



## Current Affairs, 15th to 21st March, 2020

### International

#### Finland Is World's Happiest Country

- Good cheer may feel in short supply as the world reels under a global pandemic, but experts at the **United Nations declared Finland to be the world's happiest nation for the third year running**. Researchers for the World Happiness Report asked people in 156 countries to evaluate their own levels of happiness, and took into account measures such as **GDP, social support, personal freedom and levels of corruption** to give each nation a happiness score. As in each of the previous seven reports, **Nordic states dominated the top ten**, along with countries such as Switzerland, New Zealand and Austria. Luxembourg also edged into the tenth spot for the first time this year. The happiest countries are those "where people feel a sense of belonging, where **they trust and enjoy each other and their shared institutions**," John Helliwell, one of the report's authors, said in a statement. "There is also more resilience, **because shared trust reduces the burden of hardships, and thereby lessens the inequality of well-being**." Meanwhile, the countries at the **bottom** of this year's ranking are those **afflicted by violent conflicts and extreme poverty, with Zimbabwe, South Sudan and Afghanistan classed as the world's least happy countries**. Finland's top spot in the happiness list has previously been met with raised eyebrows in the country whose population of 5.5 million is said to shy away from spontaneous demonstrations of joy, valuing instead the quiet and solitude of the country's vast forests and thousands of lakes. The northern country's long dark winters were reputed to be behind high levels of alcoholism and suicide, but a decade-long public health drive has helped cut rates by more than half. Finland's residents enjoy a high quality of life, security and public services, with rates of inequality and poverty among the lowest of all OECD countries.

#### To Track Virus, Israel To Tap Cellphone Data

- Prime Minister Benjamin Netanyahu of Israel has authorized the country's internal security agency to tap into a vast and previously undisclosed trove of cell phone data to retrace the movements of people who have contracted the coronavirus and identify others who should be quarantined because their paths crossed. The unprecedented move to use data secretly gathered to combat terrorism for public health efforts was debated for hours on Sunday by Mr. Netanyahu's holdover cabinet. It was supposed to be approved by Parliament's Secret Services Subcommittee on 16<sup>th</sup> March but the subcommittee ended its discussions after 4 p.m. — when a new Parliament was sworn in — without holding a vote. The existence of the data trove and the legislative framework under which it is amassed and used have not previously been reported. The plan to apply it to fighting the virus, alluded to only vaguely by Mr. Netanyahu, has not yet been debated by lawmakers or revealed to the public. The idea is to sift through geolocation data routinely collected from Israeli cell phone providers about millions of their customers in Israel and the West Bank, find people who came into close contact with known virus carriers, and send them text messages directing them to isolate themselves immediately. Disclosure of the plan raised alarms among privacy advocates and among critics of Mr. Netanyahu, who is simultaneously battling to retain power after those

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seeking his ouster won a majority in elections March 2, and imposing increasingly authoritarian measures in response to the crisis. In addition to the location-tracking effort, Mr. Netanyahu's caretaker government authorized prison sentences of up to six months for anyone breaching isolation orders; barring visitors, including lawyers, from prison and detention facilities and allowing the police to break up gatherings — as of now, more than 10 people — by means including “the use of reasonable force.” It is the existence of the cell phone metadata trove and its use to track coronavirus patients and carriers that privacy advocates say poses the greatest test of Israeli democracy at an extraordinarily fragile moment.

### [A Crisis-Hit Iran At the Crossroads \(Sujan R. Chinoy, A Former Ambassador of India\)](#)

→ Iran, the hardest-hit among the West Asian countries in the global pandemic, is on the front line of the battle against the coronavirus that causes coronavirus disease, COVID-19. With nearly 900 deaths and over 14,000 cases of infection, its health-care system is reeling under the combined effect of the pandemic and American sanctions. The new challenge for Iran comes about two months after the killing of Islamic Revolutionary Guard Corps (IRGC) commander General Qassem Soleimani, in January. In end-January, Iran's supreme leader Ayatollah Ali Khamenei had condemned U.S. President Donald Trump's plan for Palestine and had vowed to support armed Palestinian groups. Mr. Khamenei had said in November 2019 that Iran's main strategy was to inure itself from the effect of sanctions and to emerge resilient. The masses thronging the streets some weeks ago may have receded out of fear of both the coronavirus and the wrath of the regime, but there is a possibility of social unrest resurfacing if the government's response to the spread of the virus is ineffective and shortages are exacerbated. **Iran has already approached the International Monetary Fund for \$5-billion in emergency funding to combat the pandemic. The U.S. Treasury had announced in end-February that it was lifting some sanctions on the Central Bank of Iran to facilitate humanitarian trade such as the import of testing kits for COVID-19. Clearly, Iran thinks this is inadequate.**

#### Nuclear Policy

May 8, 2020 will mark the second anniversary of the U.S.'s withdrawal from the **Joint Comprehensive Plan of Action (JCPOA)** or the “**Iran Nuclear Deal**”. Following the U.S.'s decision to jettison the deal, Iran had announced that it would resume its nuclear activities but had agreed to respect the International Atomic Energy Agency (IAEA) inspections and enhanced monitoring as part of its obligations under the additional protocol. **The JCPOA limited Iran to enrich uranium only up to a 3.67% concentration and its stockpile to 300 kg of UF<sub>6</sub> (corresponding to 202.8 kg of U-235), and further capped its centrifuges to no more than 5,060, besides a complete cessation of enrichment at the underground Fordow facility. It also limited Iran's heavy water stockpile to 130 tonnes. However, since July 2019, Iran has lifted all restrictions on its stockpiles of enriched uranium and heavy water. It has been enriching uranium to 4.5%, beyond the limit of 3.67%. Moreover, it has removed all caps on centrifuges and recommenced enrichment at the Fordow facility. As of February 19, Iran's enriched uranium stockpile totalled 1,020.9 kg, compared to 372.3 kg noted in the IAEA's report of November 3. In a second report issued on March 3, the IAEA has identified three sites in Iran where the country possibly stored undeclared nuclear material or was conducting nuclear-related activities. The IAEA has sought access to the suspect sites and has also sent**



questionnaires to Iran but has received no response. The United Kingdom, France and Germany had invoked the JCPOA Dispute Resolution Mechanism (DRM) as early as in January this year. With the next Review Conference of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) set to take place in New York from April 27 to May 22, 2020, Iran's threat to abandon the NPT if the European Union takes the matter to the UN Security Council (UNSC) may yet only be bluster, but the failure of the DRM process would certainly put Iran on a collision course with the UNSC. A sympathetic China, which holds the rotational presidency of the UNSC for March, should diminish that prospect, albeit only temporarily. As things stand, the terms of UNSC Resolution 2231, which had removed UN sanctions against Iran in the wake of the JCPOA, are reversible and the sanctions can be easily restored. That eventuality would prove disastrous, compounding Iran's current woes. While recognising that cocking a snook at the NPT in the run-up to the NPT RevCon and the U.S. presidential elections will invite retribution, Iran may use the global preoccupation with the pandemic to seek a whittling down of sanctions and to continue its nuclear programme. In the event that the NPT RevCon is postponed due to the prevailing uncertainty, Iran may yet secure some more breathing time.

### Ties with China

Meanwhile, the U.S. continues to implement its "maximum pressure policy". China remains the only major country that continues to defy U.S. sanctions and buy oil from Iran, apart from a small quantum that goes to Syria. The sale of oil to China, however, does little to replenish Iran's coffers. China is eschewing payments in order to avoid triggering more sanctions against Chinese entities. According to reports, Iran uses the credit to service its debt to China Petrochemical Corp (Sinopec) and China National Petroleum Corp (CNPC) for the development of Iran's super-giant Azadegan and Yadavaran oil fields. When seen in the context of the trilateral naval exercise between China, Iran and Russia in the Strait of Hormuz in the end of December 2019 codenamed "Marine Security Belt", these developments suggest a further consolidation of Sino-Iran ties in a region of great importance to India. Over time, this could expand into a "Quad" involving China's "all-weather friend" Pakistan in the Indian Ocean and the northern Arabian Sea, with broader implications for India as well as the "Free and Open" Indo-Pacific. The first round of Iran's parliamentary elections in February showed that the hardliners are firmly ensconced. The fundamental underpinnings of Iran's foreign policy are likely to remain unchanged. Yet, the rapid spread of the coronavirus in the region creates fresh possibilities for cooperation between Iran and its neighbours, if regional tensions are relegated to the back-burner. Prime Minister Narendra Modi's initiative to develop a coordinated response to the pandemic in the South Asian Association for Regional Cooperation framework, indeed, sets a laudable example. Much though will depend on Iran's willingness to rein in its regional ambitions and desist from interference in the domestic affairs of others.

### New Avenues for Saudi Women as Social Codes Relax Their Grip

- For Westerners — squinting at Saudi Arabia across a vast landscape of stories about oppressed women and human rights abuses — the desert kingdom often leaves a single, damning impression: Here is a country that women are desperate to flee. But the changes driven by Crown Prince Mohammed bin Salman, the kingdom's de facto ruler, have complicated that image over the last few years, codifying for women the right to drive, attend sporting events and travel without a man's permission, among others. As the social codes

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that long governed their lives relax their grip, more women are wearing their hair uncovered and mingling openly with men — at least in larger cities. But whether reality lives up to the law depends on the dice roll of birth. Day by day, it still falls to women in many households to negotiate their freedoms with the fathers, husbands, brothers and sons who serve as their legal guardians. Even before the legal changes, Saudi women from tolerant families rarely had to chafe under requirements that a male guardian approve plans to get jobs or travel abroad. For them, permission was nearly always granted. **Although Crown Prince Mohammed has spoken of dismantling the guardianship system, women remain legal minors when it comes to marrying, living on their own and other matters.** Those from more traditional families are still yoked to male guardians for whom fear of God, change or what the neighbours will think often outweighs the letter of the law. The lack of reliable public polling and free speech makes it difficult to gauge how Saudis view women's changing status. But one study, from 2018, suggested that fear of social stigma may drive opposition more than personal resistance. It found that a majority of Saudi husbands approve of their wives working outside the home, yet underestimate how many other men also support it. Telling them that more men actually favoured it was enough encouragement for them to register their wives for a job-recruitment service. The easing up of attitudes has mirrored a general loosening of Saudi society, much of it owing to the legal changes set in motion by the crown prince, who has erased many social restrictions and defanged the once-feared religious police.

### Foreign Affairs

#### From Virtual Conferencing to Real Leadership (Amitabh Mattoo - Professor At Jawaharlal Nehru University, New Delhi And Honorary Professor Of International Relations At The University Of Melbourne)

- After lying moribund for years, the South Asian Association for Regional Cooperation (SAARC) has suddenly acquired a new lease of life. Through a dramatic counter-intuitive initiative by Prime Minister Narendra Modi, SAARC, has become the 'virtual' platform through which leaders of the eight countries of our troubled region agreed to work together to combat unarguably the greatest immediate threat to the people: the COVID-19 health pandemic.

#### All Eyes on India

The success of the Modi-SAARC initiative will largely depend on India — the dominant power of the region, in every sense. Once New Delhi demonstrates that it has the capacity, the political willingness to institutionalise and to lead a mutually beneficial cooperative regime in the region, Pakistan's "churlish" behaviour will become marginal to SAARC. Various international relations theorists view this as a function of "hegemonic stability". What therefore is at test is India's leadership, not Islamabad's follies. **The initial steps announced by Mr. Modi are laudable, including the proposal to set up the COVID-19 Emergency Fund for SAARC countries, with India making an initial non-trivial offering of \$10 million; and the formation of a Rapid Response Team (of doctors, specialists, testing equipment and attendant infrastructure) to be put at the disposal of the SAARC, at this moment of grave peril.** But much more will need to be done by New Delhi to establish that the video conference



was not a mere event, but the assertive expression of its new willingness to stabilise the region through cooperative mechanisms, for our common future, without being distracted by short-sighted disingenuous ploys of a troubled Pakistan or being put off by its grandstanding. This is a moment thus of a rare opportunity for India to establish its firm imprimatur over the region; and to secure an abiding partnership for our shared destiny.

### The Spark of South Asia

SAARC was born at a moment of hope in the 1980s; the idea was initiated by one of the most inscrutable leaders of the region, General Zia Ur Rehman of Bangladesh, who, met many of the other leaders personally and dispatched special envoys to the capitals of the countries of the region. Dhaka's persistence resulted in the first summit of the seven leaders of the region in 1985. Afghanistan joined in 2007. In the nearly 35 years of its existence, even its champions will concede however that SAARC has, to put it euphemistically, not lived up to the promise of its founder. South Asia is the world's least integrated region; less than 5% of the trade of SAARC countries is within. A South Asian Free Trade Zone agreed on, in 2006, remains, in reality, a chimera. The last SAARC summit, scheduled to be held in Islamabad in November 2016, was postponed after the terrorist attacks in Uri; none has been held since then, and until Mr. Modi's initiative, no major meeting had been planned. A quick look at some of the questions posed in the Lok Sabha and Rajya Sabha on SAARC, in the last years, suggest that Indian MPs seek answers on why India is still a member of SAARC and on the strength of other organisations such as the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) that India is engaged with. Thus, SAARC had become almost marginal to our collective consciousness.

### Bright Spots

There have been some sunny moments in SAARC's dismal and dysfunctional history. During the tenure of Prime Minister Inder Kumar Gujral, who had been fed a sumptuous diet of the possibilities of cooperation on the Track II circuit before he became Prime Minister, there was movement. At the Male Summit in 1997, for instance, a Group of Eminent Persons was set up to provide a vision for SAARC 2020. Equally, I.K. Gujral often confided that it was at Male that Pakistan Prime Minister Nawaz Sharif had told him in Punjabi: "I know you cannot give me Kashmir; and you know I cannot grab it from you; but let us just talk and move on." But these moments of candour that could have injected practical common sense, remained few and far between.

### The Fadeout and A Revival

The reasons for the failure of SAARC have been enumerated several times as well. Clearly, most of the smaller states and external players believe that the India-Pakistan conflict has undermined SAARC. Bilateral issues cannot be discussed in SAARC but since the organisation relies on the principle of unanimity for all major decisions, Pakistan has often undermined even the most laudable initiative lest it give India an advantage: relative gains by India are more important for Pakistan than the absolute gains it secures for itself. For India, Pakistan's use of terror as an instrument of foreign policy has made normal business impossible. But the world is suddenly being transformed. Not since the influenza pandemic of the Spanish Flu of 1918 has South Asia's health been more in danger. Laura Spinney's masterly account of the Spanish Flu reminds us of the memoirs of the great poet, 'Nirala', Surya Kant Tripathi,



and what a tragedy was inflicted even on ordinary people by the flu. Nirala wrote: "I travelled to the riverbank in Dalmau and waited...[t]he Ganga was swollen with dead bodies. At my in-law's house, I learned that my wife [too] had passed away. This was the strangest time in my life. My family disappeared in the blink of an eye." There is no doubt that the impact of COVID-19 will be unprecedented, in terms of those it targets and the way we live. It is too early to judge the consequences, but it will take years for the world to return to the old and familiar. Strategies to cope with this new insidious, scheming and diabolic strain of the coronavirus have to be dynamic and ad hoc. In the United Kingdom the idea of letting low-risk residents being infected by the virus as a way of generating immunity (the herding principle) seems to have been misplaced and disastrous. Containment and the possible prevention of community transmission are the only two principles that are firmly tested. If community transmission occurs and cannot be contained, the consequences will be calamitous. This is indeed a time for SAARC and the experts of the region to think and act together and India can lead this effort. It is evident that Mr. Modi is an out-of-the box lateral thinker, especially on foreign policy. In 2014, Mr. Modi surprised the world by inviting all the SAARC leaders for his inauguration. In December 2015, he was even more audacious by almost living the dream of Prime Minister Manmohan Singh by spending his morning in Kabul, afternoon in Lahore and evening in Delhi. More important, the tragedy of COVID-19 may provide an opportunity for India to demonstrate its compassionate face to secure a region at peace with itself. India cannot afford to not to harvest this opportunity, after having sowed the seeds of a New South Asia.

→ Pandemics do not recognise political borders, and in times of trouble, reaching out to neighbouring countries is the most obvious course of action. To that end, the hour-long discussion with the leaders of **Afghanistan, the Maldives, Bangladesh, Bhutan Nepal, Sri Lanka, and the Special Assistant on Health to the Pakistan PM, came up with shared and unique perspectives in dealing with the virus.** Afghanistan and Pakistan have specific challenges as they share long borders with Iran, which has emerged, after China and Italy, as a major hub of the virus. **Bhutan, the Maldives, Nepal and Sri Lanka worry about the impact on tourism, which is a mainstay of their economies.** Another concern is of an escalation in the virus's spread in the subcontinent. Other concerns are about under-reporting, as fewer people are being tested in much of South Asia, and whether public health services can cope. It remains to be seen how closely the SAARC countries will cooperate to deal with the virus. While speaking to his counterparts was a part of Mr. Modi's message, it was, however, certainly not the whole. The fact that he decided to make the video conference available live indicates his desire to also reach out to and reassure the public in the SAARC region. Beyond this is the message sent out by deciding to engage with the more or less moribund SAARC neighbourhood grouping, rather than other organisations the government has preferred to engage with recently such as BIMSTEC, BBIN and IORA. In fact the virtual summit is the first high-level SAARC meet since 2014, and comes after India's pulling out of the 2016 summit following the Uri attack; it was to have been hosted in Islamabad. **Pakistan too has made its concerns over Jammu and Kashmir a sticking point in re-engagement, and PM Imran Khan's absence on Sunday, and his nominee's attempt to raise the issue of restrictions in Kashmir indicate that this attitude persists. Clearly, reviving the SAARC initiative, which countries in the region including Nepal, Sri Lanka and Bhutan have advised, will not be easy, given poor ties between SAARC's two largest members, India and Pakistan.** But it is significant that New Delhi seems to be willing to try to put politics aside when dealing with the pandemic that confronts all.



## A Revival of Multilateralism, Steered by India (Shyam Saran - Former Foreign Secretary and A Senior Fellow, Centre For Policy Research)

- The COVID-19 pandemic has brought out in sharp relief the compelling reality that has been staring us in the face for the past several years. This reality has two aspects. One, that most challenges confronting the world and likely to confront it in the future, are cross-national in character. They respect no national boundaries and are not amenable to national solutions. Two, these challenges are cross-domain in nature, with strong feedback loops. A disruption in one domain often cascades into parallel disruptions in other domains. Thus, the use of chemical fertilizers and toxic pesticides may promote food security but have injurious health effects, undermining health security. Whether at the domestic or the international level, these inter-domain linkages need to be understood and inform policy interventions. The UN Sustainable Development Goals (SDGs) reflect this awareness.

### Rise of Nationalism

The intersection of cross-national and cross-domain challenges demand multilateral approaches. They require empowered international institutions of governance. Underlying these must be a spirit of internationalism and solidarity, a sense of belonging to a common humanity. **But over the past decade and more, the world has been moving in the reverse direction. There has been an upsurge in narrow nationalism, an assertion of parochial interests over pursuit of shared interests and a fostering of competition among states rather than embracing collaboration.** COVID-19 has brought these deepening contradictions into very sharp relief. This is a global challenge which recognises no political boundaries. It is intimately linked to the whole pattern of large-scale and high-density food production and distribution. **It is a health crisis but is also spawning an economic crisis through disrupting global value chains and creating a simultaneous demand shock.** It is a classic cross-national and cross-domain challenge.

### The Direction Now

But interventions to deal with the COVID-19 crisis are so far almost entirely at the national level, relying on quarantine and social distancing. There is virtually no coordination at the international level. We are also seeing a blame game erupt between China and the United States which does not augur well for international cooperation and leadership. While this is the present state of play, the long-term impact could follow alternative pathways. One, the more hopeful outcome would be for countries to finally realise that there is no option but to move away from nationalistic urges and embrace the logic of international cooperation through revived and strengthened multilateral institutions and processes. The other more depressing consequence may be that nationalist trends become more intense, countries begin to build walls around themselves and even existing multilateralism is further weakened. Institutions such as the United Nations and the World Health Organization which are already marginalised may become increasingly irrelevant. There could be a return to autarkic economic and trade policies and an even deeper and more pervasive anti-globalisation sentiment. Unless there is a conscious effort to stem this through a reaffirmation of multilateralism, we are looking at a very depressing decade ahead. This is when the world needs leadership and statesmanship, both in short supply. This is in contrast to the U.S.-led response to the global financial and economic crisis of 2008 when the G-20



summit was born and a coordinated response prevented catastrophic damage to the global economy. Is there a role here for India which is a key G-20 country, the world's fifth largest economy and with a long tradition of international activism and promotion of rule-based multilateralism? In this context, Prime Minister Narendra Modi's remarks at the recent The Economic Times Global Business Summit are to be welcomed. While speaking of the COVID-19 crisis, he said, "Like today, the world is facing a huge challenge in the form of Corona Virus. Financial institutions have also considered it a big challenge for the financial world. Today, we all have to face this challenge together. We have to be victorious with the power of our resolution of 'Collaborate to Create'." He went on to observe that while the world today is "inter-connected, inter-related and also interdependent", it has "not been able to come on a single platform or frame a Global Agenda, a global goal of how to overcome world poverty, how to end terrorism, how to handle Climate Change issues." Mr. Modi lauded his government's policy of seeking friendship with all countries as contrasted from the earlier policy of non-alignment. He seemed to suggest that non-alignment was a defensive policy which advocated "equal distance from every country". Now, he claimed, India was still "neutral" — presumably meaning non-alignment — "but not on the basis of distance but on the basis of friendship". He cited India's friendship with Iran and Saudi Arabia, and with the U.S. as well as Russia. Elaborating on this, he added, "There was a time when people were neutral by creating equal distance, but we are now neutral by creating equal friendship. Today we are being friends and trying to walk together. This is the very essence of India's foreign policy and the economic policy of India today."

