, Facebook noted its engineering teams found that configuration changes on the backbone routers that coordinate network traffic between the company's data centers caused issues that interrupted this communication. "This disruption to network traffic had a cascading effect on the way our data centers communicate, bringing our services to a halt," it added. In simple terms, Facebook's machines stopped communicating with each other because of what is called a DNS (domain name system) error. Explaining a DNS error, Lotem Finkelstenn, Head of Threat Intelligence at Check Point Software Technologies said: "Simply, it is the internet protocol

to convert the words we use like Facebook.com to language computers know — numbers, or internet address. They do the conversion and route us to the services and applications we asked to use. When this service falls, the services look like they are down, but actually just not accessible."

Could this have been a cyberattack?

Facebook wrote in its blog: "We want to make clear at this time we believe the root cause of this outage was a faulty configuration change. We also have no evidence that user data was compromised as a result of this downtime". According to the New York Times, which cited two anonymous Facebook security team members, the outage was not likely a result of a cyberattack because the technology behind the apps was still different enough that one hack was not likely to affect all of them at once.

Has Facebook suffered outages before as well?

Yes, the Facebook family of apps suffered a major outage earlier this year in March as well when the services were down for almost 45 minutes. Prior to this, in 2020 alone, four major WhatsApp outages had occurred, of which the most major one was in January, which had lasted for around three hours. After this, there was one in April, followed by a two-hour outage in July and a brief one in August. In 2019, Facebook suffered its longest outage ever when the social media service was down for nearly 24 hours.

What is the significance of these outages?

There has been a increase in internet outages in recent years. According to data from ThousandEyes, a network-monitoring service owned by Cisco Systems Inc, there were 367 global internet outages in the week ending September 26, making it the third consecutive week of increasing outages. Even as the internet was originally conceptualised as a decentralised network, experts believe that a handful of infrastructure companies like Akamai, Fastly, Amazon Web Services have become concentrated centres providing their services to major internet platforms. This, especially after thousands of enterprises — both small and large — are increasing their digitisation efforts after the pandemic.

FB WHISTLEBLOWER CALLS FOR REGULATION

A Facebook whistleblower went before U.S. lawmakers on Tuesday to push them to regulate the social media giant, after an outage hit potentially billions of users and highlighted global dependence on its services. Former employee Frances Haugen testified on Capitol Hill after she leaked reams of internal research to authorities and The Wall Street Journal, *which detailed how Facebook knew its sites were potentially harmful to young people's mental health.* She spoke to Senators less than a day after Facebook, its photo-sharing app Instagram and messaging service WhatsApp went offline for roughly seven hours, with "billions of users" impacted, according to tracker Downdetector. Ms. Haugen warned in a pre-prepared statement of the risk of not creating new safeguards for a platform that reveals little about how it operates. "I believe that Facebook's products harm children, stoke division and weaken our democracy," her statement said. "Congressional action is needed. They won't solve this crisis without your help." In her testimony,

she noted the danger of the power in the hands of a service that is woven into the daily lives of so many people.

Concerns on privacy

"The company intentionally hides vital information from the public, from the U.S. government and from governments around the world," Ms. Haugen's statement said. "The severity of this crisis demands that we break out of our previous regulatory frames." U.S. lawmakers for years have threatened to regulate Facebook and other social media platforms to address criticisms that the tech giants trample on privacy, provide a megaphone for dangerous misinformation and damage young people's well-being. Ms. Haugen, a 37-year-old data scientist from Iowa, has worked for companies including Google and Pinterest — but said in an interview on Sunday with CBS news show 60 Minutes that Facebook was "substantially worse" than anything she had seen before.

GAMING DISORDER INCREASES DURING PANDEMIC

Anand*, a jovial extroverted 15-year-old in Bengaluru, got a personal smartphone for the first time last year when online classes began. Within six months, he was on the phone for more than seven hours each day, not for classes but rather to binge on online games. Worried about the sudden behaviour changes in their teenager — insomnia, withdrawal from social contacts, academic failure, and extreme anger and irritability — his parents took him to the National Institute of Mental Health and Neuro Sciences' (NIMHANS) aptly named SHUT clinic or the Service for Healthy Use of Technology. Their son was diagnosed with gaming addiction, a disorder that is quickly growing as the pandemic spurred an increased use of Internet devices. "We used to get maybe two or three cases a week. Now, we are seeing about 15 cases, almost all of whom are adolescents brought in by their parents," said SHUT clinic coordinator Manoj Sharma, a clinical psychology professor at NIMHANS. According to the All India Gaming Federation, India's online gaming industry is expected to be worth ₹15,500 crore by 2023. A 2019 survey by the U.S.-based Limelight Networks found that India had the second largest number of gamers after South Korea. The World Health Organization categorised gaming disorder as a mental health condition in 2018. Last month, China limited gamers under 18 years to just three hours of online games per week, during specified times, and made the industry responsible for enforcing the restriction.

