



CURRENT AFFAIRS FOR UPSC

10TH TO 16TH OCTOBER, 2021



INTERNATIONAL

DECONSTRUCTING CLIMATE FINANCE

Developed countries are not close to meeting their targets

In the run-up to the 26th Conference of the Parties of the UN Framework Convention on Climate Change (UNFCCC), media reports have claimed that developed countries are inching closer to the target of providing \$100 billion annually in climate finance to developing countries by 2025 (the original target was 2020). This view has been bolstered by the Organisation for Economic Co-operation and Development (OECD), which claimed that climate finance provided by developed countries had reached \$78.9 billion in 2018.

Flawed claims

These claims are erroneous. First, the OECD figure includes private finance and export credits. Developing countries have insisted that developed country climate finance should be from public sources and should be provided as grants or as concessional loans. However, the OECD report makes it clear that the public finance component amounted to only \$62.2 billion in 2018, with bilateral funding of about \$32.7 billion and \$29.2 billion through multilateral institutions. Significantly, the final figure comes by adding loans and grants. Of the public finance component, loans comprise 74%, while grants make up only 20%. The report does not say how much of the total loan component of \$46.3 billion is concessional. From 2016 to 2018, 20% of bilateral loans, 76% of loans provided by multilateral development banks and 46% of loans provided by multilateral climate funds were non-concessional. Between 2013 and 2018, the share of loans has continued to rise, while the share of grants decreased. The overwhelming provisioning of climate finance through loans risks exacerbates the debt crisis of many low-income countries. The OECD reports on climate finance have long been criticised for inflating climate finance figures by including funds for development projects such as health and education that only notionally target climate action. The Oxfam report on climate finance discounts for the climate relevance of reported funds to estimate how much climate finance is actually targeting climate action and also discounts for grant equivalence. In contrast to the OECD report, Oxfam estimates that in 2017-18, out of an average of \$59.5 billion of public climate finance reported by developed countries, the climate-specific net assistance ranged only between \$19 and \$22.5 billion per year. The hollowness of the OECD claims is also exposed by the accounts provided by the developed countries themselves in their Biennial Reports submitted to the UNFCCC. The 2018 Biennial Assessment of UNFCCC's Standing Committee on Finance reports that on average, developed countries provided only \$26 billion per year as climate-specific finance between 2011-2016 even if these numbers are still open to challenge. This rose to an average of \$36.2 billion in 2017-18.

Broken promises

U.S. President Joe Biden recently said that the U.S. will double its climate finance by 2024. But any claim that such a pledge will make the U.S. a "leader in international climate finance" is misleading. It is Congress that will decide on the quantum after all. The U.S. also has a history of broken commitments, having promised \$3 billion to the Green Climate Fund (GCF) under President



Barack Obama, but delivering only \$1 billion before President Donald Trump withdrew U.S. support from the GCF. Mr. Biden initially promised only \$1.2 billion to the GCF, which fell well short of what was already owed. In any case, the future focus of U.S. climate finance is the mobilisation of private sector investment, as John Kerry, Special Presidential Envoy for Climate Change, made it clear during his recent visit to India. Alongside claims that a few trillion dollars of private investment were being mobilised, he was clear that public finance would only contribute to “de-risking” of investment. At the end of the day, the bulk of the money coming in would be through private funds, directed to those projects judged “bankable” and not selected based on developing countries’ priorities and needs. Regrettably, behind the rhetoric of mobilising climate finance lies the grim reality of burdening the G77 and its peoples with a fresh load of “green” debt. Climate finance has also remained skewed towards mitigation, despite the repeated calls for maintaining a balance between adaptation and mitigation. The 2016 Adaptation Gap Report of the UN Environment Programme had noted that the annual costs of adaptation in developing countries could range from \$140 to \$300 billion annually by 2030 and rise to \$500 billion by 2050. Currently available adaptation finance is significantly lower than the needs expressed in the Nationally Determined Contributions submitted by developing countries. Delivering on climate finance is fundamental to trust in the multilateral process. Regrettably, while developing countries will continue to pressure developed countries to live up to their promises, the history of climate negotiations is not in their favour.

(M) TACKLING THE CLIMATE CRISIS

The pressure to speed up mitigation and adaptation is at an all-time high

The recently published Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report from Working Group I makes a clarion call for climate action. According to the report, the past decade (2011-2020) was warmer by 1.09°C than the period from 1850 to 1900, and the 1.5°C global warming threshold is likely to be breached soon. The IPCC report warns India against more intense heat waves, heavy monsoons and rise in weather extremes in the future. The Global Climate Risk Index (2021) ranked India the seventh-most affected country by weather extremes. Responses to climate change vary from place to place as there are differences in production systems, agro-climatic and socio-economic conditions across the country.

Adopt adaptation strategies

The pressure to speed up mitigation and adaptation is at an all-time high. India is doing well in achieving its mitigation commitments of reducing emission intensity and enhancing renewable capacity. India is targeting 450 gigawatts of renewable energy capacity by 2030 and it has launched mega solar and green hydrogen missions. The Shooonya programme by NITI Aayog, which aims to accelerate adoption of electric vehicles, is yet another effort towards adoption of clean technologies. With escalating climatic risks, there is an urgency to adopt adaptation strategies. India has some dedicated initiatives towards adaptation, such as the National Action Plan on Climate Change and the National Adaptation Fund. However, a breakthrough on adaptation and resilience actions is needed to save hard-earned developmental gains and adjust to new climate conditions. Adaptation planning needs to go beyond a business-as-usual approach. A development-centric approach that aligns climate change, food security, and livelihood



perspectives and takes into consideration regional specificities is crucial for reducing poverty and distress migrations. Moreover, adaptation planning requires governance at different levels to understand, plan, coordinate, integrate and act to reduce vulnerability and exposure. To strengthen adaptation and resilience, India can do the following. First, it can be more prepared for climate change with high-quality meteorological data. With improved early warning systems and forecasting, we can tackle the crisis better. Premier research institutes can be roped in to develop regional climate projections for robust risk assessments. Second, for sustainable production systems, it is necessary to develop well-functioning markets for environmentally friendly products and disseminate them for the desired behavioural change. Third, it is important to encourage private sector participation for investment in adaptation technologies and for designing and implementing innovative climate services and solutions in areas such as agriculture, health, infrastructure, insurance and risk management. Fourth, we need to protect mangroves and forests to address climate-related risks by blending traditional knowledge with scientific evidence and encourage local and non-state actors to actively participate. Fifth, major social protection schemes must be climate-proofed. We have an opportunity to create resilient infrastructural assets, diversify the economy and enhance the adaptive capacity of rural households. Sixth, for continuous monitoring and evaluation, effective feedback mechanisms must be developed for mid-course correction. Periodic fine-tuning of State Action Plans on Climate Change is crucial to systematically understand micro-level sensitivities, plan resource allocation, and design responses to serve at different levels of intensities of climate hazards. Proactive and timely need-based adaptation is important. Without it, there will be a huge fiscal burden in the future. A more collaborative approach towards climate change adaptation is crucial. Next-generation reforms will promote new business and climate service opportunities across several sectors and thus create a sustainable economy.

(M) CHINA LAUNCHES BIODIVERSITY FUND

Xi Jinping pledges \$233 million, asks other countries to contribute to it

China on Tuesday pledged to inject \$233 million into a new fund to protect biodiversity in developing countries during a key UN conservation summit, despite disagreements among major donors on the initiative. Beijing — the world's biggest polluter — has sought to play a more prominent role internationally on biodiversity conservation in recent years. Its pledge came as delegates from about 195 countries gathered in the southern Chinese city of Kunming for the first of a two-part summit on safeguarding plants, animals and ecosystems. The summit aims to establish a new accord setting out targets for 2030 and 2050. "China will take the lead in establishing the Kunming biodiversity fund with a capital contribution of 1.5 billion yuan (\$233 million) to support the cause of biodiversity conservation in developing countries," Chinese President Xi Jinping said during a speech delivered via video link at the COP15 leaders' summit. "China calls on... all parties to contribute to the fund."

'30 by 30' agenda

A key proposal being debated at the conference is the "30 by 30" agenda that would afford 30% of the Earth's land and oceans protected status by 2030. Global spending to protect and restore nature needs to triple this decade to about \$350 billion annually by 2030 and \$536 billion by 2050



to meet this target, a UN report said in May. But some rich country donors say a new fund for conservation is unnecessary because the United Nations' Global Environment Facility already helps developing nations finance green projects.

AIDING AFGHANS

At a meeting of countries with the world's highest GDPs — the G-20 — Prime Minister Narendra Modi spoke about the looming humanitarian crisis in Afghanistan, especially as winter nears. He also called for the international community to provide Afghanistan with “immediate and unhindered access to humanitarian assistance”. The meeting came as the UNHCR published a new appeal for funds, with a report that half the population (more than 20 million people) are in need of “lifesaving humanitarian assistance”, and the UN has received only 35% of the funds needed for its relief operations. As a result of the Taliban takeover, most direct aid to the Afghan government has dried up; its reserves have been frozen by the U.S., making it impossible for salaries to be paid. The Taliban government's refusal to allow women to work and its stopping girls from schooling have made the situation more dire. While recognition of the Taliban and any governmental engagement is a long way off, the world is faced with the stark choice on how to ensure Afghanistan does not suffer further. At the summit, the EU committed \$1.15 billion for Afghanistan and neighbouring countries where refugees have fled, while other countries including the U.S. and China pledged \$1.1 billion at a donor conference in Geneva last month. India has not announced any monetary or food assistance. The PM's words are a welcome sign that the Government remains seized of the welfare of ordinary Afghans even as New Delhi has closed its embassy but maintains only a limited exchange with Taliban officials in Doha. Given the manner of the Taliban's takeover in August, with support from Pakistan, maintaining links with terror groups including those that target India leaves the Government hard put to increase its engagement, or to send aid directly to the new regime. But India could contribute to international agencies that are working with displaced Afghans, particularly for about one million children at the risk of starvation. It could also help Iran and the Central Asian states that are housing refugees with monetary assistance. The Government could also consider liberalising its visa regime for Afghans, which at the moment has cancelled all prior visas to Afghan nationals, and is releasing very few e-visas for Afghans desperate to travel here. As a goodwill gesture, India could once again send food aid, including wheat, grain, fortified biscuits and other packaged food, directly to Kabul. Clearly, the imperative to act is now, at what the UN Secretary General has called a “make or break” moment for the Afghan people, and to heed the warning that if the international community, which includes a regional leader like India, does not help stave off the unfolding humanitarian crisis, not only Afghans but also the rest of the world will pay a “heavy price”.

IS VS TALIBAN

No matter who is in power in Kabul, Afghanistan sees little prospect of peace

The suicide attack on a mosque in Kunduz last week, killing at least 50 people, all of them from Afghanistan's persecuted Shia minority, is a grave reminder that the conflict in the country is far from over. The Islamic State-Khorasan (IS-K), the Afghanistan-based arm of the terrorist organisation, has claimed responsibility. The IS's doctrinal hatred towards the Shias is known. In Iraq and Syria, it systematically targeted Shias, who it calls “rejectionists” of faith, and used such



attacks to mobilise the support of Sunni hardliners and trigger sectarian conflicts. The Kunduz blast was the third major attack by the IS since the Taliban's takeover of Kabul on August 15. Days later, an IS suicide squad attacked Kabul airport when thousands of Afghans were desperately trying to flee the country, killing at least 170 Afghans and 13 American soldiers. On October 3, a bomb targeted a memorial service being held for the mother of the Taliban spokesman, Zabihullah Mujahid, in a Kabul mosque, killing five. All these attacks suggest that the IS-K's ability to strike has grown. The group, which started operating in Afghanistan's eastern provinces after it suffered setbacks in Iraq and Syria in 2015-16, is no longer confined to the east. When the Taliban captured power in 1996, their main promise was to provide security to a people who were living through almost two decades of civil war. The Taliban had taken control of almost 90% of the country and established order through the implementation of their brutal code. This time, the Taliban control almost all of the country, but still struggle to establish order. There have been multiple instances of direct fighting between the Taliban and IS-K jihadists. The Taliban is an enemy for the IS-K, which wants to establish a foothold in Afghanistan exploiting the sectarian wounds and security vacuum. While both groups have used tactics of terror, the IS-K is a pan-Islamist jihadist outfit, while the Taliban are largely a Pashtun nationalist Islamist militancy. The rise of the IS-K poses challenges to the Taliban's rule over Afghanistan, which many in Afghanistan and Pakistan saw as a solution to the country's security woes. On one side, their promise to provide security looks hollow. Afghanistan's cities under the Taliban remain as insecure as they were under the previous Islamic Republic. On the other hand, even if the Taliban, under pressure from Afghanistan's donors and the public, want to make some concessions on the many restrictions already imposed, they would come under pressure from the more extremist IS-K, which says the Taliban are not Islamic enough. For the people of Afghanistan, who are caught between the devil and the deep blue sea, the war that started 40 years ago continues, no matter who is in power in Kabul.

ROGUE SCIENTIST

Driven by the urge for parity with India, Pakistan's AQ Khan was ready to steal and sell nuclear secrets.

Abdul Qadeer Khan, who died in Islamabad aged 85 on Sunday, was, to most of the world, a rogue scientist, who stole and sold nuclear designs to nation-states that were able and willing to buy them. His clients, reportedly, included North Korea, Libya and Iran. After the US blew his cover in 2004, Khan confessed on prime television that he had traded in nuclear secrets, describing his actions as "an error of judgement". Under pressure from Washington, the then Pakistan president, Pervez Musharraf, placed Khan under house arrest. A Pakistani court revoked the arrest soon after the general moved out though restrictions on his travels remained. None of this dented his popularity in Pakistan, where he continued to be hailed as a hero for delivering the nuclear bomb. Khan was a beneficiary of the nuclear race in the Subcontinent. He was working in a uranium enrichment facility in Holland when India exploded a nuclear device in Pokhran in 1974. Khan, whose family had migrated from Bhopal after Partition, offered his services to Islamabad, which was looking to acquire nuclear capability and compete with New Delhi, and joined the Pakistan Atomic Energy Commission in 1976. A Dutch court later convicted him for stealing blueprints for making centrifuges and other components. Pakistan first detonated a bomb in 1998, days after India exploded a second device in Pokhran, though it was rumoured to have acquired it in the 1980s itself. Khan was feted by the Pakistani state and venerated by citizens for the feat. Khan

3RD FLOOR AND 4TH FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



came to embody the stealth of Pakistan's deep state that ignored the international norms and consensus on nuclear proliferation to pursue its goal of parity with India. He took the blame for proliferation to deflect the international opprobrium that came Islamabad's way, though the last word on the matter is yet to be said.

(M) TUNISIA GETS A NEW GOVERNMENT, WITH RECORD NUMBER OF WOMEN

This comes 11 weeks after Saied suspended Parliament

Tunisia got a new government on Monday after more than two months without one, with the Prime Minister naming her Cabinet, including a record number of women. The ministerial appointments announced by Prime Minister Najla Bouden filled a vacuum that had persisted since President Kais Saied abruptly dismissed his former Cabinet and suspended Parliament 11 weeks ago, concentrating all executive powers. His critics and constitutional lawyers have likened his actions to a coup. Ms. Bouden, named September 29 by Mr. Saied as Tunisia's first female Prime Minister, said during the swearing-in ceremony of her new Ministers that their main priority would be fighting corruption. The new Cabinet has an unprecedented 10 women, including the PM. They include Leila Jaffel, new at the Ministry of Justice, and Sihem Boughdiri Nemseya, reappointed as Finance Minister. Mr. Saied had previously promised a new government for July. But he then partially suspended the Constitution on September 22 and gave himself the power to rule by decree. He has argued that pandemic-hit Tunisia is in crisis and that the measures are temporary. Opponents termed his move a coup but many Tunisians, sick of a political class seen as corrupt and incompetent, initially welcomed it. Protests for and against Mr. Saied have attracted thousands of people in recent weeks. The President on Monday said he would "make efforts in the coming days" to launch a "genuine national dialogue" involving Tunisians from across the country. Feminist groups have hailed Ms. Bouden's nomination as a step forward for women in Tunisia, seen as a pioneer for women's rights in the Arab world.

(M) IMF BOARD DECIDES NOT TO SACK ITS CHIEF KRISTALINA GEORGIEVA

She was accused of fudging data to boost China's ranking

The International Monetary Fund's Executive Board has backed its embattled managing director (MD), Kristalina Georgieva, who has faced accusations of meddling with figures in the World Bank's Doing Business Report in 2018 at China's behest, when she was CEO of the World Bank. The Board's decision was announced weeks after an independent inquiry concluded that Ms. Georgieva and then World Bank President Jim Yong Kim had pressured Bank staff so that China could get a better business ranking. "Having looked at all the evidence presented, the Executive Board reaffirms its full confidence in the Managing Director's leadership and ability to continue to effectively carry out her duties," said a statement released Monday night by the 24-member board, which has been divided over the issue. Ms. Georgieva at one point "became directly involved in efforts to improve China's ranking," a report from WilmerHale, the law firm conducting the probe, had found. Ms. Georgieva had denied that she asked for data to be changed. The IMF Board said the report did not "conclusively demonstrate" that the MD had played an "improper role" in the production of the Doing Business Report 2018, and took note that the World Bank was investigating potential staff misconduct with regard to the report.



U.S. and Japan

Key E.U. countries, including France and Germany, together with China and Russia had backed Ms. Georgieva with the IMF's two largest shareholders - the U.S. and Japan - toeing a harder line on the issue. The U.S.'s economic relationship with China has largely been adversarial in recent years. U.S. Treasury Secretary Janet Yellen spoke with Ms. Georgieva on Monday and told her that the inquiry's findings had "raised legitimate issues and concerns," though there was no basis for a change in IMF leadership right now, the Treasury Department said.

(M)THE SANCTIONS CLOUD OVER INDIA-U.S. TIES

The debate in the U.S. hovers around the efficacy of CAATSA-related sanctions against India

The Chief of the Air Staff, Air Chief Marshal V.R. Chaudhari, recently said that the delivery of the S-400 Triumf air defence systems from Russia is expected according to schedule. In response, U.S. Deputy Secretary of State Wendy Sherman hoped that both the U.S. and India could resolve the issue. The "issue" here is that receiving the missile systems could attract for India sanctions under the Countering America's Adversaries through Sanctions Act (CAATSA), enacted by the U.S. Congress. Ms. Sherman emphasised that the U.S. thinks it's "dangerous" for "any country that decides to use the S-400". India is scheduled to receive five squadrons of the surface-to-air missile systems under the \$5.43 billion (₹40,000 crore) agreement it signed three years ago.

Enactment of CAATSA

Even though CAATSA was signed into law by then President Donald Trump in 2017, India stuck to its guns, signed the agreement with Russia a year later, and paid an advance in 2019. The missile systems were originally scheduled to be delivered between 2020 and 2023 and the supplies are expected to commence now. Both New Delhi and Washington have been in conversations over the deal. India has stressed on the tactical importance of the defence missile systems considering the environment in the Indian subcontinent. The CAATSA was passed when the U.S. sought to discourage trade in the defence and intelligence sectors of Russia, a country perceived to have interfered with the 2016 U.S. presidential election. The Act mandates the President to impose at least five of the 12 sanctions on persons engaged in a "significant transaction" with Russian defence and intelligence sectors. These sanctions include suspending export licence, banning American equity/debt investments in entities, prohibiting loans from U.S. financial institutions and opposing loans from international finance institutions. The Act also built in a safety valve in the form of a presidential waiver. This was written into the law after much persuasion and is interpreted as one crafted to accommodate countries like India. Policy planners on either side are aware of the law and the provisions to work around it. Ms. Sherman and Secretary of State Antony Blinken, who came to India earlier this year, cannot be expected to announce whether India can secure a waiver from President Joe Biden when the time comes for the White House to make a decision. The "modified waiver authority" allows the President to waive sanctions in certain circumstances. He has to decide whether the move is in American interest; does not endanger the country's national security; and affect its military operations in an adverse manner. In addition, he has to determine whether the country in question is taking steps to bring down its inventory of defence equipment from Russia and cooperating with Washington on matters of critical

3RD FLOOR AND 4TH FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



security. There are a few more provisions including one that allows for sanctions waivers for 180 days, provided the administration certifies that the country in question is scaling back its ties with Russia. The debate in the U.S. hovers around the efficacy of such sanctions against India when the geopolitical situation in the region is undergoing a change. Today, there is a growing relationship between China and Russia with both countries seeking to expand engagement in Afghanistan from where the U.S. withdrew its military after two decades of war. India turned sullen over the manner in which the U.S. negotiated the exit deal with the Taliban. Yet, on the strategic plane, India remained on course by agreeing to the upgrading of the Quadrilateral Security Dialogue and sharing the same vision as the U.S. on the Indo-Pacific construct. Sanctions have the tremendous potential of pulling down the upward trajectory of the bilateral relationship between the U.S. and India, which now spans 50 sectors, especially in the field of defence. The U.S.'s apprehension is that bringing India under a sanctions regime could push New Delhi towards its traditional military hardware supplier, Russia. Till about a decade ago, an influential segment of the Indian political leadership and top bureaucracy remained wary of deeper engagement with the U.S. Sanctions can stir up the latent belief that Washington cannot be relied upon as a partner.

Decrease in imports

Over the last decade, India's military purchase from Russia has steadily declined. India's import of arms decreased by 33% between 2011-15 and 2016-20 and Russia was the most affected supplier, according to a report by the Stockholm-based defence think-tank SIPRI. In recent years, though, there have been some big-ticket deals worth \$15 billion including S400, Ka-226-T utility helicopters, BrahMos missiles and production of AK-203 assault rifles. On the other hand, over the past decade, government-to-government deals with the U.S. touched \$20 billion and deals worth nearly \$10 billion are under negotiation. The U.S. designated India as a Major Defence Partner in 2016. It later gave India Strategic Trade Authorisation-1 which allows access to critical technologies. Today, manufacturers in both countries are exploring ways to co-develop and co-produce military equipment.

What next?

There are advocates in the U.S. who strongly favour imposing sanctions on India following the U.S.'s decision to impose restrictions on its NATO ally, Turkey. China was the first country to attract the provision after it procured the S-400. Should India be treated with a different yardstick? A section of influential lawmakers in the Democratic Party hold a different view. There are three clear steps in this regard. The first is the presidential determination on waiver; the second is the referral to the Congressional Committees; and the third is clearance by these panels. While referral to the Armed Services is spelled out, it is a distinct possibility that this will be sent to the Senate Foreign Relations Committees. This powerful committee, headed by Senator Bob Menendez, wrote to Defence Secretary Lloyd Austin ahead of his visit to New Delhi in March this year that he must inform India of the perils of the deal, while a Republican, Todd Young, on the panel argued against it. The CAATSA test will determine the course of the India-U.S. strategic partnership. Will the Biden administration sail through opposition within his party in allowing India a clear passage? While the administration will have to do the heavy lifting, the role of Indian-Americans should be significant just as they rallied around to support the historic Civil Nuclear Deal in the face of stiff resistance from Democrats opposed to nuclear proliferation.



(M)A 'TAIWAN FLASHPOINT' IN THE INDO-PACIFIC

In pursuing its Indo-Pacific strategy, India needs to be mindful of the China-U.S. equations in the region

If the rising confrontation between the United States and China erupts into a clash of arms, the likely arena may well be the Taiwan Strait. Taiwan is the unfinished business of China's liberation under the Chinese Communist Party (CCP) in 1949. The Guomindang (KMT) forces under Chiang Kai-shek lost the 1945-49 civil war to the CCP forces under Mao Zedong. Chiang retreated to the island of Taiwan and set up a regime that claimed authority over the whole of China and pledged to recover the mainland eventually.

'Strategic ambiguity'

The CCP in turn pledged to reclaim what it regarded as a "renegade" province and achieve the final reunification of China. Taiwan could not be occupied militarily by the newly established People's Republic of China (PRC) as it became a military ally of the United States during the Korean War of 1950-53. It was described as an "unsinkable aircraft carrier" underscoring its strategic significance. This phase came to an end with the U.S. recognising the PRC as the legitimate government of China in 1979, ending its official relationship with Taiwan and abrogating its mutual defence treaty with the island. Nevertheless, the U.S. has declared that it will "maintain the ability to come to Taiwan's defence" while not committing itself to do so. This is the policy of "strategic ambiguity". China, on the other hand, is committed to pursuing peaceful unification but retains the right to use force to achieve the objective. This is its own version of strategic ambiguity. The PRC has pursued a typical carrot and stick policy to achieve the reunification of Taiwan with the mainland. It has held out the prospect, indeed preference for peaceful reunification, through promising a high degree of autonomy to the island under the "one country two systems" formula first applied to Hong Kong after its reversion to Chinese sovereignty in 1997. According to this formula, Hong Kong would retain its free market system and its political and judicial institutions and processes for a period of 50 years, thus enabling an extended and gradual transition. The same was promised to Taiwan, but with the added assurance that it could also retain its armed forces during the transition period.

Economic links

With China itself adopting market-oriented reforms since 1978 and becoming, over a period of time, a significant economic and commercial opportunity globally, Taiwan business entities have invested heavily in mainland China and the two economies have become increasingly integrated. Between 1991 and 2020, the stock of Taiwanese capital invested in China reached U.S. \$188.5 billion and bilateral trade in 2019 was U.S. \$150 billion, about 15% of Taiwan's GDP. By contrast the stock of Chinese capital invested in Taiwan is barely U.S. \$2.4 billion although investments through Hong Kong may be considerable. Taiwanese attempts to reduce the island's economic exposure to China have not been successful so far. China hopes that the considerable economic benefits that Taiwan business and industry enjoy through a burgeoning relationship with China would weaken opposition to unification. By the same token, China is capable of inflicting acute economic pain on Taiwan through coercive policies if the island is seen to drift towards an independent status.



Taiwan's politics

Taiwan has two major political parties. The KMT, dominated by the descendants of the mainlanders who came to the island along with Chiang Kai-shek in 1949, remains committed to a one-China policy and does not support the independence of Taiwan. The Democratic Progressive Party (DPP), on the other hand, is more representative of the indigenous population of the island, and favours independence. However, faced with aggressive threats from China and lack of international support, the demand for independence has been muted. China feels more comfortable with the KMT and is hostile to the DPP. Ever since the DPP under Tsai Ing-wen won the presidential elections in 2016, China has resorted to a series of hostile actions against the island, which include economic pressures and military threats. These actions have escalated since the re-election of Tsai Ing-wen in the 2020 elections. Public opinion swung in her favour as China adopted a series of hardline policies in Hong Kong, abandoning the 'One Country Two Systems' formula promoted by Chinese leader Deng Xiaoping. China could no longer pretend that the model was relevant in any sense to Taiwan's future under Chinese sovereignty. One important implication of this development is that prospects for peaceful unification have diminished. Sentiment in Taiwan in favour of independent status has increased. The escalating military threats against Taiwan, through daily violations of its air defence identification zone (ADIZ) and aggressive naval manoeuvres in the Taiwan Strait are currently deterrent in nature, aimed at heading off any move towards independence and its closer military relationship with the U.S.

The U.S. stance

While the U.S. does not support a declaration of independence by Taiwan, it has gradually reversed the policy of avoiding official-level engagements with the Taiwan government. The first breach occurred during the Donald Trump presidency when several senior officials, including a cabinet-level official, visited the island. The Joe Biden officials have continued this policy. The Taiwanese representative in Washington was invited to attend the presidential inauguration ceremony (Biden), again a first since 1979. Reports have now emerged that U.S. defence personnel have been, unannounced, training with their Taiwanese counterparts for sometime. In a new incident last week, a U.S. nuclear-powered submarine reportedly ran into an "unidentified object" while in the South China Sea. China has objected to these U.S. actions vociferously. The latest statement by Chinese President Xi Jinping on Taiwan on October 9, on the eve of Taiwan's national day, responds to these developments. Mr. Xi said that unification should be achieved peacefully but added that the Chinese people have a "glorious tradition" of opposing separatism. Mr. Xi added, "The historic task of the complete reunification of the motherland must be fulfilled and will definitely be fulfilled." These statements are somewhat less aggressive and impatient than his earlier ones on Taiwan. This may be related to the recent telephone conversation between President Joe Biden and Mr. Xi when Mr. Biden reportedly assured Mr. Xi that the U.S. would abide by the "Taiwan agreement", that is, the U.S. would not overturn its one China policy. Is China prepared to carry out military operations to invade and occupy Taiwan? In March this year, the U.S. Pacific Commander, Philip Davidson, warned that China could invade Taiwan within the next six years as part of its strategy of displacing U.S. power in Asia. He appeared to suggest that Chinese military capabilities had been developed in order to achieve this objective. Other analysts argue that cross-strait operations would be extremely complex and pacifying a hostile population may prove to be long drawn out and costly. China may, therefore, be content to head off Taiwan



independence while continuing to build its capabilities and await a further relative decline of U.S. power and its will to intervene in the defence of Taiwan.

Impact of alliances

These calculations may be upset by accident or miscalculation, and the recent submarine incident is a warning in this respect. The recent crystallisation of the Quad, of which India is a part, and the announcement of the Australia-U.K.-U.S. alliance, AUKUS, with Australia being graduated to a power with nuclear-powered submarines, may act as a deterrent against Chinese moves on Taiwan. But they may equally propel China to advance the unification agenda before the balance changes against it in the Indo-Pacific. For these reasons, Taiwan is emerging as a potential trigger point for a clash of arms between the U.S. and China. In pursuing its Indo-Pacific strategy, India would do well to keep these possible scenarios in mind.

(M) WHY NATURAL GAS PRICES ARE SOARING AROUND THE WORLD

Host of reasons, including growing demand led by economic recovery, shift to cleaner energy and geopolitics, behind trend

This is supposed to be an off season. Winter is yet to set in. But natural gas prices soared over the past few months, especially in Europe. The price of natural gas in Europe is now six times higher than what it was last year. Across the continent, natural gas inventories are falling. On Wednesday, the benchmark Dutch gas futures price jumped 40% in the morning trade to touch €162.13 a megawatt-hour, an eight-year high, but reversed course after Russian President Vladimir Putin assured Europe of supplies. But even after the day's fall, gas prices in Europe remained twice as high as they were a month earlier. And on Friday, prices started rising again. What's driving up the prices?

Supply constraints

A host of reasons, from economic recovery to geopolitics, are attributed to the price rise. Global energy demand fell last year when economies slipped into COVID-induced lockdowns. When growth returned this year, especially to Asian economies, demand shot up and energy producers struggled to meet the growing demand, pushing up prices. Even in the U.S., the world's largest natural gas producer, prices rose from \$1.7 per million British thermal units on March 31 to \$6.3 per mBtu on Oct. 5. Europe, which is heavily dependent on imports to meet its energy demand, was particularly hit hard. As part of Europe's shift towards cleaner energy, many countries had moved away from coal to gas to produce electricity. This increased Europe's reliance on gas. On the other side, the continent's natural gas production has shrunk over the years, as many countries shut down production fields over environmental concerns. If Europe's natural gas production (excluding Russia) was about 300 billion cubic metres in 2005, it fell to less than 200 bcm in 2021, according to Rystad Energy. Norway, Europe's main producer of natural gas, has seen its production shrink from 117.6 bcm in 2015 to 105.3 bcm in 2021. This has left Europe largely dependent on Russia.