### India's Foreign Policy

Mr. Modi may wish to distinguish his foreign policy from that of his predecessors, but what he describes as its "essence" is hardly distinguishable from the basic principles of Indian foreign policy since Nehru. India's non-alignment was anything but defensive. The international peace-keeping contribution that the Prime Minister referred to has its origins in Nehru's sense of international responsibility. India has always professed its desire to have friendly relations with all countries but has been equally firm in safeguarding its interests when these are threatened. India's non-alignment did not prevent it from forging strong and mutually beneficial partnerships with major countries. The India-Soviet partnership from 1960-1990 is an example just as the current strategic partnership with the U.S. is. The foreign policy of his predecessors had been rooted in India's civilizational sense, its evolving place in the international system and its own changing capabilities. Their seminal contributions should be acknowledged and built upon rather than proclaim a significant departure. The Prime Minister's plea for global collaboration to deal with a densely inter-connected world is in line with India's traditional foreign policy. A leadership role in mobilising global collaboration, more specifically in fighting COVID-19 would be in keeping with India's traditional activism on the international stage. The Prime Minister has shown commendable initiative in convening leaders of the South Asian Association for Regional Cooperation nations for a regional collaborative effort on COVID-19. This should be followed by an international initiative, either through the G-20 or through the U.N.

### Pandemic as Opportunity

The Prime Minister made no reference to the role of the U.N., the premier multilateral institution, as a global platform for collaborative initiatives. There may have been irritation over remarks by the UN Secretary General on India's domestic affairs and the activism





displayed by the UN Commissioner for Human Rights on the Citizenship (Amendment) Act controversy. This should not influence India's long-standing commitment to the U.N. as the only truly inclusive global platform enjoying international legitimacy despite its failings. If one has to look for a "single platform" where a Global Voice could be created, as the Prime Minister suggested, surely a reformed and strengthened U.N. should be on India's agenda. The COVID-19 pandemic presents India with an opportunity to revive multilateralism, become a strong and credible champion of internationalism and assume a leadership role in a world that is adrift. The inspiration for this should come from reaffirming the well springs of India's foreign policy since its Independence rather than seeking to break free.

## Nation

### Crime and Punishment

- The pre-dawn hangings of four men convicted of the gang rape and murder of a 23-year-old woman may have brought a semblance of closure to her parents, prompting her mother, to say, "Women will now feel safe." On December 16, 2012, the woman was brutally raped in an empty moving bus in Delhi and she died after battling for her life later that month. A little over seven years later, the first date of execution was set for January 22, and the convicts tried all legal avenues possible to escape the punishment. After the executions, her mother said, "Families will start teaching their boys that the punishment for such a crime will be severe." But is India any closer to guaranteeing safety for women? In 2012, the government of the day, reacting to the clamour on the streets for justice, set up the Justice **J.S. Verma Committee** to look into rape laws. The report, filed in a month, led to stringent changes through the **Criminal Law (Amendment) Act, 2013**, but several recommendations were simply not considered, including those relating to marital rape and police reform. **On the imposition of the death penalty, the government went against what the Verma report had suggested — that seeking such a punishment "would be a regressive step in the field of sentencing and reformation". Now, repeat offenders in rape cases, even those that unlike the Nirbhaya case did not involve murder, can be awarded the death sentence. The Verma Committee had argued instead for rigorous imprisonment of a convict for life.** It is a fact that sexual crimes against women have not come down since the Delhi case. **The death penalty could actually encourage the rapist to kill the victim.** Going by data in the National Crime Records Bureau report, released in January 2020, a total of 3.78 lakh cases of crimes against women were recorded across India in 2018 compared to 3.59 lakh in 2017 and 3.38 lakh in 2016. The total number of rape cases in 2018 was pegged at 33,356, of which Madhya Pradesh registered 5,450 rapes, the maximum in 2018. The crime rate per one lakh women population was 58.8 in 2018 compared to 57.9 in 2017. At the end of 2018, 33.6% cases were pending police investigation. This raises the key question — what does India need to do to protect its girls and women? It is apparent that laws may have changed, but not mindsets. **A society that endorses a preference for the male child has already condemned the girl child to an unequal world. Until Indian leaders, policy-makers and society shed the gender bias and the thinking that they need to protect women as a question of honour, there will be no stopping crimes such as rape, sexual assault and harassment.**



## An SC Verdict Violative of Minority Rights (Faizan Mustafa - An Expert on Constitutional Law)

→ Protection of minorities is the hallmark of a civilisation. Lord Acton added another dimension to this when he said: "The most certain test by which we judge whether a country is really free is the amount of security enjoyed by minorities." The minorities in general, and Muslims in particular, accepted the pledge of Sardar Vallabhbhai Patel that "our mission is to satisfy every interest and safeguard the interests of all the minorities to their satisfaction". Accordingly, special safeguards were guaranteed to the minorities and incorporated under Article 30 with a view to instil in them a sense of confidence and security. However, due to recent developments in Delhi and elsewhere, this confidence stands eroded even though, in the *Kesavananda Bharati* case (1973), minority rights were held to be the part of basic structure of the Constitution. In the last one year, a new trend has emerged in the Supreme Court. Smaller benches now do not hesitate to overrule larger benches' decisions. Increasingly, judicial discipline is losing its charm. In the latest judgment on minority rights, a two-judge bench of Justice U.U. Lalit and Justice Arun Mishra upheld the West Bengal Board of Madrasah Education Act, 1994, and the West Bengal Madrasah Service Commission Act, 2008, both of which take away the autonomy of madrasas in the State. The appointment of teachers in these theological institutions shall now be made by a board nominated by the government.

### Rights Under Article 30

What is the importance of minority rights? Why is the judgment per incuriam, i.e. contrary to law? As per Section 10 of the West Bengal Madrasah Service Commission Act, 2008, all appointments of teachers to the religious schools are to be recommended by the commission and the management committee shall be bound by such recommendations. Section 11 says that anyone appointed in contravention of this Act shall not be considered a teacher and such an appointment shall be invalid. Section 12 empowers the government to deny grants to the schools that refuse to make appointments in accordance with such recommendations. Further, government recognition and affiliation of such schools can be withdrawn. A single judge of Calcutta High Court in March 2014 struck down the above provisions as violative of Article 30 that guarantees religious and linguistic minorities the right to establish and administer educational institutions of their choice. In December 2015, a Division Bench of the High Court upheld that decision. Interestingly, the latest judgment notes that in *Chandana Das* (2019), a three-judge bench gave the Sikh minority institutions of West Bengal the right to appoint teachers. In less than four months, a right given to Sikh minority institutions by the apex court has been denied to Muslim minority religious institutions. Framers of the Constitution in their wisdom did not include any restrictions under Article 30 (unlike in the case of other fundamental rights). Hence, the Article 30 right is absolute though minority institutions are very much subject to health, sanitary and municipal regulations. The expression 'administer' in Article 30 has been interpreted by the larger benches of the court such as those of judges in *Ahmedabad St. Xavier's College* (1974) and 11 judges in *T.M.A. Pai Foundation* (2003). The apex court has been consistent in holding that the term includes rights of minority institutions to select their governing bodies, teachers and staff and exercise disciplinary control over them and a right to fix reasonable fees and admit students in a fair and transparent manner.



### The Dual Test Criterion

In Rev. Sidharjbhai (1963), a six-judge bench of the Supreme Court observed that every government regulation in respect of a minority institution shall be valid only when it satisfies the dual test, i.e., it is regulative and not destructive of the organisation's minority character and it makes the minority institution an effective vehicle of minority education.

Justice Lalit overlooked the striking down of provisions where State governments had tried to take over or interfere with the selection of teachers and based his judgment on the broad and general observations in the earlier verdicts where the court had said government regulations are permissible. It would have been much better if the learned judge had relied on Bihar State Madrasa Education Board (1990), which he did cite, and where the court had observed that "under the guise of regulating educational standards to secure efficiency in institution, the state is not entitled to frame rules or regulations compelling the management to surrender its right to administration". The Chief Justice of India has now referred this judgment to a larger bench and one hopes that the apex court will restore the confidence of the minorities.

### Supreme Court Ruling on Speaker's Inaction in Defection

- The Supreme Court's order stripping a Manipur Minister of his office and barring him from entering the State Assembly may appear drastic and unusual, but is quite a reasonable and necessary course of action. T. Shyamkumar was elected as a Congress candidate, but defected to the BJP to join the Biren Singh Cabinet. In a landmark judgment in January, which put an end to the deliberate inaction of Presiding Officers on petitions for disqualifying defectors, a Bench headed by Justice Rohinton F. Nariman had ruled that courts have the power to fix a time-frame for Speakers to dispose of petitions under the anti-defection law. In the Manipur case, the court had given a reasonable period of four weeks — the defection complaint is pending since 2017 — but the Speaker failed to comply with it. On March 4, he had promised a decision within 10 days, but on March 18, he again sought time. It is in this background that the court invoked its extraordinary powers under Article 142 of the Constitution to take the sort of measures that would kick in if the defector concerned had been disqualified. The order is interim in nature, and the next hearing is on March 30. This means that the Speaker can still decide the matter, but a strong message has been sent out that courts will no more aid them in their attempts to protect defectors from the consequences of their floor-crossing. The possible objections to the order keeping the Minister out are two-fold: that it goes beyond the court's power of judicial review, and that any intervention in a matter under the Tenth Schedule of the Constitution (the anti-defection law) can be made only after the Speaker's final decision. However, it ought to be borne in mind that it was out of respect for the Speaker's powers that the court refrained from deciding the matter itself, though there was ample evidence that the Speaker had failed to discharge his duty. His obvious reluctance to decide the matter even within an extended deadline necessitated the latest course of action. In any case, as pointed out in the January verdict, a 2007 precedent (Rajendra Singh Rana) is available to show that 'failure to exercise jurisdiction' is a stage at which the court can intervene. The order is a natural follow-on measure after the earlier decision opened a window for judicial intervention whenever Speakers refuse to act on legitimate complaints that some members had incurred disqualification. It is quite disappointing that the Manipur Speaker did not meet the court's deadline even after it was made clear that inaction is no more a legal option for him. This only underscores the importance of the other limb of the court's earlier judgment

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recommending that Parliament consider creating a new mechanism to replace the 'Speaker' as the adjudicating authority under the Tenth Schedule.

### Competitive Impropriety

→ The President's nomination of former Chief Justice of India, Ranjan Gogoi, as a Rajya Sabha member so soon after his retirement will be seen as a crass example of a regime rewarding a member of the judiciary for meeting its expectations during his tenure. It will be futile to argue that it is a well-deserved recognition for an eminent jurist. The gap of four months between his retirement and nomination, and the fact that a series of decisions in his court were in seeming conformity with the present government's expectations militate against such a justification. The second argument, that there have been instances of retired Chief Justices being nominated to the Upper House or appointed Governors, does not cut ice either, as it is nothing more than a dubious claim to the same level of impropriety. In fact, references to the late CJI Ranganath Mishra and Justice Baharul Islam as valid precedents reflect quite poorly on the executive, and amount to competitive impropriety. There continues to be a perception that these were lapses in propriety. Justice Mishra's commission of inquiry absolved the Congress from any organisational responsibility for the 1984 anti-Sikh riots. Justice Islam exonerated a Congress Chief Minister of wrong-doing in a financial scandal in Bihar. The party had helped Justice Islam move both ways between Parliament and the judiciary. He quit the Upper House in 1972 to take office as a High Court judge. In 1983, he quit as a Supreme Court judge to contest an election. Mr. Gogoi's appointment cannot be seen, as he has sought to project, as a way of ensuring cohesion between the judiciary and the legislature. He no longer represents the judiciary, and his contribution will be limited to the expertise and knowledge he can bring to debates in Parliament. Any attempt to create 'cohesion' between the two wings would necessarily encroach on the judiciary's role as a restraining force on the executive and legislature. He should have rejected the offer, considering not only the nature of the judgments that Benches headed by him had delivered in the Ayodhya dispute and Rafale investigation, and the administrative decisions he had made in prioritising some cases above matters such as the validity of electoral bonds and Kashmir's altered status. These will be coloured, in retrospect. Also, he ought to have followed the example of his former colleagues who had declared that they would not accept any post-retirement work from the government. And one cannot forget that his tenure was clouded by an employee's complaint of sexual harassment, which acquired greater credibility after she was reinstated following his exoneration by a committee of judges. As for the government, making such an offer to a just-retired CJI is not mere brazenness. It indicates an alarming intention to undermine judicial authority so that the elected executive is seen as all-powerful.

### Giving Human Rights Commissions More Teeth (Gautam Bhatia - Delhi-Based Lawyer)

→ In 1993, the Indian Parliament enacted the Protection of Human Rights Act. The purpose of the Act was to establish an institutional framework that could effectively protect, promote and fulfil the fundamental rights guaranteed by the Indian Constitution. To this end, the Act created a National Human Rights Commission, and also, Human Rights Commissions at the levels of the various States. The National and State Human Rights Commissions are examples of what we now call "fourth branch institutions." According to the classical account,

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democracy is sustained through a distribution of power between three “branches” — the legislature, the executive, and the judiciary, with each branch acting as a check and a balance upon the others. However, the complexity of governance and administration in the modern world has necessitated the existence of a set of independent bodies, which are charged with performing vital functions of oversight. Some of these bodies are constitutional bodies — established by the Constitution itself. These include, for instance, the Election Commission and the Office of the Comptroller and Auditor General. Others have been established under law: for example, the Information Commission under the Right to Information Act, and Human Rights Commissions under the Protection of Human Rights Act. In the two-and-a-half decades of their existence, however, the functioning of the Human Rights Commissions has come under scrutiny and criticism. There have been the usual critiques of the politicisation of autonomous bodies, and selectiveness. Even more than that, however, it has been alleged that for all intents and purposes, the Human Rights Commissions are toothless: at the highest, they play an advisory role, with the government left free to disobey or even disregard their findings.

### Pending Case

In this context, a pending case before the High Court of Madras has assumed great significance. A Full Bench of the High Court will be deciding upon whether “recommendations” made by the Human Rights Commissions are binding upon their respective State (or Central) governments, or whether the government is entitled to reject or take no action upon them. Under the Protection of Human Rights Act, the Human Rights Commissions are empowered to inquire into the violations of human rights committed by state authorities, either upon petitions presented to them, or upon their own initiative. While conducting these inquiries, the Commissions are granted identical powers to that of civil courts, such as the examining witnesses, ordering for documents, receiving evidence, and so on. These proceedings are deemed to be judicial proceedings, and they require that any person, who may be prejudicially affected by their outcome, has a right to be heard. The controversy before the Madras High Court stems from the issue of what is to be done after the Human Rights Commission completes its enquiry, and reaches a conclusion that human rights have been violated. Section 18 of the Protection of Human Rights Act empowers the Human Rights Commission to “recommend” to the concerned government to grant compensation to the victim, to initiate prosecution against the erring state authorities, to grant interim relief, and to take various other steps. The key question revolves around the meaning of the word “recommend.” The Full Bench of the Madras High Court is hearing the case because different, smaller benches, have come to opposite conclusions about how to understand the word “recommend” in the context of the Protection of Human Rights Act. According to one set of judgments, this word needs to be taken in its ordinary sense. To “recommend” means to “put forward” or to “suggest” something or someone as being suitable for some purpose. Ordinarily, a mere “suggestion” is not binding. Furthermore, Section 18 of the Human Rights Act also obligates the concerned government to “forward its comments on the report, including the action taken or proposed to be taken thereon, to the Commission”, within a period of one month. The argument, therefore, is that this is the only obligation upon the government. If indeed the Act intended to make the recommendations of the Commission binding upon the government, it would have said so: it would not simply have required the government to communicate what action it intended to take to the Commission (presumably, a category that includes “no action” as well). While intuitively



plausible, I suggest that this view needs to be rejected, for many reasons. The first is that there is often a gap between the ordinary meanings of words, and the meanings that they have within legal frameworks. Legal meaning is a function of context, and often, the purpose of the statute within which a word occurs has a strong influence on how it is to be understood. For example, the Supreme Court has held, in the past, that the overriding imperative of maintaining judicial independence mandates that “consultation” with the Chief Justice for judicial appointments (as set out under the Constitution) be read as “concurrence” of the Chief Justice (this is the basis for the collegium system). Recently, while interpreting the Land Acquisition Act, the apex court held that the word “and” in a provision had to be construed as “or”.

### Constitutional Commitment

Of course, there needs to be good reason for interpretations of this kind. This brings us to the purpose of the Human Rights Act, and the importance of fourth branch institutions. As indicated above, the Human Rights Act exists to ensure the protection and promotion of human rights. To fulfil this purpose, the Act creates an institutional infrastructure, via the Human Rights Commissions. The Human Rights Commissions, thus, are bodies that stand between the individual and the state, and whose task is to ensure the adequate realisation of constitutional commitment to protecting human rights. It stands to reason that if the state was left free to obey or disobey the findings of the Commission, this constitutional role would be effectively pointless, as whatever the Human Rights Commission did, the final judgment call on whether or not to comply with its commitments under the Constitution would be left to the state authorities (effectively, the state judging itself). This, it is clear, would defeat the entire purpose of the Act. Indeed, in the past, courts have invoked constitutional purpose to determine the powers of various fourth branch institutions in cases of ambiguity. For example, the Supreme Court laid down detailed guidelines to ensure the independence of the Central Bureau of Investigation; various judgments have endorsed and strengthened the powers of the Election Commission to compulsorily obtain relevant details of candidates, despite having no express power to do so. It is therefore clear that in determining the powers of autonomous bodies such as the Human Rights Commission, the role that fourth branch institutions are expected to play in the constitutional scheme is significant. And lastly, as pointed out above, the Human Rights Commission has the powers of a civil court, and proceedings before it is deemed to be judicial proceedings. This provides strong reasons for its findings to be treated — at the very least — as quasi-judicial, and binding upon the state (unless challenged). Indeed, very recently, the Supreme Court held as much in the context of “opinions” rendered by the Foreigners Tribunals, using very similar logic to say that these “opinions” were binding. In sum, the crucial role played by a Human Rights Commission — and the requirement of state accountability in a democracy committed to a ‘culture of justification’ — strongly indicates that the Commission’s recommendations should be binding upon the state. Which way the Madras High Court holds will have a crucial impact upon the future of human rights protection in India.

### SC Upholds Right of Women Naval Officers

- The Supreme Court upheld the right of serving Short Service Commission (SSC) women officers of the Navy to be granted permanent commission (PC) on a par with their male counterparts. A Bench of Justices D.Y. Chandrachud and Ajay Rastogi said the “101 excuses” devised by the government, including motherhood and physiological limitations, reeked of a



stereotypical mindset. "The battle for gender equality is about confronting the battles of the mind. In the context of the Armed Forces, specious reasons have been advanced by decision makers and administrators. They range from physiology, motherhood and physical attributes to the male dominated hierarchies," Justice Chandrachud observed in a 64-page judgment.

### Policy Letter

The judgment was based on a case filed by 17 women SSC officers, represented by senior advocate Aishwarya Bhati, who were denied PC and discharged despite completing 14 years of service as SSC officers. They had challenged a February 26, 2008 policy letter of the government granting PCs to SSC officers in all the three branches of the Armed Forces. However, the offer was restricted to certain categories and was to operate prospectively for the benefit of future batches inducted on SSCs after January 2009. In a slew of directions, the court quashed the stipulation in the policy letter of September 26, 2008, making permanent commission for women prospective and restricting its application to specified cadres/branches of the Navy. It directed that SSC women officers found suitable for the grant of PC shall be entitled to all consequential benefits, including arrears of pay, promotions and retirement benefits as and when due. In the judgment, Justice Chandrachud referred to a submission that vessels of a Russian origin are deployed by the Navy and they have no bathrooms for women officers. The court called these submissions both illusory and without any foundation. "Women officers have worked shoulder to shoulder with their men counterparts in every walk of service. The supposed explanations based on duties at sea or Russian vessels are devices adopted to justify an action which is not germane to the proper discharge of duties and the maintenance of discipline among members of the Armed Forces," the court said. It held that such submissions were plainly contrary to the policy letter of February 25, 1999 issued by the Ministry of Defence to the Chief of the Naval Staff, emphatically stipulating that women officers of all branches/cadres could be directed to serve on board ships, both during training and subsequent employment in accordance with the exigencies of service. "In the face of this communication, it is impossible to countenance a submission that women cannot sail alongside men sailors," the court held.

