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Current Affairs, 3rd May to 9th May, 2020

International

Trump Vetoes Iran Resolution

➔ U.S. President Donald Trump vetoed what he called a "very insulting" congressional resolution seeking to limit his war powers in Iran. In a statement, Mr. Trump said he had used his veto because the resolution — a rare bipartisan rebuke to the President approved in March — was based on "misunderstandings of facts and law." The measure stemmed from fears among both Mr. Trump's Republicans and Democrats that the White House was stumbling into war with the Islamic republic. In the statement, Mr. Trump said the Congress misinterpreted his constitutional authority as being limited to "defence of the U.S. and its forces against imminent attack." "That is incorrect," he said. "We live in a hostile world of evolving threats, and the Constitution recognises that the President must be able to anticipate our adversaries' next moves and take swift and decisive action in response. That's what I did!" The resolution said the U.S. President cannot commit his military to hostilities against Iran or any part of its government or military without explicit authorisation from the Congress. Supporters said they wanted to ensure that Congress had the unique power to declare war, as outlined in the U.S. Constitution. Mr. Trump has preached the need for a drawdown of American military entanglements abroad, but has ramped up a hostile relationship with Iran.

Economic Sanctions

His administration has imposed crippling economic sanctions on Tehran. In January, Mr. Trump ordered a drone strike that killed Iran's most powerful general, Qassem Soleimani, at the Baghdad airport. The assassination has inflamed tensions between the two countries. Soleimani was widely seen as the architect of destabilizing activities by Iran around the world, but Democrats and many experts condemned the decision to kill him as disproportionate and provocative. Tehran retaliated with a strike against bases used by the U.S. military in Iraq without causing any fatalities, easing fears of a dramatic escalation. The Trump administration claims it has put Iran back in its box. But a recent verbal escalation following an incident between US ships and Iranian speedboats in the Gulf showed that tensions remain high. Democratic Senator Tim Kaine hit out at Mr. Trump for blocking the resolution. "I urge my colleagues to join me in voting to *override his veto* — Congress must vote before sending our troops into harm's way," he tweeted.

What's the Calculus Behind Donald Trump's Tirade Against China?

➔ President Donald Trump and his aides have stepped up attacks on China over the COVID-19 outbreak as the U.S. was struggling to contain the spread of the virus and the economic crisis it triggered. Mr. Trump first called the novel coronavirus a "Chinese virus". He suggested the U.S. seek damages from China over the outbreak which began in Wuhan. Mr. Trump has already restricted use of Chinese electrical equipment in the U.S. grid system. Some officials in the administration are prodding him to block a government pension fund from investing in Chinese companies. Moreover, Mr. Trump has linked a virology lab in Wuhan to the virus, an allegation which the U.S. intelligence agencies are investigating. Tensions between the two countries are not new. Bilateral ties were not particularly good since Mr. Trump became

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President. This time, Mr. Trump has taken tensions to new highs by endorsing the unproven lab theory and threatening China with punishments, which could have harsh economic consequences at a time when the global economy is in its deepest downturn in decades. Why is Mr. Trump doing this?

The New Rival

Till early this year, the focus of Mr. Trump's re-election team was on the performance of the economy. The economy was growing, unemployment rate was low and the stock markets were rising. But then the virus hit the U.S. Mr. Trump immediately had two problems in his hands. One, the U.S. is one of the hardest-hit countries by the outbreak. There were over 1.16 million COVID-19 infections in the U.S. and over 67,700 deaths. The Trump administration's response to the crisis triggered widespread criticism in the U.S., leading to a slide in the President's approval rating. Two, the economy tanked amid the virus crisis. About 30 million Americans have lost their jobs since mid-March. A Congressional Budget Office report forecasts that unemployment rate would average 14% this year — highest since the end of Second World War — and that the U.S. economy would shrink by 12% in the second quarter. In the first quarter, the economy shrank by 4.8%, the first contraction since 2014 and the deepest since the 2008 recession. Mr. Trump has effectively lost the bet on the economy in an election year. Faced with these challenges, he seems to have zeroed in on his favourite foreign rival to mobilise his support base — China.