Energy geopolitics



As prices shot up amid growing worldwide demand and falling production in Europe, supplies from Russia via a pipeline that passes through Ukraine and Poland also shrank, which made the situation worse. Russia has built another gas pipeline, Nord Stream 2, which will take Russian gas directly to Germany bypassing Ukraine and Poland, whose governments are critical of the Kremlin. But supplies to Europe through Nord Stream 2 are yet to start as the pipeline is awaiting approval from European authorities. In the past when Europe's energy demand shot up, Russia had stepped up supplies. But this year, Gazprom, Russia's state-controlled energy giant that supplies about 35% of Europe's gas requirements, has booked less additional exports than the traders wanted, adding pressure on supplies. The International Energy Agency said this week Russian exports to Europe this year were lower than they were in 2019. This has fuelled speculation that Mr. Putin is using the energy crunch in Europe to get approval from the EU for the Nord Stream 2 pipeline. Several countries in Europe as well as the U.S. remain critical of the pipeline, which they say would help Russia enhance its leverage over the continent and would also allow Russia to economically punish Ukraine and Poland. U.S. National Security Adviser Jake Sullivan told the BBC on Thursday any attempts by Russia to exploit the crisis would backfire.

Putin's assurance

The Kremlin has dismissed such criticism, saying Russia has no role in the energy crunch. On Wednesday, Mr. Putin said the amount of gas flowing through the operational pipeline is set to exceed volumes agreed under Gazprom's contract with Ukraine. He also said Russia could "reach another record of deliveries of our energy resources to Europe, including gas". This temporarily calmed the markets. But Mr. Putin didn't say how Russia was going to step up supplies — through the existing pipeline or Nord Stream 2? Russian officials have already said Gazprom can send more gas to Europe if Nord Stream 2 comes online quickly. It is to be seen if additional supplies would be tied to a quick approval for the pipeline. Furthermore, the Russian domestic gas market also remains tight. Inventories are running low, and winter is coming, which would shoot up demand constraining Russia's export capacity. And demand is rising not only in Europe and the Americas, but also in Asia. Coal shortages in India and China could drive up prices of natural gas further.

DreamIAS



NATION

DANGEROUS DEADLOCK

Past border agreements are in disarray as the Line of Actual Control sees heavy deployment

As winter arrives on the Line of Actual Control (LAC), the latest round of talks — the thirteenth — between India and China ended with no resolution in sight, leaving tens of thousands of soldiers facing the prospect of another harsh cold season on the heights of Eastern Ladakh. The contrasting statements sharply underlined the deadlock. The Indian Army's statement on Monday morning noted that while India made "constructive suggestions" for resolving the remaining areas, the Chinese side "was not agreeable and also could not provide any forward-looking proposals". A Chinese statement on Sunday night accused India of making "unreasonable and unrealistic demands". There was no joint statement, as in the last round in August, when agreement was reached to disengage at Gogra. The only surprise is that the discord is now fully out in the open, in contrast to the anodyne declarations of both sides in August to "enhance trust" and "expeditiously resolve" issues that have already dragged on for more than one year. In fact, recent events on the boundary offered a portent that all was not well. First, reports citing Indian official sources, put out two days before Sunday's talks, revealed a face-off in the Tawang Sector in Arunachal Pradesh; later, Chinese soldiers had been detained for a few hours. The reports sparked an angry reaction in China, where the military apparently leaked on social media images from last year purportedly showing injured Indian soldiers detained by China in the Galwan Valley. Statements from the Chinese Foreign Ministry, accusing India of following a "forward policy" in an explicit invocation of 1962, have vitiated the atmosphere. That China put out a statement on Sunday night barely hours after the talks concluded — a departure from normal practice in a country where statements usually are carefully vetted — suggests the PLA had no real intention to seek a resolution. This leaves the LAC in a perilous situation. Not only are several hotspots unresolved — the latest round was to discuss Hot Springs, while disputes remain over Demchok and Depsang — the Corps Commanders were also set to work out new protocols for patrolling. Speaking this weekend, Indian Army Chief General M.M. Naravane noted a large-scale infrastructure build-up on the Chinese side, and said as Chinese troops were there to stay, Indian troops will be there to stay too. Ladakh and the western sector may remain the focus of tensions, but as recent flare-ups in Uttarakhand and Arunachal Pradesh show, the middle and eastern sectors are hardly tranquil. Past border agreements are in disarray in the wake of China's unprecedented amassing of troops, while around 50,000 troops of each side remain deployed in forward areas, all of which make for a dangerous mix as winter falls on the Himalayas.

(M) SUPREME COURT COMES DOWN ON REPEATED PETITIONS TO MODIFY VERDICT

It sees the procedure as a deliberate move to avoid compliance, says the hallmark of a judicial pronouncement is its stability and finality

The Supreme Court has belled the cat on the "clever move" to repeatedly file miscellaneous applications to "modify" or "clarify" its judgments. The court said such conduct on the part of some



litigants has no legal foundation. It should be firmly discouraged. Such machinations reduce litigation to a gambit. In the past few years, private parties with “resources”, corporates and even the government have returned, time and again, to the Supreme Court after a judgment to “clarify” or “modify” the verdict. The move has seen brakes pulled on the implementation of the judgment and, far worse, the case being dragged on in court for years after the verdict. The court views this as a deliberate move to avoid compliance with the judgment. “The hallmark of a judicial pronouncement is its stability and finality. Judicial verdicts are not like sand dunes, which are subject to the vagaries of wind and weather,” a Bench of Justices D.Y. Chandrachud and B.V. Nagarathna observed in a recent order. The court saw in the filing of repeated applications, “styled as miscellaneous applications”, after the pronouncement of final judgment the emergence of a “disturbing trend”. “Applications are becoming a preferred course to those with resources to pursue strategies to avoid compliance with judicial decisions. A judicial pronouncement cannot be subject to modification once the judgment has been pronounced, by filing a miscellaneous application. Filing of a miscellaneous application seeking modification/clarification of a judgment is not envisaged in law. Further, it is a settled legal principle that one cannot do indirectly what one cannot do directly,” the court noted.

Abuse of process

The court referred to its earlier judgments that called these “miscellaneous applications” an attempt for review of the entire judgment in the guise of a “clarification”. “It is an application seeking in substance a review of the judgment. By disguising the application as one for ‘clarification’, the attempt is to seek a hearing in the open court, avoiding the procedure governing the review petitions which, as per the rules of this court, are to be dealt with in chambers. Such an attempt on the part of the applicant has to be deprecated,” the court had said. The apex court had held that just by describing an application as one for “clarification” or “modification”, though it is really one of review, a party cannot be permitted to circumvent or bypass the circulation procedure and indirectly obtain a hearing. “In a country governed by the rule of law, finality of the judgment is absolutely imperative, and great sanctity is attached to the finality of the judgment. Permitting the parties to reopen the concluded judgments of this court by filing repeated interlocutory applications is clearly an abuse of the process of law,” the court said.

THE ‘YES OR A NO’ THE COURT MUST ASK ABOUT PEGASUS

In July this year, a global coalition of media organisations revealed that a mobile phone spyware — Pegasus — was being used in a number of countries to surveil journalists, activists, dissidents, and political leaders. Manufactured by an Israeli cyber-arms firm called the NSO Group, Pegasus is a highly invasive malware that once installed on an individual’s phone, can collect and transmit data, track activities such as browsing history, and control functionalities such as the phone camera. The NSO Group claims that its only clients are vetted governments. The Pegasus revelations thus indicated the possibility of serious governmental abuse.

Yet another episode

The revelations further showed that around 50,000 mobile phone numbers had been potentially infected by the spyware. Many of these numbers were Indian, and belonged to journalists, activists, and politicians. This was not the first time that such a thing had come to light. India



featured on a list of Pegasus-using countries as early as in 2018. In 2019, it was found that a number of activists including some of the accused in the infamous Bhima Koregaon case had been potentially spied upon, and their mobile phones compromised. Later the same year, WhatsApp notified the Indian government of a Pegasus-related security breach, with as many as 121 Indian citizens being targeted. The July 2021 revelations, thus, were not new, but only the most recent and most extensive accounts of military-grade surveillance being carried out upon Indians.

A track of stonewalling

In the aftermath of the Pegasus revelations, certain countries such as France and Morocco ordered immediate investigations. In India, however, the story has been one of continuous official stonewalling. In October 2019, Right to Information requests about whether the Indian government had purchased the Pegasus software were met with a “no information available” response. Parliamentarians put questions to the Government in the Lok Sabha and Rajya Sabha, where, once again, no response on the purchase or use of Pegasus was forthcoming. The Government continued to maintain this stance in response to various Parliamentary questions put to it through 2020 and 2021, and even after the 2021 revelations, including the effective quashing of a Parliamentary Committee inquiry into the issue, with ruling party politicians disabling it from functioning by denying it a quorum. This history clearly indicates that attempts in Parliament to hold the executive accountable for possible abuse of governmental surveillance powers has been entirely frustrated for more than two years. Under our constitutional scheme, however, there is a third wing of state that exists precisely to address situations where executive abuse and violations of fundamental rights are not being checked by the available mechanisms: the court. Consequently, at the end of July, multiple petitions were filed before the Supreme Court of India, alleging breaches of fundamental rights, and of India’s legislative framework dealing with lawful interception of communications. However, it has now been almost two-and-a-half months since the petitions came to court, without meaningful action. Between August 5 and September 13, 2021, the Court held six hearings on the case.

The issues are simple

The issues before the Court were simple: did the Government of India authorise the use of Pegasus upon the individuals whose names had appeared in the list? If it did, was there any justification for the use of such intrusive surveillance upon individuals who, admittedly, were not accused of any wrongdoing? And if it did not, was it not a breach of the Government’s constitutional obligations to protect its citizens from the use of military-grade surveillance by rogue actors? It is important to note that the petitions were not some fishing expedition asking the Government to reveal details about its general interceptions techniques: rather, they were brought to court by individuals who had themselves been affected by Pegasus, and were focused upon accountability: in essence, does the Indian Constitution allow for rampant and unchecked surveillance upon individuals — surveillance that goes far beyond simple interception of communication, and effectively hijacks and individual’s mobile phone — with complete impunity? Nonetheless, throughout the hearings, the Government continued upon its track of evasion: it repeatedly refused to file an affidavit setting out its stance in writing, until nudged by the Court to do so. The final affidavit that it did file was nothing more than a recapitulation of its evasive stance in Parliament. Furthermore, it continued to resist answering the core questions put to it, on the basis that doing so would undermine “national security”. This has, however, been a recent, unfortunate



trend: whenever the question of widespread and serious rights violations arises, the Government recites the words “national security” like a mantra, not simply to avoid providing answers, but to hint that even asking the question is somehow illegitimate. In this way, “national security” becomes a cloak for impunity.

On the court’s conduct

Nowhere was this more evident during the course of the Pegasus hearings. If a person whose mobile phone has been hijacked by a military-grade spyware that is only sold to governments, and if the Constitution means anything at all, it means that that person has the right to know why this has been done to him, and at whose behest. And — with the inability of Parliament to hold the executive to account — the only place where the individual can seek answers is the court. This has nothing to do with “national security”, and everything to do with whether we are a country governed by the rule of law — where the rule of law applies to both individuals and to the state — or whether we are living under a regime of executive impunity. Unfortunately, however, a record of the hearings so far indicates that the Court has allowed the Government to get away with much of its evasion. Despite the passage of two and a half months, the Court is yet to pass any consequential orders including, for example, orders directing the Government to provide the information that it has refused to provide Parliament and to citizens. Furthermore, the Court’s conduct has not been limited to inaction. When the State of West Bengal set up a committee to investigate Pegasus, the Court entertained a plea against it — despite having no ground to do so — and by orally expressing its disapproval (without any clear grounds to do so), effectively compelled the State government to halt the investigation. At no point was any legal justification provided for why the Court decided to hear such an irregular plea, or why the State of West Bengal was required to stop investigating breaches of fundamental rights.

Need for direction

On the last date of hearing, September 13, the Court indicated that it would establish a Committee to look into the matter. However, this puts the cart before the horse: it is unclear why the Court has not yet drawn an adverse inference against the Government for its repeated refusal to answer straightforward questions about potentially abusive surveillance; the setting up of a Committee would make sense after such a finding had been returned. Moreover, the substantial amount of time that has passed since the last order is worrying. In India, we have a long experience of “death by Committee”: issues that require urgent attention linger for many months in a Committee, and once public memory has dulled, are given a quiet burial. It is vital that this should not happen in the present case. Thus, a direction by the Court to the Government to answer whether it has been spying on citizens not accused of any offence — a direct yes/no question — and, if the answer is yes, to require it to explain why or face legal consequences — would be a good start.

(M)GOVT. CLEARS APPOINTMENTS OF CJS

Eight High Courts to get new Chief Justices, five CJs transferred

The government cleared the transfer of Tripura High Court judge A.A. Kureshi to the Rajasthan High Court on Saturday. The transfer was one among the 13 transfers and appointments of Chief Justices to various High Courts. They are part of a major reshuffle orchestrated by the Supreme

3RD FLOOR AND 4TH FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



Court Collegium, led by Chief Justice N.V. Ramana. September had seen over 100 recommendations for appointments, transfers and re-transfers in various High Courts sent from the Collegium to the Government for approval. Chief Justice Ramana has emphasised that his Collegium is on the warpath to fill up the long-pending vacancies in the High Courts, and urged the Government to work together with the judiciary to decide the recommendations. The Government has been responding with a steady stream of approvals in the past few days. The clearance in the 13 High Courts was considered crucial as some of them have been making do with acting Chief Justices. Eight High Courts will get new Chief Justices. Justice Rajesh Bindal, acting Chief Justice of Calcutta High Court, was appointed as the Chief Justice of the Allahabad High Court. Justice Ranjit V. More has been appointed as the Chief Justice of the Meghalaya High Court. Justice Satish Chandra Sharma, acting Chief Justice of the Karnataka High Court, has been appointed as the Chief Justice of the Telangana High Court. Justice Prakash Srivastava, a Madhya Pradesh High Court judge, has been appointed as the Chief Justice of the Calcutta High Court. Justice R.V. Malimath has been appointed as the Chief Justice of the Madhya Pradesh High Court. He is presently the acting Chief Justice of the Himachal Pradesh High Court. Justice Ritu Raj Awasthi has been appointed as the Chief Justice of the Karnataka High Court. Justice Aravind Kumar has been appointed as the Chief Justice of the Gujarat High Court. Justice Prashant Kumar Mishra will take over as the Chief Justice of the Andhra Pradesh High Court. He is presently serving as the acting Chief Justice of the Chhattisgarh High Court. Five Chief Justices, including Justice Kureshi, have been transferred. Justice Indrajit Mahanty, Chief Justice of the Rajasthan High Court, will take over as the Tripura Chief Justice. Chief Justice Mohammad Rafiq of Madhya Pradesh has been appointed as the Chief Justice of the Himachal Pradesh High Court. Chief Justice Biswanath Somadder of the Meghalaya High Court has been transferred as the Chief Justice of the Sikkim High Court. Justice A.K. Goswami has been appointed as the Chief Justice of the Chhattisgarh High Court. He is presently the Chief Justice of Andhra Pradesh High Court.

(M)ORDER OF REASON

Granting bail in UAPA cases, Assam courts push back against misuse of terror law

In a welcome pushback, the judiciary in Assam has granted bail to 14 people arrested under the UAPA for social media posts that allegedly supported the Taliban takeover of Afghanistan. The courts were either not convinced that the prosecution's case added up to a cognisable offence; or found the evidence insufficient to make out that the accused, even if they wrote an objectionable Facebook post, supported a terrorist organisation. In still others, they granted bail at the "motion stage". In doing so, they cut short what has become a familiar syndrome of "process as punishment" in UAPA cases — prolonged imprisonment without bail, sometimes running into over a year, without even the commencement of a trial. It was this process that degenerated into a spectacle of inhumanity in the incarceration and death of Stan Swamy; and continues in the plight of public intellectuals jailed for over two years in the Bhima Koregaon case, and journalist Siddique Kappan's imprisonment. The decisions of the Gauhati High Court and the lower courts in Assam are a welcome departure from the excessively harsh interpretation of Section 43D(5) of the UAPA following the Supreme Court's 2019 Watali judgment, which held that courts must accept the state's case without examining its merits while granting bail. Earlier this year, the Delhi High Court, too, while granting bail to anti-CAA-NRC activists Natasha Narwal, Devangana Kalita and Asif Tanha, jailed for over a year under UAPA, had sounded a dissenting note. "In its anxiety

3RD FLOOR AND 4TH FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



to suppress dissent, in the mind of the state, the line between the constitutionally guaranteed right to protest and terrorist activity seems to be getting somewhat blurred,” it had said. Indeed, in the hands of a “strong” executive that governs with a heavy hand, that would rather “police” political disputes, draconian provisions of a law like the UAPA have been used, time and again, to squeeze out dissent and difference, to criminalise the protestor and the protest. In recent times, the judiciary has a mixed record in coming to the defence of the citizen ranged against the might of the state. For instance, the Delhi HC’s attempt to raise the bar when it comes to bail under UAPA was met with a rap on the wrist from the Supreme Court. In this backdrop, the decisions by the courts in Assam are a welcome affirmation of judicial reason — and they must deter the state from turning terror laws into weapons against justice.

(M) FORMER CECS FLAG SECURITY CONCERNS OVER E-VOTING

Opinion comes at a time when Telangana SEC is set to carry out a smartphone-based experiment on October 20

Former Chief Election Commissioners (CEC) have raised a range of concerns, from maintaining secrecy of ballots to bringing political parties on board, around the idea of online voting and remote voting, at a time the Telangana State Election Commission (SEC) is set to carry out an e-voting experiment and the Election Commission of India (EC), too, is exploring remote voting. The Telangana SEC would be carrying out a smartphone app-based online voting experiment on October 20, the State Government had announced last week. The EC, on the other hand, had said last year that it was looking at the option of remote voting for those electors unable to reach the polling stations they are registered at. However, this could entail voting from another location set up by the authorities and not Internet-based voting from home. Former CEC S.Y. Quraishi said he wished the Telangana team the best, but “developing an app is child’s play”. He said the ECI had ruled out the option. “Even the simplest technology, the Electronic Voting Machine [EVM] that is based on the 17th Century calculator, is a matter of legal disputes... The technology is simple, credibility and trust in the technology is the issue,” he said. He asked if EVMs were still being challenged, how could an Internet-based system of voting be acceptable. O.P. Rawat, who was the CEC in 2018, agreed with Mr. Quraishi’s argument that if the security of EVMs that are standalone devices was questioned from time to time, then Internet-based voting would have even more critics. “It is a dicey proposition because elections are conducted with the total trust of voters, political parties, candidates and the public at large. One has to see to it that during voting, the voter ID, the environment [that is if there is any coercion], and the security of ballots cast till the time of counting are maintained,” Mr. Rawat said. He said that based on what was known about the e-voting plan publicly so far, it was not clear how verification of voter identification, maintaining a free voting environment and secrecy of ballots would be maintained. “It is near impossible,” he said.

‘Long journey’

Former CEC N. Gopalswami was of the view that “security issues can be overcome”, but it would be “political hurdles” that would be difficult to cross. He said the EVM itself had had a long journey. “It took 10 years for the required law to be passed,” he said. On the proposal of remote voting, Mr. Gopalswami gave the hypothetical example of a State election, say the Bihar Assembly polls,



where 50,000 to 1 lakh registered voters from there live in Tamil Nadu. The voters would be registered across the 243 constituencies of Bihar and it would be impossible for the ECI to keep 243 EVMs in each of the remote voting locations, so an electronic solution would be needed, he explained. Then the issue of campaigning for outstation voters would also crop up, he said. Ultimately, it would be the political parties that would have to find it acceptable, he said.

IT IS TIME TO RISE IN DEFENCE OF BOLLYWOOD

Everything about it embodies the 'composite culture' that is an affront to the uni-dimensional bigotry of Hindutva

The recent media frenzy targeting actor Shah Rukh Khan following the arrest of his 23-year-old son Aryan for alleged drug possession (though it has since been admitted that no drugs were found on his person) has led to a major campaign against the film industry ecosystem that allegedly enables "drug culture". While nothing yet has been established in a court of law, the episode is one more instalment in what appears to be a new drama series unleashed by the guardians of our public space — a war on Bollywood.

Smearing the industry

Last year, there was an all-out assault on the character of starlet Rhea Chakraborty who, after months of media frenzy linking her to the death by suicide of her boyfriend, actor Sushant Singh Rajput, was arrested and detained for several days for allegedly buying drugs for him, claims she denied and which were never substantiated. This in turn had already led to a huge campaign against alleged drug abuse in Bollywood, with four other actresses being called in for questioning. No charges were made, but the process, as is so often the case, proved to be the punishment. But it is not just drugs that have been used to smear the film industry. In January this year, at least 10 police complaints were filed, in more than half a dozen States across the country, against film-makers, actors and Amazon executives of a made-for-television political drama called Tandav, which allegedly offended Hindu sensibilities by its depiction of a character portraying Lord Shiva. Another crime thriller, Mirzapur, underwent similar harassment, for similar reasons; A Suitable Boy had cases filed against it over a kissing scene filmed near a temple. In March this year, properties linked to film-maker Anurag Kashyap, actress Tapsee Pannu and Reliance Entertainment group CEO Shibhashish Sarkar were raided by the Income Tax department as part of a tax evasion investigation against a company, Phantom Films, that had been dissolved in 2018. The alarm bells have begun to go off in the minds of some in our political class. Maharashtra Minister Nawab Malik has alleged that the raids were an attempt to suppress the voices of those who speak against the central government. Jaya Bachchan — a one-time movie star herself, wife of megastar Amitabh Bachchan, and a member of the Rajya Sabha — decried a "conspiracy to defame the film industry". The latest media campaign against Aryan Khan suggests the conspiracy is still alive.

The outsize influence

As these allegations suggest, it is not really drugs that are the issue here for the powers-that-be. The alleged violation of our narcotics laws is merely a convenient cudgel to batter an industry that is disliked for other reasons. The political establishment recognises the outsize influence of



Bollywood entertainment on the minds and attitudes of the broad viewing — and voting — public. What those in power, who have demonstrated their intolerance of points of view other than their own for some time now, really dislike is not what Bollywood does behind closed doors, but the content of what it puts out — what one might call the political culture of Bollywood. When I wrote my novel *Show Business* in 1990, some Indian critics were surprised that I would follow *The Great Indian Novel* with a work that dealt with the trashy world of commercial Bombay cinema. But I did so because to me, Indian films, with all their limitations and outright idiocies, represented a vital part of the hope for India's future. In a country that is still perhaps 30% illiterate, films represent the prime vehicle for the transmission of popular culture and values. Cinema offers all of us in India a common world to which to escape, allowing us to dream with our eyes open. And with 570 million Internet users, India also offers a remarkable market for new cinema for the OTT (over-the-top) platforms — direct to our laptops and mobile phone screens — a market Bollywood is poised to dominate.

Plots and the message

In India, popular cinema has consistently reflected the diversity of the pluralist community that makes this cinema. The stories they tell are often silly, the plots formulaic, the characterisations superficial, the action predictable, but they are made and watched by members of every community in India. Muslim actors play Hindu heroes, South Indian heroines are chased around trees by North Indian rogues. Representatives of some communities may be stereotyped (think of the number of alcoholic Christians played by a “character actor” like Om Prakash), but good and bad are always shown as being found in every community. I was first struck by this quality of Bollywood not long after the Bangladesh War, when the 1973 film *Zanjeer* offered a striking pointer to me of what Bollywood had come to represent in our society. In the film, Pran played Badshah Khan, a red-bearded Pathan Muslim who exemplified the values of strength, fearlessness, loyalty and courage. This was just a year after the bloody birth of Bangladesh in a war in which most of the subcontinent's Pathans were on the other side, but far from demonising the Pran figure, the film-makers chose not just to portray a strong Muslim character but to make him the most sympathetic presence in the film after the hero. This would not have been possible in many other countries, but Bollywood tended to be consistently good at this sort of thing, making megahits like *Amar Akbar Anthony*, about three brothers separated in infancy who are brought up by different families — one a Christian, one a Hindu and one a Muslim. The message was clear — that Christians, Hindus and Muslims are metaphorically brothers too, seemingly different but united in their common endeavours for justice. This kind of message is unsurprising, given who makes these films. Many have observed that Muslims enjoy a disproportionate influence in Bollywood, most apparent in the dominance of the trio of actors Shah Rukh Khan, Salman Khan, and Aamir Khan for three decades (six of the 10 highest-grossing films ever made feature one of the Khans). Several other prominent Bollywood stars — Naseeruddin Shah, Saif Ali Khan and the late Irrfan Khan — are Muslim. None of them was invited when, in 2019, Prime Minister Narendra Modi conducted a famous photo-op with a couple of dozen Bollywood A-list personalities flown to New Delhi for the purpose.

Possible ‘appeasement’

In today's charged political atmosphere, generated by the ascendancy of political figures associated with Hindutva, the photo-op suggested that the “A” in “A-list” seems increasingly to



stand for “appeasement” of the authorities. Many Bollywood celebrities embarrassed themselves by participating in a Government-run social media campaign to denounce global celebrities like Rihanna and Greta Thunberg for their support to our agitating farmers, earning themselves the sobriquet “#Sellebrities”. The real problem is that the Sangh Parivar dislikes diversity, and the film world embodies the very idea of India’s diversity in the way in which it is organised, staffed, and financed — and in the stories it tells. Everything about Bollywood embodies the “composite culture” whose very existence is an affront to the uni-dimensional bigotry of Hindutva. And as India’s entertainment has opened itself to more and more global influence, India’s “mainstream” cinema has increasingly shown a capacity for tackling serious themes — caste discrimination, rural injustice, sanitation, women’s rights, menstruation, female sexuality, interreligious marriage, homosexuality and even global Islamophobia have featured in recent films.

A chilling effect

This worries those who prefer Bollywood to continue to limit itself to formulaic entertainment, the proverbial “bread and circuses” necessary to distract the general public from governmental failures. The plot is thickening. New Internet guidelines, whose application and operations are yet to be tested, have already prompted Amazon Prime Video to suspend plans for a second season of the popular rural political series Paatal Lok. Other releases are reported to have been postponed indefinitely. Even the prospect of official disapproval has already had a chilling effect. Bollywood, which makes over 2,000 films a year, has long been India’s calling card to the world of entertainment. Our films and TV shows have the capacity of going global on the small screen the way Korean cinema has but Chinese has not — because censorship and intimidation stifles one set of film-makers and not the other. The remarkable creative talents available in India could make the country a global leader for such worldwide offerings. But to do that we must allow our film-makers creative freedom, stop harassing them and cease encouraging media persecution. It is time to rise up in defence of Bollywood.

OPPN. SLAMS RAJNATH ON HIS CLAIM ABOUT SAVARKAR

Opposition leaders have reacted sharply to Defence Minister Rajnath Singh’s comments that Mahatma Gandhi had asked right wing leader Veer Savarkar to file a mercy plea with the British, pointing out that Gandhiji was still in South Africa in 1911 when Savarkar wrote his first application seeking clemency. At the launch of the book, Veer Savarkar: The Man Who Could Have Prevented Partition, on Tuesday, Mr. Singh said, “Generally, a prisoner has the right to file a mercy petition... It was on Gandhi’s suggestion that he filed a mercy petition..” Reacting to Mr. Singh’s remark on Wednesday, Asaduddin Owaisi, president of All India Majlis-e-Ittehadul Muslimeen, pointed out that Savarkar wrote his first petition begging for “leniency, mercy and promising to be a faithful servant of the crown” in 1911 just six months after getting to prison. Gandhiji was then in South Africa. Savarkar wrote again in 1913 and 1914 while Gandhiji wrote to him in 1920 in reply to a letter by him. Mr. Owaisi also questioned Mr. Singh’s claim that Savarkar defined Hindu as anyone for whom India was fatherland or motherland. Mr. Owaisi asked, “However, Savarkar, as a man of limited intellectual prowess, had actually defined Hindu as someone for whom India was the fatherland and holy land. In his view, India was not the holy land for Muslims and Christians and so they couldn’t be fully loyal to India. What is your view on this as Defence Minister? Do you subscribe to this theory?” Communist Party of India (Marxist) general secretary



Sitaram Yechury said that it is “preposterous rewriting of history”. “The fact is the RSS was never part of the freedom struggle. Often collaborated with the British,” he said. Communist Party of India general secretary D. Raja called Mr. Singh’s claims a “factory of lies”. He tweeted, “Can the #RSS count how many mercy petitions Savarkar wrote when hundreds of communists suffered in Andaman with determination for the nation’s freedom?” Congress leader Jairam Ramesh tweeted, “Rajnath Singh-ji is amongst the few sober & dignified voices in Modi Sarkar. But he doesn’t seem to be free of RSS habit of rewriting history.” Senior Rashtriya Janata Dal leader Manoj K. Jha also came down heavily on Mr. Singh’s statements. In a tweet, he said, “Their ‘craft of history’ doesn’t follow rules of history ... No references.. No evidence .. Only ‘counter-factual imagination’.”

POLITICAL PUSH FOR BIFURCATING MEGHALAYA

The demand for bifurcating Meghalaya on ethnic lines has received a political push ahead of the bypolls to three Assembly constituencies. The Hill State People’s Democratic Party and the Garo Hills State Movement Committee on October 12 formed a panel for the demarcation of the boundaries of the two States that Meghalaya is envisaged to be divided into. One of the States would be for the Garos and the other for the Khasi-Jaintia communities. The HSPDP is a constituent of the National People’s Party-led alliance government in Meghalaya. The BJP, too, is a partner in this government. HSPDP president K.P. Pangniang said, “We want to clearly define and demarcate the boundaries of the separate states intended to be created for the Khasi-Jaintia and Garo people so that we do not face a problem similar to that of Assam.” The HSPDP and the GHSMC (a conglomerate of seven Garo organisations including a regional political party named Garo National Council) in July decided on a joint push for the bifurcation of the State.

To release booklets

“We will release booklets in local languages to justify our demand for the creation of a separate State for the Khasi-Jaintias,” Mr. Pangniang said. The GHSMC, in December 2018, revived the demand for a separate Garoland after several extremist groups had taken up arms for a similar objective. Former extremist leaders are part of this renewed movement. The Garo Hills region, comprising five of 11 districts and 24 of 60 Assembly seats in Meghalaya, is spread across 10,102 sq. km. According to the 2011 census, this region had 13.94 lakh people, compared to the 22.44 lakh spread across the Khasi-Jaintia Hills region covering 15,546 sq. km. In March 2014, the Assembly rejected a resolution for the creation of Garoland in the western region.

(M)TEEN PREGNANCIES POSE A CHALLENGE IN RAJASTHAN

Amid the high prevalence of child marriages, reducing teenage pregnancies continues to be the biggest challenge in addressing issues related to the reproductive health of adolescents in Rajasthan. Since more than one-third of the girls get married before they cross 18 and 6.3% of girls in the age group of 15 to 19 years are already mothers or are pregnant, investment in sexual and reproductive health is crucial for the State. With these findings, a new study, titled ‘Returns on Investment in Adolescents’ Sexual and Reproductive Health in Rajasthan’, has calculated the benefit-cost ratio to conclude that for every ₹100 spent on meeting the unmet needs of adolescents, there will be a return of approximately ₹300 in terms of healthcare costs saved. This indicates a very high potential for gains in health and economic gains from the interventions.