### With Two Weeks to Census Start, Uncertainty Clouds NPR

- At least 13 States, and Delhi, covering almost 60% of the total population of India, are opposed to the revision of the National Population Register (NPR) in the format being prepared by the Centre, even as the nationwide exercise is scheduled to kick off in barely two weeks' time on April 1. Home minister Amit Shah told Parliament last week that people could choose to not respond to questions, but Chief Ministers and activists have said that this is no guarantee that they would not face any problems in the future. On March 3, the Ministry of Home Affairs (MHA) had informed the Lok Sabha that it was in discussion with States that had expressed concerns over the controversial additional questions in the NPR form. There has, however, been no further clarification from the government since then. On February 18, the MHA had informed a parliamentary panel that during works towards updating the NPR 2020, "it is proposed to collect data on some additional items like **place of last residence, mother tongue, Aadhaar number (voluntary), mobile number, passport (Indian passport holder), voter ID card, driving license number, date and place of birth of father and mother**". The Centre hasn't as yet officially published a pro forma for the NPR. "The Centre has said it



is not mandatory, but hasn't dropped the questions," West Bengal Chief Minister Mamata Banerjee observed earlier this month. "Now, if you don't provide these documents, they won't ask for it. They will simply mark you as a D (doubtful) voter," asserted Ms. Banerjee, who spoke before Mr. Shah's statement last week that nobody would be marked 'D' for their inability to provide such documents. Activists such as Yogendra Yadav and Harsh Mander have since pointed out that as the law stands, not providing information for the NPR can be an offence and the NPR could be used for identifying genuine citizens and doubtful ones. The Centre has shown no inclination to change the form or the existing rules to give legal backing to Mr. Shah's statement that this will not be a basis for identifying citizens. West Bengal was the first State to announce that it would not canvass the NPR form during the census operations, followed by Kerala. Both States have put the NPR exercise on hold. The works towards updating NPR is meant to be part of the first phase of the census — the house listing — that is set to take place from April 1 to September 30. The second phase is population enumeration, which will be from February 9 to February 28, 2021, throughout the country simultaneously. Activists such as Yogendra Yadav and Harsh Mander have since pointed out that as the law stands, not providing information for the NPR can be an offence and the NPR could be used for identifying genuine citizens and doubtful ones. The centre has shown no inclination to change the form or the existing rules to give legal backing to Mr. Shah's statement that this will not be a basis for identifying citizens. West Bengal was the first State to announce that it would not canvass the NPR from during the census operations, followed by Kerala. Both states have put the NPR exercise on hold. **The NPR updation is meant to be part of the first phase of the census - the house listing - that is set to take place from April 1 to September 30. The second phase is population enumeration, which will be from February 9 to February 28, 2021, throughout the country simultaneously.** Among the 13 States that are opposed to the NPR in its current form are Bihar where the BJP is a partner in the Nitish Kumar-led government, and Tamil Nadu, where the ruling AIADMK is its ally. Mr. Kumar has said nobody would be asked to furnish information like their parents' birthplace in the form, as his government has sent a letter to the Centre seeking omission of contentious clauses from the NPR form. In Jharkhand, the Jharkhand Mukti Morcha-led government is yet to take an official decision on NPR, but CM Hemant Soren is said to be against the NPR exercise in the State. States where the Congress is in power are all opposed to the NPR in its current form, and some such as Chhattisgarh have said they would use the 2010 format for data collection. Barring Bihar and TN, no other State under BJP-rule or governed by its allies is holding out. The seven contiguous north-eastern States are ruled by the BJP on its own or in alliance with regional parties or, in the case of Mizoram, by the Mizo National Front, which is a member of a BJP-fronted development forum. The Mizoram government has remained silent while the other States have started or are in the process of training officials for the exercise. Although the Centre has exempted Assam as it had conducted the National Register of Citizens, the State government had in February appealed to the Registrar General of India for conducting the NPR contending that the exercise "will come in handy while detailing welfare schemes". "We are training about 11,000 enumerators for collecting the NPR data from May 16 to June 29," Tripura's Census Department Director Pradip Kumar Chakraborty said. "We are trying to spread awareness among the public on the process and benefits of the register," Manipur Chief Minister Nongthombam Biren said. "We are well prepared for the exercise that will be conducted without segregation of any community," asserted Meghalaya Chief Minister Conrad K. Sangma. "We are focussing on the accuracy of data, as there have been gaps in the execution at the grassroots in the past," Mr. Sangma added. The





BJD government in Odisha appears to be taking the Centre's assurance on the NPR at face value. Trainers have been asked to devote two days on the NPR in a five-day-long district level training beginning from March 16. The NPR format, which seeks answers on date and place of birth of parents in the 13(ii) columns, is being used for training purposes. While Chief Minister Naveen Patnaik's government has not spoken about the contentious NPR format publicly, the State government had expressed reservations on the NPR form's 13(ii) column. The State, however, seems to have accepted the Centre's clarification that the question would be optional, not mandatory. And Andhra Pradesh, which is keeping the NPR exercise in abeyance, is closely watching the steps its southern neighbour Tamil Nadu takes. "We will do whatever TN does," an official, who spoke on condition of anonymity, told The Hindu.

### Way to Go

→ The release of five-time Chief Minister of Jammu and Kashmir Farooq Abdullah after seven months in detention is a welcome step that could open fresh political possibilities in the troubled region. The conditions of his release, if any, are not public but it is clear that there were backchannels open between him and the Centre before the release. Taken together with other recent relaxations in J&K that was put under a lockdown last August as the Centre unilaterally ended its special constitutional status, his release could help reopen the public space in the Valley. Coinciding with his release, Prime Minister Modi assured a delegation of the newly formed Apni Party led by former People's Democratic Party (PDP) leader Altaf Bukhari that he would work towards the restoration of statehood for J&K, which was downgraded to a Union Territory as part of last year's restructuring. Mr. Modi also said no demographic changes would be forced in J&K. Earlier, mobile telephony was restored fully and mobile Internet partially. However, restrictions on assembly remain largely in place, and hundreds, including two former Chief Ministers, Omar Abdullah and Mehbooba Mufti, still remain in detention. Their staggered release could be the next step towards normalcy. Mr. Modi's moves have often been characterised by surprise and subterfuge, including on J&K. There could be justification for such secrecy in statecraft, but new beginnings in the Valley will require more openness as there is a considerable trust deficit between its people and New Delhi. The Centre should not try to orchestrate politics but engage with it as it organically evolves. Hard as it is, the Centre must try and undo the damage it did to mainstream parties such as the National Conference and the PDP. It must allow all opinions to be articulated. Coercive measures must be limited to combating violence. It must shun the baseless notion that communities will surrender political autonomy in return for material prosperity. Above all, it must end its perilous propensity to paint the demands for autonomy and separatism with the same brush. J&K's instrumental status as a place for demonstrating the strength of the Indian nation in the current government's imagination is not helpful. There is also an evolving international situation that could complicate the situation. With the long-expected U.S. withdrawal from Afghanistan now imminent, Islamist forces in South Asia are feeling triumphant and are using the current communal turmoil in India to paint it as a Hindu theocracy. The Pakistani military establishment will exploit the situation to India's disadvantage. India's approach towards J&K must be people-centric and guided by a resolute commitment to its diversity and religious pluralism.



## Needless Appeal

→ It is regrettable that the Uttar Pradesh government has appealed against the Allahabad High Court order directing the removal of hoardings in Lucknow that displayed details of those who participated in the protests against the Citizenship (Amendment) Act. Further, it has approved an ordinance that provides for recovery of compensation from those suspected of involvement in rioting for any damage to property. In a quick and well-reasoned response, the court curbed the administration's gross misuse of power. Even though the Supreme Court's vacation judges were sceptical about the legal basis of the government's action, they referred it to a larger Bench, observing that crucial questions of law were involved. It is difficult to see what arcane legal question has arisen, considering that the High Court's order was on the grounds that the erection of the hoardings lacked statutory backing and that it was a gross violation of citizens' privacy. The Lucknow administration had displayed the photographs, names and addresses of those who, it claimed, owed compensation for the alleged destruction of public property during the protests. **There has been no judicial finding that those named were involved in such violence; and there is no law that authorises such public "naming and shaming"**. It was quite apparent that the government was humiliating the protesters and exposing them to danger from the CAA's supporters and the government. Once the High Court Bench, headed by Chief Justice Govind Mathur and Justice Ramesh Sinha, took Suo motu cognisance of the development, the government could not justify its action on any legal ground. All it could do was come up with weak objections to the court acting on its own motion, arguing that those featured in the banners had the capacity to seek legal redress themselves, and also questioning whether the principal seat in Allahabad could take cognisance of developments in Lucknow, which has its own Bench. At a time when the higher judiciary is seen to be passive before a powerful executive, the court's resolve to act on its own against a case of obvious injustice and violation of fundamental rights is quite commendable. Its approach was rooted in the revived privacy rights jurisprudence established by a nine-Judge apex court Bench in K.S. Puttaswamy. Applying the tests laid down in that verdict, the top court ruled that there was no necessity for a democratic government to disclose anyone's identity and particulars without a legitimate purpose. And that choosing a small group among hundreds arrested in connection with the violence during the protests for the public display was a "colourable exercise" of power. That the State government went on appeal shows that the judicial order hardly had any chastening effect on the regime that has been displaying unusual stridency in its crackdown on the anti-CAA protests.

## Reforming Power to Serve People (Trilochan Sastry - Founder and Trustee of The Association for Democratic Reforms and Professor, IIM Bangalore)

→ Recent events yet again highlight the need for electoral reforms. The campaign for the Delhi Assembly elections was filled with hate speeches. In Madhya Pradesh, the ruling Congress is battling defections. Last year, in November, in Maharashtra, Devendra Fadnavis took oath as Chief Minister early morning one day only to be replaced within days by Uddhav Thackeray from the Opposition alliance, which consists of parties that are ideologically mismatched. And before that, in Karnataka, defections from the Janata Dal (Secular)-Congress coalition to the BJP brought the government down.



## Capturing Power

First, we need to understand why this is happening. The answer is simple: **the primary goal of political parties is to capture power, and they use all the means at their disposal to obtain power. Power brings money, privileges, and control of the treasury.** The total budgeted expenditure of the Central government for 2019-20 is ₹27.86 lakh crore. So, the stakes are high. Political parties in power are supposed to deliver good governance and serve the public, but usually power becomes an end in itself. The fact that more and more freebies are being provided nowadays clearly shows that public funds are being used by those in power to lure voters, and are not necessarily being used for public service. Let us look at a few important ways in which the power game is played out in India. In Delhi, hate speeches delivered by a few members of a political party did not help that party come to power. But that is not the issue — in another State, in another election, this tactic may work. There are two factors that strengthen the growing deterioration in the quality of campaigns. One is the **rapidly increasing criminalisation of politics. In 2019, the Lok Sabha had 43% MPs with a criminal record, up from about 23% in 2004.** Political parties that give tickets to such candidates are directly responsible for this. The other factor is the **widespread use of social media to spread fake news** during an election campaign. Most of what is online consists of abuse of rivals and vilification of Opposition parties. Money also fuels much of what we see today. **It was money that was responsible for the defections in Karnataka in 2019, and in Madhya Pradesh recently.** The practice of whisking away MLAs to distant resorts to prevent them from being lured away by the Opposition is unique to India. **Who is elected or which party wins does not seem to matter any longer. In this game, those with money and the ability to engineer defections can always come to power.** Two factors contribute to this open use of money to topple governments. One is the **total lack of transparency in the funding of political parties. Electoral bonds have made it even more difficult to trace the source of funds of political parties.** The second is that **political parties in power have complete hold over law and order.** A corporate scamster is arrested when the money trail is discovered, but no effort is taken to trace the money trail during massive defections. Good governance needs democracy. But **today, hardly any political party in India is internally democratic. They are fully controlled by a small ruling clique.** Finances are raised and used in a completely opaque way. The situation is ripe for a small group of enterprising persons to raise funds and capture power and then exercise it without accountability. **The use of muscle and money power makes re-elections possible. Parties that try to win power based on a track record of good governance show mixed results.**

## Consequences

So, we have the root cause of the problem: the goal of political power without adequate transparency and accountability. Before we come to the remedies, we need to understand the consequences of the system we have today. All governments, whether Central or State, are in financial difficulty. **More than 25% of the Central Budget is spent on paying interest on money borrowed by the government.** Then there is **deficit financing.** The Central government has made efforts to bring it down, but has not been able to meet its targets. **India's fiscal deficit is among the highest in the developing world, with the IMF estimating it to be 7.5% of the GDP in 2019.** State government finances are worse: a substantial amount is spent on salaries and pensions. Then we have the huge problem in the financial sector with banks, non-banking financial companies and ILFS going almost into liquidation. That means that a lot of the public's money is either gone or is under great risk. Is there a link between the use of election funds and non-performing assets in banks? Other manifestations of these



problems are an increasing number of government scams; corruption; growing fear and insecurity; average or poor governance, including public services provided by the government; and rising unemployment. How can we really expect good services for the taxes we pay if 43% of MPs have criminal cases against them?

### The way Forward

India needs a system that throws up parties and politicians whose primary goal is public service, not power. Mahatma Gandhi suggested a way: "Democracy is an impossible thing until power is shared by all... Even ... a labourer, who makes it possible for you to earn your living, will have his share in self-government." That goal of having enlightened politicians who feel answerable to the people is perhaps distant. For now, we need democratic, accountable and transparent political parties. We need to check the use of muscle and money power. **Politicians in the ruling party are rarely, if ever, arrested, and old cases against them are even withdrawn.** Sometimes no action is taken against those making hate speeches. Only rival politicians are targeted. This shows that the **police follows the orders of their political masters. Therefore, police reforms are required.** As a quick fix for misuse of money power and engineered defections, **a forensic audit by an independent agency should be mandatory when MLAs defect to other parties.** As the famous Watergate dictum goes, we need to "follow the money". That alone can restore public confidence in democracy. Above all, we need political party reforms that make parties transparent, accountable and democratic. But we are in a logjam: those who can reform the system do not want to. Voters are no doubt getting educated rapidly, but they are not in a position to bring about inner change in the electoral and political system merely through voting. **Some kind of citizen action to raise awareness may be required. Otherwise things will have to get worse before they get better.**

### A Case for More Policewomen (Devyani Srivastava - Senior Program Officer In The Police Reforms Programme Of The Commonwealth Human Rights Initiative)

- ➔ At least since 2009, when the Home Ministry set 33% as the target for women's representation in the police, increasing women's recruitment in the police force has been the goal of the Central and State governments. Yet, India persists with a male-dominated police force. In 2019, women comprised less than 10% of police personnel. Only seven States (Tamil Nadu, Bihar, Maharashtra, Himachal Pradesh, Uttarakhand, Gujarat and Sikkim) had more than 10% policewomen. In fact, there has been only a 5% increase in the number of policewomen in a decade (3.65% in 2009 to 8.98% in 2019). Reservation has been the primary tool to increase women's representation. Yet, no government has developed an action plan with clear timelines to meet the quota within a specified time period. Thus, it is not surprising that the annual change in the share of women in the police force from 2012 to 2016 was found to be less than 1% across States, according to the India Justice Report, 2019. At this rate, most States will take over 50 years to achieve the 33% target.

### Selective Implementation

While States adopt the reservation policy, they are very selective about its implementation. Very few States apply reservation for women at all the entry points (constable, sub-inspector, and deputy superintendent of police levels) or to all posts at each level. Some States (Kerala and Karnataka) have reservation for women only at the constable rank. Some (Andhra



Pradesh, Gujarat, Jharkhand, Tamil Nadu) extend it to the constable and sub-inspector ranks. But here too there are restrictions: reservation is limited to specific cadre posts within each rank. This has resulted in huge disparity in the representation of women across ranks. There are far fewer women at the gazetted ranks at the State level (assistant sub-inspector to deputy superintendent of police) than those at the constabulary level. This means that women are most prominent in the most junior ranks. While this is not a negative in itself, in the absence of institutional support, women remain in large numbers at the bottom of the ladder without moving up. Restricting women's quotas to entry levels or select posts not only shrinks the potential pool of women recruits in a given year but also reduces the proportion of women likely to get promoted to leadership and supervisory positions. As a consequence, there are not enough women personnel to perform exclusive functions when gender-based crimes are reported. For instance, in 2013, the Home Ministry said that at least three women sub-inspectors should be available in a police station as investigating officers. Tamil Nadu, which has the highest percentage of women personnel (17.46%), requires 6,057 women sub-inspectors to meet this standard across its 2,019 police stations. At present, it has barely one-fourth of that requirement. Also worrying are signs that States with relatively high proportions of policewomen appear to hit a plateau. The figure for policewomen in Maharashtra and Himachal Pradesh has stayed at around 12% for the past four years. Some places like Chandigarh have even recorded a decline.

### Challenges

It is time to look beyond numbers to institutional barriers that hinder women's growth within the service. Frequent inter-district transfers and disallowing postings in home districts for specified periods of time coupled with poor childcare support systems and lack of adequate facilities and infrastructure present distinct difficulties for women. Taken together, these and other barriers limit the avenues for women's promotion. Sexual harassment at the workplace that policewomen suffer is not adequately acknowledged. There is even less recognition of the impact that the policing sub-culture, with its association with "masculinity" and coercive force, has on the participation of women. No wonder it is common to hear the police being described as policemen — as if women in the police don't exist at all. The underlying assumption seems to be that an increase in numbers will automatically make the organisational culture more egalitarian. This is far from the truth. Women are typecast — for example, they are asked to deal with crimes against women, while they are kept outside the mainstream of varied experiences. As a result, new recruits will become increasingly ghettoised in the absence of a framework to guide their career path. Increasing the number of recruits alone will not be enough; institutional changes embedded in principles of diversity, inclusion and equality of opportunities are as important. Otherwise, discrimination and exclusion will continue to persist even as the numbers of women increase.

### Coming to Terms with Biometrics in Policing (R.K. Raghavan - Former CBI Director)

- Ever since the police became a formal organisation nearly 150 years ago, there is global consensus that the police charter ought not to be restricted to a mere maintenance of peace in public places. It should focus equally on crime prevention and detection. Speaking of police handling of crime, the traditional argument of criminologists is that while preventing a crime is arduous and usually beyond human capacity (because of the dimensions and complexities of modern society), solving a crime is relatively easy. Police history has shown up fault lines



in law enforcement strategy in discharging the twin tasks. It is in the area of crime detection that the police in most nations have lost public confidence. Even police forces which have huge manpower and can afford to buy the latest technology have not exactly distinguished themselves in their efforts to boost success rates in solving crime — it is now between 30% and 40%. Except in sensational cases which have attracted public and media attention, the Indian police have also been guilty of underperformance. Crime using knives continue to worry London's Metropolitan Police, while the frequency of gun violence is high in U.S. cities. All this despite robust and aggressive policing. While cases of grave sexual assault as in the Nirbhaya case have damaged the police's reputation as far as ensuring the safety of Indian women is concerned, even allowing for substantial non-reporting of assaults on women, I believe there is a degree of enhanced sense of security among Indian women, attributable to some extent to greater police sensitivity and also to increased precautions being taken by women.

### The Two Sides

However, there is a dismaying paradox here. Citizens no doubt demand newer crime control measures which will keep them safe. At the same time they resent productive and smarter police innovations in the field because of perceived danger to individual rights and privacy. Surprisingly, the campaign against police experiments has been spearheaded by some women activist groups. Their stand is that the end cannot and should not justify the means used by state agencies. This explains the sharp adverse responses, albeit only by a few groups, to a counter-crime facial recognition technology. This is the technology that seeks to make inroads into the underworld's ability to be elusive and their machinations in order to escape detection by the police radar. Taking into account how criminals merge with the community to escape identification, the police in several countries have sought the help of expert security agencies to scan faces seen in public spaces. This is with a view, whenever necessary, to run them against available databases of faces used in crime fighting. The resistance especially in the United States and the United Kingdom, against facial recognition software, has been baffling. Its modest use in India explains the lack of public discourse on the pros and cons of facial identification software.

### Gauging the Opposition

Opposition to facial recognition technology has come mainly from two groups. The first are those who believe that the software discriminates against minorities and ethnic groups, especially blacks and other non-whites. The suggestion is that there is a disproportionate number of black and non-white faces captured by this software if one considers their large numbers in a community. This charge applies mainly to the police in the U.S. It mirrors the movement until recently in New York City against the use of 'stop and frisk' practice to combat crime. Several studies conducted in reaction to sharp protests by African-American groups revealed that more black and brown people were stopped and frisked than was warranted. The same charge of bias has now been brought against face recognition technology. This is, however, not comprehensible because the cameras are meant to take pictures at random rather than of specific segments of the population. The police in such cases are on a roving mission hunting for faces that have already come to adverse notice. Next are rights activists who focus on privacy violation. Criticism is mainly on the ground that technology, despite the tall claim of infallibility by those producing it, has many a time been found guilty of errors. Therefore, harassment of innocent citizens is not uncommon. Perhaps



the stoutest defender of facial recognition technology is Cressida Dick, Metropolitan Police Commissioner. Addressing the Royal United Services Institute recently, she dismissed the charge that the practice of capturing faces — “policing without consent” — harms individuals, either physically or in terms of reputation. She pointed out how the moment there is no match of a face with existing records, it is deleted. She commented on how citizens have no qualms in handing over their data to private companies, especially while unlocking phones using one’s fingerprint. She added that data, even when there are matches with the existing Met database, are deleted within 31 days of capture if there is no requirement for further investigation. The Commissioner also referred to the solving of at least eight crimes in recent months with the help of facial recognition. There is no reason to believe that this is a specious claim.