Run Against China

"With the economy in shambles and the pandemic ravaging the country, making the election a referendum on China is perhaps Mr. Trump's only chance to extend his White House tenure past January 2021,". China would soon become a political issue in the U.S. with both the Republican Party and President Trump turning Beijing into to an electoral issue. A 57-page memo sent to campaign committees by the National Republican Senatorial Committee advised Republican candidates to address the pandemic by attacking China. It asked GOP leaders to tie Democrats to Beijing and "push for sanctions on China for its role in spreading this pandemic". Following the GOP memo, President Trump said on April 30 in an interview with Reuters that China "will do anything they can to have me lose this race". He added that Beijing wanted his Democratic opponent Joe Biden to win the November election. The America First Action political committee that backs Mr. Trump has launched advertisements attacking "Beijing Biden". They portray Mr. Biden as the representative of the establishment elite that is "soft on China". China has responded angrily to such attacks. "The H1N1 flu that broke out in the U.S. in 2009 [and] spread to 214 countries and regions, killing nearly 200,000 people; has anyone demanded the U.S. for compensation?" Chinese Foreign Ministry spokesman Geng Shuang asked last month. The official Xinhua news agency released a one-minute-forty-six-second video on April 30 defending China's handling of the pandemic and accusing the U.S. of ignoring its warnings. With the election season hotting up in the U.S., the China-bashing in DC is expected to increase, which could further complicate the trade and economic ties between the world's largest and second largest economies.

China, U.S. Spar Over Taiwan

➔ China has condemned a U.S. tweet backing Taiwan's push for participation at the United Nations as the global body works with its 193 member states to tackle the COVID-19 pandemic. Beijing's diplomatic mission to the UN expressed "strong outrage and firm opposition" to a message by the United States calling Taiwan's exclusion an "affront" to UN principles. The self-ruled island, which Beijing considers a wayward province awaiting reunification, has been held up as a model in fighting the virus. "Barring #Taiwan from setting

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foot on UN grounds is an affront not just to the proud Taiwanese people, but to UN principles," the tweet by the U.S. mission said. U.S. Ambassador to the UN Kelly Craft retweeted the message. In response a statement by Beijing said "Taiwan is an inalienable part of China". The Twitter account of the U.S. mission also shared earlier tweets from the U.S. State Department that called for Taiwan's inclusion in a coming World Health Organization (WHO) assembly. Relations between the UN and Taiwan were strained long before the pandemic but have deteriorated in the past three months. The WHO's leadership have been accused of being complimentary of China's response to the virus's spread.

Why Is Venezuela Accusing the US of Attempt to Topple Its Govt?

➔ Authorities in Venezuela have recently detained two US citizens for what they are calling an attempt to topple President Nicolás Maduro's government. A US military veteran has admitted that the men work for him, and has claimed responsibility for a failed armed incursion into the country. During a state television address, Venezuelan president Nicolás Maduro said that the authorities had arrested 13 "terrorists" involved in the plot, which he claimed was coordinated with the US to enter the South American country through the Caribbean coast to oust him. During his televised address, Maduro showed the US passports and other identification documents of the two detained US citizens, identified as Airan Berry and Luke Denman, who he claims were working with Jordan Goudreau, a US military veteran who runs a Florida-based security firm called Silvercorp USA. Goudreau has admitted the men work for him. US president Donald Trump has denied any involvement of the US government.

What Was The 'Armed Incursion' About?

As per an Associated Press report, the plan was to sneak in over 300 armed volunteers – comprising Venezuelan security personnel who have defected and are being trained in camps in Colombia – into Venezuela from the northern tip of South America. They would carry out raids on the military bases set up in the country, with the hope of igniting a popular rebellion that would eventually lead to Maduro's ouster. In a video released on social media, Goudreau can be seen saying, "At 17:00 hours a daring amphibious raid was launched from the border of Colombia deep into the heart of Caracas…". He added that their units have been "activated" in the South, West and East of Venezuela. The Silvercorps USA's Twitter account, which no longer exists, tweeted on May 3 tagging Trump, "Strikeforce incursion into Venezuela. 60 Venezuelan, 2 American ex Green Beret…".

What Is the Reason for Tensions Between Venezuela And The US

The Congressional Research Service (CRS) notes that the relations between the two countries began to deteriorate under Hugo Chávez's government, "which undermined human rights, the separation of powers, and freedom of expression. U.S. concerns have deepened as the Maduro government has manipulated democratic institutions; cracked down on the opposition, media, and civil society; engaged in drug trafficking and corruption; and refused most humanitarian aid." Venezuela is currently under the authoritarian rule of President Maduro, who belongs to the United Socialist Party of Venezuela and took his position in 2013 after the death of former president Chávez. After completing his first term, Maduro began his second term in January 2019, which is seen by many Venezuelans and members of the international community as illegitimate. Juan Guaidó, who is president of Venezuela's democratically elected opposition-controlled National Assembly, has been seeking to form a transition government since early 2019, until internationally recognised elections can be held. The US, along with 57 other countries, recognises Guaidó as the interim president. After recognising Guaidó's presidency in 2019, Trump said, "I will continue to use the full weight of United States economic and diplomatic power to press for the restoration of Venezuelan democracy," and termed Maduro's regime illegitimate. However, Guaidó has been unable to wrest power from Maduro and has faced increasing danger after returning home from a tour he took between January-February 2020, which included a meeting with Trump.