Arvind Mayaram, Economic Adviser to the Chief Minister, released the study, conducted by the Population Foundation of India (PFI), here recently, with the suggestion to develop new standards and guidelines to improve the quality of reproductive health services. Dr. Mayaram said since adolescents comprised 23% of the State's population, their demographic dividend could be harnessed through effective strategies. The potential health gains from the interventions could avert 1.45 lakh unwanted pregnancies, 1.46 lakh unwanted births, over 14,000 unsafe abortions, and the deaths of more than 7,000 infants and 300 pregnant women between 2021 and 2025, said the study. It could also save 7,321 infant lives and 343 maternal lives by 2025 and lead to a significant gain in the disability-adjusted life years, which is a measure of the overall disease burden. The findings also revealed that a per capita investment of ₹1 in weekly iron and folic acid supplement (WIFS) could save almost ₹2 to ₹20 in terms of averted productivity loss in adolescents. In order to reap this benefit, the State will need to make an annual investment of ₹6.6 crore to ₹8 crore in order to realise ₹13.2 crore in returns. For achieving the coverage of at least 50% of in-school and out-of-school adolescents, the State will need to increase its reach of WIFS from the existing level of 9.2% to 25%. Similarly, the benefits from the provision of sanitary pads to adolescent girls for a year will be about 4:1, indicating that every rupee invested in this intervention will produce a return of ₹4 by averting loss in educational achievement, according to the study. The study highlighted challenges in the field of sexual and reproductive health because of structural poverty, social discrimination, regressive social norms, inadequate education, and early marriage and childbearing.

Access to contraceptives

The study recommended an increase in the modern contraceptive prevalence rate for spacing methods from the existing 10.1% to 32% in the 2021-25 period. In absolute numbers, the State will have to provide contraceptives to an additional 2.53 lakh users and comprehensive abortion care services to an additional 75,000 users.

(M) WHY HAS RAJASTHAN'S MARRIAGE REGISTRATION BILL KICKED UP A STORM?

A Bill passed last month by the Rajasthan Assembly, which amended a 2009 law on mandatory registration of marriages, including child marriages, has been embroiled in controversy. Amid demands to withdraw the Bill, Chief Minister Ashok Gehlot said Monday that the government would request the Governor to return the Bill. "We are getting it examined by the Law (department) and will request the Governor to send the law we've passed back to us. And we'll get it examined and post examination, we'll move it forward if needed, or not," he said. The Bill was passed amidst opposition by the BJP, while civil society, women's organisations and the National Commission for Protection of Child Rights (NCPCR) have written to Gehlot to withdraw the Bill on the ground that it legitimises child marriage. Petitions have been filed in the High Court and the Supreme Court.

What is the amendment?

The Rajasthan Compulsory Registration of Marriages (Amendment) Bill, 2021 amends Section 8 of the Rajasthan Compulsory Registration of Marriages Act, 2009, which deals with "Duty to submit Memorandum". The Act itself defines Memorandum as the "Memorandum for registration of marriage." Prior to the amendment, Section 8 read: "The parties, or in case the parties have not



completed the age of twenty-one years, the parents or as the case may be, guardian of the parties, shall be responsible to submit the memorandum within a period of thirty days from the date of solemnization of the marriage to the Registrar within whose jurisdiction the marriage is solemnized or both or any of the parties resides. (2) A memorandum, which is not submitted within the time limit specified in sub-section (1), may be submitted at any time on payment of penalty as may be prescribed." After the amendment, which changes a key aspect in the age prescribed, Section 8 now reads: "The parties to the marriage, or in case the bridegroom has not completed the age of twenty one years and/or bride has not completed the age of eighteen years, the parents or, as the case may be, guardian of the parties shall be responsible to submit the memorandum, in such manner, as may be prescribed, within a period of thirty days from the date of solemnization of the marriage to the Registrar within whose jurisdiction the marriage is solemnized, or the parties to the marriage or either of them are residing for at least thirty days before the date of submission of the memorandum." Sub-section 2 has been amended to permit eligible parties — even if one or both are deceased — to submit the memorandum.

Why has the amendment been made?

The state government, which has termed the amendment a "technical" one, argues that this would bring the age in line with central legislation which recognises the age of 18 as majority for a girl and 21 for a boy. Registration of child marriages would help in their faster annulment and help the government reach out to more victims, particularly widows.

Why has it been criticised?

Critics say compulsory registration of child marriage would legitimise it. Activists have also said the marriage certificate might in fact, contrary to government claims, become a hurdle in getting an annulment later as courts could cite lack of a marriage certificate as a reason to not grant an annulment. Child marriages are conducted mostly away from the public glare and could be hard to prove. But even prior to the amendment, registration of child marriages was compulsory under Section 8. The amendment only restricts its scope to women till the age of 18.

How can a child marriage be registered?

Child marriages are not illegal per se, although there is a legal framework to prevent them. The Prohibition of Child Marriage Act, allows a child marriage to be annulled by either the bride or the groom who was a minor at the time of marriage when they attain the age of majority. So essentially, it gives them an option to roll back the marriage as if it never happened. If the parties do not wish to annul the marriage, it would be considered a legitimate marriage. This shield is given to essentially ensure rights of minor girls in access to the marital home, marital property and ensure the legitimacy of offspring. Child marriages under certain conditions however, are considered void automatically. This could be where the minor is forced, kidnapped for marriage, or is married for the purpose of human trafficking.

Then how does the law strive to prevent child marriage?

Under Section 9, Prohibition of the Child Marriage Act, male adults shall be punished with imprisonment up to two years and/or a fine of Rs 1 lakh for marrying a minor girl. Under Section 10, "Whoever performs, conducts, directs or abets any child marriage shall be punishable with



rigorous imprisonment which may extend to two years and shall be liable to fine which may extend to one lakh rupees unless he proves that he had reasons to believe that the marriage was not a child marriage.” This enables the police to arrest not just the adult groom or parents facilitating a child marriage, but anyone who participates in solemnising such a marriage. In *Independent Thought v Union of India* (2017), the Supreme Court refused to extend the protection of marital rape to child marriages. The court held that intercourse with a minor girl, even under marriage, would amount to rape. While marital rape is not punished under the law, intercourse with a minor is considered rape.

Does registration make a marriage legal?

In *Seema v Ashwini Kumar* (2006), the Supreme Court ruled that registration of marriage must be made compulsory. Some states such as Karnataka and Uttarakhand have similar provisions for registering and recording child marriages. In 2019, the Kerala High Court also ruled that there is no bar in the law to register a child marriage, upholding a 2008 government circular framing rules for such registration.

(M) RAJASTHAN TO REVIEW BILL ON MARRIAGE REGISTRATION

Concern in certain quarters about

The Congress government in Rajasthan will reconsider a recently passed Bill to amend the Compulsory Registration of Marriages Act, 2009, in view of the concern expressed in certain quarters that it could encourage and legitimise child marriages. The Bill is pending with the Governor for his assent after its passage in the State Assembly on September 17. Chief Minister Ashok Gehlot said at a function marking the International Girl Child Day here on Monday the State Government would urge the Governor to return the Bill for its legal scrutiny. Governor Kalraj Mishra was stated to be studying the Bill following objections raised by the Opposition Bharatiya Janata Party as well as the civil society groups. Mr. Gehlot said while it was the State government’s resolve to stop child marriages at any cost, the Amendment Bill had been brought in accordance with a 2006 judgment of the Supreme Court making it compulsory to register all marriages of Indian citizens. Since a controversy had erupted that it would promote child marriages, the Bill would be re-examined, he said. The Bill has sought to amend Sections 5 and 8 of the Act of 2009, dealing with the appointment of Marriage Registration Officers and the duty of parties to a marriage to submit the memorandum for registration. The amendment authorises women above 18 years to provide information of their marriage on their own.

FACELESS KILLERS IN THE VALLEY

The killings of seven civilians in six days, including a well-known chemist, Makhan Lal Pandita, and a school principal, Supinder Kaur, have shaken the Kashmir Valley. A little-known militant outfit called the Resistance Front (TRF) has claimed responsibility for the killings. Security agencies warn that attacks could intensify it in the coming days. The outfit was born nine months after the Union government ended Jammu and Kashmir’s special constitutional status on August 5, 2019. The TRF’s name first surfaced after a four-day gun battle was reported near the Line of Control (LoC) in Kupwara’s Keran Sector, starting April 1, 2020. According to police records, five



infiltrators from the Pakistan-occupied Kashmir (PoK) surprised the security personnel by holding on to an inaccessible area of Keran for more than five days in well-accumulated snow. The “well-trained” and “motivated” militants were killed only after the Army’s elite troops launched a gun battle that lasted for days. Five soldiers, including a Junior Commissioned Officer (JCO), lost their lives. It was the newly-formed TRF’s first attack in Kashmir. All the five slain militants remain unidentified till date. The nomenclature of the outfit was a departure from the past when militant groups’ names would have obvious Islamic references. “The name TRF was an attempt to secularise the idea of jihad to present the Kashmir insurgency as a political cause rather than a religious war as was manifested by the names such as the Lashkar-e-Taiba (LeT) and the Jaish-e-Muhammad (JeM),” a senior police officer said.

New tactics

It was not just the nomenclature, the TRF’s operational style and recruiting were also different. Unlike Hizbul Mujahideen’s ‘poster boy commander’ Burhan Wani, who galvanised youth support for an armed insurgency only to be killed in a gunfight in 2016 in south Kashmir, the TRF is against uploading the pictures of its cadre online or revealing the command chain. The faceless and tech savvy organisation took to the social media to propagate its messages. The TRF used body cameras like the GoPro to shoot attacks on the CRPF and the Army in Kashmir, which they used to “motivate” their recruits, say officials. On November 26, 2020, TRF militants filmed an attack on the Army’s 2 Rashtriya Rifles near Srinagar’s Lawaypora area, in which two soldiers were shown being shot dead from a close range and weapons snatched on the Srinagar-Baramulla highway. The TRF also used Twitter handles to claim attacks and issue a chargesheet against those targeted. “To gain traction and attract youngsters, the TRF uses videos from live encounters to show off its deadly capability,” another counter-insurgency officer said. According to a police report, the TRF and the People’s Anti-Fascist Front (PAFF), another militant group, are shadow outfits of the LeT and the JeM. However, the TRF claims to be working independently. The initial cadre of the TRF comprised locals trained in Pakistan. They travelled on passports and returned via Wagah, according to the report. Additionally, well-trained young militants are being sent to Kashmir via the LoC. The police officer said the TRF’s tactics marked a departure from the post-2016 militancy. “There are no ‘fidayeen’ (suicide) attacks; very little photographs of cadres are available and they choose soft targets through a broad base network of ground workers. A new breed of workers has been created who are not in the radar of the security forces, which makes tracking difficult and attacking easy.” Security agencies managed to dent the outfit’s ability to strike when they killed its ‘commander’ Abbas Sheikh, a resident of Kulgam, in an encounter in Srinagar in August. Security personnel wore sportswears and attacked his hideout, and shot him and his associate from a close range. Sheikh, a veteran from south Kashmir, had been active in militancy for more than a decade. Inspector General of Police Vijay Kumar described Sheikh’s killing as “a big success”, which was seen a blow to the TRF’s operational capability. However, the shadowy outfit seems to have reorganised itself within weeks, and started carrying out attacks in the Valley, directly targeting civilians.

THROTTLING THE PRESS IN J&K

A major casualty of the abrogation of Article 370 on August 5, 2019, has been press freedom in Jammu and Kashmir (J&K). This has led to the problem of disinformation and is causing great



anxiety in the region. The feeling of alienation in the Kashmir Valley is inimical to the national interest besides the interests of Kashmiris. Historically, the press in J&K used to highlight democratic, anti-feudal and secular struggles. It supported the efforts to accede with India as the Maharaja wavered and the political leadership under Sheikh Abdullah threw its weight behind democratic and secular India. The Urdu daily, Ranbir, was banned by the monarchy in June 1947 for demanding accession to India and the release of Sheikh Abdullah. The ban was eventually lifted. The editor of an Urdu weekly, Pukar, was also threatened in 1942 by the monarchy as the paper supported the Quit India movement led by Mahatma Gandhi.

Government-regulated press

Nowadays, it is painful to see the newspapers of Kashmir in the morning. There is nothing about the current political situation in J&K; there are only government press releases. There is hardly any room for political parties and their statements. Newspapers mostly carry advertisements or advertisement-cum-statements of government officials and senior government functionaries. Government advertisements are used as an instrument to force editors to control the media narrative. And if a newspaper does not conform, it has to face action: advertisements are abruptly cancelled or investigating agencies carry out raids. Our journalist friends tell us that it is routine for the police to call them and seek information about them and their relatives. These actions only send a message to the larger journalistic community that freedom of the press, which is implied in the freedom of speech in the Constitution, is under threat. More and more journalists are being harassed since the administration introduced the revised Media Policy in 2020, which effectively gags the media. The Press Council of India has constituted a three-member fact-finding committee to inquire into the allegations of intimidation and harassment of journalists. The Council is scheduled to visit J&K. The aim of the Media Policy, which has been formulated without any consultation with the media groups, seems to be to marginalise the local media and build the government narrative. The press in J&K is now virtually a government-regulated one.

Strategy to prevent disinformation

The denial of press freedom in J&K should be seen from a larger perspective. First, in this age of social media, where information and narratives are shared through encrypted platforms, it is important to protect the general public from disinformation and fake news. While state media outlets have a role to play in this, the public at large relies on sources of information which are seen as being more credible and independent. In this connection, allowing professional reporters to perform their task without being under duress or facing threats is at the heart of any strategy to prevent disinformation. After all, journalists are accountable to their newspaper editors who, in turn, have to abide by the laws of the land. Otherwise, in an environment where government press releases fill the newspaper space, the public will invariably reach out to easily available social media platforms which are notorious for feeding people with sensational, false information. In Kashmir, the information vacuum is a breeding ground for fake news. This has security implications as well. Second, J&K is a battleground of narratives at present. A credible narrative rooted in truth and honesty will win this battle. This can be met by allowing professional reporters to gather information, and editors to share their editorials in a freer environment. The lack of a democratic government has closed all avenues of redress. The government is not amenable to public sentiment as it has nothing to lose by alienating the people and the press. When journalists say it has become impossible for them to do normal reportage, it must be seriously taken by the



courts. The judiciary must intervene to restore the dignity of the fourth estate and take serious cognisance of the cases filed against journalists and newspapers. If courts look the other way today, it will not augur well for democracy. More broadly, the refusal to integrate J&K with the Indian democratic tradition that provides for press freedom continues to be the main impediment for J&K's emotional relationship with the country. As the peace activist Balraj Puri once said, "These premises are not only an insult to the people of Kashmir but to all democratic sensibility."

BSF POWERS AND JURISDICTION

The Border Security Force's jurisdiction has been extended in three states and reduced in Gujarat, all up to 50 km within the border. What powers does BSF enjoy? Why was the revision made, and why are Punjab and Bengal opposing it?

The Ministry of Home Affairs (MHA) has extended the jurisdiction of the Border Security Force (BSF) up to 50 km inside the international borders in Punjab, West Bengal and Assam. The BSF's powers — which include arrest, search and seizure — were limited to up to 15 km in these states. At the same time, the Ministry has reduced BSF's area of operation in Gujarat from 80 km from the border, to 50 km. The move, announced by a gazette notification on Monday, has been criticised by the Punjab and West Bengal governments, which have called it an attack on the federal structure and an attempt to curtail the rights of the state police.

What does the notification say?

It amends the schedule of an earlier notification of July 3, 2014 in terms of the BSF's jurisdiction, which it outlines as: "the whole of the area comprised in the States of Manipur, Mizoram, Tripura, Nagaland and Meghalaya and Union Territories of Jammu and Kashmir and Ladakh and so much of the area comprised within a belt of fifty kilometres in the States of Gujarat, Rajasthan, Punjab, West Bengal and Assam, running along the borders of India". The government said it was exercising the powers under the Border Security Force Act of 1968. In its 2014 notification, the MHA had outlined BSF's jurisdiction as "the whole of the area comprised in the States of Manipur, Mizoram, Tripura, Nagaland and Meghalaya and so much of the area comprised within a belt of eighty kilometres in the State of Gujarat, fifty kilometres in the State of Rajasthan and fifteen kilometres in the States of Punjab, West Bengal and Assam, running along the borders of India".

Its jurisdiction has been extended only in respect of the powers it enjoys under Criminal Procedure Code (CrPC), Passport (Entry into India) Act, 1920 and the Passport Act, 1967. BSF currently has powers to arrest and search under these laws. It also has powers to arrest, search and seize under the NDPS Act, Arms Act, Customs Act and certain other laws. Its jurisdiction under these laws has not been changed, meaning its powers under these will continue to be only up to 15 km inside the border in Punjab, Assam and West Bengal, and will remain as far as 80 km in Gujarat.

Why and when were these powers given to BSF?

In 1969, the BSF first got powers to arrest and search under the CrPC with respect to certain laws such as the Foreigners Act, The Passport Act, forex laws and Customs Act. BSF sources said even before 2014, they had a jurisdiction of 15 km inside the border in several states. "At that time,



border areas were sparsely populated and there were hardly any police stations for miles. To prevent trans-border crimes, it was felt necessary that BSF is given powers to arrest. While police stations have now come up near the border, they continue to be short-staffed," a BSF officer said.

Why has the government extended the jurisdiction?

Sources said the objective of the move is to bring in uniformity and also to increase operational efficiency. "Earlier we had different jurisdictions in different states. This has been done to bring uniformity to our jurisdiction," BSF IG (Operations) Solomon Yash Kumar Minz said. Sources said BSF often gets information relating to crime scenes that may be out of their jurisdiction. "In West Bengal at times we get information that smugglers have gathered over 100 cows in a village and will take them to the border late in the night. If we act immediately, we can get all the cattle at one place. When they come to the border, they will be scattered and running," an officer said. MHA sources said the move was also necessitated due to increasing instances of drones dropping weapons and drugs in Jammu and Kashmir and Punjab. However, the kind of drones spotted so far do not have a range beyond 20 km. There has been no official explanation for why BSF's jurisdiction has not been increased under the Arms Act, Customs Act and NDPS Act, which cover most of the smuggling offences on the border and deal with far greater offences. An officer, who served in West Bengal, said this may have happened as central agencies have jurisdiction in these matters. "If BSF catches drugs beyond its jurisdiction, it can always involve the Narcotics Control Bureau, or in case of arms, the National Investigation Agency. In other matters, there may be issues with the local police," the officer said.

Will it impact police jurisdiction?

At a basic level, the states can argue that law and order is a state subject and enhancing BSF's jurisdiction infringes upon powers of the state government. In 2012, then Gujarat Chief Minister Narendra Modi had opposed a central government move to expand BSF's jurisdiction. He had written to then Prime Minister Manmohan Singh, accusing the Centre of weakening the country's federal structure, and calling the move an attempt to "create a state within a state". About the new provisions, Minz said: "This is not an attack on the federal structure. Rather this is going to complement the efforts of the local police. It is an enabling provision. It's not that the local police can't act within the jurisdiction of the BSF. It's just that sometimes we don't have enough time and so BSF has been empowered to act till a greater distance and in turn strengthen the hands of the state police," Minz said. Asked if there could be issues with local police, Minz said, "We do everything in coordination with our sister agencies... We will inform the local police even now. The state police have better knowledge of the ground... There is no conflict with the state police here. In coming days, the state police will feel happy about these changes as they will find their state is more secure." Another officer pointed out that BSF cannot prosecute offenders in any case. "We can't file chargesheets. We have to hand over every arrested individual and every seized item to the state police or Customs... There have been instances when people have been caught and the defence has argued it was outside the jurisdiction of BSF, and the accused have been let off," the officer said. He pointed out that in the Northeast, BSF's jurisdiction runs throughout the states (other than Assam). "Does it mean state police are unable to function there?"

Until now, state police and border forces have been working in tandem with minor, occasional differences. Now, with the issue taking political colour, implementation could be tricky if there are



difficulties in coordination in future. For example, be it the earlier 15 km or the enhanced 50 km, the BSF jurisdiction is not marked on a map. Sources said it is largely based on understanding between police and BSF. "If a problem arises, maybe we will devise a way to mark our jurisdiction. Currently it is a rough estimate as to which village or town is how many kilometres from the border," a senior BSF officer said. Another officer, who has served in Punjab, said local police often have poor understanding of the BSF jurisdiction. "Once, in Punjab, smugglers fired upon BSF over 150 m inside the Indian border when intercepted. In retaliatory fire, the smugglers were killed. The police began arguing why we had killed them when they were inside the border. It had to be explained that jurisdiction of BSF ran much deeper, and it was self-defence," the officer said. He said the BSF hasn't even properly utilised its powers within 15 km. "No one goes even that far. No BSF officer wants to take up cudgels with the state police unnecessarily. After all if you can't prosecute, you actually have no power," he said.

HOW HAS THE KARNATAKA POLICE ACT BEEN MODIFIED TO CLAMP DOWN ON GAMBLING?

The Karnataka legislature has passed a Bill to amend the Karnataka Police Act, 1963 in order to ban all forms of gambling in the state, including online gambling. The Karnataka Police (Amendment) Bill, 2021 was passed by the legislature despite a similar law — the Tamil Nadu Gambling and Police Laws (Amendment) Act, 2021 — passed in February in Tamil Nadu being struck down by the Madras High Court this August as being ultra vires.

Why has the Karnataka government amended the Karnataka Police Act, 1963 to ban gambling?

Among the reasons cited by the Karnataka government for a new law to ban all forms of gambling are a Dharwad High Court Bench order of December 2019 which ruled that the police cannot raid gambling dens without a formal written order from a magistrate since gambling is a non-cognisable and bailable offence. The order passed by Justice P G M Patil in the Vageppa Gurulinga Jangaligi vs the Kagwad police case on December 10, 2019 set out a series of guidelines for the police and magistrates to follow when a non-cognisable offence is taken up. The order said that the "SHO of the police station has no authority of law unless the jurisdictional magistrate permits the police officer for investigation of the non-cognizable offence". Recent public interest litigations seeking a ban on online gaming and betting – where the high court has sought the state government's stand on imposing a ban on gambling – have also served as a catalyst for the introduction of the amendments to the Karnataka Police Act, 1963. According to the statement of objects and reasons provided with the amendments to the police act the new law is needed to make gambling a cognisable and non-bailable offence other than gaming in public streets which is cognisable and bailable. The new law has also been introduced to "include the use of cyberspace including computer resources or any other communication device as defined in the Information Technology Act 2000 in the process of gaming to curb the menace of gaming through internet, mobile app".

Does the new law on gambling apply to online gaming and betting on sports as well?

The amended law covers all forms of wagering or betting "in connection with any game of chance" with the exception of horse races and lotteries. The amended law also puts betting on the skills of others in the category of gambling and also states that "any act of risking money or otherwise on



the unknown result of an event including on a game of skill” is an offence. Unlike the existing law which was not applicable to betting by players involved in a game of skill, the amended law provides an exception only to the playing of any pure game of skill’ and not to “wagering by persons taking part in such game of skill”. According to the amended law “all forms of wagering or betting, including in the form of tokens valued in terms of money paid before or after issue of it, or electronic means and virtual currency, electronic transfer of funds in connection with any game of chance,” will be considered as gambling.

What are the punishments for gambling under the amended law?

The new law enhances maximum punishment for owners of gambling centres from one year to three years of imprisonment and fines from Rs 1000 to Rs 1 lakh. The minimum punishment proposed is six months instead of the current one month and a fine of Rs 10,000 instead of Rs 500. For aiding or abetting gambling, the punishment has been enhanced to six months imprisonment and a Rs 10,000 fine. A first offence of managing a gaming house will attract the minimum sentence of six months in prison and a fine of Rs 10,000 while a second offence will entail imprisonment for a year and fine of Rs 15,000. A third offence will attract an imprisonment of 18 months and a fine of Rs 20,000.

Will the new amendments to curb gambling including online gambling in Karnataka stand the test of law?

This February, the Tamil Nadu government brought about a law to impose a comprehensive ban on all forms of gambling including online gaming. In August, the law was however struck down by the Madras High Court as being ultra vires and unnecessary after it was challenged by an online gaming firm. “It is true that, broadly speaking, games and sporting activities in the physical form cannot be equated with games conducted in virtual mode or in cyberspace. However, when it comes to card games or board games such as chess or Scrabble, there is no distinction between the skill involved in the physical form of the activity or in the virtual form. It is true that Arnold Palmer or Severiano Ballesteros may never have mastered how golf is played on the computer or Messi or Ronaldo may be outplayed by a team of infants in a virtual game of football, but Viswanathan Anand or Omar Sharif would not be so disadvantaged when playing their chosen games of skill on the virtual mode. Such distinction is completely lost in the Amending Act as the original scheme in the Act of 1930 of confining gaming to games of chance has been turned upside down and all games outlawed if played for a stake or for any prize,” a bench of the Tamil Nadu high court said in its order on August 3, 2021. The partial inclusion of games of skill as acts of gambling in the amended Karnataka Police Act is likely to come under scrutiny.

How have gaming companies reacted to the new Karnataka law to bar wagering on online games?

“The Bill tabled in the Karnataka Assembly seeks to equate all games including online chess, online farming with the same brush as online gambling. The bill has made some exemptions including online betting on horse racing. I am not sure that application of a judicial mind will see any compelling rationale to this move,” said a corporate lawyer employed with a gaming company. “The government should consider regulation rather than legislation. The industry has submitted itself to the idea of regulation being brought in and already moved towards some steps of self-regulation. A comprehensive framework with active participation of the industry association is a prudent way forward,” the lawyer said.



(M)JABBING CHILDREN

As Covaxin gets closer to approval for children, data transparency is vital

As a milestone, the Subject Expert Committee's (SEC) recommendation to the Drugs Controller to grant emergency use authorisation (EUA) for Covaxin among children aged 2-18 years, is huge. If the Drugs Controller General of India (DCGI) goes ahead and grants approval, it will be the first vaccine to be administered to children in India. While one other vaccine, ZyCoV-D, has been granted EUA, it is still to be administered. Trials have started with the Serum Institute's Covovax for children, extending the timeline of any other COVID-19 vaccine for actual use in children. On the front of it, it seems like a tremendous achievement within a short period. While the data seem to have convinced the SEC that there is cause to make its considered recommendation, none of that is yet in the public domain, at the time of SEC's announcement. Bharat Biotech presented interim data from the phase II/III trials to the DCGI, as the safety follow-up is longer in this case. One month after the two doses, an immunogenicity check and safety follow up are done, according to reports. The company claimed the data indicated that the vaccine used — the same product and presentation as the adult vaccine — was safe. The two-dose Covaxin was administered to 525 children 28 days apart, after it received the nod to conduct trials on children in May this year. A possibly unintended but welcome outcome of the pandemic is the stress on being transparent about scientific data generated in trials. Data from other vaccine trials have routinely been posted in the public realm, not just with state regulators. Working on vaccine or drug regimens with children is challenging on many fronts; to start with, it is not merely a case of sizing down adult dosage for children. Children have distinct developmental and physiological differences, and WHO recommends that clinical trials in children are essential to develop age-specific, empirically verified therapies and interventions to determine the best possible treatments for them. Their bodies work in very different ways and they undergo many changes as they grow from infancy towards adolescence and adulthood, calling for age de-escalation studies in trials, beginning with an older age group, and working towards the youngest group. Another question experts are raising is whether the cohort of 525 children is large enough to wing an EUA, or if incremental numbers should be added, given the size of the target paediatric/teen population. Many of these questions are easily addressed with publication of the data. While a recommendation is only that, it has indeed raised extraordinary expectations in the community. The DCGI, as it considers the SEC's advice, should address the concerns raised, and reinstate the issue of transparency to its rightful place as the cornerstone of scientific temper, besides infusing confidence in the public.

(M)STUDY SOUGHT INTO RABIES DEATHS DESPITE VACCINATION

Doubts raised over the quality of the serum and whether it is being administered properly

A proper study has been sought into recent deaths due to rabies among people who are vaccinated against the infection. The latest case is that of a seven-year-old boy from Kasaragod district in Kerala, who died on October 7, more than three weeks after getting the first dose of the vaccine following a stray dog bite. According to sources, similar cases have been reported from across the State, including in major government medical college hospitals. K.K. Purushothaman, Professor of Paediatrics, MES Medical College, Perinthalmanna, told The Hindu on Sunday that rabies is a fatal

3RD FLOOR AND 4TH FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



infection in which “the chances of death are 100%”. Patients are given four to five doses of the anti-rabies vaccine in intervals from the day of the bite, along with anti-rabies serum. If the bite happens somewhere in and around the head and neck, it may affect the brain very fast. The virus may spread and lead to problems as the vaccine-induced antibodies may take time to reach the protective level, Dr. Purushothaman said. “The vaccine gives full protection only 14 days after it is administered. The serum, in the meanwhile, ensures temporary protection,” he said. Taking the patient to the hospital at the right time is also important. The boy in Kasaragod was given three doses of the anti-rabies vaccine and the anti-rabies serum. He died before getting the fourth dose. “If deaths are happening even after the patient is administered the vaccine and the serum on time, there is something wrong somewhere. It may be due to bad quality of the serum, or the manner in which it is transported to the hospital and stored. People who are administering the serum may not be doing it in the right way as well,” he said. Dr. Purushothaman said government authorities should take these issues seriously. “There is a need to verify the quality of the serum. The healthcare workers need better training too,” he added. The Health Department is collecting data on similar incidents from various districts.

(M) THE NEXT STEP IS A CONSTITUTIONAL RIGHT TO HEALTH

The brevity of human memory is often a blessing and even necessary for our collective healing from suffering. But the lessons we learn from suffering are possibly even more crucial. As our people continue to face individual and collective grief as a result of the novel coronavirus pandemic, it is the moral responsibility of our leaders to look ahead and learn the necessary lessons.

A place for this ‘right’

The lesson here is the need for the constitutional ‘Right to Health for all’. The pandemic has exposed and aggravated the cracks in our health-care systems, and this is a lesson we cannot afford to ignore and not learn. In June this year, I called on the Parliament of India to take immediate measures to make necessary amendments to the Constitution to declare health care a Fundamental Right. I was reassured with positive responses from parliamentarians across party lines who have supported this call. Now, the time has come to make this a reality for India so our people never have to undergo the suffering that they did.

Through the eyes of citizens

The primary question raised is: what will a constitutional ‘Right to Health’ mean for a citizen of India? I will try and explain this through the lens of three categories of citizens: farmers and unorganised workers, women and children. Farmers are the primary protectors of our fundamental right to life. Yet, the majority remain at a loose end when it comes to their own rights and well-being, and that of their families. Without an anchor during times of severe illness or disease, generations of children of small and landless farmers, and unorganised, migrant and seasonal workers are thrown into bondage and debt by having to pay for medical costs from their limited earnings. Employment benefit schemes do not reach them, and the ones that do are mostly on paper. The implementation of the right to health can provide simple, transparent and quality health care to those who are most in need of such care. Women bear a disproportionate burden of the gaps in our health-care system. The taboos and patriarchal expectations surrounding their



health lead to immense avoidable suffering. In addition, social and economic challenges prevent them from freely and openly accessing the little care that is available. A 'Right to Health' would mean that services reach the woman where and when she needs them. A large number of children who belong to the poorest and most marginalised communities of our country grow up working in hazardous situations be it fields, mines, brick kilns or factories. They are either not enrolled in schools or are not able to attend it due to the pressing financial needs of the family — often because of unexpected out-of-pocket medical expenses.