### U.S. Study

In contrast to this one has the study of 2019 by the National Institute of Standards and Technology (NISDT) in the U.S. which found that many of the current facial recognition algorithms were likely to misidentify members of some groups 100 times more frequently than they do of the other groups. In its study, the NISDT took up 189 algorithms from 99 organisations and its findings raise doubts about the wisdom of employing facial recognition software indiscriminately. The study surmised that error rates could perhaps be brought down by using a diverse set of training data. Whether the misidentification is due to bias built into the software is not clear. However, the danger of misidentification cannot be brushed aside. The point that critics of facial recognition technology who raise privacy concerns should remember is that our faces are already online in a number of places. Increased use of CCTV cameras in a number of public places is in a sense a threat to anonymity. When this is the reality, how can we object to the police scanning us for the laudable objective of solving a case under investigation? In the ultimate analysis, any modern technology is fraught with hidden dangers. There is no claim of infallibility either by the software maker or by the person selling it or who advocates its deployment. Grave errors from its use are however few and far between. Just as DNA testing establishes either the guilt or the innocence of a person arraigned for crime, facial recognition performs an equally vital role in criminal justice administration. Over the years I have seen a marked improvement in the way policemen, even at the bottom of the pyramid, handle digital evidence. The hope is that similar care and sophistication will soon mark criminal investigation by police forces across the globe.

### Need for Re-Orientation (C.N. Krishnan - Retired Professor of Anna University Chennai)

- Out of about a thousand higher education institutions (HEIs) that are authorised to award degrees in India, about 400 are state public universities that produce over 90% of our graduates (including those from the colleges affiliated to them) and contribute to about one-third of the research publications from this country. That their quality and performance is poor in most cases is accepted as a given today. It is evidenced by their poor performance in institutional rankings, **the poor employment status of their students, rather poor quality of their publications, negligible presence in national-level policy/decision-making bodies, poor track record in receiving national awards and recognition, poor share in research funding and so on.** Commonly stated reasons for these observations include government/political interference in the management of the university, lack of autonomy, poor governance



structures, corruption, poor quality of teachers, outdated curricula, plagiarism, poor infrastructure and facilities, overcrowding, evils of the “affiliation” system and poor linkages with alumni and industry. While many of these observations are no doubt valid, they appear to be only the symptoms and consequences of some deeper malaise and not the underlying cause. For example, it is often said that you cannot expect much quality from these universities as they are run by the government. This is a fallacious statement since many of the HEI s like the IIT s are doing relatively better than other institutions even though they are government institutions. Lack of a proper diagnosis of the problem has led to fragmented and ineffective approaches to improving the performance of state universities. An attempt is made here to identify a core causative factor for this malaise.

### Support for Central Institutions

Central government HEIs are valuable and should be supported in all ways. That they have hardly ever been short of funding and patronage has been ensured by the Central government and its arms; national-level parties, industries and businesses; and the national elite and the intelligentsia. It is the existence of such an unwritten contract at the national level that appears to be the key factor for the performance of these Central government institutions. However, a similar consensus and contract has never been built between the State universities and State governments, State-level political parties and organisations, industry and businesses; and the elite and the intelligentsia. It is as though State-level players do not have much stake in the stability and performance of the State university system. One reason why State-level players do not feel compelled to back the State university system more strongly could be that the latter does not commit itself to anything that may be of particular interest and value to the State where the university is located. The aims, goals, methods and priorities of these institutions are pretty much the same as those of the Central institutions. The only real value add that the State universities are doing for the State and its people seems to be that of enabling a few lakhs to become graduates every year.

### For A State Contract

In order to receive much more funding and support from the State system then, State universities would have to commit to delivering lots more to the State and its people where they are located. They must come up with a new vision and programmes specifically addressing the needs of the State, its industry, economy and society, and on the basis of it make the State-level players commit to providing full ownership and support to them. In other words, establish a contract between the State universities and the State system similar to what seems to be existing between the Central institutions and the Central government and other national-level stakeholders. The initiative to start a larger dialogue on the future of our State universities would have to be taken primarily by the academic community of these institutions.

## Closing the Gender Gap in Science (C.P. Rajendran - Professor at The Jawaharlal Nehru Centre For Advanced Scientific Research)

- India celebrates **National Science Day on February 28** every year to mark **C.V. Raman’s discovery of the scattering of light**. For the last 33 years, on this day, research institutes and other academic centres in the country have been holding public outreach programmes or





conducting meetings on select topics. **This year, the theme was Women in Science.** This is a timely and relevant theme, but it is also rather ironic given that Raman himself did not warm up to the idea of women in science. For some time, this prejudice meant that women candidates were refused admission to the Indian Institute of Science in the 1930s, during Raman's tenure as director.

### Lost Opportunities

Despite his progressive political and philosophical convictions, Raman was a traditionalist. Like many others of the time, he imbibed the sexist views that were part of society then. Among his three women students, only Anna Mani was able to choose a scientific career, although she could not get a doctoral degree. Sunanda Bai was not awarded a PhD, and committed suicide for unknown reasons. Lalitha Doraiswamy left her studies and chose to marry Subramanyan Chandrasekhar, who was awarded the Nobel Prize in Physics in 1983. Why did these talented women fail to get their due? It would be interesting to contrast their journeys with the story of Janaki Ammal. Ammal opted to pursue a Masters degree from the Michigan State University in the U.S. and continued her scientific career even after her return to India. The success of Janaki Ammal, who chose to leave India, versus the stories of the other women tells us about lost opportunities. The cultural and gender norms that engendered **discrimination even during a renaissance of sorts in India was a major reason why the country lost out on an important opportunity to build a culture of including women in science during the pre-Independence days.** These stories of gender discrimination help in our understanding of the current discourse on the social and organisational conditions that regulate women's participation in science education and research. How do male colleagues behave today towards women working in labs today? Have gender attitudes changed? **It is true that a resurgent inclusive nationalism propounded by Mahatma Gandhi, Rabindranath Tagore, Jawaharlal Nehru and others during the struggle for Independence encouraged women, at least those who were part of the upper social strata, to break the familial and cultural shackles and enter the public space.** But did this social transformation, however incomplete it may have been, help in narrowing the wide gender gap in professional careers? While cultural and social causes are considered the primary reasons for gender discrimination, at least in India, organisational factors have also played a big role in preventing gender parity in science. This can be changed if more women are given leadership positions. **Lack of women leaders and women role models may be preventing more women from entering the field.** Compared to the pre-Independence days, one encouraging fact is that there is an exponential growth in the participation of women in the undergraduate and graduate levels. In the U.K., women account for 40% of undergraduate students who pursue degrees in the physical sciences and mathematical sciences and 14% in engineering and technology. In India, the corresponding figures are about 40% and 18%, respectively. More than 40% of PhD-holders in India are women. These figures, according to various estimates published in Current Science, show that social shackles are loosening.

### The 'Leaky Pipeline' Problem

However, the trouble starts after women obtain their educational qualifications. The percentage of women in faculty positions drops to less than 20%; only a few reach the top positions of institutes and universities. This is also the time when many of them become mothers, sometimes because of familial pressure. The Indian Science Academies are aware of the problem. But the reform should start from their own backyard. In all the three science



academies combined, only about 10% are women Fellows. Including more women in science is not only important from the human rights perspective; it also impacts the quality of science and the advancement of society itself. This is not to say that the situation is hopeless. There have been changes that give us hope too. For example, India is seeing more women in engineering today than ever before. This is heart-warming as engineering was once seen as a 'men only' domain. The role of women engineers in the launch of the Indian Space Research Organisation's second moon mission, Chandrayaan-2, is now legendary. At the same time some recent reports should worry us. **According to the Global Gender Gap Index 2020, a study covering 153 economies, India has slipped to the 112<sup>th</sup> spot from its 108<sup>th</sup> position in 2018.** The report also says it would take nearly a hundred years to close the gender gap in various fields in India compared to the time it would take in other countries. This prediction should be proved wrong. For this, the Indian scientific community should act as a pressure group to build greater focus on the issue and push for concrete measures to address the problem. As a simple first step, India should relax certain norms for women. **The expansion of maternity leave to 26 weeks from the previous 12 weeks shows that the present government is seized of the matter, but how this will affect the hiring of women workers is yet to be seen.** The history of science shows that many revolutionary discoveries were made by women scientists. The most famously known woman scientist is Marie Curie. But contemporary times are full of examples: Rosalind Franklin, Barbara McClintock, and Jennifer Doudna, to name a few. There are many in India too, whose contributions we must highlight in textbooks. Women across the world face the 'leaky pipeline' problem. Without supportive institutional structures in place, women, when they are pregnant, worry about gaps in publications, how they will do fieldwork, whether they will get promotions. Productivity concerns are high for women, especially in academia where the number of papers you publish is a marker of productivity. In India, we have many examples of women researchers who are involved in exciting scientific experiments. **It is imperative that we understand and remove the sexism and institutional obstacles that prevent more women from entering the scientific field.**

### The Devil in The Deep Sea (Aathira Perinchery - Wildlife Biologist-Turned-Journalist)

- Hidden in the azure waters of Lakshadweep's lagoons is a stunningly colourful world: corals burst in tones of red, pink, yellow and blue. These waters are also home to a variety of threatened and endangered marine life, including green turtles, sea cucumbers, giant clams and corals. Closer to the shore, and beneath the seemingly barren white sand, grows an entire grassland. Tiny tips of smooth, waxy sea grass gently break the grainy surface, and if left undisturbed, will grow into a lush meadow in a few years, waving their green fronds as far as the eye can see. **But all these inshore reefs and underwater grasslands may be in deep peril if an ambitious tourism project — involving the construction of beach and water villas offering 370 rooms — becomes a reality.** The multi-crore project has been proposed by NITI Aayog and the Ministry of Home Affairs. In a petition this January, 114 scientists from more than 30 universities and research institutes urged the Lakshadweep administration to reconsider the project, fearing the possible ecological impact it could have on the islands' sensitive lagoons and beaches. **News about tourism villas on 10 islands in the Andaman-Nicobar and Lakshadweep archipelagos has been trickling in since October 2018.** A 2019 NITI Aayog report lists 'best possible development strategies' for the 'holistic' development of



these islands. In the 36-island archipelago of the Lakshadweep, this proposal has been earmarked for the islands of Kadmat, Minicoy and Suheli. With an initial investment of ₹266 crore (and additional investments of up to ₹788 crore expected from the private sector), the project will be implemented by Lakshadweep's Society for Promotion of Nature Tourism and Sports (SPORTS).

### Just Like Maldives

The NITI Aayog report repeatedly stresses that the projects are 'technically feasible, economically profitable and socially acceptable'; that the 'up-front' clearances (both environmental and Coastal Regulation Zone) recommended for the project are a 'unique move aimed at creating much-needed conducive environment for private entrepreneurs to invest'. And in November last year, the Lakshadweep administration supplied more details of the project to potential bidders: successful bidders would get 75 years to finance, construct and operate the projects. Floating solar panels in the lagoons nearby will supply sustainable energy. And as much as 75% of the jobs will go to the local community, says Asker Ali, Managing Director of SPORTS.

### Not So Win-Win

The vision appears straightforward and grand: create job opportunities for locals, and world-class, 'Maldives-like', carbon-neutral tourism facilities that will also give India its first-ever water villas. A win-win for all stakeholders: the government, locals and tourists. But the ecological impact of such a project on the lagoons and coral reefs is likely to be far more complex and damaging than what is being acknowledged, argue India's scientists in their petition. Rohan Arthur is a marine biologist with the Nature Conservation Foundation-India and has been studying Lakshadweep's reefs and sea grasses for more than 20 years. He, and the several others who framed the petition, describe these lagoons as the islands' 'insurance sites. The shallow lagoons are protected from the open sea by an outer coral reef; this reduces the impact of wave action, preventing beach erosion and protecting the islands' limited freshwater supply. The healthy sea grass meadows in lagoons, crucial nurseries for many reef fish, also have high soil-binding capacities, he says. "Lagoonal sea grasses help stabilise beaches and prevent beach erosion." Erosion is indeed a problem in many of Lakshadweep's beaches. While wave action on beaches is a common geological process, extensive beach erosion and accretion (the creation of new sandy areas) from 'unscientific, indiscriminate dumping' of concrete tetrapods (structures used as a seawall to reduce wave action) has already impacted the islands' beaches, says the 2015 Integrated Island Management Plan (IIMP) that governs management activities on 10 islands of the Lakshadweep. Lagoons act as insurance sites also because it is only here that you find temperature-adapted coral species. Coral cover in outer reefs (in deeper waters) declined by almost 40% during the climate-change related coral bleaching events of 1998, 2010 and 2016, as Arthur and his team found. The reefs witnessed a startling shift in coral species, as they tried to adapt to climate change. Coral species such as the delicate, finger-like Acropora gave way to more temperature-tolerant ones such as the large, boulder-like Porites. As bleaching events keep recurring, these lagoons will become 'source sites', says Arthur. "Every time there is a mortality of coral in the outer reefs, these lagoons will supply new recruits to recolonise the reefs in the deeper waters." Without them, the reefs outside the lagoon will suffer. "The entire outer wall of the protective reef will start crumbling. The lagoon will die and islanders will suffer," says Arthur.



### Plastic in Coral

Human activity, such as construction, is bound to impact the lagoon's corals too, says Kelkar, a doctoral student of aquatic ecology at the Ashoka Trust for Research in Ecology and Environment. Waste disposal will affect water quality; microplastics are also a concern. In Australia's Great Barrier Reef, for instance, studies show how inshore corals can confuse microplastics for food and these microscopic pieces then get embedded in coral structures, impacting their health. "And we still don't know how increased boat movement in the lagoon could affect these ecosystems," he adds. In 2014, the Justice R.V. Raveendran Committee, appointed to evaluate the IIMP, made some strong recommendations. It is "highly essential to protect corals, sea grass and other ecosystems from anthropogenic activities," the report said, going on to list activities such as waste disposal, port development, dredging of navigational channels, construction of breakwaters, tourism and related activities, sand mining, and intensive fishing. This recommendation is now part of the IIMP.

### Whose Beaches Are They

The petition from the scientists also points out that beaches and lagoons have always been important economic and cultural spaces. Islanders fish in the lagoons for their daily consumption. Lagoon fish are also the backbone of Lakshadweep's famous sustainable and indigenous tuna fishery industry. And the beaches are heavily used: catch is processed and sundried on these sands. With tourism, and the spatial restrictions it could bring, locals fear that they will not be able to use the beaches or lagoons for their traditional livelihoods. "We catch bait fish — two or three-inch fish — for our pole-and-line tuna fishery from the lagoons," says Mohammad (real name withheld on request), who lives in Kadmat. "I fear that the floating solar panels could restrict our access to the lagoon and affect the fishing." That's not the only hazard the **floating panels bring. They will also get in the way of the green turtles that graze on the sea grass. Then, the artificial shading that they cast on the lagoon floor would be 'disastrous' for sea grass meadows and reefs.** Says Arthur, "Going carbon-neutral in this manner in a place like Lakshadweep is warped logic. **The first ecological casualties of the project will be the green turtles, the sea grass meadows, and the coral reefs.**" Moreover, the energy and water need of such a project are an abiding concern. Already, two of the inhabited islands where the villas are to be built are reeling under a water crisis. The scientists behind the petition clarify that they are not against development, but they want a transparent, third-party impact assessment to evaluate the project's ecological and social costs. **As the project now stands, it does not meet the United Nations Sustainable Development Goals.**

### 'No Approvals Yet'

Ali, who heads SPORTS, is also the nodal officer for the tourism project in Lakshadweep. He insists that the process is transparent and that all stakeholders, including local panchayats, have been consulted. He dismisses claims that the project would restrict local people's access to beaches or lagoons. "The project was not decided overnight. Impact assessments and studies were made by government institutes including the National Institute of Ocean Technology. The project will be implemented within the approved carrying capacity," he says, adding that "SPORTS cares about the protection of coral reefs because without them there can be no tourism. After all, livelihoods are more important and you have to strike a balance." In an email response, Amitabh Kant, CEO of NITI Aayog, says they are committed to



sustainable development of the islands, and adds: "We will not undertake any project without detailed environmental studies and only after following all due processes and taking all approvals. These processes are still under way. No approval has so far been received. All proposals will be subject to technical and environmental inputs." But 370 rooms are "far, far beyond" Lakshadweep's carrying capacity, points out tourism entrepreneur Jose Dominic, the former CEO of CGH Earth, who pioneered sustainable and responsible tourism in Kerala and ran Lakshadweep's Bangaram Island Resort for 20 years. He strongly discourages the project. "The water villas will be a disaster for everyone except the tourists staying in them," he says. "There was a similar proposal to build water villas on the Bangaram coral atoll almost 15 years ago, which thankfully didn't materialise. The pillars for the villa construction will be driven through coral rock. You're destroying the very resource that people are visiting the island for." The scientists agree. "Why is this particular project being pushed with so much urgency when we have far more urgent climate realities to deal with," asks Arthur. "The project pursues an imagination that is far at odds with reality.

## Business & Economics

### Is the Global Economy Headed for Recession?

#### What Does It Mean to The Global Economy?

Analysts fear that the global economy may tip into a recession unless the virus turns out to be seasonal. (A recession sets in when the economy shows two consecutive quarters of contraction.) The problem with current predictions is no one knows how long the virus will remain potent, how authorities around the world are able to stanch new cases and the resources they pull out to treat old ones. What business hates is uncertainty and uncertainty is the only thing that abounds when it comes to predictions about the vitality, endurance and longevity of the new virus. Rabobank has been cited in the media as saying that a global recession now is all but certain. It has predicted global GDP growth to be 1.6% for 2020, a figure that was 2.9% the last year, as per IMF estimates. Economists from Nomura have warned that a global recession might be inevitable. This year, in early March, the Institute for International Finance had said that global economic growth could turn out to be as low as 1%, and this was even before the OPEC club and Russia fell out on production agreements to maintain stable oil prices. Oil prices have had a free fall, sending stock markets into a tizzy. The UN's United Nations Conference on Trade and Development (UNCTAD), said the virus outbreak could cost the global economy up to \$2-trillion this year and that the pandemic could cause a recession in some countries causing global economic growth to clock in below 2.5%.

#### Why Should the Economy Be Affected?

If you engage less with the outer world, and avoid work, education, fitness and entertainment, a lot less economic activity would occur. Businesses face the challenge of disrupted supply of components to make products, or of having to shut some of their factories temporarily, not to mention large swathes of the workforce having to be quarantined.



### Which Are the Industries Impacted?

There is no industry that has experienced the impact. When China, with the disease's epicentre in Wuhan, was brought to its knees, the Indian pharmaceutical, automobile and mobile phone industries, for example, immediately wobbled. India depends on China for supplies of components for products that these sectors make. The Indian pharma industry, which depends on China for 70% of raw materials needed to manufacture drugs here, has seen input costs go up by 50% as of February this year. The pesticides sector is another that has been affected as manufacturers depend on China for raw materials. While there are comforting stock levels for now in India, farmers may soon face pesticide availability issues unless the situation resolves quickly. The Indian gem and jewellery makers lament the partial closure of the Chinese and Hong Kong markets, which is likely to result in a loss of about \$1-billion by April this year to the Indian sector which depends on these two foreign markets for 70% of its exports. Even the software services industry, which so easily lends itself to working from remote locations, can only progress so far. Decision-making in the West, a key market for software services, may have been hit, with in-bound travel restricted and the U.S. declaring emergency. When a health challenge hits you, analysts say the pricing of a technology contract will not be top of the mind. It is for this reason that the markets have barely taken note of regulators' attempts to infuse funds into the global economy. A few days ago, the U.S. Federal Reserve held an emergency meeting and cut interest rates by a half percentage point. The stock markets reacted favourably for a short while before losing steam and spiralling downwards. The Euro markets remained unmoved even after the European Central Bank announced fresh stimulus measures to help the economy cope with the growing cost of the COVID-19 epidemic. But the U.S. declaring a state of emergency over the spread of the virus will help allocate the significant quantum of funds needed to deal with a health-care requirement of this magnitude. Investors reacted positively to this, and the U.S. markets zoomed in response.

### How Will It Hit the Travel Sector?

Travel has been hit severely as countries issue advisories to eliminate unnecessary travel and go into lockdown mode. The U.S., for instance, has halted all in-bound travel from Europe. India has temporarily stopped grant of visas except for emergency situations. The impact on profits of — and jobs at — airlines, airport authorities and oil marketing companies is obvious and immediate, not to mention the economy around air travel — the vendor of coffee and sandwiches pays out a monthly premium to occupy prime airport space so that he can sell you a cappuccino and a sandwich when you pass by his counter.

### When Normalcy Returns, Wouldn't Pent-Up Demand Make Up for Lack of Economic Activity Now?

Take the example of shared mobility in India. Anecdotal evidence tells us that at steady state, cab drivers cannot quite afford to have their cabs out of circulation for even as short a period as a week, if they have to put food on the table for their families. Curtailed travel and commutes can be devastating for them unless the situation resolves quickly. Only some of the expenses that are being held back by consumers can be made up for later when pent-up demand is unleashed after the situation returns to normal. A postponed vacation may eventually see light of day. But micro-expenses, which contribute significantly to an



economy, such as a cab fare or buying snacks for a commute, can never be made up for, once the sun sets that day.