Economic and Humanitarian Crisis in Venezuela

Maduro has blamed the US sanctions on the country's state oil company and government for the economic problems that the country is currently riddled with, which includes hyperinflation, food and medicine shortages and electricity blackouts. Maduro has also accused the US of trying to rule the country from afar. Meanwhile, in order to increase pressure on Maduro officials, the US government also coordinates diplomatic efforts in support of Guaidó, some of which include visa revocations and targeted sanctions. As per UN estimates, over 90 per cent of the country was living in poverty in April 2019 and an estimated 4.8 million Venezuelans have fled the country for other places in Latin America and for the Caribbean countries as of February 2020.

What is Cinco de Mayo?

➔ Cinco de Mayo, or fifth of May in Spanish, also called Battle of Puebla Day, is an annual celebration observed in Mexico and the United States that marks the former's military victory on its soil over French forces in 1862. Mexico was then led by President Benito Juárez (1806-1872), after whom the Benito Jaurez Marg in New Delhi is named and where the Embassy of

Mexico in India is located. In the 1860s, Mexico had been severely weakened by lengthy wars over the previous two decades – the Mexican-American War (1846-48) and the internal Reform War (1858-61). As a result, in 1861, the then President Benito Juárez announced a temporary moratorium of two years on repaying Mexico's foreign debts. In response, troops from Britain, Spain, and France invaded Mexico, demanding reimbursement. By April 1862, Britain and Spain negotiated with Mexico and withdrew, but France, which at the time was led by Emperor Napoleon III, decided to establish an empire in Mexican territories with the support of the local landowning classes. France also intended to curb US power in North America.

The Battle of Puebla
In late 1861, a French fleet attacked the Mexican port of Veracruz on the country's eastern coast, and landed a large army that drove the Juárez government into retreat. As they moved from Veracruz to capital Mexico City, the French encountered stiff resistance from Mexican forces. At Puebla, over 100 km ahead of Mexico City, a poorly equipped and outnumbered Mexican force decisively defeated the advancing French troops on May 5, 1862, killing over a thousand. The event marked a significant political victory of Mexican republicans and President Juárez, and helped establish a sense of national unity in the country. In Puebla, Cinco de Mayo is celebrated annually with speeches, parades, and by re-enacting episodes of the 1862 battle. The city today houses a museum dedicated to the battle, and the actual battlefield is maintained as a park. In the US, in the mid-20th century, the celebration became a way for immigrants from Mexico to express pride in their heritage. Later, Cinco de Mayo also became popular with other demographics in the country when the festivities were linked with Mexican alcoholic beverages. As the celebration assumed greater importance in the country, many have criticised the negative stereotypes of Mexicans that were perpetuated as a result, as well as the promotion of excessive drinking.

Why A Recent Verdict of Germany's Top Court Has Sent Shockwaves Across EU

➔ Germany's constitutional court sent shockwaves through the European community as it questioned the legality of a past ruling of the European Court of Justice. The judgment from Germany, which mainly takes aim at a bond-buying scheme of the European Central Bank (ECB), is seen at its heart as challenging the long-settled hierarchy of European Union (EU) judiciary, and has since resonated with many governments and politicians in the EU that are critical of its policies.

Judiciary in the European Union
The European Court of Justice (ECJ), a supranational institution, is a part Court of Justice of the European Union (CJEU), and is the European Union's supreme court in matters of EU law. Founded in 1952 after the Treaty of Paris, the Luxembourg-based court ensures that EU law is interpreted and applied the same in every EU country, and ensures that countries and EU institutions abide by EU law. It settles legal disputes between national governments and EU institutions. In terms of hierarchy, the national courts of member countries are understood to be below the ECJ in matters of EU law.