Making it safer for children

My organisation has rescued over 1,00,000 such children from child labour, bonded labour, and trafficking. When rescued, these children are ridden with complex health impacts of working — primarily tuberculosis, skin diseases, eyesight impairment, and malnutrition, besides the substantial mental health impact. These children have been denied a safety net of early childhood care and protection, the consequences of which are felt for a lifetime. The 'Right to Health' will help transition the children in exploitative conditions into a safer future. A constitutional 'Right to Health' will transform not only the health and well-being of our people but will act as a leap for the economic and developmental progress of the nation. Presently, any investment in health care fails to translate into a sense of security and sanctuary for the people of India. Instead, the complex and often corrupt means of accessing even existing health care only adds to the suffering instead of alleviating it. The vision for Ayushman Bharat will be strengthened with a constitutional 'Right to Health'. The immediate financial security that will come with the constitutional 'Right to Health' will be seen as a measurable impact on family savings, greater investment, and jobs creation on the one hand, and in the long-term emotional, psychological and social security of people.

As a legacy

The world is taking steps, both big and small, in recovering from the pandemic through foresight in policy and investment. India must not lag behind. The right to free and compulsory education was arguably one of the most valuable legacies of the earlier Government. The true testament of bold leadership lies in its timely, compassionate and courageous decisions for the greater good. A constitutional amendment to introduce the 'Right to Health for India' can be the legacy of this Government.

(M) DO NOT BREATHE EASY ON THE SILICOSIS PREVENTION POLICY

Long before COVID-19 hit, countless workers engaged in mines, construction and factories in India were silently dying of exposure to dust, utmost exploitation and apathy. They continue to do so.

Rajasthan's pioneering model

One State — Rajasthan — with the top-most share of over 17% in value of mineral production in the country and a long history of civil society activism, was the first to notify silicosis as an 'epidemic' in 2015, under the Rajasthan Epidemic Diseases Act, 1957. In 2019, it announced a formal Pneumoconiosis Policy, only next to Haryana. Silicosis is part of the pneumoconiosis family of diseases, described by the policy as "occupational diseases due to dust exposure... are incurable, cause permanent disability and are 'totally preventable by available control measures and



technology' (emphasis added)". A 'silicosis portal' was hosted by the Department of Social Justice and Empowerment and a system of worker self-registration, diagnosis through district-level pneumoconiosis boards and compensation from the District Mineral Foundation Trust (DMFT) funds to which mine owners contribute, was put in place. In just two years, the State has officially certified and compensated over 25,000 patients of silicosis, of which 5,500 have already died of the disease.

Gaps in the system

But even this 'pioneering model' stops short of where it matters the most. In the mining sector alone, none of the silicosis cases diagnosed has been notified by mine owners or reported by the examining doctors to the Directorate General of Mines Safety (DGMS), Ministry of Labour and Employment. But this is what they are legally required to do, according to Section 25 of the erstwhile Mines Act, 1952 and Section 12 of the now-effective Occupational Safety, Health and Working Conditions (OSHC) Code, 2020. Why is notifying cases to the DGMS important? Only that would shift the paradigm from compensation to prevention, and fix the responsibility on mine owners, who now continue to slip away despite violating safety and preventive protocols. The DGMS, the sole enforcement authority for health and safety in mines, can take action against mine owners only if it knows who they are, and in turn, whom they employ. But only 10%-20% of the over 33,100 mining leases and quarry licences in Rajasthan are DGMS-registered. So the present system is designed to 'consume' the worker and dispense with him with a small compensation while the mine owner sits back and continues to hire the next able worker — an inhuman cycle, which the Government is complicit in.

Labour Code dilutions

Persistent attempts to establish the employer-worker relationship on record have drawn a blank, given that the mine-owning community is a major revenue contributor to the State. That said, the immediate impetus for silicosis prevention could come from two related places in the OSHWC Code. Section 6 of the Code makes it mandatory for all employers to provide annual health checks free of cost "to such employees of such age or such class of employees of establishments or such class of establishments, as may be prescribed by the appropriate Government". Section 20 gives powers to the DGMS to conduct health and occupational surveys in mines. Positive as they sound, these sections are severely diluted from the earlier Mines Act provisions, which in turn, were simply never implemented. The draft Central rule 6 corresponding to Section 6 of the Code fixes an age floor of 45 years for workers in all establishments (including mines) to be eligible for these health checks, though Rules 92 to 102 provide for initial and periodic examinations of all mine workers from their time of joining — which is an anomaly. Two, Section 20 places no obligation on the mine owner to provide any form of rehabilitation in terms of alternative employment in the mine, or payment of a disability allowance/lump sum compensation for a worker found medically unfit. These paragraphs in the earlier Mines Act linked to the Workmen's Compensation Act (also subsumed), have been deleted. A 'medically unfit' worker is thus expected to leave the job and fend for themselves or subsist on the compensation of ₹3 lakh provided in Rajasthan from the DMFT — and not even that, perhaps, in other States.

State governments need to be alive to these dreadful regressions and use their powers to contain the damage. Rajasthan could lead the way by establishing a robust system of preventive annual



health checks as a real and regular feature of the silicosis prevention plan. One, the related State departments, in close dialogue with the DGMS, must urgently draw up detailed guidelines for district-wise health surveys. The State rules under the OSHWC Code must take care to ensure the health checks are provided to all workers in all establishments, irrespective of age. The State Advisory Board (Section 17 of the Code), along with technical committees, must be quickly constituted, with workers and their representatives having a say in them. Two, local manufacturers must be incentivised to innovate and develop low-cost dust-suppressant and wet-drilling mechanisms that could either be subsidised or provided free of cost to the mine owners. Existing prototypes must be tested and scaled up. Three, the DMFT funds are both underutilised and spent in an entirely ad hoc manner. A Centre for Science and Environment report shows Rajasthan had ₹3,514 crore under DMFTs in 2020 of which only approximately ₹750 crore was spent. Their haphazard allocation for non-mineworker-related expenditure must be replaced by a streamlined and accountable system for the direct benefit of mineworkers under clearly defined budget heads such as prevention (including innovation fund and subsidy for wet drilling equipment), disability compensation, solatium, administrative expenses and others. But even this planning will be incomplete without bringing worker-employer identification on record. A systematic identification ultimately lies in the hands of the authorities and their will to enforce the law in this regard and a rising among the workers for their rights. No more time must be lost in bringing prevention to the heart of the pneumoconiosis policy.

A PROBE AFTER PRODDING

U.P. police must do a credible probe to inspire public confidence in farmers' killing case

The arrest of Ashish Mishra, son of Union Minister of State for Home, Ajay Mishra, appears to be a course of action impelled mainly by the intervention of the Supreme Court, which voiced its dissatisfaction with the way the Uttar Pradesh police were handling the killing of four farmers and four others during a protest. By taking cognisance of the incidents that took place during a farmers' protest at Tikonia in Lakhimpur-Kheri district, the Court may have helped infuse some much-needed impetus to the investigation. The Bench gave enough time until its next hearing on October 20 to the police to pursue the probe diligently, but not without thinking aloud on whether any other agency ought to take it over and asking the State police chief to preserve the evidence. The arrest of the Minister's son, coming after he had skipped an earlier summons and was questioned for long hours once he appeared, is largely in response to the Court's criticism. The Bench, headed by the Chief Justice of India, N.V. Ramana, wondered how investigators in a murder case could merely issue summons to the prime suspect instead of taking steps to apprehend him. Scepticism about the intentions of the State police is not misplaced. It is not the first time that the initial response is one of hesitancy and obfuscation, but once an incident blows up enough to occasion judicial intervention, there is some action. What is known so far is that vehicles in the Minister's convoy ploughed through a group of farmers, causing four deaths. Three others may have died in retaliatory violence by the infuriated mob, while Raman Kashyap, a television reporter, may also have been run over. Initial reports that the driver lost control after being hit by a hail of stones have been superseded by footage that seems to show the vehicle being driven into a group of unsuspecting people. The FIR says Ashish Mishra was in one of the cars, even though he claims to have been elsewhere. The role of the Union Minister should also be subjected to scrutiny, as some reports suggest he may have made a provocative speech earlier to the effect that



the protesting farmers should either mend their ways or he would set them straight. The mention of a 'conspiracy' in the FIR gives scope to the police to examine this angle. It is regrettable that the Union government is noticeably silent, and there appears to be no effort to advise Mr. Ajay Mishra to step down until his and his son's names are cleared. It is difficult to see how an impartial probe can go on as long as he is in office, and his party's government in the State is seen to be soft on the accused. The onus is on the Uttar Pradesh police now to conduct a credible investigation, if the Court does not replace the present set of investigators.

SHILLONG'S DALIT SIKHS, AN OLD LAND DISPUTE, AND A RELOCATION PROPOSED AND OPPOSED

A Meghalaya Cabinet decision to relocate the Dalit Sikh residents of Shillong's Them lew Mawlong area, also called Punjabi Lane, is facing opposition. Sikh groups have called it "illegal" and "unjust", with Punjab Deputy Chief Minister Sukhjinder Singh Randhawa saying he would take the issue up with Union Home Minister Amit Shah. On Thursday, a Sikh delegation from Delhi met Meghalaya Governor Satya Pal Malik, seeking his intervention. At the heart of it is a simmering issue between the Sikh residents and the local Khasi community, centred on a decades-old land dispute.

Who are the Punjabi Sikhs of Shillong?

They were first brought to Shillong by the British as manual scavengers and sweepers more than a hundred years ago. Today, the community of about 300-odd families lives in Them lew Mawlong, located next to Shillong's commercial hub, Iewduh or Bara Bazaar. Himadri Banerjee, former professor of Indian history at Jadavpur University, who has extensively researched the Sikh community in the Northeast, said the Mazhabis were brought first, with a British military contingent, to work as sweepers. They were followed by the Ramgarhias (carpenters, blacksmiths and masons), and then the Soniaris or goldsmiths, who came after 1947. Mazhabi Sikhs, the largest of the groups, were recruited by the Shillong Municipal Board (SMB), and many lived in Bara Bazaar. Over the years, their ranks swelled in the SMB, Banerjee said. "We have been staying here for generations," said Gurjit Singh, president of the Harijan Panchayat Committee (HPC), which represents members of the Sikh Dalit community in Shillong. "In the 1990s, more than 800 members of our community were employed by the SMB, but the numbers have reduced since then." Banerjee said younger generations have moved on to professions such as driving or setting up mobile repair shops. Some integration has also happened. "Some Mazhabis speak Khasi, enjoy Khasi food, and a few are even married to Khasis and have converted to Christianity," Banerjee said.

Why was the plan to relocate them made?

On October 7, the Cabinet approved the proposal, based on a recommendation by a high-level committee set up in June 2018 to find a solution to a decades-old land dispute, following violent clashes between Khasis and Sikh residents the previous month. While the immediate trigger was something else, the clashes were rooted in the old land dispute. The government claims the land belongs to the Urban Affairs Department, while the Sikhs say it was "gifted" to them in the 1850s by the Syiem (chief) of Hima Myllem – one of the chiefdoms in Khasi Hills. Punjabi Lane is part of Myllem, one of the 54 traditional administrative territories under the Khasi Hills Autonomous District Council today. According to the Cabinet decision, the Urban Affairs Department would



take possession of the land from the Syiem of Myllem (the custodian of the land) within a week. Chief Minister Conrad Sangma said permanent employees of the SMB would be relocated to constructed quarters.

What is the land dispute?

For three decades, sections of society and political organisations have been demanding that residents be shifted out — the primary argument being that a prime commercial area shouldn't hold a residential locality. Donald Thabah, general secretary of the powerful Khasi Students' Union (KSU), said Punjabi Lane was the site of a lot of traffic congestion and needed to be cleared for "public convenience". "The name Them lew Mawlong literally suggests that it is the valley area of a market — so it doesn't make sense for it to function as a residential area. It should be used for alternative constructive purposes such as a parking lot or a commercial space," he said. Over the years, there have been proposals to build a parking lot or shopping complexes. The Sikhs have often sought legal recourse against this, maintaining they have "full rights to" the land, and two documents to prove their claim: a 1954 agreement and one more in 2008. In 2018, after the committee was formed, the Sikh HPC filed a petition in the Meghalaya High Court. In February 2019, the court said it was a "civil" matter and needed to be addressed in the civil court. On April 9, 2021, it ordered that status quo be maintained.

Has there been previous conflict between the Sikhs and Khasis?

With the main bone of contention is the 2.5-acre Punjabi Lane, brawls at a local level between residents and Khasis have been reported over the years. Distrust of the "outsider" — a sentiment expressed among sections of many communities in the Northeast states — also adds to the friction. Banerjee said local Khasis were "initially less enthusiastic" about doing the work the Mazhabis did. "But over time, as Khasis found themselves being squeezed out of a part of the job market, their anxieties manifested themselves in suspicions, hostility, and a hardening awareness of dissimilar identities." According to KSU's Thabah, there was a major clash in 1996 too, which led to the deaths of Khasi youths at the hands of the police. He alleged that the locals were "frequently harassed by some from the Sikh community."

What are the Sikhs being offered now?

The state government has said those who are permanent employees of the SMB will be relocated to constructed quarters elsewhere in the city. For the other residents, the government was "exploring other locations". The government said that while a number of the Sikh residents worked with the SMB, there were many "settlers" in the colony. "We do not know where they came from and thus there is a need to make an inventory of those residing there," said Deputy Chief Minister Prestone Tynsong, who led the committee. Singh said now only about 20 people (who are close to retirement) were currently permanent employees of the SMB. "The government claims the rest of the people are illegal or unauthorised settlers. But that is baseless... our children and grandchildren have moved into new professions — that does not mean they do not belong here," he said.

"We have lived here for 200 years. Time and again, the government tries to move us and our people get scared," Singh said. The community, however, had not received any official intimation about relocation yet. Manjinder Singh Sirsa, who had led the delegation from the Delhi Sikh



Gurdwara Management Committee that met the Governor, said the matter was sub judice, and the high-level committee had “no power to make such a decision”. He said the relocation plan had “not granted the residents an opportunity to say anything” or taken in their view.

What is the government’s stand?

CM Sangma had earlier said the government was ready to challenge the court order. Governor Malik on Thursday assured the Sikh delegation that “no injustice will be done and the residents will not be removed illegally”. Tynsong said the government had followed “due diligence”. He the Sikh community should not “get confused” that they were “being thrown out”. “They are people of Meghalaya and we are here to help them,” he said. “We request them to help us make an inventory.”

LYNCHING AS RELIGION, CASTE SIMMER; WARY POLITICAL LEADERS SILENT

The deafening silence of the political establishment, in both Punjab and Haryana, over the lynching of a Dalit Sikh by a group of Nihangs at the Singhu border for the alleged desecration of their holy text speaks volumes about the fault lines it exposes — and hardens. In the run-up to the Assembly polls in Punjab, religion has become a hot potato along with caste. Only last week, the Akal Takht head priest Giani Harpreet Singh, had warned against what he called were the dangers of forced conversions by Christian missionaries in the border belt. Dalit activists had blamed it on the poor representation of SCs and STs in the Sikh clergy. This concern was raised just weeks after the elevation of Charanjit Singh Channi as the first SC chief minister of the state. It was in April that PPCC president Navjot Singh Sidhu brought desecration of the holy Guru Granth Sahib to the political centrestage when he blamed Capt Amarinder Singh for failing to defend the Guru. He was referring to the 2015 sacrilege incident at Bargari village where pages of the holy Guru Granth Sahib were found strewn outside the village gurudwara. On September 28, he tweeted his resignation in protest against the appointment of two officials, an advocate general and the DGP, given their past record, the former in allegedly protecting an accused and the latter for not doing enough to solve the case. He had claimed that the government must take some tangible action to assuage the widespread public anger against sacrilege which, he said, led to the ouster of the previous SAD-BJP government. On Friday, when a group of Nihangs lynched a man and accused him of desecration, the Punjab Congress was strangely silent on the issue, with no comments from Sidhu, the chief minister, past and present. Even the Akali Dal chief Sukhbir Singh Badal maintained a studied silence. Congress MP Partap Singh Bajwa, when contacted, said that on the face of it, the act he saw on videos is against the ethos and spirit of Sikhism. “But I don’t want to comment on the incident until we get to the bottom of the case. It’s a very sensitive issue,” he said. This event threatens to cast a shadow on the heated political narrative in Punjab, which increasingly centres on sacrilege and caste and the farmers’ protest against the three laws, the longest in the recent history of the state. Though the SKM was quick to condemn the gruesome killing, it cannot wash its hands of the incident. As BJP state general secretary Dr Subhash Sharma, while condemning the barbaric killing, put it: “They have been condoning the violence, be it on BJP leaders in Punjab and Haryana, or in other protests by farmers. This is a natural corollary. The SKM cannot dissociate themselves from the Nihangs, for they were part of the agitation.” Farmer unions have had a very uncomfortable relationship with the Nihangs, with Balbir Singh Rajewal, president of BKU (Rajewal), urging them to go home when they joined the agitation at Singhu with



their horses in January. “We will call you when needed,” he had said. Off the record, some leaders griped they could fuel trouble given their “peculiar lifestyle.” Still, there is an attempt by a fringe to paint the Nihangs as the saviours of the holy book. The Nihangs claim the alleged victim desecrated their ‘Sarbloh Granth’. The Nihang order which follows this granth says that whereas Guru Granth Sahib is embodiment of Shaant Ras (Essence of peace), the Dasam granth and Sarbloh granths are embodiments of Bir Ras (Essence of war). On the street, the common voter is appalled by the barbarity of the act. As Bhupinder Singh Baath, a student leader and AAP member, said, “There is no way you can condone this action, no matter what the provocation.” But the fringe on the social media claims this action of the Nihangs will act as a deterrent to desecration for all times to come. It’s this polarity that is a cause for concern, that has forced everyone, for now, on the backfoot. How the law takes its course in the case will be keenly watched by all.

DELHI CALLS UP; HASINA ASKS INDIA TO GUARD AGAINST ANY REACTION

New Delhi has exchanged notes with Dhaka on the attacks on Hindu temples and Durga Puja venues in Bangladesh on Thursday, including the possibility of extremist elements trying to stir up communal tension. In a speech on the occasion of Durga Puja Thursday, Bangladesh Prime Minister Sheikh Hasina hoped that India would take steps against any reaction at home, as it could have a fallout in Bangladesh. Indian High Commissioner Vikram Doraiswami as well as the four consulates in Bangladesh have been in touch with officials, sources said. According to officials, there was an alleged blasphemous incident at a Durga Puja pandal in Cumilla, about 100 km south-east of Dhaka, which has led to attacks on temples and pandals. In the resultant violence, four people have died and several have been left injured, including police personnel. Associated Press reported that on Friday, thousands of people protesting against the alleged blasphemy clashed with police in Bangladesh’s capital Dhaka. Police said the protests began after the main Friday prayers. Dhaka Metropolitan Police Deputy Commissioner Sajjad Hossain said several people were injured as police used lathicharge and tear gas to disperse the crowd. The protesters shouted anti-India slogans and accused Hasina of “being close with New Delhi”. A preliminary assessment indicates the role of home-grown elements, with external support, in the attacks on the temples and Durga Puja pandals, given how the attacks these were carried out in a coordinated manner and at multiple locations. “The Bangladesh authorities are looking at the Jamaat-e-Islami’s involvement,” an official told The Indian Express. In a speech delivered virtually to devotees at Dhakeshwari National Temple Thursday, Hasina said: “We expect that nothing happens there (in India) which could influence any situation in Bangladesh, affecting our Hindu community here... The incidents... are being thoroughly investigated. Nobody will be spared. It doesn’t matter which religion they belong to. They will be hunted down and punished.” The PM added that her government had never dithered from taking action against criminal elements irrespective of religion. “They must be found out. We did so in the past and will do it in the future as well. They must face appropriate punishment. We want such a punishment that no one dares do this in the future.” Calling upon people to be vigilant against such elements, she said: “If we all work together, they will not be able to cause any harm.” Hasina has reassured representatives of the Hindu community — who form about 10% of Bangladesh’s 169 million population — that they were taking all precautions to ensure there was no violence during immersion of idols of Goddess Durga. The PM has asked Hindu community leaders, particularly those of the Bangladesh Puja Udjapon (Celebration) Committee, for details regarding the Puja mandaps across the country “keeping in mind the constraint of security personnel to ensure their safety and security”. She

3RD FLOOR AND 4TH FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



urged the community to not consider themselves a minority and to perform their religious rituals with the same freedom as the others, saying they had fought as hard for the country's liberation in 1971. "We believe that those who are born on the soil of this country and who are its children should practise their religion freely," Hasina said, adding that she was determined to build Bangladesh as a peaceful country with no room for militancy or terrorism. The government has deployed Border Guards Bangladesh troops in 22 of the 64 administrative districts across the country, and put the elite Rapid Action Battalion and armed police on alert.

FREE POWER AT A BIG PRICE

The promise of free power to households cannot be sustained

With elections around the corner in many States, political parties are competing with one another in promising free power, with the Aam Aadmi Party in the lead. Promises are for free power up to 300 units/month for households, free electricity for farmers and waivers of pending bills. Who stands to gain and lose from such promises?

Problems with free power

Let us first look at subsidised electricity supply to agriculture. Supported by state subsidy, electricity tariff to agriculture is low in most States – often less than ₹1/unit – and is free in some States such as Punjab, Tamil Nadu and Karnataka. While this helps in ensuring food security and promoting rural livelihood, free power has many adverse impacts. There is inefficient use of electricity and water, neglect of service quality by the distribution companies leading to frequent outages and motor burn outs, and high subsidy burden on the State governments. Since nearly three-fourth of the agriculture connections in the country are unmetered, consumption estimates are often inflated by distribution companies to increase subsidy demand and project low distribution losses. Any metering effort faces resistance as it is perceived as the first step towards levying charges. The experience over the past 15 years highlights that revoking the decision to provide free power requires significant political will. Opting-out schemes are being made but do not seem to have uptake. Free power provision along with issues of metering make implementation of Direct Benefit Transfer difficult. All this leaves farmers, distribution companies and State governments frustrated. Providing subsidised low tariff for small consumers is necessary, considering the rising costs of electricity supply. The current cost is around ₹7-8/unit, which is not affordable for many small households. The situation is worse due to the economic slowdown and the pandemic. Basic requirements of a small household, such as lighting, fans, mobile charging and TV, require only about 50 units/month, which increases to about 100 units/month with a refrigerator. A low tariff — say, at half the cost of supply — can be justified for such consumers. The monthly consumption will be 200-300 units only if the household has high-end appliances like air-conditioners. But free power is already being provided for consumption up to 200 units/month in Delhi and Punjab. Due to free power in Delhi, the total state subsidy amounts to 11% of the total expenses. In Tamil Nadu, where free power is available to households, half of the total subsidy is earmarked for this. If there is further increase in number and consumption limits of free power, the subsidy burden on State governments will substantially increase. There are already issues with metering and billing of households. This will also increase, especially since distribution companies are likely to pay limited attention to low-revenue



consumers. Roof-top solar and energy efficiency are good environment-friendly options for homes but providing free power to well-off households will discourage them from taking these up. The familiar, tragic story of free or low-tariff agriculture supply is going to play out in this segment too, with poor consumers becoming the ultimate losers.

Limiting free power beneficiaries

Good power supply and service are necessary to improve quality of life and encourage productive activities. This in turn requires financially stable distribution companies and accountability measures for quality service for all, especially small and rural consumers. Free or low-tariff power is at best a short-term relief, which should be provided to those who desperately need it. A government which has the long-term interest of the people in mind should work to limit free power beneficiaries. There are some ideas which would help in this journey. A fixed rebate of up to ₹200/month for residential consumers can be provided in the electricity bill. The impact on small consumers will be significant, compared to big. As the rebate is delinked from consumption, distribution companies won't have an incentive to inflate consumption. A similar rebate can be extended to home-based enterprises, which in most States pay high tariff. There can be additional rebates for adopting energy-efficient appliances like refrigerators, combined with State-level bulk procurement programmes to reduce the cost. The atmosphere of mutual mistrust between small consumers and distribution companies has to change. There should be quick resolution of arrears and one-time offers for settlements. If a bill amounts to more than three times that of previous bills, the distribution company should resolve it, without waiting for complaints. We hope that people question the wisdom of broad-brush promises such as free power, which cannot be sustained in the long run.

FARMERS IN EAST SEE LITTLE HOPE IN STIR

They have not got many of the benefits that the new laws threaten to take away

As the movement against the agricultural reform laws builds towards its one-year anniversary, it is clear that the bulk of farmers in eastern States have not been as motivated to join the agitation as their counterparts in the northwest, as they have not even experienced many of the benefits that the laws threaten to take away. In fact, farmers in these States, with densely populated rural areas, bear the double burden of low procurement as well as low prices in the open market, partly because grains procured in the northern and western States are dumped into the eastern region at subsidised rates via the public distribution system (PDS), a situation exacerbated by additional free grain distribution as COVID-19 relief. Experts and farm leaders say reforms are needed in both procurement as well as PDS, to allow for more effective decentralised procurement, which will benefit both farmers and consumers in the region. Analysis of procurement and PDS data from 2020-21 highlights the stark divide. Government procurement of wheat and paddy in Bihar and West Bengal each account for just 2% of the national total, despite the fact that the latter is the country's largest rice producer. However, 10% of all foodgrains allocated under the National Food Security Act last year went to Bihar, while 7% went to West Bengal. Uttar Pradesh and Tamil Nadu are the other major States in a similar situation. On the other end of the spectrum, Punjab accounts for a whopping 27% of all procurement, and Haryana for 11%, while only being allocated 2% and 1% of grains under PDS respectively. Madhya Pradesh, which has seen a major increase in buying



by the government over the last few years, now accounts for 16% of national procurement, and only 6% of PDS allocations. States like Chhattisgarh and Odisha have a greater balance between their share of procurement and the grain allotted for PDS beneficiaries.

Different scales

“In Punjab and Haryana, farmers are protesting because they are experiencing the benefits of the MSP procurement system and are fighting so that it is not snatched away from them. But in other States, those who have joined the movement are fighting to get the benefits in the first place. So definitely, we cannot expect the same scale,” said Hannan Mollah, general secretary of the All India Kisan Sabha, pointing out that although the MSP for paddy is set at ₹1,868 per quintal last year, most Bihar farmers were forced to sell at ₹1,500 per quintal. “As long as the government is procuring at MSP rates in one place and then distributing the grains at subsidised PDS rates in another place, the prices will definitely be depressed in the second location,” said Himanshu, an economist at the Jawaharlal Nehru University’s Centre for Economic Studies and Planning.

Infra challenges

Former Agriculture Secretary Siraj Hussain, currently a senior fellow at the Indian Council for Research on International Economic Relations, pointed out the infrastructural challenges hampering procurement in eastern States. “There is a shortage of the necessary warehouses and godowns needed to store procured grain. When Bihar dismantled the APMC mandi system in 2006, they failed to create any formal substitute for the marketing system,” said Mr. Hussain who is also a former CMD of the Food Corporation of India. “BISCOMAUN [Bihar’s State Cooperative Marketing Unit] is in a very bad shape financially, so farmers don’t get paid on time. Apart from fiscal and physical infrastructure, the manpower needed is also not there,” he added. Dr. Himanshu pointed out that Chhattisgarh and Madhya Pradesh provided positive models of what needs to be done. “They have reformed their PDS system and revitalised decentralised procurement,” he said, adding that there have been hurdles with getting the Centre to reimburse increased procurement due to bonuses offered by the States. “When grain is procured locally, it helps the local farming community get fair prices, it cuts costs of storage and transport for the government, and it provides PDS beneficiaries with the kind of local variety of food grains they are most used to. This is the ideal,” he added.

(M)SOWING BETTER TO EAT BETTER

Agri-food systems need a transformative change for better production, nutrition, environment and life

The health of a country’s agri-food systems determines the health of its people. The findings from the first round of the Fifth National Family Health Survey suggest that nutrition-related indicators have worsened in most States. The survey covers 17 States and five Union Territories, which comprise 54% of India’s population. In addition, findings from the Comprehensive National Nutrition Survey (2016-18) have highlighted the role of micro-nutrient malnutrition.

For Indians to eat better, India must sow better. A structural shift in dietary pattern and nutrition requires a shift in production. Pathways for nutritional security consist of improving dietary



diversity, kitchen gardens, reducing post-harvest losses, making safety net programmes more nutrition-sensitive, women's empowerment, enforcement of standards and regulations, improving Water, Sanitation and Hygiene, nutrition education, and effective use of digital technology. Addressing the complex problem of malnutrition is a colossal task for which we need to look at agri-food systems as a whole and adopt a multi-pronged approach. While COVID-19 has exacerbated the nutrition issue, climate change has challenged agricultural production itself. However, the country's agri-food systems are facing new and unprecedented challenges, especially related to economic and ecological sustainability, nutrition and the adoption of new agricultural technologies. The edifice of India's biosecurity remains vulnerable to disasters and extreme events. The agri-food systems are the most important part of the Indian economy. India produces sufficient food, feed and fibre to sustain about 18% of the world's population (as of 2020). Agriculture contributes about 16.5% to India's GDP and employs 42.3% of the workforce (2019-20). There is an urgent need for reorientation of the long-term direction of agri-food systems to not only enhance farm incomes but also ensure better access to safe and nutritious foods. Additionally, the agri-food systems need to be reoriented to minimise cost on the environment and the climate. This need is recognised by the theme of World Food Day 2021: 'Our actions are our future. Better production, better nutrition, a better environment and a better life'. The four betters represent the Food and Agriculture Organization (FAO)'s contribution to the Sustainable Development Goals and other high-level aspirational goals. World Food Day marks the foundation day of the FAO. FAO has enjoyed valuable partnership with India since it began operations in 1948. More recently, FAO has been engaged with the Indian government for mainstreaming agrobiodiversity, greening agriculture, promoting nutrition-sensitive agriculture and strengthening national food security. FAO's support for the transformation of agri-food systems is rooted in agro-ecology. The more diverse an agricultural system, the greater its ability to adapt to shocks. Different combinations of integrated crop-livestock-forestry-fishery systems can help farmers produce a variety of products in the same area, at the same time or in rotation. In January this year, FAO in collaboration with NITI Aayog and the Ministry of Agriculture convened a National Dialogue to evolve a framework for the transition to a more sustainable agri-food systems by 2030 and identify pathways for enhancing farmers' income and achieving nutritional security. A sustainable agri-food system is one in which a variety of sufficient, nutritious and safe foods are made available at an affordable price to everyone, and nobody goes hungry or suffers from any form of malnutrition. Less food is wasted, and the food supply chain is more resilient to shocks. Food systems can help combat environmental degradation or climate change. Sustainable agri-food systems can deliver food security and nutrition for all, without compromising the economic, social and environmental bases.