### Wouldn't Entertainment and Sports Offer A Reprieve?

Entertainment via mass media has seen significant impact. The very popular Indian Premier League has been postponed. The South Africa-India cricket series has been cancelled. States such as Kerala have shut down cinema halls for this month. Indian movie releases have been postponed indefinitely.

### Is There A Silver Lining at All?

Sales of medical supplies, soaps, hand sanitisers and essentials to be stocked up at home will evidently rise. It is said that after the Severe Acute Respiratory Syndrome (SARS) epidemic in China in 2003, shoppers began to prefer buying online, to avoid crowded spaces and that e-commerce major Alibaba's fortunes zoomed after this. Digital shopping may see even more traction. With schools shutting down temporarily, online learning platforms are likely to get a boost.

### In U-Turn, Govt. Moots 20-Year Window to Clear Telco Dues

- Nearly five months after winning its legal battle in the Supreme Court against telecom majors including Vodafone and Bharti Airtel for payment of Adjusted Gross Revenue (AGR) dues worth several lakhs of crores of rupees, the Centre did a virtual U-turn by urging the court to give the companies a 20-year window to pay the money back. In an application mentioned for urgent hearing in the apex court, the government said it has, after "detailed and long-drawn deliberations", devised a "formula" to soften the blow of the October 24, 2019 judgment directing the companies to cough up the AGR in three months. "All the licenses impacted by the judgment be allowed to pay the unpaid or remaining amount of past DoT assessed/calculated dues in annual instalments over 20 years (or less if they so opt), duly protecting the net present value of the said dues using a discount rate of 8% (based on one year marginal cost of lending rate of SBI which is currently 7.75%)," the application said. A document annexed to the application shows that the total demand of the Department of Telecommunications (DoT) as in October 2019 was ₹1,69,048.65 crore from 16 major telecom service providers (TSPs). The payment received till March 6, 2020, from these companies was ₹25,901.56 crore. Dues to the tune of ₹1,43,271.74 crore remain outstanding. The application said the formula was crafted taking into consideration the "larger interest, economic consequences on the nation and with a view to ensure that the Supreme Court order is complied with in letter and spirit." It said deliberations were held at various levels of the government in the administrative hierarchy, including the Cabinet. The application said vital issues related to the financial health and viability of the telecom sector and need for maintaining competition and level playing field in the interest of consumers were considered. It said the closure of one or more TSPs would adversely impact the digital connectivity of the country driving e-governance projects in commerce, banking and health. It would also dent the spread of digitisation in rural India.

### I-T Dept. Shocked by Tasmac's Acceptance of Demonetized Notes

- The Income Tax department has expressed shock over the Tamil Nadu State Marketing Corporation (Tasmac) having accepted demonetised currency notes worth ₹57.29 crore from Shatabdi Tower, Sakchi, Jamshedpur.



customers who purchased liquor at its shops between November 9 and December 30, 2016, in complete contravention of the demonetisation announcement made by Prime Minister Narendra Modi on November 8, 2016. After scrutinising Tasmac's I-T returns for the year 2016-17 through the Computer Aided Scrutiny Selection System (CASS), the department found that Tasmac had an opening balance of ₹84.23 crore as on November 9, 2016, which was declared a bank holiday. Of that balance, ₹81.57 crore was in Specified Bank Notes (SBN or demonetised currency notes of ₹500 and ₹1,000) and ₹2.66 crore in other denominations. Subsequently, Tasmac had collected ₹3,490.21 crore between November 10 and December 30, 2016, and the cash collections were deposited in its bank accounts on a daily basis. Records showed that the corporation had deposited about ₹140 crore in demonetised notes in bank accounts during the entire demonetisation period. After deducting ₹81.57 crore available as on November 9, 2016, the balance worked out to ₹57.29 crore. "The assessee is a government-owned State undertaking and it is beyond imagination as to how the State undertaking managed by an IAS officer would collect demonetised currency in contravention of the order of the Government of India... It is beyond probability to think that the assessee company and its outlet shops will exchange the valuable goods purchased by company legally, by transferring valid consideration, in exchange for invalid bank notes (illegal tender). "Though assessee claimed that it accepted SBN from customers due to law and order problems, the assessee has failed to produce any evidence from Government of Tamil Nadu or Honourable Governor of Tamil Nadu or the police evidencing any law and order issue that constrained the assessee to sell non-essential commodity like liquor against invalid bank notes," the I-T department said in an Assessment Order passed on December 30, 2019 and accessed by The Hindu. Refusing to believe that such illegal transactions could have been carried out by a State entity and after applying the principle of preponderance of probability, especially because Tasmac did not provide branch-wise details regarding deposit of demonetised notes, the I-T department concluded that the transactions done by the corporation using demonetised notes should be treated as "unexplained investment," under Section 69 of the Income Tax Act of 1961, for the year 2017-18. Besides demanding payment of tax for the unexplained investment of ₹57.29 crore, the department ordered the initiation of penalty proceedings against Tasmac.

### RBI's Focus on Liquidity Is Correct

- The messaging from the press conference of RBI Governor Shaktikanta Das is loud and clear: the central bank has an armoury of weapons and it will not hesitate to deploy them to mitigate the impact of COVID-19 on the economy. The two steps that Mr. Das has outlined now — forex swap and a second **long-term repo operation (LTRO)** of ₹1 lakh crore — are aimed at supporting liquidity in the market. Market rates may incidentally fall as the LTRO is at the repo rate of 5.15%. The focus on liquidity is the right thing to do at this point in time. A rate cut, while being a short-term sentiment booster, is not going to help in alleviating the situation as seen by the experience in the U.S., where the Federal Reserve has taken the funds rate to zero, but the markets remain unimpressed. The situation is clearly an evolving one and prudent action requires that the central bank keep its powder dry simply because we may not have seen the worst yet in terms of the virus impact, both in human and economic terms. In fact, in economic terms, this is just the start of what's likely to be a long period of instability and falling growth in the global economy. The falling indices and currencies are only a manifestation of the first order impact. The second, and more severe one, will come when major economies either slow down sharply or tip into recession. The disruption caused





to commerce, trade and travel already is so immense that the effects on the world economy will be felt for the rest of this calendar year. The effect will multiply if the virus infection curve does not flatten over the next 2-3 weeks. India cannot remain insulated from global economic turbulence and economic growth is sure to slow down in the coming quarters.

## Yes, Bank and Bonds

→ Depositors and investors in Yes Bank received a rude jolt on March 5 when the Reserve Bank of India (RBI) announced its decision to impose short-term curbs on their withdrawals, citing the bank's declining financial position. Since then, efforts have been made to quickly stitch together a bailout package for depositors before the event took a systemic toll. With the State Bank of India (SBI) agreeing to acquire a 49% equity stake, other investors joining in and the Cabinet clearing a reconstruction proposal, the fog has cleared a bit for depositors, as the withdrawal limits may soon be lifted. But one set of Yes Bank stakeholders who were expected by the RBI to take immediate and complete write-offs at the first sign of the bank's troubles, were the holders of its Additional Tier 1 bonds. Apart from mutual funds, pension funds and other institutions who usually invest in such bonds, quite a few retail investors are also stuck with them.

### What are AT1 Bonds?

AT1 bonds, also known as Additional Tier 1 bonds, are unsecured perpetual bonds issued by banks to shore up their capital base to meet Basel III requirements. Basel III norms were a set of rules that banking regulators around the world came up with after the global financial crisis in 2008, to strengthen bank balance sheets. Requiring banks to have their own skin in the game in the form of permanent capital, before taking on deposits or loans, is one of the underlying principles of Basel III norms. The RBI's version of Basel III norms requires Indian banks to hold a minimum capital amounting to 11.5% of their risk-weighted loans. Of this, about 9% is supposed to be the bank's core capital (called Tier 1), with 5.5% in equity. AT1 bonds are issued by banks to supplement their permanent or Tier 1 capital which is mainly made up of equity shares.

### Don't Bonds Have A Fixed Maturity? Why Are AT1 Bonds 'Perpetual'? Will Investors Never Get Back Their Principal?

Yes, as per their contract terms, AT1 bonds are supposed to remain permanently with the bank and pay investors interest for perpetuity. In practise though, these bonds have a 'call option' after 5 or 10 years that banks use to retire one set of AT1 bonds and issue another. Indian banks have so far never failed to call back their AT1 bonds after 5 or 10 years, and this has led to people forgetting their 'perpetual' nature.

### In the Yes Bank Case, Why Did the RBI Propose That AT1 Holders Alone Must Take A Write-Off?

The contract terms for AT1 bonds mention clearly that the value of these bonds can be completely written off if the bank's capital ratios fall below certain regulatory thresholds. The write-off also kicks in if the RBI decides that the bank is beyond the "Point of Non-Viability" or needs a public sector capital infusion to survive. This is the clause that the RBI seems to have originally invoked in the Yes Bank case. So, even though bond-holders generally come



higher in the pecking order of stakeholders than equity shareholders in most situations, AT1 bonds incorporate special situations where their contract terms allow for their holders to suffer write-offs before equity shareholders.

### Are There Other Such Clauses Lurking in The Fine Print for AT1 Bonds

Yes, several. One, these bonds can partly or fully skip their interest payments for any year if the bank's Tier 1 capital ratios fall below the RBI's thresholds. They can also give interest payouts a miss if the bank makes losses and has insufficient reserves. Two, the bank can also reduce the principal value of these bonds temporarily or for good, if its equity Tier 1 ratio falls below specified limits. Finally, there is the bombshell clause that the RBI used in Yes Bank. When a bank is teetering, the RBI can decide on a complete write-down of its AT1 bonds or convert them into equity if it feels that it has reached the point of non-viability.

### How Did These Bonds Get into The Hands of Retail Investors?

Reports suggest that retail investors were sold these high-value bonds (the face value is ₹10 lakh each) as high-return alternatives to fixed deposits, given that they were offering 2-3% higher interest than FDs. Some investors also bought them through their brokers based on their high yields in the secondary market.

### So, Who Should Invest in AT1 Bonds?

Only affluent investors who are willing to take on higher risk of a capital loss for higher yields.

### So, What Happens to Yes Bank AT1 Bond Holders?

Bondholders need to wait for clarity from the Centre or Courts. While the RBI's original scheme had proposed a complete write-off of these bonds, this was protested by institutions who were exploring legal options. The reconstruction scheme notified this week does not mention the way ahead for AT1 bonds.

## Life & Science

### How A Little Shell Tells Us the Day Was 23½ Hours Long, Once Upon A Time

- Towards the end of the time when dinosaurs ruled Earth, a little mollusc lived for nine years in a shallow seabed. Seventy million years later, scientists picked up its fossil from what is now dry land in the mountains of Oman. Their analysis provided new clues about the behaviour of a much warmer Earth. **Earth spun 372 times a year 70 million years ago, compared to the current 365. This means the day was 23½ hours long, compared to 24 today.** This new measurement, in turn, informs models of how the Moon formed and how close it has been to Earth over their **4.5-billion-year gravitational relationship**, the scientists said. The study is published in the American Geophysical Union's journal *Palaeoceanography and Paleoclimatology*.

### Faster Earth in The Olden Days

It has long been known that Earth's spin has slowed over time. Previous climate reconstructions, however, have typically described long-term changes over tens of



thousands of years. The new study looked at daily and annual variations in the mollusc shell. The ancient mollusc, *Torreites sanchezi*, belonged to an extinct group called rudist clams. At 70 million years ago, it belonged to the Late Cretaceous — it was around the time this epoch ended, some 65 million years ago, that dinosaurs went extinct. *Torreites sanchezi* grew very fast, laying down daily growth rings. Using lasers on a single individual, scientists sampled tiny slices and counted the growth rings accurately. This allowed them to determine the number of days in a year 70 million years ago, and more accurately calculate the length of a day. **It is important to note that the period of Earth's orbit has remained the same. In other words, one year 70 million years ago was as long as one year today. However, if there were a calendar then, the year would have been 372 "days" long, with each "day" half-an-hour shorter than one day today.** Today, Earth's orbit is not exactly 365 days, but 365 days and a fraction, which is why our calendars have leap years, as a correction. In the new study, the most accurate estimate that can be made is in a whole number of days a year, said lead author Neils de Winter, a geochemist from Vrije Universiteit Brussel. "We are pretty sure this number (372) is very accurate because of our new method of looking at multiple chemical records and multiple years. However, the exact number could be, for example, 372.25 or 371.75, just like it is approximately 365.25 days nowadays (when we count the leap days)," de Winter said, by email.

### The Moon's Retreat

Friction from ocean tides, caused by the Moon's gravity, slows Earth's rotation and leads to longer days. And as Earth's spin slows, the Moon moves farther away, at 3.82 cm per year. If this rate is projected back in time, however, the Moon would be inside the Earth only 1.4 billion years ago. Which cannot be, for the Moon has been with us much longer. Which means the Moon's rate of retreat has changed over time. The authors say their study helps reconstruct that history. We now have a technique that allows us to look at variations in climate and environment on the scale of days, millions of years in the past. This allows us to bridge the gap between climate and weather in our reconstructions of greenhouse periods in the past and gives us more detailed snapshots of what the world looks like when it gets so warm."

### Heat Stress May Impact Over 1.2 Billion People Annually By 2100

- Stress from extreme heat and humidity will annually impact areas which are home to about 1.2 billion people worldwide by 2100, assuming current greenhouse gas emissions, according to a study. This is more than four times the number of people affected today, and more than 12 times the number who would have been affected without industrial era global warming, said researchers from Rutgers University-New Brunswick in the US. **Rising global temperatures are increasing exposure to heat stress, which harms human health, agriculture, the economy and the environment**, according to the research published in the journal *Environmental Research Letters*. Most climate studies on projected heat stress have focused on heat extremes but not considered the role of humidity, another key driver, the researchers said. "When we look at the risks of a warmer planet, we need to pay particular attention to combined extremes of heat and humidity, which are especially dangerous to human health," said senior author Robert E Kopp, from Rutgers University-New Brunswick. "Every bit of global warming makes hot, humid days more frequent and intense. In New York City, for example, the hottest, most humid day in a typical year already occurs about 11 times



more frequently than it would have in the 19<sup>th</sup> century,” said lead author Dawei Li, a former post-doctoral associate at Rutgers, and now at the University of Massachusetts. **Heat stress is caused by the body’s inability to cool down properly through sweating. Body temperature can rise rapidly, and high temperatures may damage the brain and other vital organs. Heat stress ranges from milder conditions like heat rash and heat cramps to heat exhaustion, the most common type. The study looked at how combined extremes of heat and humidity increase on a warming Earth, using 40 climate simulations to get statistics on rare events. It focused on a measure of heat stress that accounts for temperature, humidity and other environmental factors, including wind speed, sun angle and solar and infrared radiation. Annual exposure to extreme heat and humidity in excess of safety guidelines is projected to affect areas currently home to about 500 million people if the planet warms by 1.5 degrees Celsius, and nearly 800 million at 2 degrees Celsius, the researchers said. The planet has already warmed by about 1.2 degrees above late 19<sup>th</sup> century levels, the said. An estimated 1.2 billion people would be affected with 3 degrees Celsius of warming, as expected by the end of this century under current global policies, according to the study.**

### Why Pi Matters: Part of Our Lives, Its Day Ruined by Outbreak This Year

- March 14 is Pi Day, a celebration of the beloved constant pi. This year, however, not many are celebrating, with the coronavirus outbreak having restricted public gatherings.

#### What is Pi Day?

It is dedicated to pi, whose value up to five decimal places is 3.14159. The idea originated in the United States, where the convention is to write dates in a format that expresses March 14 as 3/14. These three digits match the value of pi up to two decimal places, at 3.14. Coincidentally, March 14 is also Albert Einstein’s birthday. The late Larry Shaw, a physicist with the Exploratorium museum in San Francisco, came up with the idea of Pi Day in 1988. The Exploratorium launched celebrations on 3/14, at 1:59, to correspond with 3.14159. The Exploratorium tradition eventually spread across the world among mathematicians, scientists and ordinary fans of pi. In 2009, the US House of Representatives adopted a resolution supporting the designation of Pi Day and its celebration around the world.

#### But Why Pi, In Particular?

Vital to a wide range of calculations, pi is also the most familiar of all mathematical constants. The concept is introduced to schoolchildren when they are taught to calculate the area and circumference of a circle. They usually work with the fraction  $22/7$ , which gives an approximate value for pi. By definition, pi is the ratio of the circumference of a circle — any circle — to its diameter. It is remarkable because the ratio is always constant. Pi is also the area of a circle divided by the square of its radius — again a constant ratio for any circle. This was something that caught the attention of ancient mathematicians; the Babylonians took the ratio as 3. Centuries of observations and calculations have refined the value of pi, with modern computers having gone up to trillions of digits (digits after the decimal continue forever, for pi is an “irrational number”.) Besides being indispensable in geometry and by extension trigonometry, pi has applications in physics, astronomy and other sciences, and appears in various formulas.



Many non-Americans find it difficult to associate pi with March 14, which they express as  $14/3$  rather than  $3/14$ . Other dissenters have noted that we usually work with a circle's radius, not its diameter. The ratio of a circle's circumference to its radius, they point out, is 2 times pi, or 6.28. Therefore, they prefer to celebrate on 6/28 (June 28), which they call "Tau Day".

### What's Different This Year?

Because of the outbreak, public events are mostly off. The Exploratorium, which has shut until the end of March, announced that Pi Day celebrations are postponed.

## CORONA

### As World Battles Coronavirus Pandemic, A Few Takeaways Emerge

- ➔ The new coronavirus infection that emerged in China in December has now been confirmed in at least 166 countries and territories around the world.

#### 1. Testing Is Crucial...

Examples of China and South Korea have shown that countries give themselves a fighting chance when they take steps that assume, they're worse off than they appear to be. This is because it can take up to two weeks for an infection to be diagnosed. The virus's incubation time (time taken for symptoms to appear) is thought to be five days — and even after that, **it could be several days before people actually go for a test if they are inadequately informed, can't identify their symptoms, or are discouraged by the absence of resources or facilities. Once tested, results could take two days to be available. For this entire time, the virus could be spreading. Uncontrolled circulation could lead to cases doubling every two days — and the number of infections may, in fact, be up to 128 times what it seems to be.** If so, the community may actually be facing a full-blown public health crisis. **Taking aggressive steps that look like an overreaction could, therefore, be just the right thing to do. Not only is acting proactively better than being reactive, it may actually be impossible to get on top of the situation after the virus has already spread widely.** Any set of hospitals can tackle only a finite number of cases, and too many at the same time will invariably overwhelm them. And thus the importance of testing. As a government Minister in South Korea — which tested massive numbers with great speed and efficiency — said: "Testing is central because that leads to early detection, it minimizes further spread, and it quickly treats those found with the virus." Testing, he said, was "the key behind our very low fatality rate as well". Data upto Thursday night showed 8,565 cases and only 91 deaths in South Korea. China too, tested very aggressively alongside imposing massive lockdowns, even if belatedly. On Thursday, China reported no new cases for the first time, and fell behind Italy in the death count.

#### 2. ...As Is Contact Tracing

Singapore, South Korea, and Hong Kong have shown that running detailed forensic investigations into every patient's history of recent contacts, followed by tracking them down and, if required, quarantining them, helps. **The South Koreans have used apps and GPS tagging of patients, and gone through location and credit card transaction histories;** the Singaporeans have proactively identified large networks of possible transmission from each patient, and tracked down the individuals in those networks. In both these countries, as well as in Hong Kong, details of infected patients have been broadcast for the public. "We want



to stay one or two steps ahead of the virus," a top Singapore official has been quoted as saying. "If you chase the virus, you will always be behind the curve." Steps like these would, however, be very difficult to take in a country like India, both for its size and the characteristics of its population, as well as for reasons of privacy.

### 3. Free Healthcare Helps

A major factor in success or failure in the fight against an epidemic is the degree to which the public responds to the crisis. People must see an incentive to raise their hands to help the government, including by declaring their own illness. **Analysts have note that in South Korea and China, where healthcare is heavily subsidised or paid for by the state, people have come forward to test and be treated. Testing is free in India, too. In the United States, by contrast, the enormous costs of healthcare nudge people to avoid coming forward, or to wait for long even after symptoms appear.** Analyses have shown that fear of healthcare bills may have stretched out the 2009-10 H1N1 outbreak, which killed nearly 12,500 people in the US.

### 4. Timing Holds the Key

An analysis in The New York Times by Max Fisher and Amanda Taub on the lessons from the coronavirus pandemic mentions a study that used computer modelling to show that had China implemented its testing and lockdown policies a week earlier, 66% of infections would have been prevented — and had it acted three weeks earlier, 95% of infections would not have occurred. **Taiwan, which was watching China, actually imposed an epidemic-level lockdown even before the epidemic actually came — and is today only mildly affected, despite being next-door to China.** Italy, on the other hand, is paying the price of getting the timing wrong. It waited too long to impose the lockdown, and by then COVID-19 had spread too far and too deep for its healthcare systems to handle. Fisher and Taub referred to a University of Oxford study that shows how timing was central to Italy's disaster: the cities of Lodi and Bergamo in Lombardy saw a few cases at the same time in February, but while Lodi imposed social distancing rules immediately (February 23), Bergamo didn't do so until as late as March 8. By March 13, Lodi had 1,133 cases and a slowing infection, while Bergamo had 2,368 cases and an accelerating infection. India has so far seen only a small number of infections, and one reason could be the speed with which it moved to lock out individuals with the potential of bringing the virus into the country.