German Court Vs ECJ
In 2018, the ECJ had ruled that a EUR 2 trillion bond-buying scheme of the European Central Bank (ECB), aimed at reinvigorating the EU economy after the multi-year European debt crisis, was legal as per EU law. In Germany, opponents of the scheme had for years complained to the German Constitutional Court, the country's highest, which in turn had expressed its concerns on parts of the scheme in 2017. This week, however, the German court dropped its biggest bombshell. The German court ruled that the ECJ's 2018 ruling was "ultra vires",

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meaning beyond the latter's legal authority, and said that it did not properly address whether the ECB scheme was justifiably suited for the EU economy. Speaking of the 2018 ECJ decision, the German court said in a press release: "If any Member State could readily invoke the authority to decide, through its own courts, on the validity of EU acts, this could undermine the precedence of application accorded to EU law and jeopardise its uniform application. Yet, if the Member States were to completely refrain from conducting any kind of ultra vires review, they would grant EU organs exclusive authority over the Treaties even in cases where the EU adopts a legal interpretation that would essentially amount to a treaty amendment or an expansion of its competences," it said. The German court has now given the ECB three months to prove that the bond-buying scheme was proportionate as per the EU's actual needs.

Significance of The Verdict

After the ruling, the European Commission underlined the supremacy of the ECJ, saying, "Notwithstanding the analysis of the detail of the German Constitutional Court decision today we reaffirm the primacy of the EU law, and the fact that the rulings of the European Court of Justice are binding on all national courts." The German ruling came to the delight of Eurosceptics, and was echoed by governments that have been in the EU's crosshairs. Poland's Deputy Justice Minister said, "For several months, the Polish government has been clearly saying that the EU cannot overstep its competences" and said that the German verdict is of "tremendous importance" for his country. Critics of the German verdict say it could strike at the legal foundations of the 27-member zone, and the ensuing power struggle between the two courts could lead to a rewriting of EU treaties – in itself a highly contentious process. Some economists have also slammed the judges' understanding of monetary policy– of both the German and EU courts. Belgium's former prime minister Guy Verhofstadt said, "If every constitutional court of every member state starts giving its own interpretation of what Europe can and cannot do, it's the beginning of the end." Experts believe that national courts in Poland and Hungary could now follow the precedent set by Germany in challenging the EU court's orders.

Amid High Inflation, Iran To Get A New Currency

➔ For many years, Iran's government debated changing the national currency, the rial, by basically slashing four zeros off its face value — an acknowledgment of how American sanctions and economic mismanagement have contributed to inflation in the country. The Iranian Parliament essentially took that step, authorising the replacement of the rial with another basic unit of currency called the toman. Each toman will be worth 10,000 rials under the new system. The COVID-19 pandemic, which turned Iran into a regional epicentre of the disease, appears to have played a decisive role, contributing to a further devaluation of the rial since February. Since 2018, when the Trump administration repudiated the nuclear agreement and reimposed sanctions on Iran, the value of Iran's currency has fallen by roughly 60%. "Eliminating the four zeros is a necessary action to simplify financial transactions," an Iran government spokesman, Ali Rabiei, said in a Twitter posting. The Guardian Council, a body of conservative clerics that supervises Parliament, is expected to ratify the law, and then the Central Bank will have two years to implement the change — removing rials from circulation and issuing tomans instead. The change is the outcome of a draft Bill presented in early 2019 by the Governor of Iran's central bank, Abdolnasser Hemati. He noted that the currency has been devalued 3,500 times since 1971 and that Iran had no choice but to "save the face" of its national currency, according to Iranian official media reports. Earlier attempts by President Hassan Rouhani's government to change the currency as far back as 2016 had remained in limbo.

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Two Views

Supporters of the change said slashing the extra zeros would vastly simplify financial calculations in Iran by eliminating the need for Iranian shoppers to carry loads of rials to make purchases, which they must do now because of inflation. The rial's exchange rate was 1,56,000 to the dollar. But opponents argued that the plan was an added expense at a time when the government was already facing a budget deficit of between 30-50% for this coming fiscal year. The effect of the currency change, the critics said, amounted to just cosmetic window dressing. Fereydoun Khavand, an Iranian economist in Paris, said governments typically arrived at changing the national currency as the last stage of an economic overhaul like European countries had done after the Second World War or Turkey in recent years. Iran has done the opposite, Mr. Khavand said, partly because of the crippling effect of U.S. sanctions, which have severely limited the country's ability to sell oil or to conduct international financial transactions. Under those circumstances, he said other basic economic changes the Iranian government may want to undertake are difficult. "You typically fix the economy first and then change the currency," said Mr. Khavand. "The government is in a financial bind with no prospect of financial aid coming from outside or from inside so they are trying this," he added.