Legal move

In India, legal focus has been on recent laws in the southern States seeking to ban online games such as rummy, poker or even fantasy sports which offer prize money or financial stakes. Last week, the Kerala High Court quashed such a law in the State, accepting the industry's stance that, as games of skill rather than chance, they should not trigger bans on gambling. However, worried parents, psychiatrists and mental health advocates warn that the dangers go well beyond monetary motivations. "We have seen gaming addictions cause physical, social and emotional damage, impairing sleep, appetites, careers and social lives," says Samir Parikh, who heads the mental health department at Fortis Healthcare. NIMHANS' Dr. Sharma and fellow researchers published a case study in the Industrial Psychiatry Journal last year, illustrating the "pathways of migration from gaming to gambling". "Individuals who played more social casino games (online games where you do not either bet or win or lose real money) and won occasionally, usually developed a craving and urge for betting real money," said the paper. Psychiatrists recommend

that as a bare minimum, statutory warnings and mandatory breaks should be enforced to prevent binge gaming. Media literacy in schools and digital fasting among families are also important steps, Dr. Sharma said.

(*Name changed to protect privacy)

MALARIA AND THE VACCINE HUNT

The World Health Organization (WHO) on Wednesday allowed "widespread use" of the world's first vaccine against malaria, a common mosquito-borne disease that claims more than four lakh lives every year. Developed by *GlaxoSmithKline (GSK),* the vaccine, known as RTS,S/AS01, has already been administered to nearly 8 lakh children in Ghana, Kenya and Malawi as part of a pilot programme since 2019. The WHO endorsement paves the way for its use outside the pilot programme, in all areas where malaria is widely prevalent. *But RTS,S/AS01, known by its brand name Mosquirix, is considered only the first step towards effective immunisation of the global population. RTS,S/AS01 is able to prevent severe cases in only 30% of cases; the quest for more effective vaccines is still underway.*

Why is a vaccine against malaria important?

Malaria is one of the deadliest diseases in human history, having claimed millions of lives. Even today, it kills over four lakh every year, according to WHO. This is still a huge improvement from 20 years ago, when close to twice this number were dying of the disease. *Malaria is most endemic in Africa, with Nigeria, Congo, Tanzania, Mozambique, Niger and Burkina Faso together accounting for over half the yearly deaths.* In the last few years, significant progress has been made in reducing its impact. A few countries have also been able to eliminate malaria, mainly through spray of insecticides to kill mosquitoes, and cleaning up areas where mosquitoes breed. *In the last 20 years, 11 countries have been declared by WHO as malaria-free, after zero cases were recorded in these countries for three consecutive years. These include the United Arab Emirates, Morocco, Sri Lanka and Argentina.* In 2019, 27 countries reported less than 100 cases. Two decades ago, only six countries had less than 100. *India is one of the countries badly affected by the disease.* Although deaths due to malaria have come down sharply in the last few years — officially these are only in hundreds now —infections continue to be in millions.

What is the vaccine that has been cleared for widespread use?

RTS,S/AS01 is the result of a partnership between GlaxoSmithKline and the global non-profit PATH's Malaria Vaccine Initiative, with grant funds from the Bill & Melinda Gates Foundation. *It is a recombinant protein vaccine, which means it includes DNA from more than one source. It targets a protein called circumsporozoite in Plasmodium falciparum — the deadliest malaria parasite globally and the most prevalent one in Africa.* It offers no protection against P vivax malaria, which predominates in many countries outside of Africa. *The vaccine is formulated with an adjuvant called AS01. It is designed to prevent the parasite from infecting the liver, where it can mature, multiply, and infect red blood cells, which can lead to disease symptoms. The vaccine, which requires four injections, is for children under the age of five.* Its efficacy is modest, as demonstrated in phase 3 trials from 2009 to 2014, on 15,000 young children and infants in 7 African countries. *Four doses*

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prevented 39% cases of malaria over 4 years of follow-up and 29% cases of severe malaria, with significant reductions also seen in overall hospital admissions.

Why has it taken so long to develop a vaccine against malaria?