### 5. Inequality Hits Everyone

Several studies have shown that **in an epidemic, the risk of infection and death is greater for everyone in societies that have greater wealth and income inequality. The reason: while the poor are more vulnerable, epidemics do not respect the physical and social barriers between a society's haves and have-nots, and therefore, everyone faces higher risks of infection. This, Fisher and Taub write, is one of several reasons that health experts are watching India closely.**

## When Schools Are Shut

- A number of countries around the world have shut down schools, colleges and universities because of the novel coronavirus outbreak. Why did some countries feel it necessary to do so while others did not? What is the impact on learning and other areas?



### How Many Students Has the Outbreak Affected?

The outbreak has pulled almost half (49.22%) of the world's student population out of schools and universities. According to UNESCO, until late on Tuesday, 107 countries had announced a complete shutdown of classrooms, impacting 86.17 crore children and youth. Although the temporary closure of educational institutions on account of a crisis is not new, the scale of the present education disruption is unprecedented.

### Has India Implemented Nationwide Closure of Schools and Universities?

The Centre announced the closure of all universities and schools on March 16. However, many educational institutions continue to remain open for heads, teachers and non-teaching staff. Also, in many states including Jharkhand, Uttarakhand, Tamil Nadu, and West Bengal, Board examinations are being held as per schedule, forcing Class 10 and 12 students to step out regularly. On Wednesday, the Union government ordered the CBSE, NIOS and all universities and colleges to suspend ongoing examinations. Following this, the Delhi government announced a complete closure of all schools, even for teachers and non-teaching staff. Other state governments are expected to follow suit.

### Are School and University Shutdowns Helpful In Mitigating An Outbreak?

The World Health Organisation recommends school closure (including preschool and higher education) as one of the "non-pharmaceutical interventions" for mitigating influenza pandemics. The rationale is that children and young people can be vectors of transmission, and high contact rates in schools could abet the spread of the virus. With COVID-19, children and the young have been observed to suffer less than the elderly when infected, but they can still transmit the virus to the elderly at home. With school closures during a pandemic, governments hope to break the chains of transmission. This will help reduce the number of confirmed cases, avoid stressing healthcare systems, and allow more time to develop a vaccine.

### Why Then Are Some Countries Not Proactively Closing Schools?

The cost of keeping schools closed is a reason why governments resist the idea. Closure not only disrupts learning but also has a direct economic cost. Because when schools close, families would have to find childcare. While some may manage to look after children without missing work, many parents will end up skipping work. Those lost work hours are a cost to the economy. The UK resisted the idea of school closures for a long time for precisely this reason. Their government finally gave in on Thursday, and announced a nationwide shutdown of schools from Friday. The disadvantages of classroom shutdowns are far greater for students from underprivileged backgrounds. When schools close, their nutrition is compromised. This is already evident in India, where the **closure of schools has disrupted the supply of midday meals. Taking suo motu cognisance of this problem, the Supreme Court this week issued notices to all state governments to explain how they would ensure the midday meals reach the vulnerable while schools stay shut. As schools and universities move towards learning online to make up for lost time, students from low-income family's risk falling behind as they don't have access to technology or stable Internet connections. That apart, parents of first-generation learners in schools are often unprepared for distance learning and home-schooling.**



### How Are Governments Trying to Minimize Learning Disruptions After Closure?

Countries are adopting distance learning solutions to ensure continuity of education. A COVID-19 task force set up by UNESCO is advising countries in regular virtual meetings with Education Ministers. China, the first country to impose a lockdown on citizens, was also the first to launch a simultaneous online learning exercise. The Ministry of Education, according to China Daily, launched a national cloud learning platform to cater to students in middle school and high school. Simultaneously, a television channel, China Education Television Channel 4, was dedicated to broadcasting classes for primary school students. The learning platforms, China Daily said, were separate for different groups to prevent network congestion from too many students going online at the same time. The country also mobilised its three biggest telecoms operators — China Mobile, China Unicom and China Telecom — to boost Internet connectivity. In India, the closure of schools happened towards the end of the academic year. Hence, as of now, it hasn't caused any significant learning loss. However, if schools and universities were to remain shut beyond March 31, Union and state governments will have to implement distance learning solutions. The Human Resource Development Ministry has decided to encourage schools and universities to "make full use" of existing e-learning portals such as the Massive Open Online Courses (MOOCs) platform Swayam, and the free DTH channel Swayam Prabha, which telecasts educational videos prepared by the NCERT.

### Blunting the Economic Impact of a Pandemic

- ➔ That screeching noise that you hear is of the wheels of commerce grinding to a halt. The effect of the strong clampdown measures taken by the government to arrest the spread of the coronavirus is beginning to be felt across a swathe of the economy. Prime Minister Narendra Modi, said that a task force under Finance Minister Nirmala Sitharaman has been constituted to assess the economic impact of the pandemic and suggest palliative measures. Here are some suggestions for the task force to discuss.

#### Cash Transfers

Those such as cab drivers, restaurant waiters, mall workers, domestic help, itinerant retailers and other casual job workers are either already without jobs and incomes or will soon find themselves in that position. It may not be a bad idea to consider cash transfers of a fixed amount to these vulnerable sections. There are **33 crore accounts under the Pradhan Mantri Jan Dhan Yojana** that can be leveraged for this purpose. There is also an efficient Public Distribution System prevalent in most States through which the beneficiaries can be identified for a cash handout. There is a total of **23.53 crore ration cards in the country according to the National Food Security Portal**. Assuming that all of these are below poverty line cards, a transfer of ₹1,000, which is the least that should be considered, will cost the Centre over ₹23,500 crore. Granted that the funds requirement is huge even for this basic amount. We will look at funding possibilities later in this piece. Last month, Hong Kong announced a cash handout of HK\$10,000 to every permanent resident as a supportive measure. The United States is also weighing the option of a cash handout totalling \$250 billion to its citizens.

The resources of the Centre and the States have to be pooled to develop a national response to this unfolding economic tragedy. Kerala, for example, has already announced a ₹20,000 crore package and other States may follow suit. It may be a good idea for the Centre to





leverage State resources along with its own. Second, the government will have to engage with the private sector while devising assistance measures. There is a lot of expertise and sharp financial minds available in the private sector and these should be tapped into for innovative ideas. The Yes Bank rescue proves the heft of the private financial sector in coming to the rescue of one of its own. The virus has eaten into the just-a-month-old Budget whose numbers now appear unrealistic. It is not just tax revenues that are heading for trouble, even the disinvestment budget of ₹2.10 lakh crore now appears unachievable. Bharat Petroleum Corporation Limited and Air India appear destined to remain government companies in the foreseeable future. In this backdrop, it is impossible for the Budget to fund any stimulus programme now. Extra budgetary support will be needed and that is where the idea of a bond issue comes in. A well-structured, tax-efficient bond issue can be an option to tap into the large pool of domestic savings. The large Indian diaspora can also be tapped into. Remember the **Resurgent India Bonds experience of 1998** post-Pokhran? **The State Bank of India raised about \$4 billion from non-resident Indians against all odds to help India tide over the immediate impact of sanctions.** Why not do something similar now? After all, this is as unprecedented a situation for the country as the aftermath of the sanctions in 1998.

### What Is Herd Immunity?

- The UK's Government Chief Scientific Adviser Sir Patrick Vallance hinted at a strategy that would allow the novel coronavirus to infect 60% of the country's population so that a degree of "herd immunity" could be achieved. Following widespread criticism, and with Imperial College London projecting a dire scenario if the pandemic remains uncontrolled, the UK has now retracted — and is looking at self-isolation for the elderly.

### What Does Herd Immunity Mean?

Herd immunity refers to preventing an infectious disease from spreading by immunising a certain percentage of the population. While the concept is most commonly used in the context of vaccination, herd immunity can also be achieved after enough people have become immune after being infected. The premise is that if a certain percentage of the population is immune, members of that group can no longer infect another person. This breaks the chain of infection through the community ("herd"), and prevents it from reaching those who are the most vulnerable. However, the discussion on herd immunity to fight COVID-19 in the UK has not been based on this conventional definition. The UK government had wanted the entire population to be exposed to the novel coronavirus infection, so that the majority could develop immunity to COVID-19.

### How Does Herd Immunity Work?

The scientific principle is that the presence of a large number of immune persons in the community, who will interrupt the transmission, provides indirect protection to those who are not immune. To estimate the extent of spread and immunity, epidemiologists use a measure called the '**basic reproductive number**' ( $R_0$ ). This indicates how many persons will be infected when exposed to a single case; an  $R_0$  of more than 1 indicates one person can spread the infection to multiple persons. Scientific evidence shows that a person with measles can infect around 12-18 persons; and a person with influenza can infect around 1.2-4.5 persons, depending on the season. On the basis of the available evidence from China, and according to various experts,  $R_0$  COVID-19 ranges between 2 and 3.



### When Do We Know That A Population Has Achieved Herd Immunity?

It depends on multiple factors: how effective the vaccine for a given disease is, how long-lasting immunity is from both vaccination and infection, and which populations form critical links in transmission of the disease. Mathematically, it is defined on the basis of a number called “herd immunity threshold”, which is the number of immune individuals above which a disease may no longer circulate. The higher the  $R_0$ , the higher the percentage of the population that has to be immunised to achieve herd immunity. Polio has a threshold of 80% to 85%, while measles has 95%. With the current data for COVID-19, experts have estimated a threshold of over 60%. That means more than 60% of the population needs to develop immunity to reach the stage of herd immunity.

### Why Is Herd Immunity as A Strategy Against COVID-19 Questionable?

It is very risky to seek herd immunity by allowing a large proportion of the population to get infected. Such a strategy at this stage, experts have underlined, would be based on many unknowns and variables. To begin with, much about the behaviour of the pathogen is still unclear. There isn't enough statistically significant data to estimate conclusively how many persons can get the virus from a single infected person. Second, it can take months, or even longer, to build group immunity to COVID-19. During that time, the need is to protect people who are at greater risk; the numbers so far indicate that people above 55, especially those with co-morbidities like cardiovascular disease and hypertension, are the most vulnerable. Third, while herd immunity may come about from a pandemic because the people who survive may develop immunity — they also may not — it is important to note that for COVID-19, we still don't know whether one can become immune to the virus. Nor is it clear whether a person who develops immunity will remain permanently immune. The UK's original strategy to achieve herd immunity would put a huge burden on the healthcare system. Allowing the virus to pass through the population means a surge of patients, putting pressure on existing ICU and emergency beds. The UK was looking at 60% of the population getting infected, which could have happened rapidly.

### Does Ibuprofen Make COVID-19 Worse?

- The World Health Organisation (WHO) advised patients suffering from COVID-19-like symptoms to avoid the anti-inflammatory drug ibuprofen, unless prescribed by doctors. This followed an article published in The Lancet Respiratory Medicine suggesting that certain drugs, including ibuprofen, may make patients more vulnerable to COVID-19, as well as a warning by France's Health Minister that such patients should avoid painkillers like ibuprofen and aspirin. WHO spokesperson Christian Lindmeier told reporters in Geneva that investigations into the possible adverse impact of ibuprofen were ongoing. “In the meantime, we recommend using rather paracetamol, and do not use ibuprofen as a self-medication. That's important,” Lindmeier said. But if ibuprofen has been prescribed by healthcare professionals, the spokesperson added, “then, of course, that's up to them”.

### What Is Ibuprofen?

It is an anti-inflammatory drug that is easily available with chemists in India, and can be purchased without a doctor's prescription. Common medicines that contain ibuprofen include Brufen and Combiflam tablets. Ibuprofen, a non-steroid, is used for relief from joint pain, migraine, fever, body ache, and even pain during the menstrual cycle. Its function is to



reduce pain, swelling, and fever by suppressing substances that produce swelling in the body. Other non-steroid anti-inflammatory drugs (NSAID) include aspirin, cortisone, naproxen and diclofenac.

### What the Study Flagged

Writing in The Lancet Respiratory Medicine, a team of scientists have suggested that consumption of ibuprofen increases the number of certain enzymes that could worsen COVID-19 infection, caused by the virus SARS-CoV-2. "Human pathogenic coronaviruses (severe acute respiratory syndrome coronavirus [SARS-CoV] and SARSCoV-2) bind to their target cells through angiotensin-converting enzyme 2 (ACE2), which is expressed by epithelial cells of the lung, intestine, kidney, and blood vessels," they wrote. ACE2, an enzyme also found in bats, is SARS-CoV-2's entry point into the cell. The research cited a study that observed that ACE2 expression increases in hypertensive and diabetic patients, making them more vulnerable to severe infection. Drugs like ibuprofen and thiazolidinediones, used to treat type-2 diabetes, too increase ACE2 expression. "We suggest that patients with cardiac diseases, hypertension, or diabetes, who are treated with ACE2-increasing drugs, are at higher risk for severe COVID-19 infection and, therefore, should be monitored for ACE2-modulating medications, such as ACE inhibitors or ARBs," the authors of the paper said.

### Warning and Dispute

The French media has written about French officials raising an alarm over non-steroid anti-inflammatory drugs. In the UK, The Mirror reported that a four-year-old girl infected with COVID-19 had suffered from vomiting, shaking, and high-grade fever after being administered ibuprofen. The French Minister's concerns have, however, been disputed. Dr Muge Cevik, infectious diseases researcher at the Infection and Global Health Research Division at the University of St Andrews, Scotland, wrote on Twitter the same day: "Deeply concerned about this bold statement by the French MoH with no reference to the claim, which is causing public concern. There's no scientific evidence I am aware of that ibuprofen cause worst outcomes in #COVID19."

### In India, Caution from Doctors

Dr Om Shrivastava, infectious diseases expert at Mumbai's Jaslok Hospital, said this is currently observational evidence, and scientific evidence on ibuprofen's effects is yet to collated and ratified. Dr Pravin Amin, Intensive Care Unit specialist at Breach Candy Hospital in Mumbai, said they would avoid prescribing ibuprofen in coronavirus patients until further studies are done, and replace the treatment of fever and body pain with paracetamol. "It is too early to predict anything. But there is speculation that a few cases in the west have shown worsening outcome when this drug is used. It is possible patients had some form of reaction," Dr Amin said. Dr Tanu Singhal, infectious diseases expert, said ibuprofen is known to cause kidney damage and gastric ulcers in elderly people. "Ibuprofen is not a great drug and we avoid it. There is scientific evidence that it causes adverse effects in treated chickenpox patients. In hypertensive and diabetic patients, the drug can worsen health, but again, there is no evidence with respect to coronavirus," she said. Dr Singhal said that Mumbai's Kokilaben Dhirubhai Ambani Hospital, where she is a consultant, will avoid using the drug. Anup Kumar Yadav, director of National Health Mission, Maharashtra, said they have been informed about the reports from France, and that the drug would be avoided.



## Do Anti-Hypertensive Drugs Raise the Risk?

- One of the concerns highlighted during the COVID-19 pandemic is whether the use of several common hypertension treatment drugs — coming under the class of **Angiotensin-Controlling Enzyme (ACE) inhibitors** and **Angiotensin Receptor Blockers (ARBs)** — raises risks for patients who contract the novel coronavirus. The issue gained importance in social media and elsewhere, as some reports from severely affected countries such as Italy indicated a poor outcome for COVID-19 patients who have been taking these drugs for an underlying condition. The top United States immunologist handling the pandemic, Dr. Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases, said in an interaction with the Journal of the American Medical Association that based on extrapolation of available knowledge, **putting a patient on an ACE inhibitor could result in an increase in the expression of the enzyme, which is to say, the person taking the drug for hypertension may be, without knowing it, increasing the reception for the virus itself.**

### Entry Point

That is because **Angiotensin Converting Enzyme2 (ACE2) receptors** have been shown to be the entry point into human cells for SARS-CoV-2, according to medical literature. But, Dr. Fauci said, that was an extrapolation, and not based on data. “It is a possibility that we need to address,” he said, calling for studies in the wake of media reports from Italy that said 99% of people who died had an underlying condition, and in 75% of these cases, that condition was hypertension. Given the high medical care standards in Italy, he reasoned, if hypertension was an underlying condition, it was bound to have been treated and patients maintained well. Also, if the data appeared skewed towards the condition in spite of this, the cause would have to be investigated, he said. On the same issue, the European Society of Cardiology (ESC), citing initial data from China, issued a position statement on March 13. It said a concern had arisen because it was observed that just as in the case of the coronavirus causing SARS [Severe Acute Respiratory Syndrome], “the COVID-19 virus binds to a specific enzyme called ACE2 to infect cells, and ACE2 levels are increased following treatment with ACE-i and ARBs.” The Council of Hypertension of the ESC, however, said it “strongly recommended” that doctors and patients should continue with their usual anti-hypertensive therapy in the absence of “clinical or scientific evidence to suggest that treatment with ACE-i or ARBs should be discontinued because of the COVID-19 infection.” The issue has snowballed, as medical societies expressed alarm that some patients were voluntarily stopping ACE inhibitors and ARBs, which are commonly prescribed for many cardiovascular diseases and to protect against damage to the kidneys, including among diabetics.

### Call for Research

The American College of Cardiology, American Heart Association and Heart Failure Society of America issued a joint advisory on March 17, urging that patients who were currently taking these drugs should continue to take them. “These theoretical concerns and findings of cardiovascular involvement with COVID-19 deserve much more detailed research, and quickly,” the statement said. “Currently there are no experimental or clinical data demonstrating beneficial or adverse outcomes with background use of ACE inhibitors, ARBs or other RAAS antagonists [which influence hypertension] among COVID-19 patients with a history of cardiovascular disease treated with such agents,” it added. The U.S. National



Library of Medicine lists nine commonly used ACE-inhibitors (such as enalapril and ramipril) and seven ARBs (such as losartan, telmisartan and olmesartan), many of which are widely prescribed in India.

## 'Time to Start Random Testing of People With Flu, Scale It Up If Necessary'

### Is India Not Testing Enough? Is There A Danger of Missing Out on Infected People If Only Those with Foreign Travel and Contact Histories Are Tested?

Frankly, it is not possible for a country like India to test all its people. The numbers are too big. But there are ways by which community transmission of the virus can be assessed. One way could be to start random testing patients of pneumonia or influenza, irrespective of their travel history. This will give India some idea of whether community transmission is happening or not. If there are indications that it has happened, then the testing would need to be scaled up further. In Hong Kong, for example, initially testing was done on travellers from China, and then from other countries. Now all patients with pneumonia are being tested. But I understand it is not so easy for bigger countries with large populations like India. Large scale testing is probably possible in the short term, but I am not sure whether it is sustainable in the longer term. Countries need to think it through and ensure that their action plan is sustainable for at least a six- to nine-month period.

### How Workable Are Suggestions That Building Community Immunity Is A Better Way to Deal with The Virus?

While implementation of aggressive disease-control measures such as school closure and social distancing may defer the transmission in countries which are at risk mainly through the import of the disease, it is unclear whether the global spread of this virus can now be prevented. Whatever a country does, I think there is going to be continued introduction of the virus from outside. Some recent reports have said that the approach of the UK has been to accept that this outbreak is inevitable, and then work on mitigating the impact, and protecting hospitals from getting overloaded. This approach would lead to 50 or 60 per cent of the population getting infected at some point of time, till the people develop immunity and the chain of transmission stops. I understand people getting shocked with this kind of approach, but we have to face up to reality, and in the long term, it may help in controlling the outbreak.

### But Then, Are We Not Also Looking at A Large Number of Casualties?

From what we have seen so far, this disease is mild in younger people — those who are below the age of 60 years. There is a need to be careful about the older lot, and those with underlying medical conditions. Right now, it would make sense if people who have fever or cough do not visit older relatives or go to work. It is best to remain isolated at home with fewer people.

### Would the Higher Temperatures in Summer Slow the Spread of The Virus?

What we can say as of now is that it is likely to be less efficient in countries with higher temperatures. We know that this virus can survive for several days. At about 22°C, it can stay



alive for three to four days. At higher temperatures, say in the range of 33-35°C, the duration of survival would be much smaller. We do not have the full evidence at the moment, but in warmer countries, transmission may be less efficient. However, we cannot assume that it is going to completely stop transmission. If we are lucky, then higher temperatures may reduce transmission to some extent. The present virus is very similar to the SARS virus of 2003. Studies conducted on the SARS virus had showed that the survival viability was rapidly lost at higher temperatures and higher relative humidity. This may explain why some Asian countries in the tropical areas, such as Malaysia, Indonesia or Thailand, did not have major community outbreaks of SARS.

### How the COVID-19 Test Works

- Testing centre takes swabs from nasal cavities and back of the throat (pharynx), and puts samples in a “virus transport medium”, which contains balanced salts and albumin to prevent the virus from disintegrating. Sample is then transported in cold storage to the testing lab.

### What Is the Diagnostic Test for The Novel Coronavirus That Causes COVID-19?

The Indian Council of Medical Research (ICMR) has said designated labs will use the **conventional real-time polymerase chain reaction (PCR)** test, which is conducted on swab collected from the back of the throat, a liquid sample from the lower respiratory tract, or a simple saliva sample. Such tests are commonly used in Influenza A, Influenza B and H1N1 virus detection.