(M) GOVT RUBBISHES GLOBAL HUNGER INDEX RANKING, QUESTIONS METHODOLOGY

The Ministry of Women and Child Development said on Friday that the Global Hunger Index (GHI), which dropped India to the 101st position from the 94th in 2020, was "shocking" and "devoid of ground reality". In its findings released earlier this week, GHI said India trails behind neighbours Pakistan, Bangladesh and Nepal. Of the 116 countries ranked this year, eighteen countries, including China, Brazil and Kuwait, share the top rank with a GHI score of less than five. The report, prepared jointly by Irish aid agency Concern Worldwide and German organisation Welt Hunger Hilfe, termed the level of hunger in India "alarming". "It is shocking to find that the Global Hunger Report 2021 has lowered the rank of India on the basis of FAO estimate on proportion of

3RD FLOOR AND 4TH FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



undernourished population, which is found to be devoid of ground reality and facts and suffers from serious methodological issues. The publishing agencies...have not done their due diligence before releasing the report," said the Ministry, calling the methodology used by the agencies unscientific. "They have based their assessment on the results of a 'four question' opinion poll, which was conducted telephonically by Gallup. The scientific measurement of undernourishment would require measurement of weight and height...The report completely disregards Government's massive effort to ensure food security of the entire population during the Covid period, verifiable data on which are available. The opinion poll does not have a single question on whether the respondent received any food support from the Government or other sources," it said. It also raised questions on improved rankings of Afghanistan, Bangladesh, Nepal and Sri Lanka, which seem to be unaffected by the Covid-19 pandemic over the past two years.

(M) SHOULD A DEITY HAVE TWO ARMS OR MORE?

In Kushan coins, minted over 1,800 years ago, we come across images of a woman holding the horn of plenty. She is identified with the Roman Goddess Fortuna, the Greek goddess Tyche, the Central Asian Ardochsho, the Buddhist Hariti, and the Hindu goddess Lakshmi. Images of Lakshmi are also found on pillars and medallions of early Buddhist stupas. She is visualised there as a bejewelled woman, standing in a pond of lotus flowers, surrounded by elephants, very similar to Lakshmi images found in Hindu homes today. But there is one crucial difference. Lakshmi images today show her as four-armed, not two-armed. The transformation of two-armed Lakshmi into four-armed Lakshmi happened in the Gupta period, 1,700 years ago, when the old Vedic way reinforced its power by redefining itself through the Puranas, and pushed back on Buddhist popularity. The shift began in the earlier Kushan period. The rise of four-armed deities effectively marks a turning point in assertive Hindu art.

Not more than two

The earliest Indian art comes from Harappa. Here we have images of men meditating, or escaping from tigers, or leaping on bulls, and women in procession, or resolving conflicts. All human characters have only two arms. Nearly 2,000 years after the Harappan period, we have the remarkably evolved Gandharan and Mathura art, mostly Buddhist, telling stories from the life of the Buddha and folktales inspired by Jataka tales. In Mathura art, we find the earliest image of Saraswati, from a Jain site, seated with a book in her hand. She too has two arms. Here we find celestial beings with wings, heads, and bodies of horses, indicating the clear influence of Greek and Persian art. But no four-armed beings. The earliest images of Hindu gods are found on coins. Indo-Greek coins from 200 BCE have images of Krishna holding a wheel; he is two-armed. Kushan coins from 200 CE have images of Shiva holding a trident, many showing him with four arms. But the oldest Shiva lingam at Gudimallam, Andhra Pradesh, dated to 300 CE, shows Shiva with two arms only. From the Kushan period, we have the earliest images of Durga, showing her killing a buffalo. She too has multiple arms. The Kushans were migrants from South-West China and had no religious affiliations, which is why their coins in the western edge of their empire show Greco-Roman-Scythian influence while their coins in the eastern edge show Buddhist and Hindu influences. By the time of the Guptas, the Buddhist influence was on the wane. The earliest Hindu iconography showing a four-armed Vishnu has been found in Malhar in Madhya Pradesh, dating to 100 BCE. It becomes more explicit in the Hindu temple in Deogarh that dates to the Gupta



period, where we find the four-armed Vishnu in three forms: riding Garuda, reclining on Shesha, and as a teacher. When he is reclining, Lakshmi is at his feet. But she has only two arms. The sprouting of multiple arms and later, multiple heads, differentiated supernatural beings from regular humans. In Buddhist art, Brahma and Indra are often shown bowing to the Buddha. How does one know they are not just any kings or priests? Brahma is shown with four arms, establishing his divine status and Hindu roots. In early Jain art, we find four images of the Tirthankara Rishabhdev facing four directions. But in Hindu art, we find chatur-mukha lingas showing Shiva's head on four sides. In Jain art, we do find four-armed yakshas and yakshis, but the Tirthankara is never given supernatural form. At best, his limbs are longer than usual, reaching up to the knee, an indicator of being special.

No icons here

The idea of a god with multiple heads, arms and feet is first found in Vedic literature, and finds expression also in the Bhagavad Gita where Krishna takes his cosmic form, one that pervades every corner of the universe by expanding his form and by multiplying heads, arms, legs. The Vedic priests visualised the gods but did not turn them into icons of stone and metal. Local tribes gave form to their gods, but represented them symbolically through rocks, trees, rivers, or pots and baskets filled with food and water. Anthropomorphic images, where gods have human form, came much later. And images of gods with many heads and hands came even later. Tamil Sangam literature refers to gods like Mayon and Ceyon and Perumal, with their complexion, their abode, their banners, and sacred animals, but does not mention multiple arms.

Supernatural beings

The Mahayana and later the Tantrik schools introduced the idea of supernatural beings with multiple heads and arms into Buddhist art. But the form was associated with Bodhisattva, who is still to attain Buddhahood. He sprouts many heads and hands to see, hear and help the many suffering souls of the cosmos. On attaining Buddha status, he may have giant form, but retains only two arms. Adi Shankaracharya is said to have established the worship of goddess Sharda, who is identified as Saraswati, nearly 12 centuries earlier. Early 20th century prints of the goddess show her as two-armed but new prints show her as four-armed. How do we resolve this mystery? Was she a Buddhist goddess who became Hindu under Shankara's influence? Shankara was after all described by his opponents as Prachanna Buddha or crypto-Buddhist. And he did play a key role in eclipsing Buddhism from the Indian landscape. We will never know for sure. But what we do know is that today, Hindu gods from Lakshmi to Ganesha to Saraswati are always depicted with four or more arms. They are two-armed only when they take mortal form, like Ram or Krishna. Four arms do what the halo did in Christian art — help the viewer quickly establish who is divine, who is supernatural, and who is worthy of veneration.

(M)THE INDIAN BUFFALO RUN

It's raining cats and dogs and the slush tracks at Koti-Chennaya kambala field in Moodbidri, Karnataka, are now perfect for a training session. Beginning in November, these muddy tracks will see groups of men, young and old, run alongside pairs of buffaloes as part of the annual kambala or buffalo races. Organised through local committees or kambala samithis, over 90 such events are usually held across coastal Karnataka and in Kasaragod, northern Kerala, until the season ends

3RD FLOOR AND 4TH FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



in March. Last year, only seven kambalas were held due to COVID-19 restrictions. The training in Moodbidri, about 35 km from Mangaluru, is a personal initiative of senior kambala runner (jockey) Ravi Kumar Aladangady and his son Girish Aladangady. Ravi Kumar, 52, has been a jockey for more than three decades, while his 23-year-old son took up the sport some five years ago. Both have won numerous prizes at kambala races across the State. "I ran 57 rounds on a single day in 2006 and bagged four medals," says a beaming Ravi Kumar, adding that opportunities should be given to new runners to carry the tradition forward. As the veteran arrives at the double-track field, a young man approaches and bends to touch Ravi Kumar's feet. He is Sampath Poojary, a first year ITI student and aspiring kambala jockey. Poojary is among the 40-odd men who have gathered at the fields to receive training from the Aladangadys, who began the training sessions in June. Apart from students, there are electricians, lorry drivers and even a teacher who have come to be a part of kambala history. A majority of them come from a farming background and are between 16 and 30 years of age. Most live within a 50-km radius of Moodbidri.

Booming appeal

"With increased media coverage and thanks to social media comparing kambala jockeys to international sprinters, more youth are turning up to be trained," says Girish, adding that they began the initiative on a trial basis last year with 30 participants. This year, there are 60, of whom as many as 40 are regular attendees. This is in stark contrast to the scenario merely a decade ago, when attempts were first made to attract talent to kambala but with minimal results. N. Vijaya Kumar Kanginamane, a former general secretary of the Kambala Committee of Dakshina Kannada, Udupi and Kasaragod (Kerala) districts, says that in 2009-10, when they tried to rope in college athletes, only three sprinters — Mohammed Ali, Jamaluddin and Shraavanraj — from Alva's College in Moodbidri ran in the slush track. Jamaluddin was a national-level athlete at the time. The attempt did not succeed, however, as coaches were apprehensive of letting their trainees participate, fearing injuries that would hamper their medal chances at future State or national games. "But times have changed now, with youth coming forward themselves to run in the kambala races," says Kanginamane. The president of the committee, P. R. Shetty, says that as a first step, they have begun training in Moodbidri (Dakshina Kannada district) and Baindoor (Udupi district) this month. Training in Miyar (Udipi) and Paivalike (Kasaragod district) will commence later this month or in the first week of November. "Our aim is to train at least 10 persons in each location," says Kanginamane, who is also a member of the committee, which organises 18 to 20 races every season. The word 'kambala' means paddy field. Buffaloes running on slushy paddy fields began to mark the end of tilling season before the planting of seedlings. It was also meant to show respect for the animals and the very important role they play in a farmer's life. Over course of time, this event took the form of a race with two pairs of buffaloes and their handlers running through the field together, says K. Chinnappa Gowda, former Vice-Chancellor of Karnataka Folklore University. The first-ever documented kambala was held on February 2, 1970, in Bajagoli near Karkala in Udupi district.

Traditional ecosystem

As many as 75 traditional 'non-competition' kambalas are also conducted by individual farmers or land-owning entities, including temples. "They are a big part of life in Karnataka's agrarian society and people continue to keep the tradition going," says K. Gunapala Kadamba, retired principal of Jain Pre-University College, Moodbidri, and president of the pioneering Kambala



Academy that has trained nearly 170 jockeys. Even so, the sport is not without its share of controversies. In 2016-17, the annual event was stopped for the first time, following a High Court ban in response to a petition by animal rights group PETA. Similar to the jallikattu row in neighbouring Tamil Nadu, after a lot of arguments for and against the practice, an Ordinance in 2017 paved the way for kambala's continuance. Now, the Prevention of Cruelty to Animals (Karnataka Second Amendment) Act, 2017, permits it to be conducted with restrictions to safeguard against the mistreatment of the animals. Kadamba, who is penning a book on kambala, recalls the month-long festivities that used to be held in the villages of Dakshina Kannada and Udupi a long time ago. "They were like village fairs, where people would get together and also buy farm equipment and other commodities." Those were far simpler times.

(M)BOOM! A SPRAYING SOLUTION IS HERE TO STEM STUBBLE BURNING IN HARYANA FIELDS

A Bengaluru-based firm is providing technology to aid farmers spray decomposers over 5 lakh acres

There's a different sort of machine at work in Bhupinder Singh's 30-acre farm off the Delhi-Karnal highway. The boom sprayer, as it's called, looks like a hybrid between a tractor and an autobot from the Transformers; its definitive features are two 20 ft booms that spread out like outstretched wings. On them are equally spaced nozzles that spray bio-decomposers on the freshly harvested rice field. The decomposers are a powder mixed in water meant to accelerate the process of turning rice stubble into compost. Untreated rice straw takes 4-8 weeks to disintegrate, which is too long for the average farmer to wait to be able to sow the winter wheat crop. The other option is to employ labour, who will cut the stalk and pile it into bundles, but that's expensive and unaffordable for more than 95% of the farmers. "Which is why the simplest solution is a ₹1 matchbox and ₹100 worth of diesel," Mr. Singh said with a smile but also claimed he's never burnt his fields in the last five years. Setting a harvested field alight is an age-old practice but in recent years it has been linked to worsening air pollution in the Delhi National Capital Region.

Open to other solutions

With pressure from the Centre, States such as Punjab, Haryana and Uttar Pradesh have been cajoling, threatening and fining farmers in recent years. While the success of these efforts has been limited, many farmers, while less concerned about the environmental effects of the practice on urban Delhi, are open to trying other solutions. Which is where the less-than two year old, Bengaluru-based agritech firm, nurture.farm, comes in with its boom sprayer. In an ambitious exercise, 700 of these machines will be at work across 5 lakh acres in Punjab and Haryana, spraying a bio-decomposer called 'PUSA spray'. A bio-enzyme developed by the Indian Agricultural Research Institute, Pusa, Delhi, this was initially formulated as a capsule. But, Pranav Tiwari, chief technology officer of nurture.farm, said it emerged that a capsule is not the best way to deploy the product in the fields. Hence his company licensed the technology and made it into a powder that can be mixed with water, which is loaded into a tank in the boom sprayer. After spraying, the soil needs to be turned over and irrigated. When done correctly — spraying, turning the soil over and irrigating it for four days — the straw can be disintegrated in eight days, said Mr. Tiwari. With the boom sprayer, he added, an acre can be sprayed in 7 minutes whereas



manually it takes half a day. Mr. Singh has partitioned his 30 acres into small parcels. A few acres have already been harvested and sprayed, with some sprouting cauliflower as well as shoots of mustard. But the bulk of his farm — 28 acres — is yet to be harvested. Mr. Singh said he expects to begin sowing wheat within 20 days. That means all the rice must be harvested and the stalks sprayed, decomposed and the soil readied for wheat within that time.

Proof of the practice

Mr. Singh said he's optimistic of keeping the schedule but says the true test will be the yield of the wheat next year. The promise of the PUSA spray is that because it employs natural enzymes, it will improve soil fertility and because there will be no burning, carbon as well as essential soil-micronutrients will be retained. Nurture.farm is a subsidiary of the Mumbai-based agrochemicals company UPL, formerly known as United Phosphorous Limited. Its approach towards farming is much like Uber's towards cars — making it convenient for a farmer to hire a spraying service via an app. There is also a team of 600 'Kisan-mitra', many of them young, college girls, who liaise with the farmers and convince them to use the app. The plan, said Mr. Tiwari, is that over time farmers will see the value in spraying based on the improved yields.

(M)HIMACHAL GETTING LESS SNOW

Impact of climate change could hurt river basins, say environmentalists

The hill State of Himachal Pradesh has been gradually witnessing less snow in the past decade and the area under snow is also decreasing. The trend triggered by climate change has alarmed environmentalists, considering the importance of seasonal snow cover as a major input in controlling the hydrology of the river basins in the ecologically fragile State. A recent study, conducted jointly by the State Centre on Climate Change and the Space Applications Centre, Ahmedabad, using Advanced Wide Field Sensor (AWiFS) satellite data has revealed that all major river basins, including the Satluj, Ravi, Chenab and Beas, have witnessed an overall decrease of 18.5% in area under snow in 2020-21 winters in comparison to 2019-20. S.S. Randhawa, a co-author of the study, told The Hindu, "Based on the average snowfall data available between 2010-2014, we started to assess the spatial extent of seasonal snow cover in 2015-16. Since then, every year, we have been analysing the snowfall trend, which shows that by and large there has been a negative [reducing] trend in the past decade, but for one odd year. The results also show that there is a gradual shift in the snowfall occurrence pattern as well. The snowfall in peak winter is reducing slightly and, in fact, is shifting towards the late winter months or even the early summer months." Soumya Dutta, co-convener of the South Asian People's Action on Climate Crisis, attributed the phenomenon to the rising temperatures. "The climate pattern at the global level is changing. Rapid deforestation, extensive construction and unregulated activities are the contributing factors. These factors may be seen as small at the local level but are certainly adding up," said Mr. Dutta. The study points out that there has been an overall decrease in the area under snow in 2020-21 winter (October to May) in key river basins. The decrease in the Chenab basin was 9% and 19% in the Beas basin. The Ravi and Satluj basins saw 23% less snow area in comparison to 2019-20. The overall decrease in the area under snow has been recorded at about 18.5% in 2020-21 winters against 2019-20, it said. Notably, about one-third of the geographical area remains under thick snow cover during the winter season. Most of the major rivers like



Chenab, Beas, Parvati, Baspa, Spiti, Ravi, Satluj and their perennial tributaries originating from the Himalayas depend upon the seasonal snow cover for their discharge dependability. The snow cover also helps in controlling the accumulation and ablations patterns of the glaciated regions. Considering the importance of seasonal snow cover as a major input in controlling the hydrology of the basins, seasonal snow cover assessment in terms of its spatial distribution is being carried out in different river basins during the winter season. Director of the India Meteorological Department (IMD), Shimla, Surinder Pal also said, "The average precipitation tendency has been decreasing, especially the monsoon rains. Rains and snowfall on an average have seen a decreasing trend in the past 10 years. The gradual rise in temperature could be a reason behind this. Climate change is a worldwide phenomenon," he told The Hindu.

Rising temperature

Environmentalists have expressed concern over the reducing precipitation trend. "The average temperature rise in the region is faster than the peninsular region. The temperature in the high altitudes areas is rising faster than the plains. It has been observed in the past few years that on an average relatively more moisture is being carried towards the Himalayas. But for snowfall to occur, the temperature needs to drop to sub-zero level, so though there's enough moisture the snowfall is declining as the temperature has been rising," said Mr. Dutta.

(M) WHY GOVT PROPOSES TO REDEFINE FORESTS, AND THE CONCERNS THIS RAISES

The Ministry for Environment, Forests and Climate Change (MoEFCC) published proposed amendments to the Forest Conservation Act, 1980, easing diversion of forests and exempting certain categories of development from the need to take clearance from the Ministry. The Ministry has invited feedback from state governments and the general public within 15 days. After examining the feedback, it will draw up a draft amendment, followed by a second round of public consultation before an amendment Bill is finally drawn up and tabled in Parliament.

Why is the Act being amended now?

It has been amended only once before, in 1988. Ministry officials have said the current definition of forests has locked land across the country; even private owners cannot utilise their own property for non-forestry purposes. Under the Act, any diversion of any forest land for any purpose, including assignment of leases, needs prior approval of the Centre. In 1996, ruling in T N Godavarman Thirumulpad v Union of India, the Supreme Court had expanded the definition and scope of forest land to include all areas recorded as forest in any government record, irrespective of ownership, recognition and classification. Previously, the Act had applied largely to reserve forests and national parks. The court also expanded the definition of forests to encompass the "dictionary meaning of forests", which would mean that a forested patch would automatically become a "deemed forest" even if it is not notified as protected, and irrespective of ownership. The order was also interpreted to presume that the Act is applicable over plantations in non-forest land. Ministry officials said the amendment is proposed to "streamline provisions of the Act". It has said the identification of forest land is subjective and arbitrary and that the "ambiguity" has "resulted into lot of resentment and resistance particularly from private individuals and organisations". The Ministry has also cited "strong resentment in the Ministry of Railways,



Ministry of Road, Transport & Highways”, which too require forest clearance. Officials said these clearances usually take several years, in turn delaying infrastructure projects.

What are the proposed amendments?

* The Ministry has proposed that all land acquired by the Railways and Roads Ministries prior to 1980 be exempted from the Act. It says these lands had been acquired for expansion, but subsequently forests have grown in these areas, and the government is no longer able to use the land for expansion. If the amendment is brought in, these Ministries will no longer need clearance for their projects, nor pay compensatory levies to build there.

* For individuals whose lands fall within a state-specific Private Forests Act or come within the dictionary meaning of forest as specified in the 1996 Supreme Court order, the government proposes to allow “construction of structures for bona fide purposes” including residential units up to 250 sq m as a one-time relaxation.

* Defence projects near international borders will be exempted from forest clearance.

* Oil and natural gas extraction from forested lands will be permitted, but only if technologies such as Extended Reach Drilling are used.

* The Ministry has proposed doing away with levies for non-forestry purposes during the renewal of a lease, saying the double levy at the time of awarding of the lease and the renewal is “not rational”.

* Strip plantations alongside roads that would fall under the Act will be exempted.

What are the concerns?

* Activists and opposition leaders say the relaxation of forest rules will facilitate corporate ownership and the disappearance of large tracts of forests.

* About the exemption of forests on private land, even former forest officials said many forests will disappear. For instance, 4% land in Uttarakhand falls under private forests.

* Leaders such as Brinda Karat (CPM) have asked what will happen to tribals and forest dwelling communities — an issue the amendments do not address.

* Environmentalists say exemption for Roads and Railways on forest land acquired prior to 1980 will be detrimental to forests as well as wildlife – especially elephants, tigers and leopards.

* Environmentalists say one time exemption for private residences on private forest will lead to fragmentation of forests, and open areas such as the Aravalli mountains to real estate.

Do environmental groups note any positives?

They have welcomed the fact that the consultation paper has been public, and the decision to make changes through an amendment using the parliamentary process. Environmental lawyer Ritwick Dutta said that over the last decade and a half, irrespective of which party has been in power, the



standard procedure has been to change laws through office memorandums and letters and not through statutory process.

Environmental groups have also acknowledged that:

- * The MoEFCC has pointed out where the pressure for forest land diversion has been coming from — Ministries such as Rail and Roads — and allowed a public debate on it.
- * It has proposed making forest laws more stringent for notified forests, making offences non-bailable with increased penalties including imprisonment of up to one year.
- * It has disallowed any kind of diversion in certain forests.
- * It has attempt to define and identify forests once and for all — something that has been often ambiguous.

(M) PROTECTING INDIA'S NATURAL LABORATORIES

Like social diversity, India's geodiversity, or variety of the geological and physical elements of nature, is unique. India has tall mountains, deep valleys, sculpted landforms, long-winding coastlines, hot mineral springs, active volcanoes, diverse soil types, mineralised areas, and globally important fossil-bearing sites. It is long known as the world's 'natural laboratory' for geo-scientific learning.

Lack of geological literacy

Broken loose from a supercontinent 150 million years ago, the Indian landmass, with all its strange-looking plants and animals, drifted northwards all by itself for 100 million years until it settled under the southern margin of the Asian continent. It got entwined with the world's youngest plate boundary. The geological features and landscapes that evolved over billions of years through numerous cycles of tectonic and climate upheavals are recorded in India's rock formations and terrains, and are part of the country's heritage. For example, the Kutch region in Gujarat has dinosaur fossils and is our version of a Jurassic Park. The Tiruchirappalli region of Tamil Nadu, originally a Mesozoic Ocean, is a store house of Cretaceous (60 million years ago) marine fossils. To know how physical geography gets transformed into a cultural entity, we need to study the environmental history of the Indus River Valley, one of the cradles of human civilisation. India offers plenty of such examples. Geo-heritage sites are educational spaces where people find themselves acquiring badly needed geological literacy, especially at a time when India's collective regard for this legacy is abysmal. Indian classrooms view disciplines like environmental science and geology with disdain compared to how they view other 'pure' subjects like physics, biology, and chemistry. This lack of interest in the government and our academic circles towards geological literacy is unfortunate at a time when we face a crisis like global warming. As the climate of the future is uncertain, decision-making is difficult. Learning from the geological past, like the warmer intervals during the Miocene Epoch (23 to 5 million years ago), whose climate can be reconstructed using proxies and simulations, may serve as an analogue for future climate. The awareness accrued through educational activities in geo-heritage parks will make it easy for us to memorialise past events of climate change and appreciate the adaptive measures to be followed for survival. The importance of the shared geological heritage of our



planet was first recognised in 1991 at an UNESCO-sponsored event, 'First International Symposium on the Conservation of our Geological Heritage'. The delegates assembled in Digne, France, and endorsed the concept of a shared legacy: "Man and the Earth share a common heritage, of which we and our governments are but the custodians." This declaration foresaw the establishment of geo-parks as sites that commemorate unique geological features and landscapes within their assigned territories; and as spaces that educate the public on geological importance. These sites thus promote geo-tourism that generates revenue and employment. In the late 1990s, in what may be considered as a continuation of the Digne resolution, UNESCO facilitated efforts to create a formal programme promoting a global network of geoheritage sites. These were intended to complement the World Heritage Convention and the UNESCO Man and the Biosphere programme. UNESCO provided guidelines for developing national geo-parks so that they become part of the Global Geoparks Network. Today, there are 169 Global Geoparks across 44 countries. Countries like Vietnam and Thailand have also implemented laws to conserve their geological and natural heritage. Unfortunately, India does not have any such legislation and policy for conservation. Though the Geological Survey of India (GSI) has identified 32 sites as National Geological Monuments, there is not a single geo-park in India which is recognised by the UNESCO. This is despite the fact that India is a signatory to the establishment of UNESCO Global Geoparks. The GSI had submitted a draft legislation for geo-heritage conservation to the Ministry of Mines in 2014, but it did not make any impact.

The development juggernaut

Despite international progress in this field, the concept of geo-conservation has not found much traction in India. Many fossil-bearing sites have been destroyed in the name of development. This indifference — strange as it may seem given the current dispensation's penchant for crying itself hoarse about India's heritage — is going to take a toll on our heritage. The development juggernaut will soon overwhelm almost all our sites of geo-heritage. For example, the high concentration of iridium in the geological section at Anjar, Kutch district, provides evidence for a massive meteoritic impact that caused the extinction of dinosaurs about 65 million years ago. This site was destroyed due to the laying of a new rail track in the area. Similarly, a national geological monument exhibiting a unique rock called Nepheline Syenite in Ajmer district of Rajasthan was destroyed in a road-widening project. The Lonar impact crater in Buldhana district of Maharashtra is an important geo-heritage site of international significance. It is under threat of destruction, although conservation work is now in progress under the High Court's supervision. We are inching towards the disappearance of most of our geological heritage sites. Thanks to unplanned and booming real estate business, many such features have been destroyed. Unregulated stone mining activities have also contributed to this destruction. This situation calls for immediate implementation of sustainable conservation measures such as those formulated for protecting biodiversity. Natural assets, once destroyed, can never be recreated. And if they are uprooted, they lose much of their scientific value.

Geo-conservation legislation

The protection of geo-heritage sites requires legislation. The Biological Diversity Act was implemented in 2002 and now there are 18 notified biosphere reserves in India. Geo-conservation should be a major guiding factor in land-use planning. A progressive legal framework is needed to support such strategies. In 2009, there was a half-hearted attempt to constitute a National



Commission for Heritage Sites through a bill introduced in the Rajya Sabha. Though it was eventually referred to the Standing Committee, for some unstated reasons the government backtracked and the bill was withdrawn. In 2019, a group of geologists under the auspices of the Society of Earth Scientists petitioned the Prime Minister and the Ministries concerned about the need for a national conservation policy under the direct supervision of a national body committed to the protection of geo-heritage sites. But the government's apathy continues.

NATIONAL MUSEUM GETS A MAKEOVER WITH 3 NEW GALLERIES ON BUDDHIST ART

A 10,000 square-ft space across three halls at the National Museum has been dedicated to displaying priceless Central Asian antiquities, which were part of its repository for a decade but never really got a moment under the limelight. "With this, it becomes the fourth museum in the world to display such a collection, after museums in the UK, German and Russia," says Subrata Nath, Additional Director General of the museum. From 12,000 works dating between the 3rd and 12th centuries – discovered by noted archaeologist Marc Aurel Stein during his Central Asian expeditions in 1900-1916 and brought to India – as many as 170 masterpieces have been carefully selected for the display. The Central Asian Antiquities gallery now showcases large Bezeklik wall paintings, silk paintings and banners from the library cave of Dunhuang (China) and a large number of burial objects and textiles from Astana graves. As per estimates, Rs 3 crore and three long years have been spent on putting this together as most objects had to be conserved and reframed before they could be put up for display. But the effort, say sources in the Ministry of Culture under which the museum operates, is not to be seen in isolation. "It is a well-thought-through global outreach plan floated by the government to position India as the Buddhist centre, and perhaps take that tag back from China," says an official who doesn't want to be identified. "This makeover is part of the country's all-round effort to that end, wherein ministries of culture and tourism have been involved to play a big role," adds the official. To prove their point, the display has the landmark '1,000 Buddhas' artwork from Dunhuang complex, alongside similar work from the Ajanta Caves. While the Ajanta work is dated to the 5th Century, the Chinese work came up only in 9th Century. "These things prove the primacy of India in terms of Buddhist art," points out Nath. Besides the expansive Central Asian Antiquities gallery, the majestic building next door, that functioned as the Archaeological Survey of India (ASI) headquarters till 2018, has been turned into a Buddha museum of sorts (or a set of galleries), while an augmented reality-based experiential has been created for the Ajanta Caves at the NM. Together, the three new galleries aim to establish India's credentials as the birthplace of Buddhism, from where it later spread to other countries, including China. The entire makeover project is aimed at the G20 meeting scheduled to take place in 2023, when many heads of state and government, and other dignitaries will visit the Capital. The aim is to turn the museum into the country's cultural showpiece, and showcase our Buddhist heritage to those not aware of it, the official adds. The Ministry of Tourism has executed the Ajanta experiential inside NM, with help from IIT-Bombay. "We want to establish Ajanta Caves as the origin of Buddhist Art, which was at its peak in the 5th-6th Centuries. All monasteries came up along the Silk Route," adds the official. In a reply to the Lok Sabha in August this year, Culture Minister G Kishan Reddy had said: "The museum on Buddha is being developed in a renovated century-old majestic building and spread over an area of about 15,000 square feet, surrounded by a lush green landscape".



SABARMATI ASHRAM TO GET A ₹1,200 CR. REVAMP

The Gujarat government has embarked upon an ambitious project to redevelop Mahatma Gandhi's Sabarmati Ashram and expand it from its present five acres to approximately 55 acres. The redevelopment will involve restoring all heritage buildings that were built during the Mahatma's time in 1917, relocating families that live there and bringing to life Gandhiji's philosophy and message for those visiting the Ashram. The project, being monitored by Prime Minister Narendra Modi himself, includes plans to spend ₹1,200 crore to turn the Sabarmati Ashram into a world-class memorial with facilities and amenities to allow all Ashram visitors to have a "truly educational and immersive experience with full measure of the meaning and significance of Mahatma Gandhi's life, work, philosophy, and message to the world." The State government has emphatically held that the redevelopment project, also known as the Gandhi Ashram Memorial and Precinct Development Project, will be done in a manner that is respectful of the original ashram's ethos as it will retain the values that Gandhiji preached — austerity, simplicity, and authenticity. "It is Prime Minister Sir's commitment to undertake the redevelopment of Mahatma Gandhi's Ashram. In the past, many attempts were made but somehow, no progress was made earlier," said K. Kailashnathan, Prime Minister Modi's most trusted bureaucrat in Gujarat, who is personally handling the Ashram redevelopment project. "Since most of the original buildings lie outside today's ashram, visitors get an incomplete sense of how the original Ashram functioned and how it embodied Gandhiji's philosophy. Many of the original buildings are also in disrepair. To add to this, the atmosphere of the ashram is also rudely disrupted by noise of traffic, and it is often crowded on account of the continually increasing number of visitors," stated a presentation prepared by the authorities. The revamp project has been conceptualised by leading architect Bimal Patel, who is also involved in the revamping of the Central Vista project in the national capital. As per the details, the original Ashram was approximately 120 acres when it was first established in 1917. During Mahatma's lifetime in the Ashram from 1917 to 1930, there were 63 buildings built within the Ashram's area. Today, only 43 of the original buildings remain. Of the around 250 families who currently reside in the Ashram area for historical reasons, 54 have accepted first instalment and 36 families have accepted the second instalment of compensation offered by the government to move. The rest are still considering their options. The revamp has, however, triggered controversy and outrage among a section of Gandhians, activists and scholars. At least 130 personalities from various walks of life have opposed the plan. In a joint statement, they criticised the Centre and the State governments for embarking upon the redevelopment plans, and said the proposed project will severely compromise the simplicity and sanctity of the present-day Ashram. The proposed memorial is more likely to be called at best a 'Gandhi Theme Park' and at worst, the Mahatma's 'second assassination', they said. In August of this year, the trustees of Sabarmati Ashram Preservation and Memorial Trust (SAPMT) in a statement said they shared many of the concerns expressed by several citizens regarding the future of Sabarmati Ashram.