Although there have been decades of research, and over 20 candidates have entered clinical trials in the last few years, the best prevention of malaria remains the use of mosquito nets — which do nothing to eradicate malaria. Mosquirix itself is the result of more than 30 years of research and development. "The difficulty in developing effective malaria vaccines stems largely from the *complexity of the malaria-causing parasites' life cycle, which includes mosquitoes, human liver, and human blood stages, and subsequent antigenic variations of the parasite. These parasites are also able to hide inside human cells to avoid being recognised by the immune system, creating further challenges,"* a group of Australian and Chinese researchers wrote in an open-access journal last year. They cited another challenge: "The most common mouse models of malaria employ the rodent-specific parasite species P. berghei, P. yoelii, and P. chabaudi... While they are still employed to model various manifestations of human disease, the immune response patterns observed in these models are not fully transferable to humans. Navneet Arora, Lokhesh Anbalagan and Ashok Pannu from the Postgraduate Institute of Medical Education and Research (PGIMER) in Chandigarh point to the lack of funding and interest in developing a malaria vaccine. *"Because malaria disproportionately affects LMIC (low and middle income countries) lacking the robust health infrastructure, the vaccine manufacturers have little incentive for malaria vaccines and continued targeting vaccines for industrialized world markets,"* they wrote in a paper last year. Other scientists have also mentioned that research for a malaria vaccine never received the same kind of attention as, say, HIV/AIDS.

When is RTS,S coming to India?

In January this year, GSK, PATH and Bharat Biotech signed a product transfer agreement to help ensure the long-term supply of the RTS,S vaccine. However, experts The Indian Express spoke to feel there is no immediate "rush" to introduce it in India. Although malaria is a concern in India, the burden has reduced through interventions such as antimalarial drugs, mosquito nets and insecticide: from 1,018 deaths in 2010 to 93 in 2020. Besides, the vaccine's efficacy is modest. Officials with the National Malaria Control Programme said that a vaccine has to give protection of over at least 65%.

What other vaccines are in development?

Several are being tested, and at least one has shown promise. Called R21/Matrix M, this candidate vaccine showed an efficacy of 77% in phase 2 trials in May this year. *R21/Matrix M is a modified version of Mosquirix, and has been developed by researchers at the University of Oxford.* Lead researcher Adrian Hill, director of Jenner Institute and professor of vaccinology at Oxford University, had said he believed *this vaccine was the first to reach WHO's goal of at least 75% efficacy.* Dr V S Chauhan, former director of Delhi-based International Centre for Genetic Engineering and Biology, and known for his efforts to develop a recombinant malaria vaccine, said R21/Matrix M held a lot of promise. "This vaccine is definitely a big hope, but it still has to undergo phase 3 trials," he said.

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COVID-19 PANDEMIC CUT LIFE EXPECTANCY BY MOST SINCE WORLD WAR TWO

The COVID-19 pandemic reduced life expectancy in 2020 by the largest amount since World War Two, according to a study published on Monday by Oxford University, with the life expectancy of American men dropping by more than two years. Life expectancy fell by more than six months compared with 2019 in 22 of the 29 countries analysed in the study, which spanned Europe, the United States and Chile. There were reductions in life expectancy in 27 of the 29 countries overall. The university said most life expectancy reductions across different countries could be linked to official COVID-19 deaths. There have been nearly 5 million reported deaths caused by the new coronavirus so far, a Reuters tally shows. "The fact that our results highlight such a large impact that is directly attributable to COVID-19 shows how devastating a shock it has been for many countries," said Dr Ridhi Kashyap, co-lead author of the paper, published in the International Journal of Epidemiology. There were greater drops in life expectancy for men than women in most countries, with the largest decline in American men, who saw life expectancy drop by 2.2 years relative to 2019.Overall, men had more than a year shaved off in 15 countries, compared to women in 11 countries. That wiped out the progress on mortality that had been made in the previous 5.6 years. In the United States, the rise in mortality was mainly among those of working age and those under 60, while in Europe, deaths among people aged over 60 contributed more significantly to the increase in mortality. Kashyap appealed to more countries, including low- and middle-income nations, to make mortality data available for further studies. "We urgently call for the publication and availability of more disaggregated data to better understand the impacts of the pandemic globally," she said.

HOW BENEFICIAL IS THE NEW PILL TO PATIENTS WITH COVID-19

Why is there much excitement about molnupiravir, the investigational new drug for COVID-19?