### What is the PCR Test?

It uses a technique that creates copies of a segment of DNA. **‘Polymerase’ refers to the enzymes that make the copies of DNA.** The ‘chain reaction’ is how the DNA fragments are copied, exponentially — one is copied into two, the two are copied into four, and so on. Kary Mullis, the American biochemist who invented the PCR technique, was awarded the Nobel Prize for Chemistry in 1993. However, Coronaviruses **such as the SARS-CoV (which emerged in China in 2002-03), MERS-CoV (which appeared in Saudi Arabia in 2012), or the current SARS-CoV-2 which has caused the COVID-19 pandemic, have large, single-stranded RNA genomes.** Extracted RNA is added to a polymerase chain reaction (PCR) mix. This includes the **‘master mix’, which contains a ‘reverse transcriptase’ enzyme that converts the RNA into DNA.** Master mix contains Taq polymerase, the enzyme that creates copies of the DNA, nucleotides, as well as other elements such as magnesium — an ion of which is needed to amplify the DNA. The PCR mix also contains ‘reagents’ such as ‘primers’ and ‘probes. **Primers are particular strands of DNA that are designed to bind with the DNA that is to be copied; probes are used to detect the specific sequence in the DNA sample.** WHO has recommended specific primers and probes for testing for COVID-19. Finally, the PCR mix consists of a **“housekeeping” gene — a normal human gene (RNase P) that is used to ensure that samples were properly collected, and RNA extracted.**

Sample, in its PCR mix, is put into tubes or plates, which are then put in a thermal cycler machine that is used to conduct the PCR process. First, the **RNA is converted into DNA.** Then the process of copying the genes starts. The thermal cycler heats and cools the mixture with the sample, alternating between three temperatures — for melting the DNA to separate the two strands, for the primer to bind to the DNA, and for synthesising a new strand — all within



one cycle that lasts a minute. The thermal cycler runs 30-40 such cycles in order to amplify the DNA to check for the virus.

A fluorescent DNA binding dye called the “probe” shows the presence of the virus. The test also distinguishes SARS-COV-2 from other viruses.

### How Long Does the PCR Process Take?

Real-time PCRs have brought down the time taken to test samples to 4.5 hours from around 6 hours earlier. However, the overall turnaround time —from the time the samples are collected to when the report is delivered — is around 24 hours, and should be “less”.

### How Is the Test Being Done in India?

India currently conducts a two-stage real-time PCR to test for SARS-COV-2. The first stage is designed to detect genetic elements common to human coronaviruses that may exist in the sample. The second stage is designed to test for specific genes present only in the SARS-COV-2 virus. Until the beginning of March, the initial screening test to check for any type of coronavirus was done by all labs, but the confirmatory PCR was only done by the National Institute of Virology in Pune. “Then, NIV Pune transferred the technology (reagents required for the confirmation) to all labs so that there would be no need for a sample to go all the way to Pune. This has cut down on the time taken to test the samples,” Dr Ravi said.

### Is India Testing Enough Numbers?

India has the capacity to test 10,000 samples daily, and is currently testing around 600-700. By comparison, South Korea, which has a similar turnaround time, is reportedly testing up to 20,000 samples a day, especially using models like its drive-through testing facilities. The government argues it is not necessary at this stage to test every person. The country is testing the cohort that it needs to test “for now”, said Dr Gangakhedkar. “If you go by localised transmission, we are testing enough. If you believe there is community-based transmission, then it’s a different issue. There is still no evidence where we do not know how the index case has acquired this infection,” he said. “We don’t want to do any indiscriminate testing because now everybody is asking for a test. So, somewhere, we will have to rationalise it... but it is also important to keep an eye out so that we are not missing community transmission,” ICMR scientist Dr Nivedita Gupta said during a press briefing last week.

### What Will Be the Strategy If Community Transmission Happens?

ICMR is conducting a surveillance for any evidence of community transmission, with each of India’s 52 testing labs testing 20 random samples of patients with Severe Acute Respiratory Infection (SARI). The ‘first cut’ of these tests are expected to be out on Wednesday. ICMR has said that, in the event that a case of community transmission is unearthed from these surveillance tests, the government’s strategies will be “completely different”.

### Are There Barriers to Scaling Up Testing?

Cost is a potential barrier, feel some experts. ICMR officials had said in a conference that the cost of a primary test for COVID-19 is ₹1,500. If a second test is to be done to confirm the results of the first test, the total cost is around ₹5,000. One of the officials had also said that



the probes used, which are imported from Germany, are a “limiting” factor. While the number of testing centres has been increased, the imports of probes have also shot up. Last week, India wanted to import around 200,000 probes, whereas on Monday, Dr Gangakhedkar said the government was planning to import around a million.

### Once Treated for Infection, Can A Patient Relapse?

- Out of 110 individuals who have tested positive for novel coronavirus infection in India, 13 have been discharged, according to the Health Ministry’s update on Sunday. Worldwide, out of over 1.56 lakh positive cases, over a third — 54,000 — have recovered. Yet **there have been cases in China, South Korea and most recently Japan, where treated patients were re-diagnosed with COVID-19 after discharge.** On February 14, a septuagenarian in Japan was diagnosed in a cruise ship; on March 2, he tested negative and was discharged; on March 14, he tested positive again. The US Centers for Disease Control and Prevention said **immunity against COVID-19 is not fully understood.** Signals from the previous coronavirus outbreaks have been mixed: **studies on the virus that caused MERS showed people are unlikely to get reinfected within a short time of the original infection, while there were records of relapse during the SARS outbreak.** There are at least two possible scenarios leading to a second positive test. **The virus could have lain dormant in the body, so that the test before discharge would have failed to pick the low virus threshold. Eventually, the viral load would have increased so that it would be detected during re-testing. The second possibility is that the patient reacquired the infection, perhaps a mutated strain, from the community. There could also be laboratory-related factors responsible for a second positive test — a human error in testing, contaminated swab samples, an oversensitive nucleic acid test during re-testing, or discharge given to a person still infected, without following proper protocol.** “The PCR (polymerase chain reaction) test amplifies and picks the virus. But it is possible the sample got contaminated; also, sensitivity of the test is not 100%,” said Dr Tanu Singhal, infectious diseases expert in Mumbai’s Kokilaben Dhirubhai Ambani Hospital. While discharging 13 patients, Indian authorities have been following a guideline that a patient must be tested twice within a gap of 24 hours. Only if both tests come negative is the patient discharged. China has a similar protocol in place but some experts have raised concerns whether each patient discharged did undergo two tests. The country’s diagnostic resources were under strain with over 80,000 cases. **In many cases, a coronavirus infection causes lifelong immunity. In several other cases, however, the antibodies produced against the virus may not prove effective if there is a mutation in the virus. In such cases, there will be reinfection.**

### How To Handle A Dead Patient?

- Only three people have died in India so far, but experts still stress care while handling the dead. The Health Ministry has issued guidelines for the disposal of bodies, while noting that **an increased risk of infection from a dead body is unlikely.** However, the lungs of a dead COVID-19 patient, if not handled correctly during an autopsy, can be infectious. For infectious diseases, the World Health Organisation (WHO) prescribes various biosafety levels (BSL) with bodies, medical gear and disposables. For bodies of dead COVID-19 patients, the WHO is mandating BSL-3. “By BSL-3, ideally bodies must be packed intact in leakproof plastic, and cremated. Relatives cannot be allowed to touch them during cremation,” said infectious diseases specialist Dr Om Srivastava. Embalming and unzipping the packed body must be avoided. The Ministry guidelines recommend some standard precautions for health workers,





such as hand hygiene, use of personal protective equipment (water resistant apron, gloves, masks, eyewear), and disinfection of the bag housing the body and linen. The Ministry advises families not to hug, wash, or kiss the body. To prevent contact of doctors and mortuary workers with the deceased's body fluids, or aerosol generating procedures (those that induce coughing), an autopsy must be avoided unless serious doubt is raised about the cause of death. "In Europe, bodies are being incinerated. If autopsy is a must, we have to wear protective gear, and then disinfect the entire autopsy room including instruments with sodium hypochlorite," Dr Harish Pathak, head of the forensics department in Mumbai's KEM Hospital, said. In a mortuary, the body should be preserved at 4-6°C if not cremated immediately. **WHO and AIIMS advise cremation — unless a family insists on burial for religious reasons?** Burials were allowed during the H1N1 outbreak, Dr Satish Pawar, assistant director in the Maharashtra Directorate of Health Services, said. "During burial we advise the family not to touch the body," he said.

### [Time for A Powerful Display of Humanity \(Prof. Ramanan Laxminarayan - Director, Center for Disease Dynamics, Economics & Policy, And Founder, Healthcube\)](#)

→ As the COVID-19 pandemic fells country after country, many in India are wondering if we are somehow different. Globally, it took roughly 45 days for the first 100,000 cases. It is likely to take nine days for the next 100,000. The global death count is now doubling every nine days and stands at 8,248, with 207,518 confirmed cases. That is how epidemics work — they gather steam as infected individuals go on to infect even more people. Confirmed cases in India, as of today stand at 158, much lower than small countries such as Iceland (250). Could this really be the case that we have fared better than everyone else? (All these figures are as on March 18, 9.23 p.m.) Probably not. Testing in India remains abysmally low. Only about 10 in a million people in India have been tested, compared to say nearly 120 in a million in Thailand or 40 per million in Vietnam. The stated explanation is that the limited number of test kits are being conserved for when they are truly needed but when is the need greater than right now? There are probably shortages even in being able to procure adequate supplies given that many countries are seeking to buy the limited stocks. Testing is the most important thing we could be doing right now. As the Director General of the World Health Organization, Dr. Tedros Ghebreyesus, said recently about the need for more testing, "You cannot fight a fire blindfolded."

### [Prevent Undercounting](#)

We need to identify coronavirus-infected patients in a timely manner in order to increase our chances of preventing secondary infections. **There is no shame in saying that we have far more cases than what we have detected so far.** Even the United Kingdom, which has a far better health system than India, has admitted that it is probably undercounting its true infections by a factor of 12, and is likely have about 10,000 cases. Is it possible that India with 20 times their population has only 152 cases? If widespread testing were to commence in India, the number of confirmed cases would likely climb to the thousands very quickly. This is something we have to be prepared for without panic or fear-mongering. This is how epidemics move and the real numbers should spur us into positive action.

If we escape the worst, either because this virus mutates to a less virulent form or because there is something about its temperature or geographical sensitivity that we know nothing about, then we should count our blessings. **Viruses do mutate and generally to be less lethal.**



If the projections from Europe are applicable in India, our 'namastes' and clean hands notwithstanding, the prevalence in India would be upwards of 20%. In other words, we should expect to see about 200-300 million cases of COVID-19 infections and about four and eight million severe cases of the kind that are flooding hospitals in Italy and Spain at the moment. More importantly, these cases are projected to appear in just a two to four-month window. In the current scenario, we are not ready. India has somewhere between 70,000 and 100,000 intensive care unit beds and probably a smaller number of ventilators. That is simply inadequate. The next two weeks should be spent on planning for large, temporary hospitals that can accommodate such numbers. If we are lucky, we will not need them but as Dr. Anthony Fauci, Director, U.S. National Institute of Allergy and Infectious Diseases, has said, "we should get criticized for over-reacting" rather than being under-prepared.

### Unprepared for Pandemics

This all sounds doomsday-like. But we have known for decades now that of all catastrophic events to befall humanity, between an asteroid hit and a nuclear war, a disease pandemic has always been the highest on our list of impact and probability. My community of infectious disease epidemiologists have spent years warning governments to prepare for such an eventuality, and have written countless articles and hosted many meetings on this subject. There were some changes after the Severe Acute Respiratory Syndrome (SARS) but not nearly enough. Pandemic preparedness always took a backseat to the crisis of the moment. And in fairness, there is truly no amount of preparation that can fully mitigate such an occurrence. In a time of crisis, it is easy to blame government or China or someone else. But this is really a time to stand together, keep an eye on our neighbours, friends, families, co-workers and indeed anyone who has less than we do. That includes your household help, security guards, vendors and indeed anyone who touches your life. It is a time to see how we show the best of our human values while facing a crisis of a proportion none of us has ever witnessed in our lifetime. Things are about to get a lot worse. Let us hope that this brings out the best in us, and not the worst. Whether we know this or not, these events are just a dress rehearsal for the more challenging events such as climate change that are likely to be with us this century. And if we take care of each other, we will survive both these challenges with our humanity intact.

### Is It Safe to Eat Chicken?

- Yes, it is absolutely safe. No link has been found between the consumption of the cooked meat of any animal or bird, and catching the infection. The only way the SARS-CoV-2 virus is currently spreading is through droplets released by an infected individual in coughs or sneezes, or if you touch your face, mouth, or nose after touching an infected surface. Many Indians have stopped eating chicken, believing rumours and misinformation on social media. This has led to a crash in prices, and massive losses for the poultry industry. The WHO does, however, caution against eating "raw or undercooked animal products".

### A Prediction Model For COVID-19 (Atanu Biswas - Professor of Statistics, Indian Statistical Institute, Kolkata)

- While it is impossible to estimate the eventual number of cases for the novel coronavirus, there was an exercise carried out earlier this year, aimed at projecting the numbers for



Wuhan in China. In a recent article on Cell Discovery in Nature, a group of Chinese scientists attempted to estimate the eventual number of infections and deaths due to the disease (COVID-19) in Wuhan. An infectious disease dynamics model called SEIR (Susceptible-Exposed-Infectious-Resistant) was used to model and predict the number of COVID-19 cases. The SEIR model proved to be predictive for a variety of acute infectious diseases like Ebola and SARS. The model classifies the population into four mutually exclusive groups: susceptible (at risk of contracting the disease), exposed (infected but not yet infectious), infectious (capable of transmitting the disease), and removed (those who recover or die from the disease). A susceptible individual can become exposed only through contact with some infectious person. Susceptible individuals first enter the exposed stage, during which they may have a low level of infectivity; they become infectious thereafter. The infection rate represents the probability of transmission from an infectious person to a susceptible one. The incubation rate (the reciprocal of the average duration of incubation) is the rate at which latent individuals become infectious; and the removal rate is the reciprocal of the average duration of infection. The basic reproduction number (BRN) is the expected number of cases directly generated by one case. A BRN greater than one indicates that the outbreak is self-sustaining, while a BRN less than one indicates that the number of new cases decreases over time and eventually the outbreak will stop. Ideally, the BRN should be reduced in order to slow down an epidemic.

### The Numbers for Wuhan

Using Wuhan's data, more than a dozen published studies provide the estimates of parameters. **The mean incubation period is around 5.2 days in most of the studies.** Also, the average hospitalisation period is calculated to be  $12.39 \pm 4.77$  days. The prediction for Wuhan was done in four phases: a) December 1-January 23; b) January 24-February 2; c) February 3-15; d) thereafter. On January 23, airplanes, trains, and other public transportation within the city were restricted and other prevention and control measures such as quarantine and isolation were gradually established in Wuhan. Phase II continued up to the extended spring festival holiday. More medical resources were provided from February 3. It is assumed that the prevention and control measures were sufficient and effective from February 16.

### The Decreasing BRN Rates

In Wuhan, home to 11 million people, the initial number of cases was 40, estimated by a group of researchers led by Natsuko Imai of Imperial College. The number of exposed was assumed to be 20 times this number. The BRN in the first three phases was estimated to be 3.1, 2.6, and 1.9, respectively. In the Cell Discovery article, the BRN is assumed to have decreased to 0.9 or 0.5 in phase IV, based on previous experience in SARS. According to an article in Science in 2003, the BRN of SARS decreased from 2.7 to 0.25 after the patients were isolated and the infection started being controlled. Following the model, the number of cases in Wuhan reached 17,656-25,875 in phase I, to 32,061-46,905 in phase II, and to 53,070-77,390 in phase III. The epidemic peaked on February 23<sup>rd</sup> or February 19<sup>th</sup> with 58,077-84,520 or 55,869-81,393 infections, according to the BRN value of 0.9 and 0.5, respectively. In reality, the number of daily cases in Wuhan has been reducing remarkably since February 16. The BRN value for India is unknown due to inadequate data so far. However, it can be kept small by isolating patients and controlling infection by extensive checking at airports and other important places. With 110 'active' cases as on March 16, a BRN value of 0.5 might not be alarming. Let's hope that it will remain so.



## Revisiting Scientific Temper (Rajeev Bhargava - Professor, CSDS, Delhi)

→ An unexpected outcome of COVID-19 is the growing awareness of how disease is transmitted and what might be done to prevent this. Virtually every TV channel has insisted on washing hands with soap or alcohol-based sanitizer, sneezing into the crook of one's elbow or coughing into a handkerchief, besides keeping a safe distance from one another. These precautions presuppose an elementary understanding that COVID-19 spreads through the inhalation of droplets released by the infected person's cough or sneeze and by contact with infected surfaces. The existence of bacteria and viruses that invade our bodies and cause the infection is also part of this presupposition. In short, this indicates a tacit acceptance of elements of the empirical-causal world view. It was heartening to see even babas and yogis concede that if symptoms include respiratory disorder and high fever, then contacting doctors trained in evidence-based medical systems is necessary. Baba Ramdev even admitted on TV that no evidence exists that by drinking cow urine, one could cure COVID-19, even though, he claimed, it could help in preventing it.

### Towards Fact-Based Reasoning

It does not follow from this that our society has imbibed this outlook on the world, for many astrologers were seen claiming that SARS-CoV-19 was caused by the conjunction of Rahu and Ketu. Some swamis are convinced that the cure lies in propitiating the virus by performing rituals, accompanied by a cocktail of cow urine, dung and ghee. Even so, it is heartening that when push comes to shove, many Indians might be more willing to rely on evidence-based reasoning than on ineffective, false speculations or brazen misinformation. When what is at stake is life itself, people choose whatever they find is effective. **Should we not assume that they do so because at least some of them are convinced that performing rituals is unlikely to produce the desired outcome, but regular washing of hands might? That the Rahu-Ketu story is less plausible than the virus-infection story? This switch from speculative stories involving malignant spirits to stories involving non-subjective, material, observable entities occurs when people themselves experience what works and what does not.** Two generations or so earlier, curative pill-popping became part of the wider public culture. Although its misuse, dangers and excesses are well-documented, it can't be denied that careful intake of pills, under expert supervision, and in correct dosage, can help cure infectious disease. With our rather enlightened response to COVID-19, we appear to have reached a similar stage in the public culture of disease prevention. Equally important is scrupulous data gathering. Indian TV channels continually gave figures on how many people are infected by SARS-CoV-19; the countries where the incidence of disease was high; what percentage was cured and what percentage died; of those who succumbed, how many already suffered from other fatal ailments; and whether or not a correlation exists between age, propensity to infection and fatality. There is greater public awareness about the role of data in disease management and prevention. These are small steps towards the wider acceptance of evidence-based reasoning, a tiny victory for the empirical-causal explanatory story of the world. Since these are crucial ingredients of the scientific outlook, one can even say that we have made some progress towards inculcating a scientific temper. Observing, classifying, recognising patterns of regularity, and identifying causes are all integral features of science. Yet, not all of us do science. Nor do we need to. What has become increasingly vital for our survival today is that everyone grasps the broad features and uses of science, that we imbibe scientific temper.



Science is important because science works; scientific temper, because in its absence, the benefits of science won't reach everyone.

We must readily acknowledge that scientific temper is useful in certain contexts and necessary for specific purposes. If so, what are the other preconditions for building it? First, a disposition to not accept any opinion or claim at face value, or to reject in haste anything that conflicts with one's own settled views. For instance, to not immediately accept when told that eating a clove of garlic will reduce high BP, or that the rate of economic growth in India is 7%. A healthy scepticism towards these figures is crucial. Moreover, no claim or data can be accepted merely because it is supplied by those in majority, political power, or religious authority. Evidence-based claims are the enemy of prejudice and dogma. Second, good science recognises that truth is always elusive, that all human endeavour, including scientific enquiry, is imperfect, corrigible, in constant need of critical scrutiny and revision. Third, in principle, science is anti-authoritarian. No matter how hierarchical in practice scientific institutions are, or how powerful its leaders, the fact remains that if a research assistant comes up with a result that challenges established scientific claims, then it must be addressed, examined and if confirmed, displace the view held by established authority. So, if scientific temper is important, what kind of public culture is needed to advance it? Who must be responsible to take it forward? And how can we nudge people into evidence-based reasoning not from self-interest alone but from commitment to the common good?

→ are big lessons that India and the rest of the world can learn from Taiwan, Singapore, Hong Kong and South Korea on containing the spread. Taiwan began airport screening even before China reported its first case of human-to-human transmission on January 20. Together with closing its borders by January-end, it raised awareness about the virus and the disease, and ways to minimise risk through handwashing and the use of face masks. Taiwan essentially cut the transmission chain even before the virus could gain a foothold in the country. Following the World Health Organization's guidelines to a tee, Singapore went after all suspect cases by testing all influenza-like and pneumonia cases and aggressively tracing contacts. Like Taiwan and Hong Kong, Singapore too instituted travel restrictions by early February. Not only did it make testing and treatment free for all its residents, it paid \$100 a day to self-employed people to ensure none violated quarantine. Besides closing most of the border crossings with China and contact tracing, Hong Kong had a 14-day quarantine in place from February 5 onwards and containment measures — shutting down schools and asking people to work from home — in place by the end of January. South Korea's massive community-level screening, contact tracing and quarantining after the outbreaks in two churches helped in containment. Contrast this with how the U.S. floundered for weeks on several fronts, including the use of flawed testing kits. A lesson from the pandemic is how containing an outbreak is dependent on quick public-health responses.