BUSINESS & ECONOMICS

INDIA MAY NEED TO RESCIND DIGITAL TAX

India may have to withdraw digital services tax or the equalisation levy and give a commitment not to introduce such measures in the future if the global minimum tax deal comes through. In a major reform of the international tax system, 136 countries, including India, have agreed to an overhaul of global tax norms to ensure that multinationals pay taxes wherever they operate and at a minimum 15% rate. However, the deal requires countries to remove all digital services tax and other similar measures and to commit not to introduce such measures in the future, the Organisation of Economic Cooperation and Development (OECD) said in its implementation plan on Friday. “No newly enacted digital services taxes or other relevant similar measures will be imposed on any company from October 8 and until the earlier of December 31, 2023, or the coming into force of the MLC (multilateral convention),” the OECD said. The proposed two-pillar solution of the global tax deal consists of two components — Pillar One which is about reallocation of additional share of profit to the market jurisdictions and Pillar Two consisting of minimum tax subject to tax rules. Finance Minister Nirmala Sitharaman had earlier this week said that India was “very close” to arriving at the specifics of the two-pillar taxation proposition at the G-20 and was in the last stage of finalising the details. The Finance Ministers of G-20 countries are scheduled to meet on October 13 in Washington and finalise it. “As a significant move, the OECD has sought for an immediate and upfront withdrawal of unilateral digital services tax and a commitment not to introduce such measures in the future,” Nangia Andersen Partner Sandeep Jhunjhunwala said commenting on the OECD’s latest statement. The modality for the removal of existing digital services taxes and other similar measures needs to be appropriately coordinated, Mr. Jhunjhunwala observed.

Timeline deferred

“Pillar Two which was initially proposed to be brought into effect from 2023 has now been deferred to 2024,” he added. Shardul Amarchand Mangaldas & Co. Partner Gouri Puri said a consensus was key to securing a more stable tax regime for multinationals and governments. “While the fine print is awaited, India is balancing its interests both as an importer and an exporter of capital, goods and services. The deal will prevent a race to the bottom among countries,” Mr. Puri added.

TAXING BIG TECH WHERE IT EARNS PROFITS

A majority of the world’s nations have signed a historic pact that could force multinational companies to pay their fair share of tax in markets where they operate and earn profits. One hundred and thirty-six countries, including India, agreed Friday to enforce a minimum corporate tax rate of 15%, and an equitable system of taxing profits of big companies in markets where they are earned. Kenya, Nigeria, Pakistan and Sri Lanka have not yet joined the deal. The move is part of an evolving consensus that big multinationals are funnelling profits through low-tax jurisdictions to avoid paying taxes. The Organisation for Economic Cooperation and Development (OECD), comprising mostly developed economies, has led talks on a minimum corporate tax rate for a decade. A multilateral convention is to be signed next year. The biggest impact is likely on

3RD FLOOR AND 4TH FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



Big Tech companies that have largely chosen low-tax jurisdictions to headquarter their operations.

What are the decisions taken?

The decisions effectively ratify the OECD's two-pillar package that aims to ensure that large multinational enterprises (MNEs) "pay tax where they operate and earn profits".

Pillar One aims to ensure a fairer distribution of profits and taxing rights among countries with respect to the largest MNEs, including digital companies. This would entail reallocation of some taxing rights over MNEs from their home countries to markets where they have business and earn profits, regardless of whether firms have a physical presence there.

Pillar Two seeks to put a floor on competition over corporate income tax, through a global minimum corporate tax rate that countries can use to protect their tax bases.

The 15% floor under the corporate tax will come in from 2023, provided all countries move such legislation. This will cover firms with global sales above 20 billion Euros (\$23 billion) and profit margins above 10%. A quarter of any profits above 10% is proposed to be reallocated to the countries where they were earned, and taxed there. The move follows an earlier agreement among the G7 economies in London in June. The two-pillar solution will be delivered to the G20 Finance Ministers meeting in Washington DC on October 13, and then to the subsequent G20 Leaders Summit in Rome. The two-pillar solution, according to Sumit Singhania, Partner, Deloitte India, will result in "a redistribution of \$125 billion taxable profits annually", and ensure MNEs pay minimum 15% tax once this is implemented. A consensus on global minimum tax "will practically make tax competition amongst nations rather unfeasible by narrowing down any such opportunities to rarest circumstances... In the end, two-pillar solutions ought to be reckoned as enduring overhaul of a century old international tax regime, that's here to change the rule of the global profit allocation amongst taxing jurisdictions completely".

Why the minimum rate?

The new proposal is aimed at squeezing the opportunities for MNEs to indulge in profit shifting, ensuring they pay at least some of their taxes where they do business. According to Amit Singhania, Partner, Shardul Amarchand Mangaldas & Co., the two-pillar solution will ensure that "once again, the world will be global, at least in following the principles of taxation rather than following territorial laws". In April this year, US Treasury Secretary Janet Yellen had urged the world's 20 advanced nations to move in the direction of adopting a minimum global corporate income tax. A global pact works well for the US government at this time. The same holds true for most other countries in western Europe, even as some low-tax European jurisdictions such as the Netherlands, Ireland and Luxembourg and some in the Caribbean rely largely on tax rate arbitrage to attract MNCs. The proposal also has some degree of support from the IMF. While China is not likely to have a serious objection with the US call, a concern for Beijing would be the impact on Hong Kong, the seventh largest tax haven in the world, according to a study published earlier this year by the advocacy body Tax Justice Network. Plus, China's frayed relationship with the US could be a deterrent in negotiations.



Who are the targets?

Apart from low-tax jurisdictions, the proposals are tailored to address the low effective rates of tax shelled out by some of the world's biggest corporations, including Big Tech majors such as Apple, Alphabet and Facebook, as well as those such as Nike and Starbucks. These companies typically rely on complex webs of subsidiaries to Hoover profits out of major markets into low-tax countries such as Ireland, the British Virgin Islands, the Bahamas, or Panama. The US loses nearly \$50 billion a year to tax cheats, according to the Tax Justice Network report, with Germany and France also among the top losers. India's annual loss due to corporate tax abuse is estimated at over \$10 billion.

What are the problems with the plan?

Apart from the challenges of getting all major nations on the same page, since this impinges on the right of the sovereign to decide a nation's tax policy, the proposal has other pitfalls. A global minimum rate would essentially take away a tool countries use to push policies that suit them. Also, bringing in laws by next year so that it can take effect from 2023 is a tough task. The deal has also been criticised for lacking teeth: Groups such as Oxfam said the deal would not put an end to tax havens.

Where does India stand?

India, which has had reservations about the deal, ultimately backed it in Paris. Finance Minister Nirmala Sitharaman had last week said India is "close" to deciding the specifics of the two-pillar proposal and is in the final stages of deciding on the details. India is likely to try and balance its interests, while asserting that taxation is ultimately a "sovereign function". India may have to withdraw its digital tax or equalisation levy if the global tax deal comes through. OECD said the Multilateral Convention (MLC) will "require all parties to remove all Digital Services Taxes and other relevant similar measures with respect to all companies, and to commit not to introduce such measures in the future." To address "the challenges posed by the enterprises who conduct their business through digital means and carry out activities in the country remotely", the government has the 'Equalisation Levy', introduced in 2016. Also, the IT Act has been amended to bring in the concept of "Significant Economic Presence" for establishing "business connection" in the case of non-residents in India. Also, there are apprehensions on the impact of this deal on investment activity. The New York Times reported on October 7: "India, China, Estonia and Poland have said the minimum tax could harm their ability to attract investment with special lures like research and development credits and special economic zones that offer tax breaks to investors." Sitharaman on September 21, 2019 had announced a cut in corporate taxes for domestic companies to 22% and for new domestic manufacturing companies to 15%. The Taxation Laws (Amendment) Act, 2019 amends the Income-Tax Act, 1961 to provide for the concessional tax rate for existing domestic companies subject to certain conditions. Also, existing domestic companies opting for the concessional taxation regime will not be required to pay Minimum Alternate Tax. This, along with other measures, was estimated to cost the exchequer Rs 1.45 lakh crore annually. The effective tax rate, inclusive of surcharge and cess, for Indian domestic companies is around 25.17%. "While taxation is ultimately a sovereign function, and depends upon the needs and circumstances of the nation, the government is open to participate and engage in the emerging discussions globally around the corporate tax structure. The economic division will look into the



pros and cons of the new proposal as and when it comes and the government will take a view thereafter,” said a senior government official. The average corporate tax rate stands at around 29% for existing companies that are claiming some benefit or the other. Another official said New Delhi was “proactively engaging” with foreign governments with a view to facilitating and enhancing exchange of information under Double Taxation Avoidance Agreements, Tax Information Exchange Agreements and Multilateral Conventions to plug loopholes.

IMF PEGS INDIA GROWTH AT 9.5%, URGES LOWER DEBT-TO-GDP RATIO

The IMF has projected that India will grow at 9.5% and 8.5% this fiscal year and next, after a contraction of 7.3% last year. It has projected global growth at 5.9% this year and 4.9% in 2022 in its latest World Economic Outlook, unveiled at the start of the World Bank IMF Annual Meetings. While the India numbers remain unchanged from the IMF’s July forecast — which had already incorporated a downgrade of 3 percentage points from the April forecast — there has been a nominal downward revision for world output growth in 2021 (from 6%). “India is doing well in terms of vaccination rates and that’s certainly helpful,” IMF Chief Economist Gita Gopinath said, adding that the July forecast had already incorporated the impacts of the devastating second wave. The Indian economy continued to face challenges, such as those from the financial market and from the virus not having disappeared yet, Ms. Gopinath said. Last week, in a report on South Asia, the World Bank had projected 8.3% growth for India this fiscal. In response to a question on whether the fiscal deficit in India was a concern, the lead author of the report, Mahlar Nabar, said there was potentially more room for support at the moment. “We think that there’s still room to provide more support if needed, if the pandemic takes a turn for the worse and to provide it in a targeted manner to the worst-affected households and firms,” he said. However, there would need to be “a credible medium-term strategy” to reduce the debt-to-GDP ratio to make room for future development and infrastructure needs.

BANKS WILL HAVE TO PREPARE FOR CAPITAL ACCOUNT CONVERTIBILITY

Reserve Bank of India (RBI) Deputy Governor T Rabi Sankar on Thursday said market participants, particularly banks, will have to prepare themselves to manage the business process changes and the global risks associated with capital convertibility. “India has come a long way in achieving increasing levels of convertibility on the capital account,” Sankar said at a conference organised Foreign Exchange Dealers’ Association of India. “It has broadly achieved the desired outcome for the policy choices it has made, in terms of achieving a stable composition of foreign capital inflow. At the same time, India is on the cusp of some fundamental shifts in this space with increased market integration in the offing and freer non-resident access to debt on the table,” he said. “The rate of change in capital convertibility will only increase with each of these and similar measures,” Sankar said. “With that comes the responsibility to ensure that such flows are managed effectively with the right combination of capital flow measures, macro-prudential measures and market intervention...,” he said. Convertibility refers to the ability to convert domestic currency into foreign ones and vice versa to make payments for balance of payments transactions. “Current account convertibility is the ability or freedom to convert domestic currency for current account transactions while capital account convertibility is the ability or freedom to convert domestic currency for capital account transactions.”



CENTRUM, BHARATPE GET LICENCE TO SET UP SMALL FINANCE BANK

The Reserve Bank of India (RBI) has issued a Small Finance Bank (SFB) licence to the consortium of Centrum Financial Services, the small business lending arm of the Centrum Group, and Resilient Innovations Private Limited (BharatPe), a fintech company. “A new bank license has been issued after a gap of nearly 6 years, and we thank the RBI for the confidence shown in the abilities of Centrum and BharatPe,” Centrum said. The new SFB has been incorporated as ‘Unity Small Finance Bank’, it said. “Unity as a name has tremendous significance on many counts for both Centrum and BharatPe. It is the first time ever that two partners are uniting equally to build a Bank,” it said in an exchange filing. The proposed business model is one of collaboration and open architecture, it said. Centrum’s MSME and microfinance businesses will be merged into Unity Small Finance Bank. Jaspal Bindra, executive chairman, Centrum Group, said “We are delighted to receive the license and excited to partner with BharatPe to create this new age bank, with a strong team. We aspire to be India’s first digital bank.” “We will ... capture this opportunity and build India’s first truly Digital Bank ground up,” said Ashneer Grover, co-founder and MD, BharatPe.

LIMITS TO ACCOMMODATION

The RBI’s latest monetary policy statement and accompanying actions reflect the dilemma confronting monetary authorities. While the RBI’s Monetary Policy Committee voted unanimously to keep benchmark interest rates unchanged as part of its efforts to support growth as the economy recovers, one of the six members on the MPC demurred yet again and voted against continuing with an accommodative stance for ‘as long as necessary’. Prof. Jayanth Varma had at the last meeting in August flagged the risks that prolonged monetary accommodation posed to the inflation outlook by ‘stimulating asset price inflation’ even as he posited that its impact in ‘mitigating the distress in the economy’ was arguably far more marginal. The MPC’s own current inflation outlook is a mixed bag. The projection for average inflation for the full fiscal year has been cut by 40 basis points to 5.3% even as the committee stresses that with core inflation ‘persisting at an elevated level’, the Centre and States would need to further ameliorate supply side and cost pressures, including through calibrated cuts in indirect taxes on petrol and diesel so as to address the issue of ‘very high’ pump prices. In an acknowledgment of the difficulty it faces in containing price pressures even as it keeps interest rates at growth-supportive lows, the monetary panel reiterated its plea for fiscal authorities to step in and help contain inflationary pressures, especially the pass-through impact of elevated transportation costs. Governor Shaktikanta Das tacitly conceded that the time had come to wind down the pandemic-era liquidity support as he announced the suspension of the G-SAP bond buying programme and simultaneously outlined measures to drain out surplus liquidity from the banking system. He cited the seemingly ‘strengthening’ growth impulses to justify the RBI’s decision. Here again, the MPC’s prognostication on growth is filled with uncertainties and caveats. Contact intensive services, which contribute about two-fifths to economic output and were among the worst hit by the COVID restrictions, still considerably lag their pre-pandemic levels; the manufacturing sector is still nowhere near supporting a rebound in investment demand; and, most crucially, the external environment that has so far been a major tailwind — through capital inflows and the demand for the country’s goods and services — is turning more uncertain. With growing signs that some major advanced economies are gearing for an imminent normalisation of monetary policy, the



elbow room for the RBI to stay accommodative is narrowing sharply. As Prof. Varma had noted in his dissent, monetary authorities face the danger of failing to fulfil the MPC's primary mandate of anchoring inflation expectations firmly around the 4% target. A failure that would hurt savers the most and risks derailing a consumption-led revival.

GOVT. TELLS UTILITIES TO IMPORT COAL

India has asked power producers to import up to 10% of their coal needs amid fuel shortages, and has warned States that federal companies will curb their power supplies if they are found selling electricity on power exchanges to cash in on surging prices. India is the world's second largest coal producer, with the world's fourth largest reserves, but a steep surge in power demand that has outstripped pre-pandemic levels means state-run Coal India's supplies are no longer enough. Increased economic activity after the second wave of the pandemic has driven up demand for coal leading to a supply shortage, forcing north Indian States like Bihar and Jharkhand to undertake power cuts for up to 14 hours a day. On Tuesday, the Power Ministry asked utilities, reliant on local coal, to import up to 10% of coal needs to blend with the domestic grade to meet increased power demand, a Ministry note reviewed by Reuters said. The move could push up already high global coal prices. These power plants usually only import small amounts of coal. Over half of India's 135 coal-fired power plants, which supply about 70% of the country's electricity, have fuel stocks that will last three days or less. Central government-controlled power producers such as NTPC Ltd. sign long-term power-purchase agreements with distribution firms for the sale of most of their power output. But 15% of their power is controlled by the Centre, which sells this so-called 'unallocated' power to the States. The Ministry said if any State had a surplus of power, it should inform the federal government which would allocate that electricity to States that needed it. Some States, instead of supplying electricity to consumers, are imposing rolling power cuts and selling power at higher prices to energy exchanges, the Ministry said in a statement.

CENTRE REBUTS FEARS OF POWER BLACKOUTS

Terming any fear of disruption in power supply due to coal shortage "misplaced", the Government on Sunday said coal stocks at power plants would "gradually improve" and were currently sufficient for 24 days. The Coal Ministry and Coal India promised that there was ample coal available to meet the demand of power plants. The assurances came at a review meeting of the coal stocks at thermal power plants attended by Power Minister R.K. Singh and Coal Minister Pralhad Joshi. The Coal Ministry also said coal supplies were set to hit a 'record high' in 2021-22 and blamed extended monsoons for constraints in despatches from mines. Coal India, the Ministry said, was supplying more than 2.5 lakh tonnes daily to non-power industries such as aluminium, steel and cement, reflecting the 'comfortable coal position in the country'. The daily average coal requirement at power plants is about 18.5 lakh tonnes whereas the daily coal supply has been around 17.5 lakh tonnes per day.

Heavy rains

Citing the heavy rains in coal field areas, the Ministry said the CIL was now supplying over 14 lakh tonnes a day to power plants which would increase to over 16 lakh tonnes by the end of October as the rains recede. The Power Ministry said in a separate statement that domestic coal supply



had sustained the power plant operations “despite heavy rains in August and September, steep hike in power demand due to economic recovery and increase in imported coal prices”. “All out efforts are being made to ensure full power supply to the DISCOMs as per requirements,” the Ministry added. Taking special note of concerns raised by Delhi about the prospect of power supply disruptions in the capital, Mr. Singh had directed that distribution companies of Delhi would get ‘as much as power as requisitioned by them as per their demand’.

‘Give power to capital’

The Minister had directed the NTPC and the DVC to give full availability of power as per the needs of distribution companies, and advised GAIL India to provide gas from all sources to gas-based power plants in the capital. “If any DISCOM is found to resort to load-shedding despite being power available as per the PPA, action would be initiated against them,” the Power Ministry warned.

TAKING THE LID OFF ILLICIT FINANCIAL FLOWS

The Pandora Papers, published on October 3, once again expose the illegal activities of the rich and the mighty across the world. The Pandora Papers investigation is “the world’s largest-ever journalistic collaboration, involving more than 600 journalists from 150 media outlets in 117 countries”. The International Consortium of Investigative Journalists (ICIJ) has researched and analysed the approximately 12 million documents in order to unravel the functioning of the global financial architecture which helps illicit financial flows, in turn enabling the rich to throw a cloak over their incomes and activities. Given the complexity of the tax laws and the loopholes available, some of the deft moves may be strictly legal, but not necessarily morally justified. The ICIJ says that while some of the files date to the 1970s, most of those it reviewed were created between 1996 and 2020. The ICIJ has also said that the “data trove covers more than 330 politicians and 130 Forbes billionaires, as well as celebrities... drug dealers, royal family members and leaders of religious groups around the world”.

History of leaked data

Since at least 2008, files indicating the manipulations by the rich have been stolen from financial institutions. In 2017, the Paradise Papers were leaked out mostly from the more than 100-year-old offshore law firm, Appleby, which operates globally. In 2016, the Panama Papers were obtained by hacking the server of the Panamanian financial firm, Mossack Fonseca. In these exposés, the British Virgin Island (BVI) figured prominently. The leaked documents from Luxembourg, the “Luxembourg Leaks”, appeared in 2014. In 2008, a former employee of the LGT Bank of Liechtenstein offered information to tax authorities. There were Indian names also but the Indian government accepted the data only under pressure from the Supreme Court. The same year, Hervé Falciani obtained confidential data on HSBC bank accounts from remote servers and gave the data to then French Finance Minister Christine Lagarde (she later became chief of the International Monetary Fund to then move on as President of the European Central Bank) who passed it on to the various governments, including India. In the United States, in the mid-2000s, UBS Bank and Bradley Birkenfeld, who was acting as a private banker on its behalf, were prosecuted for enabling U.S. citizens to spirit away their income and wealth. A large extent of the illicit financial flows have a link to New York City and London, the biggest financial centres in the



world that allow financial institutions such as big banks to operate with ease. The leaked data show that these entities move the funds of the rich and the powerful via tax havens; Delaware in the U.S. is a tax haven. The big financial entities operating from these cities have been prosecuted for committing illegalities. In 2012, an investigation into the London Interbank Offered Rate or LIBOR — crucial in calculating interest rates — led to the fining of leading banks such as Barclays, UBS, Rabobank and the Royal Bank of Scotland for manipulation. These banks also operate a large number of subsidiaries in tax havens to help illicit financial flows.

The modus operandi

The leaked papers now and even earlier have exposed the international financial architecture and illicit financial flows. For instance, Panama Papers highlighted the template used in other tax havens. The Pandora Papers once again confirm this pattern. Tax havens enable the rich to hide the true ownership of assets by using: trusts, shell companies and the process of 'layering'. Financial firms offer their services to work this out for the rich. They provide ready-made shell companies with directors, create trusts and 'layer' the movement of funds. Only the moneyed can afford these services. The process of layering involves moving funds from one shell-company in one tax haven to another in another tax haven and liquidating the previous company. This way, money is moved through several tax havens to the ultimate destination. Since the trail is erased at each step, it becomes difficult for authorities to track the flow of funds. It appears that most of the rich in the world use such manipulations to lower their tax liability even if their income is legally earned. The Panama Papers revealed the names globally of current and former leaders, politicians and public officials, billionaires, celebrities, sports stars, small and big businesses and professionals. Is it that the rich move their funds to tax havens because of high tax rates? Not really. Even citizens of countries with low tax rates use tax havens. Over the three decades, tax havens have enabled capital to become highly mobile, forcing nations to lower tax rates to attract capital. This has led to the 'race to the bottom', resulting in a shortage of resources with governments to provide public goods, etc., in turn adversely impacting the poor.

The specificity of the Papers

The Pandora Papers, unlike the previous cases mentioned above, are not from any one tax haven; they are leaked records from 14 offshore services firms. The data pertains to an estimated 29,000 beneficiaries. The 2.94 terabytes of data have exposed the financial secrets of over 330 politicians and public officials, from more than 90 countries and territories. These include 35 current and former country leaders. Singer Shakira and former Indian cricket captain Sachin Tendulkar are among the celebrities and sport stars named in the investigation. Others include the King of Jordan, the Presidents of Ukraine, Kenya and Ecuador, the Prime Minister of the Czech Republic, former British Prime Minister Tony Blair and Russian President Vladimir Putin. Surprisingly there are few names from the United States, even though it has the largest number of billionaires. The very powerful who need to be onboard to curb illicit financial flows (as the Organisation for Economic Co-operation and Development, or the OECD is trying) are the beneficiaries of the system and would not want a foolproof system to be put in place to check it. With the current global financial architecture, black income generation cannot be checked. Revelations suggest that funds are moved out of national jurisdiction to spirit them away from the reach of creditors and not just governments. Many fraudsters are in jail but have not paid their creditors even though they have funds abroad. Strictly speaking, not all the activity being exposed by the Pandora Papers



may be illegal due to tax evasion or the hiding of proceeds of crime. The authorities will have to prove if the law of the land has been violated. Each country will have to conduct its investigations and prove what part of the activity broke any of their laws. In the United Kingdom, the laws regarding financial dealings are very favourable to the rich and their manipulations. It is no wonder, in the recent past, that several Indian fraudsters have thus fled to London to escape the Indian law. A large number of rich Indians have bought property in the U.K. Thousands of foreigners buy or rent property in the U.K. because no questions are asked about the sources of funds; this has enriched the U.K. by \$100 billion.

India's investigations

Many Indians have become non-resident Indians or have made some relative into an NRI who can operate shell companies and trusts outside the purview of Indian tax authorities. That is why prosecution has been difficult in the earlier cases of data leakage from tax havens. The Supreme Court of India-monitored Special Investigation Team (SIT) set up in 2014 has not been able to make a dent. The Government's focus on the unorganised sector as the source of black income generation is also misplaced since data indicate that it is the organised sector that has been the real culprit and also spirits out a part of its black incomes. An interesting recent development (October 8) has been the agreement among almost 140 countries to levy a 15% minimum tax rate on corporates. Though it is a long shot, this may dent the international financial architecture. Other steps needed to tackle the curse of illicit financial flows are ending banking secrecy and a Tobin tax on transactions; neither of which the OECD countries are likely to agree to.

THE MANY QUESTIONS ARISING FROM QES DATA

The Labour Bureau released the results of the All-India Quarterly Establishment-based Employment Survey (QES) for the first quarter (FQ) of 2021 (April to June). The survey covers establishments employing 10 or more workers in the organised segment in nine sectors (manufacturing, construction, trade, transport, education, health, accommodation and restaurants, IT/BPO, and financial service activities). These sectors account for 85% of the total employment in establishments employing 10 or more workers as per the Sixth Economic Census (EC), which serves as the basis of the QES survey. The data for QES were collected either telephonically or through visits. The report cautions that "verification of records has not been resorted to for collection of data". This could have significant implications for the statistics generated from the survey. While the QES provides a demand side picture, the National Sample Survey or Periodic Labour Force Survey (PLFS) gives the supply side picture of the labour market. The stated objective of the QES is to enable the government to frame a "sound national policy on employment". India ratified the International Labour Organization's Employment Policy Convention, 1964, which requires the ratifying countries to implement "an active policy designed to promote full, productive and freely chosen employment." India does not have one till now. The PLFSs have not presented an encouraging picture of the labour market. The CMIE has been projecting a distressed labour market scenario, especially during the pandemic. Notwithstanding criticisms, the CMIE database has dominated the analyses and understanding of the labour market. This could be quite irksome to any ruling party. Thus, the government needed an 'official' database that projects a rosy picture of the economy and the labour market (remember the controversy over the release of the PLFS results in 2019, which showed the highest-ever



unemployment rate of 6.1%). The government has also been using the payroll data periodically to show formal employment generation and/or recovery in employment during the pandemic. It is not surprising that the QES has reported a simple growth rate of 29% in employment in FQ2021 over 2013-14 (Sixth EC).

Data that raise eyebrows

However, strangely, the QES provides very broad employment figures — “3 crores and 8 lakhs approximately” in FQ-2021 against a total of 2 crores and 37 lakhs in these sectors taken collectively [in 2013-14]”. By any reckoning, these are impressive statistics. But let us put these figures in perspective. Between the Fifth EC (2005) and the Sixth EC (2013), employment grew by a simple growth rate of 38.13%. And between the Fourth EC (1998) and Fifth EC (2005), it grew by 21.13%. The compound annual growth rate (CAGR) — a far more reliable indicator of growth rates spanning several years — between the two is 4.12%. The approximate CAGR between the 6th EC and FQ2021 is 3.33%. The remarkable simple growth rate reported above compares a normal period to a pandemic-ravaged period. The overall growth rate is incongruent with macro-economic factors and other labour market portrayals. The CMIE data revealed a rather discouraging picture in April as the salaried class shed an estimated 3.4 million jobs from the level in March 2021 and the urban unemployment rate was as high as 9.78%. Further, normal economic indicators like income growth rates, capacity utilisation, business confidence, aggregate demand measured by the Purchasing Managers’ Index and the Reserve Bank of India’s growth rates of high-frequency indicators during the pandemic did not show encouraging trends even though they were fluctuating. The provisional estimates of annual national income for 2020-21 showed contraction in manufacturing (-7.2%), construction (-8.6%) and trade (-18.2%), which are some of the sectors covered in QES. The real national income growth rates, though controversial for upward revisions, declined 2017-18 onwards — the annual average growth rate in 2013-14 to 2020-21 was 4.95%. Are we talking of employment growth despite economic slowdown – from jobless growth to job-loss growth to growthless job growth? Various surveys and reports, including those by the Central government, showed that the smaller establishments suffered much more than the bigger industries. This was surely more so during the more extensive lockdown period, April-June 2020, when they faced challenges concerning debt repayment, wage/salaries and statutory dues. They are also least likely to have permanent workers on their payroll. Given that nearly 75% of the estimated establishments employed less than 40 workers, as reported in the QES, one wonders about the credibility of two statistics reported in the report. One, that 87.5% of the estimated workers were regular workers and just about 2.1% (12.5% in construction) were casual workers. Two, even though excluding health and financial services, around 24-35% of the establishments were operational from March 25 to June 30, 2020, 66-86% of estimated employees received full wages including in the construction, trade and hospitality industries. We should treat these statistics as claims by employers rather than reliable data. The report throws up another perplexing statistic. It says contract workers accounted for 0.7% (IT/BPOs), 10.4% (manufacturing) and 17.6% (construction) and overall a measly 7.8%. According to the Annual Survey of Industries for 2017-18, 36.37% of the total workers are employed in the organised factory sector. However, the reported contra-statistics in QES are plausible because given the low employment demand, cost-minimising manufacturers would be more likely to engage permanent and possibly unionised and high-skilled workers while the flexible category workers will have to queue up for employment till better times come. On the flip



side, the report concedes a decline in the share of female workers from 31% in the Sixth EC to 29% in FQ2021. Like the Sixth EC, it could have collected data on social aspects like caste and religion as the pandemic would have had differential impacts on social statuses of workers. The data on the formalisation of establishments as revealed by registration under the laws must take care of two aspects. One, there could be overlaps between the registrations (say, factories or shops registering under more than one law). Two, since this is an employment survey, it is relevant to consider labour laws under which the establishment can be registered like the Factories Act, Shops Act or the Building and Other Construction Workers Act and employ workers rather than including tax laws as QES does.

A starting point

We need to wait for unit level data to generate data at the disaggregated levels and create cross-tabulations to understand the labour market dynamics much better than the ratios released in this report. At any rate, the F12021 QES must be considered as a starting point of the new data set rather than as a continuum of the Sixth EC as the Seventh EC would enable sensible comparisons. Finally, it is baffling why the Labour Bureau has initiated five segmented employment surveys when it could have put in place a high-frequency labour market information base like most advanced economies.

DOT, TRAI WORKING ON OPTIMAL USE OF SPECTRUM

The Telecom Ministry is engaged in discussions with regulator TRAI to work out ways for optimum utilisation of “finite resource” spectrum, especially for airwave bands sought for both 5G services as well as satellite communication, a senior official said on Monday. “The demand for satellite-based and terrestrial telecom services have put unprecedented demands on radio spectrum, in particular the C band and the Ka band frequencies are needed for both space-based as well as terrestrial telecommunications services,” Telecom Secretary K. Rajaraman said. Speaking at an event organised by newly-formed industry body Indian Space Association, the Secretary added that since spectrum is a finite resource, its value can be augmented through sharing and with coexistence by different services. “Thus, it is necessary to ensure efficient use of spectrum... including revisiting the uses in the existing frequency bands as well as in the new frequency bands. We are engaged in this exercise in consultation with TRAI.”