Pharmaceutical major Merck and Ridgeback Biotherapeutics announced in a press release on Friday that the early results from Phase 3 trials that its anti-viral drug molnupiravir halved the chances of hospitalisation in COVID-19 patients with mild or moderate disease. Placebo trials involve testing a drug on thousands of people, in which some of them get the drug and some — who are in a placebo group — do not. In the placebo arm, 53 patients (14%) were either hospitalised or had died, whereas in the group that got the drug, 28 (7.3%) were hospitalised or died of the infection. After 29 days of monitoring, no deaths were reported in patients who received molnupiravir, compared with eight deaths in those who received the placebo. Several noted clinicians have said that these are promising results, and what is particularly encouraging is that molnupiravir is a pill, unlike other drugs with similar efficacy used in COVID-19 treatment which needs to be administered intravenously.

Is molnupiravir a breakthrough for COVID-19 treatment?

While the hospitalisation-avoidance rates are reassuring, there is still much that is unknown about molnupiravir. Complete Phase 3 trial data is pending, a publication in a peer-reviewed medical journal is awaited that will explain the process of the trial in the degree of detail that will inspire more confidence among practitioners and drug authorities everywhere. The company will soon be submitting data to the United States Food and Drugs Administration for a review, after which

the drug may be approved for emergency use authorisation (EUA). So far, the biggest strength of the drug is that it can be administered as pills as part of a five-day regimen. The drug has so far been tested only in patients with mild-to-moderate COVID-19, had started treatment within five days of testing positive and had at least one factor that increased their risk for severe disease. These include obesity, older age (above 60), diabetes mellitus and heart disease. A positive factor is that recruitment for the Phase 3 trial, which originally envisaged 1,500 patients for testing the drug's potency, was halted early by an independent data monitoring committee because the data appeared so encouraging that it would be unethical to delay making the drug more widely available. The genomes of the virus present in about 40% of participants were sequenced to detect the specific variant, and molnupiravir reportedly demonstrated "consistent efficacy" across viral variants Gamma, Delta and Mu.

How does molnupiravir work?

The company name for molnupiravir is 'EIDD 2801', the 'E' indicating it was developed at Emory University. Antiviral drugs, including the much-in-demand remdesivir, work by inhibiting the process by which the virus replicates. In the case of molnupiravir, when tested on cultured cells, it works by altering critical enzymes that are necessary for the virus to begin replicating in the body's host cells.

What are the next steps for the drug?

Presumably on the back of encouraging data from Phase-1 and -2 trials, Merck has reportedly begun production of the drug in large numbers. It said it expected to produce 10 million courses of treatment by the end of 2021, with more doses expected to be produced in 2022. Earlier this year, Merck entered into a procurement agreement with the U.S. government to supply approximately 1.7 million courses of molnupiravir, upon EUA or approval from the U.S. FDA. The New York Times reports that a course of treatment for the drug could cost $700 (about ₹50,000). This is cheaper than the monoclonal antibody therapy, which while being more effective, is a more involved treatment.

SIMPLE IDEA THAT CATALYSED GAMECHANGING REACTIONS

"Simple ideas are often the most difficult to imagine," the Nobel Prize committee said while honouring Benjamin List and David MacMillan with this year's Chemistry Nobel. The simple idea that List and MacMillan came up with, working independently, was to look for new catalysts, the substances used to accelerate chemical reactions, when most believed they were stuck with an existing, somewhat inefficient, set. The new catalysts, derived from naturally-occurring chemicals, were greener and cheaper, and ensured that the end product of the chemical reaction was of a specific variety — and did not need to go through a purification process to yield the desired type of compound. "The discovery being awarded the Nobel Prize in Chemistry 2021 has taken molecular construction to an entirely new level," the Nobel committee said. "Its uses include research into new pharmaceuticals and it has also helped make chemistry greener."

Catalysts

When two or more compounds react to form new compounds, the process is often aided by other chemicals that do not change themselves, but help speed up the reaction. These catalysts have been known at least since the middle of the 19th century, and are used in virtually every chemical process these days. *Till around 2000, only two kinds of chemicals were known to act as effective catalysts: metals, mainly heavier metals; and enzymes, naturally-occurring heavy molecules that facilitate all life-supporting biochemical processes. Both these sets of catalysts had limitations. Heavier metals are expensive, difficult to mine, and toxic to humans and the environment. Despite the best processes, traces remained in the end product; this posed problems in situations where compounds of very high purity were required, like in the manufacture of medicines. Also, metals required an environment free of water and oxygen, which was difficult to ensure on an industrial scale. Enzymes on the other hand, work best when water is used as a medium for the chemical reaction. But that is not an environment suitable for all kinds of chemical reactions.*