### To Test or Not: How A Website Will Help US Decide

→ On March 13, announcing a state of national emergency and listing the measures taken to tackle the coronavirus pandemic, US President Donald Trump announced that Google was helping the government develop a website "to determine whether a test is warranted and to facilitate testing at a nearby convenient location".



### Verily, And Its Tool to Fight Coronavirus

Trump was talking about Verily, a subsidiary of Google's parent company Alphabet "focused on life sciences and healthcare". At the press conference, Deborah Birx, the White House's coronavirus response coordinator, said the website would let people fill out a questionnaire describing symptoms after which they would be directed to drive-through testing centres. "The labs will then move to the high-throughput automated machines to be able to provide results in 24 to 36 hours," she said. Soon after, Google Communications' Twitter handle had a statement attributed to Verily: "We are developing a tool to help triage individuals for Covid-19 testing. Verily is in the early stages of development, and planning to roll testing out in the Bay Area, with the hope of expanding more broadly over time," the tweet said. It did not specify if this was the website Trump mentioned about, and rather used the term tool.

### Google's Role

Google seems to be helping the US government's COVID-19 efforts in other ways too. Anne Schuchat, Principal Deputy Director at US Centers for Disease Control and Prevention, had told Congress earlier this month that her agency was using Google location data to map travel patterns among other things. The search giant is also triggering an "SOS Alert" on coronavirus searches across the world, giving prominence to posts from mainstream news publications and health authorities. Last week, it also banned ads for face masks as well as monetisation on YouTube videos related to the topic to disincentivise creation of fake videos touting alternative treatments for the virus. Verily is not Alphabet's only medical research company. It also owns Calico — acronym for "California Life Company" — researching into aging and related diseases.

### Coronavirus Testing in India, Elsewhere

- The Indian Council of Medical Research (ICMR) announced that it would start testing influenza patients without any travel history or contact with novel coronavirus disease (COVID-19) for signs of community transmission, terming it "inevitable". Last week itself, the Health Ministry had announced that India had recorded its first cases of community transmission, though officials later clarified it had meant "local transmission in the community". Various countries have adopted various models for addressing community transmission, or for preventing it. India's decision also raises the question: will the larger number of tests open up testing at private facilities?

### What Is Community Transmission?

It is one of the levels of transmission defined by the World Health Organization (WHO). Simply put, **community transmission means that a virus is circulating in the community and can affect people with no history of travel to affected areas or of contact with an infected person.** That is what ICMR is trying to find out by testing over 1,000 samples from people suffering from influenza-like symptoms but with no history of such travel or contact. India's current emphasis on social distancing and discouragement of public gatherings, too, is aimed at checking community transmission. **Once community transmission begins, it is more difficult to trace contacts. One unknown source of infection can wreak havoc — one woman in South Korea, who refused to take the test, has been found to have ended up infecting over 160 people.**



### What Is Known About the Level of Transmission in India?

So far, most of the cases in India have had a history of travel abroad — for example, the Kerala and Delhi patients — or have contracted the disease from somebody around them — for example, the Italian tourist in Jaipur who ended up infecting 17 in the group including their Indian driver. On the other hand, some of the cases in Agra had neither any history of foreign travel nor had they come directly in contact with an infected person. In a statement last week, the Health Ministry had said: “Since, in addition to COVID 19 cases related to travel, some cases of community transmission have also been observed, it has been decided to involve district collectors and States have been asked to form rapid response teams at the district, block and village levels.” Later, joint secretary Lav Agarwal clarified that this means local transmission at community level. **Local transmission, another level defined by WHO, happens through direct contact with an infected person within the country.** In Agra, after two people with travel history to Italy infected their families, door-to-door searches were undertaken within a 3-km radius. **Another level is imported transmission, for which the protocol is vigilance at the borders and airports, such as thermal screening and quarantine if required, like India began early on. India has also suspended visas to foreign nationals and the facility of visa-free travel to OCI card-holders.**

### So, Does India’s Latest Move Mean Opening Up Testing to The Private Sector?

While the government is working with private hospitals to develop standard operating procedures for treatment and isolation of patients, there is no move yet for the testing process to be opened up for the private sector. **The possibility of profiteering is one concern. The primary reason for the government seeking to retain its control on the testing regime, however, is fear of wider exposure.** “It is not a question of technology; allowing the private sector would mean possible patients will be going to such a large number of places where adherence to infection control norms would be crucial to prevent spread of infections. Designated laboratories mean that we streamline everything, including the exposure of the medical staff and laboratory technicians,” said a senior official of the National Centre for Disease Control. **For now, the tests ICMR is doing are free for patients. Were they to pay, the two tests would cost them about ₹5000? So, even if the government did open it up to private laboratories, it would mean not everyone would be able to afford the test.** Rather than open up testing to the private sector and risk exposing more people, India has chosen to wait a bit longer for test reports while the patient is in isolation.

### How Does India’s Model for Testing for The Virus — And Combating It — Compare with Those of Other Countries?

Among the countries where community transmission seems to have begun are China (over 80,000 cases), Italy (over 21,000) and South Korea (8,000). For the time being, India has chosen to follow the Italian model of lockdown, rather than the South Korean model of free testing. **Italy, the epicentre of the outbreak in Europe, has imposed a nationwide lockdown, especially given its ageing population.** Stores and restaurants have been closed and restrictions put on individual movement. **Spain too has announced plans to lock down its citizens, while France has shut down several places.** Cases are still climbing in these countries. South Korea, meanwhile, has been testing lakhs of people and tracking potential carriers — like detectives, according to a Reuters report — by using cell phone and satellite technology. Mass free testing and treatment, and identification of transmission sources, have brought



down daily new cases, from 909 on February 29 to less than 100 on March 15. For India, massive free testing in a country of 135 crore would need humongous resources. **India currently has reagents for about 1 lakh tests, has done a little over 6,000 tests so far, and is in the process of procuring 2 lakhs more test kits.** But if mass testing were to be done, all this would be a drop in the ocean.

### What Are Countries Besides These Doing?

China adopted a graded approach, and the number of new cases is gradually declining. It has locked down Hubei, the epicentre, for 50 days now. Elsewhere, it enforced social distancing measures during the crucial phase of the Chinese New Year. The Lancet wrote earlier this month. The US has partnered with a Google subsidiary to develop a website which will help determine whether a test is warranted.

### What Else Is in India's Strategy to Tackle COVID-19?

India is relying on social distancing and cluster containment. According to the containment plan developed by the Health Minister: "The cluster containment strategy would be to contain the disease within a defined geographic area by early detection, breaking the chain of transmission and thus preventing its spread to new areas. This would include geographic quarantine, social distancing measures, enhanced active surveillance, testing all suspected cases, isolation of cases, home quarantine of contacts, social mobilization to follow preventive public health measures." **Quarantine and isolation help by breaking the chain of transmission. More than 43,000 persons are now under community surveillance by the Integrated Disease Surveillance Programme, and contact tracing is still on.**

### A Problematic Testing Strategy

- Even as the World Health Organization has been urging countries that have reported many laboratory-confirmed COVID-19 cases to become more aggressive in testing, India continues to have among the lowest testing rates in the world. In India, only those people with a travel history to high-risk COVID-19 affected countries or with close contacts to laboratory confirmed COVID-19 cases and with symptoms of the disease are being tested.

### Criteria for Testing

If this does not instil confidence, Kerala, seen as a role model in India in containing highly pathogenic outbreaks, has further narrowed down the criteria for testing. On March 12, the Kerala Health Ministry issued revised testing guidelines based on current risk assessment. **According to the guidelines, people with mild symptoms (low grade fever, mild sore throat, cough, rhinitis or diarrhoea) who have come from countries with ongoing COVID-19 local transmission and contacts of confirmed/suspect cases will not be tested for the virus. "Testing is not going to change either the clinical course or management of the patient with mild symptoms," the guidelines say. The rationale that testing people with mild symptoms that are non-specific would delay the testing of more deserving cases is problematic and may prove counterproductive.** According to Dr. Nivedita Gupta of the Indian Council of Medical Research, the maximum number of samples that the National Institute of Virology (NIV) unit in Alappuzha received in a single day was around 100. It is as low as 10 on some days. In a day or two, two more labs in the State will begin confirming cases without sending samples





to the NIV unit in Alappuzha. One more lab is set to start screening samples early this week. Given that Kerala now has the capacity to test more samples each day, it is unclear why it has issued these revised guidelines. **If this is an attempt to keep the numbers artificially low, it will prove counterproductive.** If the number of samples of people with mild symptoms to be tested each day is indeed delaying testing those with more severe symptoms at this early stage of the pandemic, it is worrying to imagine what the situation would look like if and when community spread becomes widespread in Kerala. **Since about 80% of those with COVID-19 exhibit only mild symptoms and recover without special treatment, not testing them would mean that a vast majority of cases will go undetected.** This is wrong from the epidemiological point of view as the true case load will not be recorded. In fact, with the rest of the country looking up to Kerala in containing the spread of the virus, the State was expected to adopt a more expansive testing strategy — i.e., testing all contacts soon after being traced immaterial of clinical manifestation.

### Fear of Spread

**As people with mild symptoms will not be tested now, the real danger of allowing them to spread the virus cannot be dismissed.** A few studies as well as the experience of many countries show that infected people start spreading the virus even before symptoms show up. The infectiousness only increases when people start exhibiting symptoms. Though the guidelines say that contacts and people with travel histories should be under “strict home isolation”, **the false sense of security when not tested might increase the likelihood of such people not following home isolation strictly.** In fact, stricter quarantining would be needed for symptomatic people. When the State displays great rigour in tracing contacts and insists on home isolation for 14 days, not testing them when they show symptoms goes against the grain of the contact tracing strategy. There will be great danger of contact tracing backfiring when people who willingly self-isolate are not tested when symptoms show up. This is unethical too. Kerala cannot claim that there are no new cases and the pandemic is under control in the State when it does not test people in quarantine exhibiting mild symptoms.

### Fight for The Finite

- It is an incontrovertible truth that material resources are finite. Demand in most sectors will continue to exceed supply in times of a pandemic. With the number of SARS-CoV-2 positive cases on the rise, and the number of deaths going up as well, the question is whether national and state health systems will be able to cope with ever-rising demands — for testing kits, for hospital beds, ventilators, why, even masks and hand sanitisers. This extraordinary demand has traditional production and systems of delivery choking and most often, unable to match supply to demand. Health-care resources, limited to begin with, are even more so when under stress. At a time when the disease did not have a name, and much less by way of character, in mainland China, the rapidly climbing numbers went far beyond the capacity of the country’s renowned industry (where a hospital was built in record time), and the health systems struggled to cope. Reports indicate that in Italy, which has emerged the hub of the epidemic outside of China, the strain on health systems is massive. With India crossing 100 positive cases, it is impossible to ignore the question about whether the health system is robust enough to meet this emergency. What is known, however, does not inspire confidence. For years, **India’s health expenditure as a percentage of GDP has been abysmal at about 1%. As per the National Health Profile, 2019, collated by the Central Bureau of Health**



Intelligence unit of the Directorate General of Health Services, there has been no significant change in health-care expenditure since 2009-2010. The highest it has been in the decade is 1.28 % of the GDP, and hit the nadir at 0.98 % in 2014-2015. The report does record that per capita public expenditure on health in nominal terms went up from ₹621 in 2009-10 to ₹1,112 in 2015-16. A WHO bulletin of 2018 records that out-of-pocket payments remain common in India, which in 2014, was estimated at 62% of total health expenditure. While questioning whether these incremental efforts are sufficient, one needs to factor in the substantial skew in different States in terms of public sector health infrastructure and wherewithal. There is evidence to show that increased public spending on health care has resulted in less financial hardship for communities and better health outcomes. Prime Minister Narendra Modi made a promise to increase public health spending to 2.5 % of GDP by 2025. His government would do well to treat this epidemic as an opportunity to drastically scale up budgetary allocations for health to facilitate expansion of capacity. Epidemics are known to change the course of history; India must steer this one to harness finite resources optimally for the benefit of all.

### Lessons from A Pandemic A Century Ago

- As COVID-19 balloons into a global health crisis, parallels are being drawn with the Spanish influenza of 1918-19, considered the most devastating pandemic in recent history, with an estimated toll of 20-50 million lives.

#### Spanish Flu: The Trends

The focal point of that pandemic a century ago was India, where between 10-20 million died. The disease hit India in two waves — an initial, milder attack followed by a severe wave through the country in the autumn of 1918. The disease is believed to have been brought to India by World War I soldiers returning home. A study published in 2014 estimated weekly deaths in 213 districts of nine provinces to compute “statistical measures of the severity, speed, and duration of the virulent autumn wave of the disease as it evolved and diffused throughout India. The study found that over time, (a) the severity of the epidemic diminished; (b) the velocity (average time to death) of the wave slowed down; (c) the wave grew longer in duration; and (d) the eastern portions of India were the last to experience the pandemic.

#### Why It Tapered Off

So how was the outbreak eventually tamed after it had passed through the length and breadth of India? There are at least three possible causes, Prof Chandra, Director of the Asian Studies Center at Michigan State University, told The Indian Express.

“(i) That word got around about this killer disease (either through government efforts or through informal communications) so that, by the time the influenza reach Calcutta (now Kolkata), people were practising social distancing and taking other preventive steps that people in Bombay and Madras had not been able to take because the disease caught people at the early locations unawares.

“(ii) The virus evolved as it spread across India, becoming milder in the process. There is a theory that, as viruses propagate, the more virulent strains are unable to survive, reproduce, and propagate as effectively as the less virulent strains, because their hosts die before the virus can jump to new susceptible hosts. This changes the composition of the virus in an



infected population from more virulent strains to less virulent strains as the disease moves across a population.

“(iii) Differences in climate across India. Influenza viruses tend to not do as well in warm and moist conditions as they do in cooler, drier conditions.”

However, Prof Chandra said, “We do not know definitively which of these three conditions applied to the pandemic in India”. The Sanitary Commissioner at the time did draw a correlation between the “crucial summer monsoon rains” and the virulence of the disease. The Commissioner noted on several occasions in his report that the low mortality rate along the coastlines was striking, lending support to the “humidity hypothesis”. The study was carried out ahead of the centenary of the pandemic in order to try and design appropriate strategies for possible future outbreaks.

### Takeaways for Today

As another pandemic is upon India, the importance of a quick initial response cannot be overstated. The study concludes: “In scenarios resembling the 1918 pandemic as it unfolded in India, locations close to an entry point will have extremely short windows of time to deal with a virulent pathogen, placing emphasis on the emergency management of a short and severe wave of illness. “While locations that are distant from the entry point will have longer windows of time to prepare for and deal with less lethal variants of the disease, their task will be prolonged by the more gradual build-up and subsidence of the epidemic wave.” There is another important takeaway for India from the 1918-19 pandemic. “If the phenomenon of ‘a ‘dampening’ wave of mortality as the influenza progressed was indeed caused by increased awareness and the concomitant social distancing and other measures that people started to take”, Prof Chandra said, “then there is a very important lesson for us, and that is: be extra vigilant about hygiene and aggressively practice social distancing”. One way to create this mindset, he said, is to “imagine how you would behave if you knew that everybody around you is infected”. Dampening the wave of infections will be key to preventing India’s ICUs from becoming overwhelmed — something that might have been achieved in northern Italy through early and aggressive social distancing measures.

### How Does ‘Flattening the Curve’ Help?

A slow growth in patients can be handled by healthcare systems much more than a sharp rise. In effect, the goal is to postpone the spread over time. As a report in The Atlantic stated: “A pandemic is like a slow-motion hurricane that will hit the entire world. If the same amount of rain and wind is to hit us in any scenario, better to have it come over the course of a day than an hour. People will suffer either way, but spreading the damage out will allow as many people as possible to care for one another.” Limiting community transmission is the best way to flatten the curve.

### How Does Soap Use Help in Tackling COVID-19?

- Ever since the novel coronavirus (SARS-CoV-2) outbreak began in China in end-December 2019, various measures have been mentioned to reduce the risk of infection. Guidelines by the World Health Organization specify that one of the ways to reduce the risk of infection is by regularly and thoroughly cleaning one’s hands with an alcohol-based hand rub or washing them with soap and water. Regular washing becomes important as the virus tends



to be viable from hours to more than a day on different surfaces that are regularly touched with hands.

### How Does Washing with Soap Help Get Rid of The Coronavirus?

The grime on our hands contains innumerable viruses and bacteria. Washing with water without using soap helps reduce the number of microbes but does not remove most of the virus and bacteria completely. Using soap, therefore, becomes far more effective in removing microbes. Viruses such as coronavirus, influenza-causing viruses, Ebola, Zika have their genetic material encased in a layer of fat called the lipid envelop. Soap molecules are pin-shaped with a head that is water-loving (hydrophilic) and a tail that is oil-loving (oleophilic). Being oleophilic, the tail portion of the molecule tends to have an affinity for and 'competes' with the lipids in the virus envelope. Since the chemical bonds holding the virus together are not very strong, the long oleophilic tail gets inserted into the envelope and tends to have a 'crowbar' effect that breaks the lipid envelope of the virus. The tail also competes with the bond that binds the RNA and the lipid envelop thus dissolving the virus into its components which are then removed by water.

### Do All Viruses Have the Lipid Layer?

No, certain viruses do not have the lipid envelop and are called the non-enveloped viruses. Rotavirus which causes severe diarrhoea, poliovirus, adenovirus that cause pneumonia and even human papillomavirus (HPV) do not contain the lipid envelop. The oil-loving tail of the soap molecule also disrupts the bond that binds dirt and non-enveloped viruses to the hand. The dirt and viruses are surrounded by several tails making them remain as suspended particles. Rinsing with water washes away the suspended particles leading to clean hands.

### How Do Alcohol-Based Hand Sanitizers Help Get Rid of Coronavirus?

Like soap, the alcohol present in hand sanitisers dissolve the lipid envelop, thus inactivating the virus. In addition, the alcohol also tends to change the shape or denature the mushroom-shaped protein structures that stick out of the lipid envelop. The mushroom-shaped protein structures help the virus to bind to special structures found on human cells and enter the cells. To be effective, the sanitisers should contain at least 60% alcohol. Unlike soap lather, the alcohol does not come in contact with all parts of the hand. So care needs to be taken to use sufficient amount of sanitiser to increase the coverage. Unlike water, alcohol run does not remove the dead viruses from the hand. While a sanitiser can quickly reduce the number of microbes, it does not get rid of all types of germs, and is "not as effective when hands are visibly dirty or greasy".

### Should Healthy People Who Are Not Taking Care Of COVID-19 Patients Use A Mask?

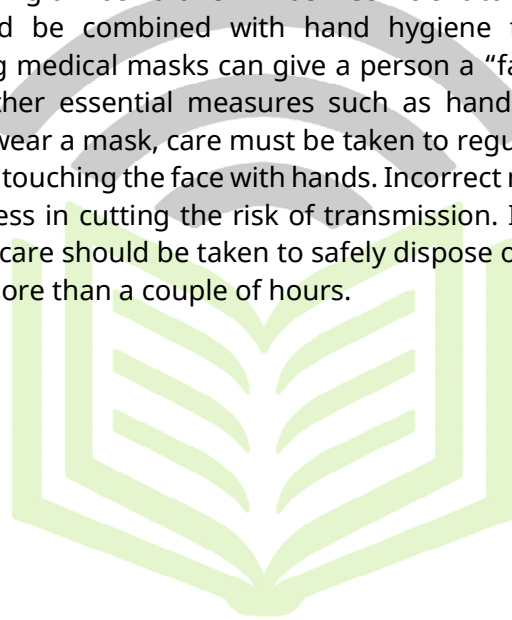
Medical masks help prevent the spread of coronavirus infection. If worn properly, masks may be effective in preventing transmission of coronavirus. An article published in the Journal of the American Medical Association (JAMA) says **there is no evidence to suggest that masks worn by healthy individuals can help prevent infection**. But a 2010 study says: "Mask wearing was associated with reduced secondary transmission and should be encouraged during outbreak situations." Even the World Health Organization (WHO) says wearing a medical



mask is “one of the prevention measures to limit spread of certain respiratory diseases, including novel coronavirus (SARS-CoV-2), in affected areas”. **Transmission through droplets from coughing and sneezing is one of the major routes of virus spread. When worn correctly, a mask can reduce the risk of inhaling droplets containing the virus. With many studies showings that people infected with novel coronavirus transmit the virus even before symptoms show up, it may be prudent to wear a mask especially when the virus is spreading in the community. In a country like India, maintaining at least one metre distance can be a challenge, especially when there is no way of knowing who is infected till such time the person starts showing visible symptoms.**

### What Other Precautions Should Be Taken When A Mask Is Used?

WHO cautions that using a mask alone will be insufficient to provide an “adequate level of protection”. It should be combined with hand hygiene to prevent human-to-human transmission. Wearing medical masks can give a person a “false sense of security that can lead to neglecting other essential measures such as hand hygiene practices”. So if an individual decides to wear a mask, care must be taken to regularly wash hands with soap or alcohol rub, and avoid touching the face with hands. Incorrect mask wearing might otherwise reduce the effectiveness in cutting the risk of transmission. It should be discarded once it gets wet or dirty, and care should be taken to safely dispose of used masks. The same mask should not be used for more than a couple of hours.



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