‘Investments needed’

Speaking at the same session, TRAI Chairman P.D. Vaghela added that there was an ‘urgent need’ for policies that attracted investments, allowed use of space technology for the common man and ensured flexibility and ease of doing business. Mr. Vaghela added that the regulator was in the process of releasing a consultation paper for licensing framework for satellite earth station gateways — an area that requires “complete transformation” to facilitate establishment of earth stations by any satellite operators. Further, TRAI is working on bringing out a consultation paper for developing a comprehensive single window online portal, having interdepartmental linkages for transfer of application and information for parallel processing. The Telecom Secretary added that the recommendations from TRAI on the licensing framework for satellite space connectivity for low bit-rate applications are currently under consideration by the DoT. “We hope to take a decision very soon. This is likely to open up a large potential for IoT and machine to machine-



based applications," he said. Speaking at an earlier session Telecom and IT Minister Ashwini Vaishnaw said that the government is fully committed to reforms and ensuring healthy competition in the sector and asked the industry to study the global best practices and come up with suggestions to contribute in formulation of enabling policy. The Centre wanted "to reform this sector and provide a level-playing-field to everybody. We want... healthy competition in this sector. Please come up with recommendations which will help us formulate policy in that direction," the Minister said.

FOXCONN, NOKIA, 29 OTHERS GET DOT NOD FOR TELECOM PLI

The Department of Telecommunications (DoT) on Thursday approved production-linked incentive (PLI) scheme proposals of 31 companies including global conglomerates such as Foxconn, Jabil, Nokia, Rising Star and Commscope for production of telecom and networking products in India. Domestic micro, small and medium enterprise (MSME) companies such as Coral Telecom, STL, Lekha Wireless Solutions, Systrome, Synegra's plan for the telecom equipment manufacturing PLI were approved, while the plans submitted by Dixon, Tejas Networks, VVDN Technologies, among others, were given the go ahead in non-MSME sector. The government expects an investment of Rs 3,345 crore in the PLI scheme over the next 4-5 years, with incremental sales of up to Rs 1.82 lakh crore during this period, which are likely to create 42,000 job opportunities, an official release by the DoT said. Earlier this year in February, the Union Cabinet had approved a Rs 12,195-crore PLI scheme for domestic manufacturing of telecom and networking products such as switches, routers, radio access network, wireless equipment and other internet of things (IoT) access devices. Eligible MSMEs will get an incentive of 7 per cent for the first and the second year, followed by an incentive of 6, 5, and 4 per cent in the third, fourth and fifth year, respectively. Other companies, which do not fall under the MSME category but are eligible, will receive an incentive of 6 per cent for the first two years, 5 per cent for the next two years and 4 per cent in the fifth and final year. The minimum investment threshold for MSMEs has been kept at Rs 10 crore, while for other companies it has been kept at Rs 100 crore. The scheme, which will be operational from April 1, will run over the next five years with a total outlay of Rs 12,195 crore for providing these incentives. Like the other PLI schemes, the incentives for companies in the telecom and networking equipment manufacturing space would be on achievement of a minimum threshold of cumulative incremental investment and incremental sales of manufactured goods net of taxes. In April last year, the Central government had for the first time notified the PLI scheme for mobile phones and allied component manufacturing. As part of the scheme, companies that set up new mobile and specified equipment manufacturing units or expanded their present units would get incentives of 4 to 6 per cent, with the total outlay for the scheme amounting to Rs 41,000 crore. In November, the PLI scheme was expanded to include 12 more sectors such as automobile and automobile components, pharmaceutical drugs, textile products, food products, high efficiency solar photovoltaic modules, white goods such as air conditioners and LED bulbs, and speciality steel products. Finance Minister Nirmala Sitharaman had said in the Budget for 2021-22 that the total outlay for PLI schemes in these 13 sectors over the next five years would be Rs 1.97 lakh crore.



WHAT IS AKASA, LOW-COST CARRIER BACKED BY INVESTOR RAKESH JHUNJHUNWALA?

Stock market investor Rakesh Jhunjhunwala-backed aviation venture SNV Aviation, which is planning an airline under the Akasa brand, has received a no-objection certificate from the Ministry of Civil Aviation. The airline, which is planning to operate as a low-cost carrier or an ultra low-cost carrier, expects to launch services by the summer of next year.

What is Akasa?

The airline is being launched by Jhunjhunwala, who will hold a 40 per cent stake in the company. Jhunjhunwala has onboarded aviation industry veterans such as former Jet Airways CEO Vinay Dube and ex-IndiGo president Aditya Ghosh to run the airline. While Dube is the CEO of the company, Ghosh is expected to be on the board as Jhunjhunwala's nominee. The Mumbai-based investor will pump in \$35 million and is planning to have a fleet of 70 planes over the next four years. "Akasa Air will serve all Indians regardless of their socio-economic or cultural backgrounds..." Dube said in a statement. The airline said it plans to offer flights across India starting in the summer of 2022.

How is India's airline space shaped?

Currently, InterGlobe Aviation Ltd-run budget airline IndiGo is India's largest airline with over half the market share in the domestic passenger market followed by Air India, SpiceJet, GoAir, Vistara and AirAsia India. GoAir, which has filed papers for its initial public offering, recently rebranded itself to GoFirst and plans to revamp its business model to become a ULCC.

PUBLIC-PRIVATE PARTNERSHIP BREACHES SPACE FRONTIER

Prime Minister Narendra Modi on Monday launched the Indian Space Association (ISpA), an industry body consisting of various stakeholders of the Indian space domain. The members of the organisation include government bodies such as Indian Space Research Organisation (ISRO) and private telecom companies such as Bharti Airtel's One Web, Tata Group's Nelcom, L&T, MapMyIndia, and others.

Why is the formation of ISpA significant?

Ever since the race to reach the space and then land on the Moon began between the US and the erstwhile USSR, governments across the world have poured millions of dollars to push the envelope in term of exploring the edges of the space. With time, governments and government agencies collaborated to explore newer planets and galaxies in search of life forms that exist outside Earth. In the recent past, private sector companies such as Elon Musk's SpaceX, Richard Branson's Virgin Galactic, and Jeff Bezos' Blue Origin have taken the lead in spaceflight, promising to start tourist flights to space. Though India too has made significant strides in space exploration over time, state-run ISRO has been at the centre and front of this progress. Several private sector companies, however, have shown an interest in India's space domain, with space-based communication networks coming to the fore.

What does ISpA aim to achieve?



One of the main goals of the organisation is to supplement the government's efforts towards making India a global leader in commercial space-based excursions. Of late, ISRO's rockets have been carrying the payload and communication satellites of various countries; now, private players will also look to broach this space with the new organisation. ISpA said it would engage with stakeholders across the ecosystem for the formulation of an enabling policy framework which fulfils the government vision of leading commercial space exploration. "ISpA will also work towards building global linkages for the Indian space industry to bring in critical technology and investments into the country to create more high skill jobs," the organisation said.

Who are the stakeholders in this organisation? How will they contribute?

ISpA will be represented by leading domestic and global corporations that have advanced capabilities in space and satellite technologies. The founding members include telecom service providers such as Bharti Airtel, engineering firm Larson & Toubro, and other companies such as Nelco of Tata Group, OneWeb, Mapmyindia, Walchandnagar Industries and Alpha Design Technologies. Other core members include Godrej, Hughes India, Ananth Technology Limited, Azista-BST Aerospace Private Limited, BEL, Centum Electronics, and Maxar India. In India, the space-based communications network has taken off with several Indian and international companies betting on it as the next frontier to provide high-speed and affordable Internet connectivity to inaccessible areas as well. This includes SpaceX's StarLink, Sunil Bharti Mittal's OneWeb, Amazon's Project Kuiper, US satellite maker Hughes Communications, etc. OneWeb, for example, is building its initial constellation of 648 low-earth orbit satellites and has already put 322 satellites into orbit. Its services are expected to begin this year to the Arctic region including Alaska, Canada, and the UK. By late 2022, OneWeb will offer its high-speed, low latency connectivity services in India and the rest of the world. In addition, StarLink and Amazon are also in discussion with the Indian government for a licence to offer satellite-based Internet services. SpaceX has a plan to create a network of 12,000 satellites of which over 1,300 are already sky-borne.

Why is satellite-based Internet important in India?

The expansion of the Internet in India is crucial to the Modi government's dream of a digital India where a majority of government services are delivered directly to the customer. Although the government aims to connect all villages and gram panchayats with high-speed Internet over the next 1000 days through BharatNet, internet connectivity in hilly areas and far-flung places of Northeast India are still a challenge. To overcome this, industry experts suggest that satellite Internet will be essential for broadband inclusion in remote areas and sparsely populated locations where terrestrial networks have not reached. As of now, however, satellite communications remains limited to use by corporates and institutions that use it for emergency use, critical trans-continental communications and for connecting to remote areas with no connectivity. As of August this year, India had only 3 lakh satellite communications customers, compared with 45 lakh in the US and 21 lakh in the European Union.

INDUSTRY SEEKS CLARITY ON SPACE POLICY

Industrialists told Prime Minister Narendra Modi on Monday that for the space industry to grow, the government should help small and medium sector enterprises (SME) access more capital as

3RD FLOOR AND 4TH FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



well as move faster on finalising its space policy. The industry leaders were speaking at the inauguration of the Indian Space Association, an organisation meant to represent the interests of the space sector with government and private sector bodies across the board, including the Indian Space Research Organisation, Walchandnagar Industries, TATA Nelco, Pixxel, Mapmy India and Bharti Airtel. In his address, Prime Minister Narendra Modi said his government was “the most decisive one in history” and that in sectors where the government “wasn’t needed” the private sector ought to be stepping in. He cited the example of the recent decision of the government giving up its stake in Air India to a Tata group company. The government’s approach to space reforms, Mr. Modi said, is based on four pillars. First is the freedom of innovation to the private sector. Second, the role of the government as an enabler. Third, preparing youth for the future. And fourth, to see the space sector as a resource for the progress of the common man. This translated to better mapping, imaging and connectivity facilities for the common people. Also, the space sector implied better speed from shipment to delivery for entrepreneurs, this also means better security and income for fishermen and better forecast of the natural calamity, he added. Chirag Doshi, Managing Director and CEO, Walchandnagar Industries, said deeper engagement with academia, industry and government for research and development in space sector was needed and that “opportunity” for SMEs to work closer with Finance Ministry to get better financing was the need of the hour. P.J. Nath, MD& CEO, of NELCO, a Tata group company, said the Centre should move to quickly finalise the new space policy as it would help with planning for investments. “Some policies don't help fully realise potential, for example, the maritime policy doesn't allow (private sector) to supply services to fisheries,” Mr Nath said. He also requested flexibility for satellite frequency users to use any frequency range and to be able to freely buy technology from abroad. Rohan Verma, CEO, MapmyIndia urged the Prime Minister to help install his company's mapping software in every phone as it would mean the promotion of an “indigenous innovation”. Ahead of major launches next year, India has announced its intent to liberalise the space sector and have more private companies use the facilities of the ISRO for developing as well as launching satellites. While there have been drafts of a new space policy, these are yet to take shape.

CONNECTING MINISTRIES FOR INFRASTRUCTURE PROJECTS

Prime Minister Narendra Modi on Wednesday launched the “PM GatiShakti — National Master Plan” for infrastructure development aimed at boosting multimodal connectivity and driving down logistics costs.

What is the project?

PM GatiShakti is a digital platform that connects 16 ministries — including Roads and Highways, Railways, Shipping, Petroleum and Gas, Power, Telecom, Shipping, and Aviation — with a view to ensuring holistic planning and execution of infrastructure projects. The portal will offer 200 layers of geospatial data, including on existing infrastructure such as roads, highways, railways, and toll plazas, as well as geographic information about forests, rivers and district boundaries to aid in planning and obtaining clearances. The portal will also allow various government departments to track, in real time and at one centralised place, the progress of various projects, especially those with multi-sectoral and multi-regional impact. The objective is to ensure that “each and every department now have visibility of each other’s activities providing critical data while planning and



execution of projects in a comprehensive manner. Through this, different departments will be able to prioritise their projects through cross-sectoral interactions". The Prime Minister, while launching the project, said examples of poor infrastructure planning included newly-built roads being dug up by the water department to lay pipes. The GatiShakti platform aims to prevent such situations by addressing the issue of government departments working in silos. The government expects the platform to enable various government departments to synchronise their efforts into a multi-modal network. It will also offer satellite imagery for monitoring of projects. It is also expected to help state governments give commitments to investors regarding timeframes for the creation of infrastructure.

How will the platform help bring down logistics costs?

Studies estimate that logistics costs in India are about 13-14% of GDP as against about 7-8% of GDP in developed economies. High logistics costs impact cost structures within the economy, and also make it more expensive for exporters to ship merchandise to buyers. By incorporating infrastructure schemes under various ministries and state governments, including the Bharatmala and inland waterways schemes, and economic zones such as textile and pharmaceutical clusters and electronics parks, the GatiShakti platform aims to boosting last-mile connectivity and bringing down logistics costs with integrated planning and reducing implementation overlaps. Currently, a number of economic zones and industrial parks are not able to reach their full productive potential due to inefficient multi-modal connectivity.

How will progress under the National Master Plan be monitored?

The National Master Plan has set targets for all infrastructure ministries. India is targeting an increase in the total cargo handled at Indian ports to 1,759 million tonnes per annum (MTPA) by 2024-25, up from 1,282 MTPA in 2020 — as well as increasing cargo movement on national waterways to 95 million tonnes from about 74 million tonnes in the same period. The PM said the government was aiming at adding over 200 airports, helipads, and water aerodromes over the next 4-5 years beside nearly doubling the existing natural gas pipeline network, which is about 19,000 km. A project monitoring group under the Department for Promotion of Industry and Internal Trade (DPIIT) will monitor the progress of key projects in real time, and report any inter-ministerial issues to an empowered group of ministers, who will then aim to resolve these.

Are states on board for the GatiShakti portal?

Commerce Minister Piyush Goyal said the central government had received enquiries from almost all BJP- and NDA-ruled states about the GatiShakti portal. Goyal said the portal would help states avoid both cost and time overruns, and allow them to provide the benefit of valuable infrastructure to their residents sooner.

How will this impact coordination between ministries for projects?

Currently, any inter-ministerial issues that arise relating to a project are addressed in regular meetings of infrastructure-related ministries. These issues are raised in advance, and then taken up. Goyal said that through the PM PRAGATI (Pro-Active Governance And Timely Implementation) portal, many issues were resolved even prior to such meetings. He said the GatiShakti portal would help reduce the human intervention required as ministries will be in



constant touch, and projects will be reviewed by the project monitoring group in real time. Citing the example of a tunnel, Goyal said that ordinarily, we may see one tunnel being made for roads and another for railways; however such a platform would allow the ministries to coordinate, and create one large tunnel which may serve both purposes, saving the taxpayer thousands of crores. T P Singh, director of the Bhaskaracharya Institute for Space Applications and Geoinformatics (BISAG-N), which has built the portal, cited the example of a project to build a railway line, for which the path was changed slightly following a review of the data available on the portal — obviating the need for a forest clearance that may have been required otherwise. The portal will also highlight all the clearances any new project would need, based on its location — and allow stakeholders to apply for these clearances from the relevant authority directly on the portal. Goyal said if a railway line is being built, the Ministry of Road Transport may immediately give clearance for an overpass, and the Power Ministry can begin projects to ensure that trains can immediately have access to power on completion of the tracks.

A HOMECOMING

Air India, the airline started by J.R.D. Tata in the 1930s, is all set to return to the Tata fold after a 68-year-long journey as India's state-owned flag carrier. The Centre's announcement on Friday that Tata Sons' subsidiary Talace Pvt. Ltd. was the winning bidder for the 100% stake in the debt-laden airline rings the curtain on the government's multi-year effort to privatise the loss-making carrier. Talace emerged winner in the two-horse race by bidding to take over ₹15,300 crore of Air India's more than ₹60,000 crore of accumulated debt and offering an additional ₹2,700 crore in cash for the Government's equity stake. For the Tatas, who have retained an abiding interest in the country's airline industry and currently majority own both a budget carrier, AirAsia India, and a full-service airline, Vistara, the Air India acquisition brings opportunities to gain scale and synergies at a significant level. With Air India and its low-cost unit, Air India Express, together serving 55 overseas destinations, holding over 3,000 landing and parking slots, operating a 141-aircraft fleet of wide-body long-haul jets and narrow body planes for shorter flights, and the parent holding membership of the 26-airline Star Alliance, the Tatas in one stroke add unparalleled global reach among Indian carriers. Air India's 13.2% consolidated market share of domestic traffic as of August also gives the group a more competitive combined share of almost 27%, albeit still a substantial 30 percentage points adrift of market leader IndiGo. The Centre, for its part, can finally heave a sigh of relief at having successfully exited the commercial aviation space, a high-cost industry that most governments around the world have left in the hands of private carriers so as to ensure taxpayers' money is deployed more meaningfully in social and strategic sectors. After having ploughed in more than ₹1-lakh crore of capital in the past decade alone and seeing Air India suffer a daily loss of over ₹20 crore, the Government's desperation to cut its losses and close out a fire sale is understandable. The pandemic's impact on public finances and the carrier's operations, especially given the devastating impact on air travel both domestic and international, is sure to have helped spur the Government's decision to agree to not only absorb 75% of the carrier's debt, but to also pick up the tab on medical benefits for former employees. And in a bid to protect the interests of the more than 13,000 permanent and contractual staff at the airline and its unit, the government has bound Talace to ensuring there should be no job cuts for at least one year. Still, integrating the state-run carrier's sizeable workforce is going to be one among the many serious challenges, awaiting the Tatas. To turn



around Air India at a time of soaring fuel costs and COVID-hit air travel, is sure to test the conglomerate's managerial mettle.

CUSTOMS DUTY WAIVER ON EDIBLE OIL IMPORTS; WILL IT HELP CONTROL PRICES?

Commerce Minister Piyush Goyal announced that the government has decided to waive customs duty on import of crude sunflower, palm and soyabean oil, a move aimed at controlling their prices.

Consumption & imports

Of the 20-21 million tonnes of edible oil that India consumes annually, around 14-15 mt is imported. India is second only to China (34-35 mt) in terms of consumption of edible oil. Palm oil (45%) is the largest consumed oil, mainly used by the food industry for frying namkeen, mithai, etc, followed by soyabean oil (20%) and mustard oil (10%), with the rest accounted for by sunflower oil, cottonseed oil, groundnut oil etc. Crude and food-grade refined oil is imported in large vessels, mainly from Malaysia, Brazil, Argentina, Indonesia etc. Given the heavy dependency on imports, the Indian edible oil market is influenced by the international markets. Home-grown oilseeds such as soyabean, groundnut, mustard, cottonseed etc find their way to domestic solvent and expellers plants, where both the oil and the protein-rich component is extracted. The latter is an exportable commodity.

Prices and politics

Prices of edible oil have been rising across the country in the last few months. Data collated by the Price Monitoring Cell (PMC) of the Ministry of Food and Consumer Affairs show that most edible oils are trading between Rs 130-Rs 190/litre. Given the fact that elections are scheduled in Uttar Pradesh, Punjab, Himachal Pradesh, Goa and Uttarakhand early next year, high prices of edible oils are the last thing any government would like to face the electorate with. Also, the festive season will see increased buying of edible oils. The government has not only abolished the basic customs duty on crude palm, soyabean and sunflower oil, but also slashed the agri cess levied on these until March 31, 2022. This comes days after the Centre authorised the states to impose a stock limit on oilseeds and oil to control prices. The government has been slashing duty rates on both crude and refined oils since February. This will be the fifth such intervention to control prices.

Impact on prices

Industry sources say consumers might not see a drastic reduction immediately in prices of edible oil. Atul Chaturvedi, president of Solvent Extractors Association of India, said in a statement that the total benefit of duty reduction may not fully accrue to the consumer. "The impact of the duty reduction on Crude Palm oil is about Rs 14,000/- while on crude soyabean oil and crude sunflower seed oil is about Rs 20,000/- per tonne. In fact, today after the announcement the duty reduction, the Malaysian Market has gone up by about RM 150 to 170 per tonne. Also, the rumours in the market in the last few days have already discounted the domestic price to some extent. The refined oil may further reduce by Rs. 6 to 8 per kg," his statement read. B V Mehta, executive director of the Association, said international prices are high and show no immediate sign of cooling down. Be it the production of palm in Indonesia and Malaysia, or soyabean in Argentina/Brazil, or



sunflower in Ukraine, chances of immediate improvement of supplies are slim. “Market sources talk about improvement in supplies post December-January when prices would cool down significantly,” he said.

Impact on farmers

With harvesting already underway or set to start post-Dussehra, mandi prices of all major oilseeds are going to be affected adversely. Thus, the average traded prices of soyabean in Latur’s wholesale market in Maharashtra dipped by Rs 300/quintal on Thursday. The oilseed had traded around Rs 5,600/quintal on Wednesday but after the announcement, the price dipped to Rs 5,300/quintal. The average trade prices of groundnut in Gujarat, too, has dipped. Heavy rainfall in September has already caused crop loss to farmers in Maharashtra. Groundnut growers in Gujarat suffered from moisture stress prior to August and reported a loss in yield. The reduction in duty is expected to affect the earnings of oilseed growers across the country. Soyabean growers, in fact, have complained of a double whammy as the Centre had earlier allowed import of genetically modified soyameal cake to help the poultry industry. After that decision was taken, soyabean prices across the country dropped by more than Rs 4,000-5,000/quintal. Farmers fear the present decision will hit their earnings further.

Long-term implications

Over the last few years, the government has taken a series of steps to remove India’s import dependency on pulses, and tried to do the same for oilseeds through national missions. However, frequent market interventions that ultimately bring down prices, the industry said, would backfire on the government and veer farmers away from growing oilseeds. “We need continuity in prices to help farmers stick to oilseeds or pulses. Otherwise domestic production is not going to pick up,” said a trader from Latur.

DreamIAS



LIFE & SCIENCE

CAPTAIN KIRK FLIES AGAIN

Commercial space race doesn't hold a candle to world promised by 'Star Trek'

In the few minutes that William Shatner left the planet, he didn't "discover new life and new civilisations" nor did he "boldly go where no one has gone before". But the 90-year-old Canadian actor, best known for playing Captain James Tiberius Kirk in the original Star Trek series and then reprising the role in multiple shows and movies over the decades, was visibly overjoyed after his 11-minute trip on New Shepard, the rocket run by Jeff Bezos's Blue Origin. Shatner's character has been a staple of science fiction, inspiring generations of people — including, reportedly, a young Bezos — to take an interest in science, engineering and astrophysics. And despite the glaring differences between the fictional USS Enterprise and New Shepard, the unmitigated joy that Shatner expressed is probably the best advertisement for the Amazon founder's commercial space venture: "What you have given me," Shatner reportedly told Bezos after the flight, "is the most profound experience possible". Shatner is the oldest person to have travelled beyond the earth's atmosphere. In the future that Star Trek envisioned, the boundaries between nation-states had dissolved, there was no poverty, all people were treated with respect and space exploration was not a business venture. The current competition for cornering the commercial space flight market and the space programme is far less exhilarating. It seems to be dominated — and diminished — by the cynical concerns of profit and the strategic interests of great powers. The high hopes put in place by yesteryear's futurists have been left by the wayside, in ways big and small. The way Jeff Bezos is seen interrupting nonagenarian Shatner as he talked of his once-in-a-lifetime experience is not incidental. No, the space race today certainly isn't Star Trek. And yet, not even the best fiction can match the moment of enchantment that New Shepard brought to Shatner.

LUNAR SAMPLES BROUGHT BY CHINESE MISSION STUDIED

Samples dated to later volcanic lava

Remnants of solidified lava brought back by a Chinese lunar mission were 1 billion years younger than material acquired by other missions decades ago, according to an article in Science, suggesting the moon cooled down later than thought. Samples brought back by U.S. and Soviet missions were more than 2.9 billion years old. The samples acquired on China's Chang'e-5 mission late last year were around 1.96 billion years old suggesting volcanic activity persisted longer than believed. Last December, the uncrewed Chinese probe touched down on a previously unvisited part of a massive lava plain, the Oceanus Procellarum or "Oceans of Storms," bringing back lunar samples. One of the main objectives of Chang'e-5, was to find out how long the moon remained volcanically active. "The Oceanus Procellarum region of the Moon is characterised by high concentrations of potassium, thorium, and uranium, elements that generate heat through long-lived radioactive decay and may have sustained prolonged magmatic activity on the nearside of the Moon," wrote the article's authors.

Tidal heating?



The article said the heat source for the magmatic activity might also be the so-called “tidal heating,” or heat generated by the gravitational tug and pull of the Earth. The Chang'e-5 mission made China the third country to have retrieved lunar samples, after the United States and the Soviet Union, which launched the last successful mission to acquire material from the moon.

MERGERS OF BLACK HOLES AND ‘KICKS’ THAT HOLD A KEY TO PUZZLES

The fact of black holes having masses over 100 times the solar mass has puzzled the community

Scientists from Chennai Mathematical Institute, with their collaborators, have analysed data from the LIGO-VIRGO observatories and estimated the fraction of the binary black hole mergers detected so far that show potential to form intermediate mass black holes. This throws light on the puzzle of how intermediate mass black holes form. Black holes form when a massive star undergoes a supernova explosion towards the end of its lifetime. The black hole forms from the remnants of the explosion. However, there are factors that place limits on the mass of a black hole so formed. According to physicist K.G. Arun of Chennai Mathematical Institute, black holes with masses between approximately 45-135 times the solar mass are unlikely to be produced by standard stellar evolution as the pair-instability process either limits the max mass of the black hole or completely disrupts the star during the supernova explosion. What puzzles astronomers and cosmologists is that gravitational wave detectors have seen several such “intermediate mass black holes”. The two detectors of the Laser Interferometer Gravitational Wave Observatory (LIGO) made the first observation of a pair of binary black holes on September 19, 2014. Since then with other gravitational wave observatories about 40 mergers have been detected, of which nearly five have masses above 100 times solar mass. One of the theories of intermediate mass black hole formation has to do with ‘hierarchical growth’. That is, if the black holes exist among a dense cluster of stars, the remnant (black hole) of a merger can pair up with another black hole close by to form a binary. This can eventually merge to form a second remnant which is more massive. This process, happening in a hierarchical manner, can explain intermediate mass black hole formation.

Kicks in mergers

During the mergers, gravitational waves take away energy and linear momentum, as a reaction, the remnant black hole acquires an opposite momentum. This is the “kick” it receives. These kicks can be quite large, giving it a velocity of up to 1000 kilometres per second. If this kick velocity is above the escape velocity of the star cluster in which the black hole is formed, it literally escapes from the environment and moves out. This prevents it from undergoing further hierarchical mergers. The extent of the kick received by the remnant can be calculated from the masses of the merging black holes and their spin. “As GW observations give an estimate of these, we can calculate the kick imparted to every remnant black hole in the population of binary black holes reported by LIGO/Virgo till date,” says Parthapratim Mahapatra, Ph. D. student, Chennai Mathematical Institute, who is the first author of a paper on this work published in The Astrophysical Journal Letters. The kick estimates help understand which mergers have the possibility of undergoing further hierarchical mergers and forming into intermediate mass black holes. There have been recent studies using astrophysical models to understand whether the



components of some of the binaries are formed hierarchically. “This is a complementary approach as we are interested in the prospects of the remnants participating in further mergers and not whether the observed binaries contain one or more of the black holes which are hierarchically formed,” says Prof. Arun, in whose lab the work was done, in an email to The Hindu. Using the state-of-the-art understanding of the escape speeds of star clusters and using the kick magnitudes they have inferred for different observed events, the group has calculated what fraction of the remnants may remain in-cluster (provided they originally merged in the cluster). “We find that as many as 17 out of 40 remnants may be retained by the nuclear star clusters,” says Prof. Arun.

DARING DRAGONFLIES

How far can globe skimmer dragonflies fly?

In 2009, it was hypothesised that globe skimmer dragonflies (*Pantala flavescens*) can migrate thousands of kilometres across the Indian Ocean, from India via the Maldives to Africa, and back again. Now, an international research team led by Lund University in Sweden used models and simulations to verify this. Marine biologist Charles Anderson observed globe skimmer dragonflies in Maldives, which had flown in from, he assumed, India. When they flew off again, it was towards East Africa. Since the dragonflies are too small to be fitted with transmitters, the researchers examined physiological aspects and calculated how long a globe skimmer dragonfly could stay airborne using the energy that can be stored in its body. In addition, the researchers used meteorological wind models to determine if there are winds that can facilitate the migration. The found that it was indeed possible for the dragonflies to migrate from India to East Africa and return to India. The globe skimmer dragonfly does not rely on fat stored in its body to fly such long distances. Instead, it takes advantage of favourable winds present during certain periods of the year. According to the simulated migration experiments using wind models, about 15% of the dragonflies could manage the migration from India to Africa in the spring. In the autumn, 40% could make the same journey in the opposite direction.

WHY LEGO'S DECISION TO REMOVE GENDER BIAS FROM CHILDREN'S TOYS IS SIGNIFICANT

Toy manufacturer Lego has announced that it will work to remove gender bias from its products and ensure that children's creative ambitions are not limited by stereotypes. The announcement from Lego came after a survey found how gender biases were being reinforced through the creative play of children. Following the study, the Danish toy manufacturer stated that it was committed to making its products more inclusive. The announcement assumes significance because Lego has been in the past accused of promoting stereotypical depictions of femininity through its line of products.

What are the key findings of the survey?

The research, which was commissioned by the Lego Group and carried out by the Geena Davis Institute, surveyed nearly 7,000 parents and children aged 6-14 years old in China, Czech Republic, Japan, Poland, Russia, UK and USA. One of the key findings of the study was that “girls are ready for the world but society isn't quite ready to support their growth through play”. The



findings of the survey, as revealed by Lego, states: “Girls feel less restrained by and are less supportive of typical gender biases than boys when it comes to creative play (74% of boys vs. 62% of girls believe that some activities are just meant for girls, while others are meant for boys), and they are more open towards different types of creative play compared to what their parents and society typically encourage. For example, 82% of girls believe it’s OK for girls to play football and boys to practice ballet, compared to only 71% of boys. However, despite the progress made in girls brushing off prejudice at an early age, general attitudes surrounding play and creative careers remain unequal and restrictive...” It further adds that parents who answered the survey imagined a man for most creative professions. “They are almost six times as likely to think of scientists and athletes as men than women (85% vs. 15%) and over eight times as likely to think of engineers as men than women (89% vs. 11%). The children surveyed in this research share these same impressions except girls are much more likely than boys to consider a wider range of professions to be for both women and men,” it states. The study also found that parents encouraged their sons to physical and STEM activities while daughters were offered dance and dressing up or baking. “Parents are more worried that their sons will be teased than their daughters for playing with toys associated with the other gender,” Madeline Di Nonno, the chief executive of the Geena Davis Institute on Gender in Media, told The Guardian. She added, “But it’s also that behaviours associated with men are valued more highly in society. Until societies recognise that behaviours and activities typically associated with women are as valuable or important, parents and children will be tentative to embrace them.”

Why were allegations of gender bias raised against Lego?