Organo-catalysis

List and MacMillan, both 53, started experimenting with simple organic compounds. Organic compounds are mostly naturally-occurring substances, built around a framework of carbon atoms and usually containing hydrogen, oxygen, nitrogen, sulphur, or phosphorus. Life-supporting chemicals like proteins, which are long chains of amino acids (carbon compounds containing nitrogen and oxygen) are organic. *Enzymes are also proteins, and therefore, organic compounds. List and MacMillan were aware of earlier research from the 1970s, in which an amino acid called proline was used as a catalyst in some specific reactions.* But its role was not fully explored. They started working with individual amino acids in enzymes — and struck gold.

Asymmetric catalysis

The individual amino acids had an added advantage: they ensured only one variety of the end product was yielded in the reaction. Substances can have exactly the same chemical composition and molecular formula; yet differ widely in their properties. They are known as isomers. One type of isomers are those that differ in the way individual atoms are oriented in three-dimensional space. Two molecules could be exactly the same, except that they are mirror images of each other, like our hands. For simplicity, scientists often refer to these molecules as left-handed or right-handed. This simple difference can sometimes have enormous consequences, because it allows the molecules to bind in different locations when they interact with other molecules. The end product in a chemical reaction is usually a mixture of left-handed and right-handed molecules. The normal chemical reactions carried out in laboratories are not selective in this regard. But nature is. Because the mirror images can have very different properties, natural processes are extremely selective, and precise. They produce either a left-handed or a right-handed molecule. List and MacMillan discovered that by using a natural compound like an amino acid as a catalyst, they were obtaining only one specific mirror image of the end-product. This was later named asymmetric catalysis. "List and MacMillan came up with an absolute game changer. The field of organo-catalysts, a name that MacMillan later used to describe these new sets of catalysts, has exploded in the last two decades. They discovered a simple, ingenious tool but its impact has been huge, mainly in the pharmaceutical industry, but also in several other places," said Prof R G Bhat of the Indian Institute of Science Education and Research in Pune, who works with organo-catalysts

himself. Dr S Chandrashekhar, director of Hyderabad-based Indian Institute of Chemical Technology, said the big significance of the work was that it made the processes much safer and more sustainable than earlier. "I am also very happy to note that Nobel committee selected a breakthrough in pure Chemistry this time. In the past, the Chemistry Nobel has often recognised work that essentially belonged in the realm of biology," he said.

FIRST NOBEL FOR CLIMATE SCIENCE

In 2015, Carbon Brief, a UK-based climate-focused online publication, asked the main authors of the fifth assessment report of the Intergovernmental Panel on Climate Change (IPCC) to identify the three most influential climate change research papers ever published. *The paper that received the most votes was one by Syukuro Manabe and Richard Wetherald way back in 1967, that, for the first time, had described the impact of carbon dioxide and water vapour on global warming. The influence of Manabe, now 90, on climate science and its practitioners has been unparalleled. On Tuesday, he was awarded the Nobel Prize for Physics (Wetherland died in 2011). Manabe shared one half of the prize with Klaus Hasselmann, another climate scientist, while the other half went to Georgio Parisi for his contributions in advancing the understanding of complex systems.* These are systems with a very high degree of randomness; weather and climate phenomena are examples of complex systems. The Nobel Prize Committee said the Physics Prize this year was given for "groundbreaking contributions to our understanding of complex systems".

First recognition

This is the first time climate scientists have been awarded the Physics Nobel. The IPCC had won the Peace Nobel in 2007, an acknowledgement of its efforts in creating awareness for the fight against climate change, while a Chemistry Nobel to Paul Crutzen in 1995, for his work on the ozone layer, is considered the only other time someone from atmospheric sciences has won this honour. The recognition of Manabe and Hasselmann, therefore, is being seen as an acknowledgment of the importance that climate science holds in today's world. "That 1967 paper was seminal work. It was the first description of the processes of global warming. Manabe and Wetherland also created a climate model for the first time. *The sophisticated models that we run today, which are so crucial to climate science, trace their ancestry to that model created by Manabe.* He was a pioneer in so many ways, and the father of climate modelling," said R Krishnan, director of Centre of Climate Change Research at Pune's Indian Institute of Tropical Meteorology. Krishnan had worked with Manabe at the Frontier Research Centre for Global Change in Japan in the late 1990s. Manabe, a Japanese, spent most of his career at the Geophysical Fluid Dynamics Laboratory at Princeton University in the United States. "He did not have the Nobel Prize then, but was a towering influence nonetheless. He, and others, had considerably improved the climate models by that time. Manabe was also instrumental in developing the first coupled model, in which ocean and atmospheric interactions are modelled together, in the 1970s. I remember in a couple of conversations, Manabe also spoke about Hasselmann's work with a lot of appreciation," Krishnan said. *Hasselmann, a German, who too is now 90, is an oceanographer who ventured into climate science. He is best known for his work on identifying specific signatures, or "fingerprints" as the Nobel committee called them, in the climate phenomena that enabled scientists to ascertain whether these were caused by natural processes or human activities.* "Hasselmann enabled the field of attribution science. In the 1990s, and even in the early 2000s, there was a lot of debate over the cause of global warming – whether

these were being driven by human activities, or were part of natural variability. Even the scientific world was divided. The second or third assessment reports of IPCC were very circumspect in blaming human activities for rising temperatures. Hasselmann's work on identifying these fingerprints has all but closed that debate now. If you look at the IPCC's sixth assessment report which came out earlier this year, it is unequivocal in saying that climate change is occurring because of human activities," said Bala Govindasamy, a professor at the Centre for Atmospheric and Oceanic Sciences at the Indian Institute of Science, Bengaluru, and one of the contributors to the sixth assessment report. Govindasamy has worked with Manabe at the laboratory in Princeton University. Manabe and Hasselmann too have been authors of previous IPCC reports. Both of them contributed to the first and third assessment reports, while Hasselmann was an author in the second assessment report as well. "As public awareness of climate change grows, it is encouraging to see the Nobel Physics Prize recognising the work of scientists who have contributed so much to our understanding of climate change, including two IPCC authors — Syukuro Manabe and Klaus Hasselmann," the IPCC said in a statement.

Mainstreaming climate science

Several scientists said that the delayed recognition to climate science couldn't have come at a more appropriate time. "Climate change is the biggest crisis facing the world, and the humanity, today. Unfortunately, there still are some people, and governments, that are not convinced of the reality, although that is changing quickly. Apart from the fact that the recognition of Manabe and Hasselmann is richly deserved and long awaited, this Nobel Prize will, hopefully, also help in more people believing in climate science," said M Rajeevan, former Secretary in the Ministry of Earth Sciences. Krishnan said that until very recently, climate science was not considered important even in scientific circles. "Perhaps that was because our weather forecasts were not very accurate. Not everyone appreciated the fact that this science itself was uncertain and chaotic. Climate science never had the aura of particle physics or string theory, for example. But that perception is changing now. Weather forecasts have become far more accurate, the evidence on climate change have been compelling, thanks to the works of scientists like Manabe and Hasselmann. This Nobel Prize would probably help in further mainstreaming of climate science," he said.

JOURNALISTS FROM PHILIPPINES, RUSSIA WIN PEACE NOBEL

Journalists Maria Ressa of the Philippines and Dmitry Muratov of Russia won the 2021 Nobel Peace Prize on Friday for their fight for freedom of expression in countries where reporters have faced persistent attacks, harassment and even murder. "Free, independent and fact-based journalism serves to protect against abuse of power, lies and war propaganda," said Berit Reiss-Andersen, chair of the Norwegian Nobel Committee, explaining why the prize went to two journalists. "Without freedom of expression and freedom of the press, it will be difficult to successfully promote fraternity between nations, disarmament and a better world order to succeed in our time," she said. *The Nobel committee noted that Ms. Ressa in 2012 co-founded Rappler, a news website that has focused critical attention on President Rodrigo Duterte's "controversial, murderous anti-drug campaign" in the Philippines.* She and Rappler "have also documented how social media is being used to spread fake news, harass opponents and manipulate public discourse". *Mr. Muratov was one of the founders in 1993 of the independent Russian newspaper Novaya Gazeta, which the Nobel committee called "the most independent newspaper in Russia today, with a*

fundamentally critical attitude towards power". "The newspaper's fact-based journalism and professional integrity have made it an important source of information on censurable aspects of Russian society rarely mentioned by other media," it added. Ms. Ressa, the first Filipino to win the peace prize and the first woman to be honoured this year with an award by the Nobel committee, was convicted last year of libel and sentenced to jail in a decision seen as a major blow to press global freedom. She said she hopes the award will bolster investigative journalism "that will hold power to account."