In 2012, Lego came up with Lego Friends, a range of products aimed at girls, which was heavily criticised for promoting gender stereotypes. Two years later, a letter written by Charlotte Benjamin, a girl who was seven years old at that time, on the lack of strong female characters in the series, went viral. “I love Legos,” she wrote, “but I don’t like that there are more lego boy people and barely any lego girls...All the girls did was sit at home, go to the beach, and shop, and they had no jobs but the boys went on adventures, worked, saved people, and had jobs, even swam with sharks.” Lego Friends had been released as a form of course correction after a survey carried out by the company had found that 90 per cent of Lego’s consumers in 2011 were boys. After Lego’s gender-neutral buckets of bricks, the company had been at that time focussed on franchised sets based on properties like Star Wars and The Avengers. During the course of their survey back then, Lego assigned a simple task to groups of boys and girls — they were asked to build a Lego castle. “The boys immediately grabbed the figures and the horses and the catapults and they started having a battle. They [the girls] all looked around inside the castle and they said, ‘Well, there’s nothing inside. This idea of interior versus exterior in the orientation of how they would then play with what they built was really interesting...We heard girls overwhelming saying we would much rather build environments than single structures. They were really just looking for a lot more detail than we were offering,” Lego spokesperson Michael McNally told The Atlantic. The company then launched Lego Friends, a new line of products designed for girls. Among the construction sets in this series were a pop star’s house, limousine, TV studio, recording studio, dressing room, and tour bus, a cupcake café, a giant treehouse, a supermarket and a hair salon. Though the products did well commercially, the backlash was powerful. Thousands of people signed a petition complaining about the gender stereotypes in the products. Lego Friends was nominated by the Campaign for a Commercial-Free Childhood, an advocacy group, for a TOADY (Toys Oppressive



And Destructive to Young Children) award. The group, in its description for Lego Friends, stated: “Introducing LEGO Friends, just for girls and so jam-packed with condescending stereotypes it would even make Barbie blush. Bye-bye square, androgynous figures; hello, curves ‘n eyelashes! And at the LEGO Friends Butterfly Beauty Shop, your little princess won’t need to worry her pretty little head about icky boy things like building.” Lego has also been accused of promoting normative and problematic gendered stereotypes about the notions of beauty. Sharon Holbrook, writing for The New York Times, stated how her seven-year-old wanted to know if she had an oval face after reading an issue of Lego Club Magazine. “She is 7,” Holbrook wrote. “My little girl, the shape of her face, and whether her haircut is flattering are none of Lego’s concern. It wasn’t even her concern until a toy magazine told her to start worrying about it.” Critics have slammed Lego Friends for using traditionally gendered colours like purple and pink for its products and promoting arbitrary physical standards such as the slender waists and disproportionately large eyes in the female minifigures.

To what extent can gender stereotyping in toys be harmful for children?

Many feminists, educators and parents have objected that Lego’s toys entered into the sexist domain of pinkification and promoted some of the worst conservative gender stereotypes. A 2017 paper by a team of researchers led by Rebecca Gutwald, who works at the Munich School of Philosophy, highlights why Lego Friends is problematic. The paper states, “The Friends’ activities included cliched female occupations...While there is nothing wrong with these activities as such, the problem with Friends is that they seem to be presented as the only options for girls in this. LEGO world and in the world in general. This becomes clear when the Friends sets are compared to the sets that are usually marketed to boys. As Charlotte observed, boys get a much wider range of characters in themes like Pirates, the Research Institute. Speed Champions, or Knights.” Drawing upon the work of feminist philosopher Mary Wollstonecraft, the researchers underlined the fact that “not all discrimination takes the form of explicit oppression”, and Lego’s products are a good example of how oppressive gender narratives can work in a far more insidious and disguised manner than always being blatantly obvious. Feminist studies have long pointed out how ideas about gender are more cultural than natural — problematic gender roles can be entrenched in children through cultural objects and nurturing activities. In her seminal work *The Second Sex*, feminist philosopher Simone de Beauvoir wrote: “One is not born, but rather becomes a woman...representation of the world, like the world itself, is the work of men; they describe it from their own point of view, which they confuse with absolute truth.” Last year, a study carried out by the Fawcett Society found that “harmful” gender stereotyping has fuelled mental health crisis among the younger generation in the UK, and it is at the root of problems with body image and eating disorders, record male suicide rates as well as violence against women and girls. The commission called on the government to take steps to challenge simplistic “pink and blue” labelling, and structure education curriculums that can question gender stereotypes.

What is Lego doing now to remove gender bias from its products?

The Geena Davis Institute, which carried out the recent survey, has been auditing Lego and advising it on ways to “address gender bias and harmful stereotypes”. The company has stated it will strive to be more “inclusive” and ensure that “children’s creative ambitions – both now in the future – are not limited by gender stereotypes”. In a statement on its website, Lego said, “We know there is work to do which is why from 2021, we will work closely with the Geena Davis Institute



on Gender in Media and UNICEF to ensure LEGO products and marketing are accessible to all and free of gender bias and harmful stereotypes.” On the occasion of the International Day of The Girl (October 11), Lego, through its ‘Ready for Girls’ campaign, called on parents and children to “champion inclusive play”. The company developed a fun 10-step guide and invited parents to share photos of their children’s Lego creations against a pre-defined AR backdrop featuring the words ‘Get the World Ready for Me’. It also made short films celebrating “inspiring and entrepreneurial girls from the United Arab Emirates, United States and Japan, each of which are already rebuilding the world through creativity”. According to the statement on its website, Julia Goldin, chief product and marketing officer, The Lego Group, said, “The benefits of creative play, such as building confidence, creativity and communication skills, are felt by all children and yet we still experience age-old stereotypes that label activities as only being suitable for one specific gender. At the Lego Group we know we have a role to play in putting this right, and this campaign is one of several initiatives we are putting in place to raise awareness of the issue and ensure we make Lego play as inclusive as possible. All children should be able to reach their true creative potential.”

TB DEATHS UP IN PANDEMIC: WHO

COVID-19 reverses global progress in tackling disease

The COVID-19 pandemic has reversed years of global progress in tackling tuberculosis and for the first time in over a decade, TB deaths have increased, according to the 2021 Global TB report released recently by the World Health Organization (WHO). Worse, India (41%) was on the list of countries that topped those which contributed most to the global reduction in TB notifications between 2019 and 2020. India, along with Indonesia (14%), the Philippines (12%), China (8%) and 12 other countries, accounted for 93% of the total global drop in notifications. The WHO estimated that some 4.1 million people currently suffer from TB but had not been diagnosed with it or had not officially reported to the national authorities. This figure is up from 2.9 million in 2019. There was also a reduction in the provision of TB preventive treatment. “Some 2.8 million people accessed this in 2020, a 21% reduction since 2019. In addition, the number of people treated for drug-resistant TB fell by 15%, from 1,77,000 in 2019 to 1,50,000 in 2020, equivalent to only about 1 in 3 of those in need,” it pointed out. In 2020, more people died of TB, with far fewer people being diagnosed and treated or provided with preventive treatment compared with 2019, and overall spending on essential TB services falling, it noted. It explained that the first challenge was disruption in access to TB services and a reduction in resources. In many countries, human, financial and other resources had been reallocated from tackling TB to COVID-19. The second was that people struggled to seek care during lockdowns. WHO director-general Tedros Adhanom Ghebreyesus observed in a release, “This report confirms our fears that the disruption of essential health services due to the pandemic could start to unravel years of progress against tuberculosis. This is an alarming news that must serve as a global wake-up call to the urgent need for investments and innovation to close the gaps in diagnosis, treatment and care for the millions of people affected by this ancient but preventable and treatable disease.” TB services are among many others disrupted by COVID-19 in 2020, but the pandemic’s impact on TB has been particularly severe. Approximately 1.5 million people died from TB in 2020 (including 2,14,000 among HIV positive people).



Huge burden

The increase in the number of TB deaths occurred mainly in the 30 countries with the highest burden of the disease. WHO modelling projections suggest that the number of people developing TB and dying from the disease could be much higher in 2021 and 2022. “Challenges with providing and accessing essential TB services have meant that many people with TB were not diagnosed in 2020. The number of people newly diagnosed with TB and those reported to national governments fell from 7.1 million in 2019 to 5.8 million in 2020,” the WHO disclosed.

WHY THREE COUNTRIES HAVE PAUSED MODERNA VACCINE

After reports showed an increase in myocarditis and pericarditis cases, Denmark, Sweden and later Finland paused use in people under 30 years

On October 6, Sweden and Denmark suspended the use of Moderna’s mRNA vaccine for younger age groups after reports pointed to an increase in the number of myocarditis and pericarditis cases. Myocarditis causes inflammation of heart muscle which can limit the organ’s ability to pump blood and can cause changes in heartbeat rhythms, while pericarditis causes inflammation of the outer lining of the heart. A day later, Finland followed suit and paused the use of the Moderna vaccine in people younger than 30 years. Both Finland Health institute and the Swedish Public Health Agency now recommend Pfizer’s mRNA vaccine for people younger than 30 years as there is greater experience with the vaccine in this age group. The Swedish Agency said its decision is valid till December 1 this year.

Slightly higher risk

“A Nordic study involving Finland, Sweden, Norway and Denmark found that men under the age of 30 who received Moderna Spikevax had a slightly higher risk than others of developing myocarditis,” Mika Salminen, director of the Finnish Institute for Health and Welfare told Reuters. The Swedish Public Health Agency said that the connection [of myocarditis and pericarditis] is “especially clear when it comes to Moderna vaccine Spikevax, especially after the second dose”. For an individual, the risk of being affected by myocarditis and pericarditis is small.

Questions on risk

Meanwhile, the U.K., Hong Kong and Norway, have recommended administering only a single dose of the Pfizer vaccine for children aged 12 years and older. On why the Moderna vaccine has a relatively increased risk of myocarditis and pericarditis after the second dose compared with Pfizer, Immunologist Dr. Satyajit Rath, formerly with the Delhi-based National Institute of Immunology says in an email that since the serious adverse events are extremely rare it is not even absolutely certain that there is really an increase in this ‘risk’ of myocarditis with the Moderna vaccine over the Pfizer vaccine. “The two vaccines have not been used in the same populations, and there may well be differences in the people who have received one versus the other which could contribute to this so-called difference in risk (rather than the vaccine),” says Dr. Rath. “Some minor difference in the chemical composition of the two vaccines may have contributed to this so-called risk; even though they are both mRNA vaccines, they are not



identical.” He also mentions the higher dosage of 100 microgram used in the Moderna vaccine compared with 30 microgram for Pfizer might be another possibility.

Just one dose

“One dose provides good protection against a severe disease course, and the protection will probably be better among adolescents at this age than for older age groups,” says Camilla Stoltenberg, Director-General of the Norwegian Institute of Public Health in a release. “We consider that the offer of one dose provides the clearest benefit for the individual adolescent when the benefit is weighed against possible disadvantages of the vaccine. The second dose will be considered when there is more knowledge from other countries that have come further in the vaccination of this age group.” Studies in Israel have shown that within six months there is a reduction in vaccine effectiveness in preventing infection after two doses of the Pfizer vaccine. Based on this data, Dr. Rath says there is no evidence to indicate how long a single dose of COVID vaccines will remain effective for. “I do not expect that duration to be dramatically different from the one in adults. But in the first place, that is simply a guess, and in the second place, we have no idea of such a duration with a single dose even in adults,” he says. Young adults, adolescents and young children rarely suffer from severe disease. However, they are likely to get infected and transmit the virus to others even while not suffering from COVID-19 disease. Vaccination of adolescents and young children can help in breaking the transmission chain. But should young adults, adolescents and young children, who are not at great risk of severe risk, be given two doses of even the Pfizer vaccine that has an extremely small risk of causing inflammation of the heart for the sake of breaking the transmission chain? “The greatest transmission-limiting effect of the vaccines is achieved when two vaccine doses are given. The NIPH [Norwegian Institute of Public Health] has assessed that for this age group [12-15 years], which to a lesser extent than adults and older adolescents has contributed to transmission. The individual considerations of offering vaccination are more important than the benefit to society of limiting transmission,” the NIPH said in a release. Even earlier, evidence showed a tiny risk of myocarditis and pericarditis when young adults received the second dose of Pfizer and Moderna vaccines. The risk was overwhelmingly seen in males and after the second dose. “It is hard to get any grip on why males are more affected, because we have no idea, even if it turns out to be a real and reliable association (between vaccine and illness), what the mechanism involved is,” says Dr. Rath. “We do know that, independent of COVID-19 disease or vaccines, myocarditis is somewhat more common in men than in women. But again, we have no clarity about why this is so.”

Resolves on its own

Now, two studies published in The New England Journal of Medicine have reported based on field data that myocarditis is extremely rare and predominantly seen in males and is mild. The condition resolves on its own within a month. The first NEJM study found that of the nearly 5.1 million people vaccinated with the Pfizer vaccine between December 20, 2020 and May 31, 2021 in Israel only 136 cases of myocarditis were reported. Of the 136 cases, 129 people (95%) had only mild myocarditis. The study found that the incidence of myocarditis after two doses of vaccination was highest among males. They found that myocarditis occurred in the population at a “rate of approximately 1 per 26,000 males and 1 per 2,18,000 females after the second vaccine dose, with the highest risk again among young male recipients”. The study also found that the “overall risk difference between the first and second doses was 1.76 per 100,000 persons with the



largest difference among male recipients between the ages of 16 and 19 years". The second study published in NEJM carried out in Israel looked at the incidence of myocarditis after full vaccination with the Pfizer vaccine in a large health-care organisation. The study found 54 cases of myocarditis from 2.5 million vaccinated health-care organisation members aged 16 years and above. In all, 76% of cases of myocarditis were mild, and the highest incidence (10.69 cases per 1,00,000 persons) was reported in male patients between the ages of 16 and 29 years.

A PORTRAIT OF THE NOBEL MASTERS OF 'METRICS'

Every year on the second Monday of October, The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel a.k.a. the Nobel Prize for Economics is announced. This year, on October 11, three econometricians – David Card, Joshua D. Angrist and Guido W. Imbens — were given this distinct honour. Interestingly, David Card was awarded half the prize while the remaining half was split equally between Angrist and Imbens. Incidentally, every year the actual prize is awarded in a grand ceremony on December 10 which coincides with the death anniversary of Alfred Nobel.

A connecting thread

The Nobel citation says that the prize was awarded "for empirical labour economics and methodological contributions to the analysis of causal relationships". All three have many more things in common beyond their interest in this aspect of econometrics. Not surprisingly, they teach at some of the finest universities in the world — Card teaches at UC Berkeley, Angrist at MIT and Imbens at Stanford. Both Card and Angrist got their PhDs from Princeton, and their doctoral supervisor was the legendary labour economist, Orley Ashenfelter. Imbens obtained his doctoral degree from Brown University, and all three are fellows of the Econometric Society, a rare honour among economists. Their list of honours is extensive, but it is worth mentioning that the unique honour of being Guido Imbens 'best man' goes to Joshua Angrist.

An important quest

For me this year's Nobel Prize for economics is especially precious since it has been given to those making a methodological contribution for establishing causality. Economics has always been interested in causal relationships, already evident from Adam Smith's book title, An Inquiry into the Nature and Causes of the Wealth of Nations. This is particularly important in matters of human behaviour as casual relationships are critical for making policy. Suppose you observe that whenever my sister buys shoes, it rains in Bhubaneswar. If this was a coincidence or spurious correlation, then we have nothing to worry about. But if this was causal, then a flood prevention policy for Bhubaneswar would be to put an end to my sister's shoe shopping sprees! This quest for causality is doubly important in this era of big data where analysts simply look for patterns in the data and not for behaviours that might give rise to the data generating process. *When we observe two events, A and B, being correlated, in general we cannot conclude that A causes B simply because a bunch of confounding factors that we have not taken into account may be present or there may even be reverse causality.* A way out is to consider an experimental framework where we think of event A as a treatment and see what events it generates. However, even this is problematic. Once we offer a treatment to an individual, it is not possible to study the same individual without the treatment. Therefore, we need to resort to statistical techniques. One type of statistical technique in this vein which was introduced and popularised in economics by the winners of the



2019 Nobel Prize Abhijit Banerjee, Esther Duflo (incidentally Angrist was one of Duflo's PhD supervisors) and Michael Kremer is called a *Randomized Controlled Trial (RCT)*. In this approach we compare the outcomes in the treatment and no treatment (control) groups just like in a medicine trial to establish causality while guarding against things like contamination across the two groups.

A different technique

This year's Nobel Prize winners use a different technique called *Natural Experiments*. To quote Peter Fredriksson, Chair of the Prize Committee, "Sometimes nature or policy changes provide situations that resemble randomized experiments," and the brilliance of those scholars lies in their ability to recognise these situations and identify the conditions under which causal links can be established using these naturally occurring phenomena. Take for instance the work of David Card (with the late Alan Krueger who many believed would have shared the Nobel) on minimum wages. Typically, economists believed that raising the minimum wage will lead to greater unemployment as firms will hire fewer workers. *In 1992, New Jersey increased its minimum wage while neighbouring Pennsylvania did not.* Card and Krueger surveyed a large number of fast food workers on either side of the New Jersey-Pennsylvania border in this natural experiment and established that the higher wages had no impact on employment! This study has helped change how economists view minimum wages; today it is widely believed that minimum wages may not affect employment since firms may pass on the costs to consumers.

The India context

The methodology, research and findings of these economists date back to the early and mid-90s and they have already had a tremendous influence on the research undertaken in several developing countries such as India. For instance, in India, too, it is commonly held that higher minimum wages will be counterproductive for workers. It is noteworthy that last year, in the wake of the Covid-induced lockdowns, several states, including Uttar Pradesh, had summarily suspended several labour laws, including the ones regulating minimum wages, arguing that such a move will boost employment. Leading labour economists such as Professor Ravi Srivastava, Director of Centre for Employment Studies in Institute for Human Development, and Radhicka Kapoor, Fellow at the Indian Council for Research on International Economic Relations, had argued against such deregulation last year. "Their studies did provide a justification for raising minimum wages in the US — a question on which the economics fraternity was very divided. I used it with other studies to justify a national minimum wage for India," said Srivastava. Kapoor said the main learning from Card's work is that minimum wages can be increased in India without worrying about reducing employment. She pointed out that minimum wages in India are very low. The national minimum wage, for instance, is just Rs 180 per day. Now, India has a minimum wages code; it will extend to unorganised sector workers. "So, enhancing minimum wages is very important to improve incomes in the unorganised sector as well," she said. "This (learning that raising minimum wages do not hold back employment) is particularly important given the aggregate demand constraints that exist in the Indian economy, especially among those who are at the bottom of the income distribution".

Statistical techniques



One drawback of natural experiments is that we cannot control who participates in them. This is where the work of Angrist and Imbens has been very important to economics and other related fields.

Angrist and Imbens developed a framework and demonstrated how statistical techniques can be used to draw precise conclusions about causal relationships from natural experiments. Finally, if you are looking to access some of the work of these scholars you can find plenty of papers on Google Scholar. Angrist is one of the authors of two excellent introductory books: *Mostly Harmless Econometrics* and *Mastering Metrics* that are probably the most accessible of all their work. Imbens is the author of an all-encompassing book titled *Causal Inference for Statistics, Social and Biomedical Sciences*. David Card is one of the editors of several volumes of the encyclopedic, *Handbook of Labor Economics*.

REVOLUTIONISING THE CONSTRUCTION OF MOLECULES

In what way has the discovery of the two Laureates made the process greener, cheaper and more precise?

The Nobel Prize for Chemistry has been awarded to German scientist Benjamin List of the Max Planck Institute and Scotland-born scientist David W.C. MacMillan of Princeton University “for the development of asymmetric organocatalysis”.

Catalysts are often used to produce new and functional molecules that are utilised in drugs and other everyday substances. For example, catalysts in cars transform toxic substances in exhaust fumes to harmless molecules. *When silver is put in a beaker along with hydrogen peroxide, the latter suddenly breaks down to form water and oxygen. The silver, which initiated the reaction, does not get consumed or affected by the reaction. The Nobel release points out that in 1835, the renowned Swedish chemist Jacob Berzelius started to see a pattern.* “He listed several examples in which just the presence of a substance started a chemical reaction, stating how this phenomenon appeared to be considerably more common than was previously thought. He believed that the substance had a catalytic force and called the phenomenon itself catalysis.”

Two very different catalysts —metals and enzymes— were routinely used by chemists before Dr. List and Dr. MacMillan developed the asymmetric organocatalysts.

In the case of enzyme catalysts, the problem arises from their very large sizes. They are often 10,000 times larger than the actual target medicine and can take just as long to make. Enzymes, which are proteins found in nature, are wonderful catalysts. Our bodies also contain thousands of such enzyme catalysts which help make molecules necessary for life.

What makes asymmetric organocatalysts superior to metal and enzyme catalysts?

Unlike enzyme catalysts which are huge, asymmetric organocatalysts are made of a single amino acid. They are not only environmentally friendly but also quicken the reaction and make the process cheaper. Most importantly, asymmetric organocatalysts allow only one mirror image of the molecule to form as the catalysts are made from a single, circular amino acid. Chemists often want only one of these mirror images, particularly when producing drugs. Organic catalysts have a stable framework of carbon atoms, to which more active chemical groups can attach. These often contain common elements such as oxygen, nitrogen, sulphur or phosphorus. This means that these



catalysts are both environmentally friendly and cheaper to produce. Organocatalysts can allow several steps in the molecule production process to be performed in an unbroken sequence. This is achieved by cascade reactions in which the product of the first reaction step is the starting material for the subsequent one, thus avoiding unnecessary purification operations between each reaction step. This helps in considerably reducing waste in chemical manufacturing. Before organocatalysts could be used, it was often necessary to isolate and purify each intermediate product to prevent the accumulation of a large volume of unnecessary byproducts. This led to loss of some of the substance at every single stage of the process.

How have asymmetric organocatalysts been utilised by chemists and other industries?

Ever since the two laureates developed the novel concept of asymmetric organocatalysis, the field has witnessed rapid development. Since 2000, the asymmetric organocatalysis research area has flourished. A huge number of cheap and stable organocatalysts, which can be used to drive a huge variety of chemical reactions and applications, has been developed. This period is referred to as the 'organocatalysis gold rush'. Currently, the area is "well established in organic chemistry and has branched into several new and exciting applications". Besides helping the generation of novel molecules used in various industries, pharmaceutical companies have used asymmetric organocatalysis to "streamline the production of existing pharmaceuticals". Thanks to a multitude of catalysts that can break down molecules or join them together, "they can now carve out the thousands of different substances we use in our everyday lives, such as pharmaceuticals, plastics, perfumes and food flavourings". The fact is, according to the release, it is estimated that 35% of the world's total GDP in some way involves chemical catalysis.

HEAT AND TOUCH

The 2021 Nobel Prize in Physiology or Medicine was jointly awarded to David Julius, 66, at the University of California, San Francisco, and Ardem Patapoutian, 54, at Scripps Research, La Jolla, California, "for their discoveries of receptors for temperature and touch".

What is the significance of their work?

The two researchers discovered the molecular mechanism by which our body senses temperature and touch. Being able to do this opens the field for a lot of practical chemistry whereby individual cells and pathways can be tweaked, suppressed or activated to quell pain or sensation.

How the body senses external stimuli is among the oldest excursions of natural philosophy. Entire schools of philosophy were based on speculating how the senses influenced the nature of the reality we perceive. Only when physiology developed as an independent discipline and anatomy came into its own did it become widely accepted that specific sensations were the result of different categories of nerves getting stimulated. Thus, a caress or a punch induces cells in our bodies to react differently and convert into specific patterns of electrical stimulation that is then conveyed via the nerves to the central nervous system. Since the Nobel Prizes came to be, at least three of them were for establishing key principles for how sensations travelled along skin and muscle sensory nerve fibres. Much like the length, thickness, material and incident force on their strings elicit specific tones out of a guitar or a piano, there are specific nerve fibre types that in tandem create a response to touch, heat and proprioception, or the sense of our body's movement



and position in space. However, the prominence of molecular biology means that physiology wanted to go a level deeper and find out what specific proteins and which genes are responsible in this symphony of the nerves.

What is the contribution of David Julius towards this?

Capsaicin (8-methyl-N-vanillyl-6-nonenamide), the active component of chili peppers, generates the burning sensation when eating spicy food. Studies on capsaicin showed that when it acted on sensory nerves it induced ionic currents, or the gush of charged particles along a membrane. In the late 1990s, Professor Julius pursued a project to identify a nerve receptor for capsaicin. He thought that understanding the action of capsaicin could provide insights into how the body sensed pain. He and his team went about this by looking for a gene that could induce a response to capsaicin in cells that usually wouldn't react to it. They found one in a novel ion channel protein, later called TRPV1, where TRP stands for transient receptor potential, and VR1 is vanilloid receptor1. They were part of a super family of TRP and it was found that TRPV1 was activated when temperatures were greater than 40 degrees Celsius, which is close to the body's pain threshold. Several other TRP channels were found, and this ion channel could be activated by various chemical substances, as well as by cold and heat in a way that differs between mammalian species.

What did Ardem Patapoutian find?

Growing up in Beirut as an Armenian, during the Lebanese Civil War, Patapoutian has related stories of being captured by militants at university, before he moved to the United States. Patapoutian and his colleagues were working on how pressure and force affected cells. Following an approach similar to that of Professor Julius, they identified 72 potential genes that could encode an ion channel receptor and trigger sensitivity to mechanical force, and it emerged that one of them coded for a novel ion channel protein, called Piezo1. Via Piezo1, a second gene was discovered and named Piezo2. Sensory neurons were found to express high levels of Piezo2 and further studies firmly established that Piezo1 and Piezo2 are ion channels that are directly activated by the exertion of pressure on cell membranes. The breakthrough by Professor Patapoutian led to a series of papers from his and other groups, demonstrating that the Piezo2 ion channel is essential for the sense of touch. Moreover, Piezo2 was shown to play a key role in proprioception as well as regulate blood pressure, respiration and urinary bladder control. Independently of one another, Professor Julius and Professor Patapoutian used the chemical substance menthol to identify TRPM8, a receptor activated by cold.

What applications do these discoveries have?

Along with the discoveries of specific genes, proteins and pathways, the scientists pioneered experimental methods that allow insight into the structure of these pain and temperature sensors. The challenge for pain relieving drugs is to precisely target regions without causing imbalance in other necessary functions. These scientists' work, the Nobel Prize committee said, significantly helped towards reaching that goal.

(M)EXPLAINING THE GLOBAL WARMING PHENOMENON



The Nobel Prize for Physics for 2021 has been awarded to climatologists Syukuro Manabe of Princeton University, U.S., and Klaus Hasselmann of Max Planck Institute for Meteorology, Hamburg, Germany, and physicist Giorgio Parisi of Sapienza University of Rome, Italy. The prize has been given for their “groundbreaking contributions to our understanding of complex physical systems”.

Professors Manabe and Hasselmann bagged the Prize “for the physical modelling of Earth’s climate, quantifying variability and reliably predicting global warming”. Professor Parisi won “for the discovery of the interplay of disorder and fluctuations in physical systems from atomic to planetary scales”.

The Nobel is being given to climatologists for the first time since its inception in 1901, and this sends out a message that cannot be repeated too often: there is a solid physics basis to climate science, on which the laureates have spent decades, and many other scientists have striven to establish.

What is the context of Syukuro Manabe’s work?

The incoming short wavelength radiation from the Sun is absorbed by the Earth and re-emitted outwards as long wavelength radiation. The atmosphere absorbs a part of this outgoing radiation and warms up. This is known as the green-house effect. The green-house effect has been known from the work of French mathematician Joseph Fourier two hundred years ago, although it was given its name much later. This warming of the atmosphere and the ground below it is affected by greenhouse gases — water vapour, carbon dioxide, methane and other such. The greenhouse effect also has a positive impact: it keeps the surface of the earth warm and makes life possible. However, when the percentage of the greenhouse gases in the atmosphere increases, this warming also increases and can rise to a degree that is harmful to life itself. Around the close of the 19th century, Swedish scientist Svante Arrhenius estimated that should the carbon dioxide in the atmosphere double, this would cause its temperature to increase by 5-6 degrees.

What is Manabe’s key contribution to climate science?

In the 1950s and 1960s, Professor Manabe and collaborators made pioneering attempts at modelling atmospheric warming due to the increase in carbon dioxide. He estimated that a doubling of carbon dioxide would lead to a temperature rise of 2 degrees. His model confirmed that the rise in temperature was, indeed, due to the increase in carbon dioxide, because it predicted rising temperatures close to the ground and cooling of outer layers of the atmosphere. If the warming had been due to the Sun’s radiation, it would have been uniform. It was Professor Manabe’s model that pinned the quantitative impact of warming due to carbon dioxide.

What are the important aspects of Hasselmann’s work?

The term, weather, refers to day-to-day variations in temperature and rainfall, whereas climate describes long-time effects and also seasonal and average behaviour over a long time. While it is very difficult to predict the former, the latter appears predictable, as for instance, in the anticipated regularity of monsoons year after year. The striking aspect of Professor Hasselmann’s work is that he built a connection between the rapid, randomly varying, “noise-like” weather patterns and inferred from these the “signal” of climate. He built a stochastic climate model that



connects the two. He did this around 1980. According to information released by the Nobel Academy, Professor Hasselmann later developed methods to identify the human fingerprint on climate change. The models that he built carried information about warming due to solar radiation, the greenhouse gases and other causes, each of which could be separated. His study, followed by that of others, demonstrated the human impact on climate change through several observations.

Parisi was rewarded for his work on spin liquids. What are these?

To understand the work of Giorgio Parisi, it is necessary to understand four concepts with a dash of abstraction to them — spins, frustration, spin glasses and replica symmetry. Spins are like minimalistic line drawings of magnets. Just as magnets point in the north-south direction, spins are arrows that point along one direction. Consider a triangular array of spins that can either point up or down. Let us say that the neighbouring pairs of spins always like to point in opposite directions. In a triangular array with spins A, B and C, if A points up, and to satisfy the condition, B points down, what will be the direction in which C must point — up or down? If C points down, it will be parallel to B, thus violating that bond. If it points up, it will become parallel to A, thus violating the A-C bond. So, the spin C does not know how to align itself. This is the classic situation called “frustration”. If you extend the description of a triangular arrangement of spins to a triangular mesh or net (triangular lattice) and place spins on each intersection, you will see that it is impossible to find a state where all neighbouring spins are aligned opposite to one another. This is a frustrated system. The information released by the Nobel Academy describes how when a gas — which can be pictured as a collection of tiny balls flying around at random — is cooled slowly, it condenses first into a liquid and then a solid which most of the time is crystalline (with the balls being fixed into a periodic array). However, if the gas is cooled rapidly, it just goes into a glass state where some periodicity is present and some random placements. Similarly, frustration can lead the spin systems to form a spin glass.

What was the breakthrough made by Parisi?

In the 1970s, many physicists tried to calculate meaningful quantities out of spin glasses by using “a replica trick” — this is a mathematical technique in which many copies of the system (or replicas) are processed at the same time. However, they were not quite successful. Parisi, in a breakthrough in 1979, was able to identify a structure to the replicas and describe it mathematically. This led to the method being used eventually to solve problems in the field of complex systems. This went beyond physics and helped in solving problems in mathematics, biology, neuroscience.

What are the physical examples of Parisi’s work?

Parisi has also studied other phenomena in which simple behaviours give rise to complex collective behaviour like murmurations of starlings. This is a phenomenon that arises when hundreds or thousands of starlings fly together in co-ordinated patterns across the sky. Phillip Anderson’s words aptly describe the philosophy of studying such systems, as quoted in the Academy’s release: “The history of spin glasses may be the best example I know of the dictum that a real scientific mystery is worth pursuing to the ends of the Earth for its own sake, independently of any obvious practical importance or intellectual glamour.”