Relentless campaign

"This relentless campaign of harassment and intimidation against me and my fellow journalists in the Philippines is a stark example of a global trend that journalists and freedom of the press facing increasingly adverse conditions," she told The Associated Press. *She also pointed to social media giants like Facebook as a serious threat to democracy, saying "they actually prioritised the spread of lies laced with anger and hate over facts."* "I didn't think that what we are going through would get that attention. But the fact that it did also shows you how important the battles we face are, right?" she said. "This is going to be what our elections are going to be like next year. It is a battle for facts. When you're in a battle for facts, journalism is activism."

Government scrutiny

Mr. Muratov said he would use his win to help independent journalists who have faced growing pressure from the authorities, including those whose organisations were declared "foreign agents" — a designation that threatens to bring more government scrutiny. "We will use it to shore up Russian journalism that has faced repressions," he said in comments carried by a Russian messaging app channel. "We will try to help the people who have been designated as agents, have faced persecution and have been forced out of the country." According to the Committee to Protect Journalists, 17 media workers were killed in the Philippines in the last decade and 23 in Russia.

IMPORTANCE OF NOBEL WINNER ABDULRAZAK GURNAH'S WRITING IN HIGHLIGHTING THE REFUGEE EXPERIENCE

Ahead of the declaration of this year's Nobel Prize for Literature, the prestigious award — mired in controversy in recent years — was called out for its lack of inclusivity and recognition of women writers and writers of colour. On Thursday, *Abdulrazak Gurnah, 72, who was born in Zanzibar and now lives in the UK, became the fifth African writer to win the Nobel Prize for Literature, after Nigerian writer Wole Soyinka (1986), Egyptian Naguib Mahfouz (1988), and South African writers Nadine Gordimer (1991) and John M Coetzee (2003).* In its citation, the Nobel committee lauded Gurnah's "uncompromising and compassionate penetration of the effects of colonialism and the fate of the refugee in the gulf between cultures and continents."

Gurnah's work

The author of 10 novels and several short stories and essays, including Memory of Departure (1987), Pilgrims Way (1988), Paradise (1994), By the Sea (2001), Desertion (2005), Gravel Heart (2017) and, most recently, Afterlives (2020), Gurnah's writing explores the immigrant experience and how exile and loss shape identities and cultures. Most of his books feature African Arab

protagonists trying to come to terms with dislocation and estrangement, looking in on societies and cultures on which their holds are tenuous. For instance, Paradise, shortlisted for the Booker Prize, references British modernist writer Joseph Conrad's Heart of Darkness (1902), as its protagonist Yusuf comes of age at a time of violent colonial expansion in East Africa in the late 19th century. In most of his works, Gurnah eschews nostalgia and upends genre tropes to show the tension and insecurity latent in the constantly shifting sands of displacement. In By the Sea, another novel nominated for the Booker Prize, he explores the refugee's struggle to both remember and to forget. "It is difficult to know with precision how things became as they have, to be able to say with some assurance that first it was this and it then led to that and the other, and now here we are. The moments slip through my fingers. Even as I recount them to myself, I can hear echoes of what I am suppressing, of something I've forgotten to remember, which then makes the telling so difficult when I don't wish it to be," says one of the narrators, Saleh, a Muslim man from Tanzania who seeks asylum in the UK with a forged visa in the name of his sworn enemy. In a twist of fate, the person delegated to help him settle down in the new country is that man's son, and in their bitter, acerbic quarrels, the tension between the old world and the new takes shape.

Background

Gurnah was born in Zanzibar on the Indian Ocean in December 1948, when it was still ruled by the British. In 1963, as the archipelago gained independence, it would enter into a phase of civil unrest and internal strife between its Arab minority that was in power and the African majority. In 1964, the Zanzibar Revolution would see the overthrow of the constitutional monarch, Sultan Jamshid Bin Abdullah, and his predominantly Arab functionaries by African Left-leaning revolutionaries. In its bloody aftermath, as Zanzibar became the United Republic of Tanzania, Arabs and other minorities were ruthlessly persecuted, with some estimates putting the death toll to about 20,000. Gurnah left the island in 1968 as an 18-year-old and moved to Britain, a refugee in search of a safe haven. He would be unable to return home and meet his family until 1984, when he would meet his father shortly before the latter died. Even though Swahili is his mother tongue, when he began writing at 21, Gurnah gravitated towards English, the language of his education. He earned his PhD from the University of Kent, Canterbury, where he was the professor of English and Postcolonial Literature until his recent retirement. His academic work focused on post-colonial and diasporic literature, with particular emphasis, mentions the Nobel website, on writers such as Soyinka, Ngũgĩ wa Thiong'o and Salman Rushdie. In his writings and his interviews, Gurnah has spoken at length of having drawn inspiration from the cosmopolitan Zanzibar of his childhood, where a multitude of languages, religions and cultures thrived side by side, and which find expression through the smattering of Swahili, Arabic, Hindi and German that appear in his work.

Inspiration

NOBEL FOR DECIPHERING THE SCIENCE OF TOUCH

The five senses through which human beings perceive and experience the world around them are well known. The internal mechanisms inside the human body through which we become aware of, and respond to, light, sound, smell and taste have been fairly well-understood for several decades. The understanding of how we sense through touch – the perception of hot or cold, squeeze or strain or the feeling of physical pain – eluded scientists for long. Until David Julius and Ardem Patapoutian,

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working independently in the United States, made a series of discoveries in the late 1990s and early 2000s to figure out the touch detectors in our body and the mechanism through which they communicate with the nervous system to identify and respond to a particular touch.

Sensors

Julius and Patapoutian have been awarded the prize "for their discoveries of receptors for temperature and touch". Simply put, they discovered the molecular sensors in the human body that are sensitive to heat, and to mechanical pressure, and make us "feel" hot or cold, or the touch of a sharp object on our skin. Artificial sensors are familiar in today's world. *A thermometer is a very common temperature sensor. In a room, a table or bed would not be able to perceive changes in temperature even when they are exposed to heat, but a thermometer would. Similarly, in the human body, all the molecules do not sense heat when they are exposed to it. Only very specific proteins do, and it is their job to relay this signal to the nervous system, which then triggers an appropriate response. Scientists knew that such sensors must exist, but were not able to identify them until Julius discovered the first heat receptor.* "It was a very fundamental discovery. The identification of heat receptor by Julius in the late 1990s came through a very tedious scrutiny of hundreds of genes for their sensitivity to temperature. Today, we have very efficient computers and models that can reduce the work, and fast-track the process, but in those days a lot of painstaking research was required. That first discovery led to identification of several other receptors. Just like there are receptors sensitive to heat, there are others that can sense coldness. And yet others, that can sense pressure. We now know several of these," said Dipanjan Roy, a neuroscientist at National Brain Research Centre in Manesar.

The mechanism

The human ability to sense heat, or cold, and pressure is not very different from the working of the many detectors that we are familiar with. A smoke detector, for example, sends off an alarm when it senses smoke beyond a certain threshold. Similarly, *when something hot, or cold, touches the body, the heat receptors enable the passage of some specific chemicals, like calcium ions, through the membrane of nerve cells. It's like a gate that opens up on a very specific request. The entry of the chemical inside the cell causes a small change in electrical voltage, which is picked up by the nervous system. "There is a whole spectrum of receptors that are sensitive to different ranges of temperature. When there is more heat, more channels open up to allow the flow of ions, and the brain is able to perceive higher temperature.* Similar things happen when we touch something extremely cold," said Aurnab Ghose, a neuroscientist at the Indian Institute of Science Education and Research in Pune. Ghose said that these receptors were sensitive not just to external touch, but could detect temperature or pressure changes inside the body as well. "When our body temperature deviates from the optimum level, for example, there is a reaction. The body makes an effort to revert to the optimum, or core, temperature. That happens only because the heat receptors are able to sense a change in temperature, and the nervous system tries to restore that," he said. "But that is not all. When our urinary bladder is full, for example, the pressure in the bladder increases. This change in pressure is sensed by the pressure receptors and relayed to the nervous system which creates this urge to relieve oneself. Changes in blood pressure is sensed in a similar fashion, and remedial actions initiated... That is why the discoveries of these receptors are so fundamental to our understanding of how our body functions," Ghose said.

Therapeutic implications

Breakthroughs in physiology have often resulted in an improvement in the ability to fight diseases and disorders. This one is no different. As Sneha Shashidhara, a PhD in cognitive neuroscience, pointed out, the identification of these receptors opens up the possibility of regulating their functioning. For examples, there are receptors that make us feel pain. If these receptors can suppressed, or made less effective, the person had feel less pain. "Chronic pain is present is a number of illnesses and disorders. Earlier, the experience of pain was a mystery. But as we understand these receptors more and more, it is possible that we gain the ability to regulate them in such a way that the pain is minimised," she said. Ghose said, in fact, research in this field was already underway. "It is possible that the next generation of pain-killers would work in this fashion," he said, adding that there were several other therapeutic implications as well, including interventions that might be useful in treatment of diseases like cancer or diabetes.