Eradicate Female Genital Mutilation (FGM)

➔ Sudan's decision to outlaw the practice of female genital mutilation (FGM) is a landmark victory for women's rights in a country that is still in a transition from dictatorship to democracy. The development follows the transitional government's decision to scrap the repressive social codes and humiliating penalties that targeted women during the nearly 30-year dictatorship of Omar al-Bashir, which fell last year amid protests. Hundreds of Sudanese professionals who spearheaded the protests, had clamoured for a broad-based and inclusive constitutional order. The new measure, which entails punishment with a fine and a prison sentence, must still be approved by the Supreme Council, made up of civilians and military officials, that oversees the democratic transition. The government's decision builds on the curbs already in place in a number of provinces, although enforcement has been a concern. The UN estimates that some 87% of Sudanese women have had their external genitalia removed on non-medical grounds during childhood, leaving them with life-long emotional and physical injuries. While the latest measure has been widely welcomed, campaigners remain cautious about a shift in attitude against this custom, regarded as crucial prior to matrimony. According to the UN, over 200 million women in several African countries, including Sudan, Egypt, Nigeria, Djibouti and Senegal, and some in Asia, have been subject to this brutal social custom. While there is ongoing research to rectify the damage, WHO is somewhat sceptical about the effectiveness of recent reconstruction surgeries. The prevailing scenario thus underscores the need for stronger campaigns and bold actions to stop this social scourge. Even in countries where FGM is outlawed, enforcement remains an issue. In Egypt's first FGM trial in 2014, six years after Cairo clamped a ban, the doctor who had carried out the procedure, as well as the father of the deceased girl, were acquitted, despite incriminating forensic evidence. In Somalia, the country with the highest prevalence rate but no legal ban, the death of a girl in 2018 after a similar procedure led to the first prosecution in such incidents. In Uganda, reports last year of some 300 cases of mutilation within a month shed light on the government's uphill task to back existing legislation with vigorous awareness campaigns. In Kenya, where the practice was criminalised in 2011, the government strategy last year requiring girls to be tested for circumcision raised concerns of victimisation and privacy violation. These practices suggest that legislation alone may not stop this practice that has deep cultural roots. The government has to eradicate it. Sustaining the country's progressive currents and democratic transition would be crucial to consolidate the gender reforms it has introduced in recent months.

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No Country for Migrant Workers

➔ About 2,00,000 Bangladeshi workers returned home, mostly from West Asian nations, before the country shut its airspace. The projected fall in remittances, which would be the sharpest in recent history, is largely due to a decline in the wages and employment of migrant workers, the World Bank said in a report on April 22. Remittances to low- and middle-income countries may fall by 19.7% to $445 billion, representing a loss of a crucial financing lifeline for many vulnerable households. Remittances to Bangladesh and other South Asian nations are forecast to decline by 22% to $109 billion in 2020, following the growth of 6.1% in 2019. The slowdown is likely to directly affect remittance outflows from the U.S., the U.K., and EU countries to South Asia. Falling oil prices will affect remittance outflows from West Asian countries and Malaysia, which together supplied $10.88 billion to Bangladesh last fiscal year. Signs of a deceleration are already on the horizon in the country. Inward remittances in March dropped 13% year-on-year to $1.29 billion, lowest in 15 months, according to data from the central bank. Dilip Ratha, a World Bank economist recommended supporting stranded migrants and their access to health, housing, and other social services, and offering incentives to reduce the cost of remittance services. In the medium to long-term, policies should encourage the interoperability of online remittance systems and support efforts to reduce remittance costs, which remain far too high for some of the poorest regions, according to Mr. Ratha.

Digital Transfers

The coronavirus crisis may have one upside — more people may start sending money home digitally, which the World Bank says can be 50% cheaper than traditional transfers, where recipients have to go to a shop to pick up the money. In Bangladesh, bKash saw a surge in remittance transfers through its channel. Expatriates sent around 150% more remittances on a daily average in April, compared to the first three months of this year through online and wallet-based money transfer companies from around the world, bKash, Bangladesh's largest mobile money company, said in a statement. Much about the pandemic is maddeningly unclear. Economies have nosedived, societies have paused. And the impacts of the disease on migrant workers in parts of the world are swift and severe.

Foreign Affairs

BRICS Against COVID-19

➔ In the global war against the novel coronavirus, emerging economies, many belonging to BRICS, have reached out to other countries humbled by the pandemic. India has reinforced its credentials as a rapidly emerging pharmacy of the world. As the world's largest producer of hydroxychloroquine, India has recently exported the drug not only to SAARC countries and to its "extended neighbourhood" in the Gulf, but also to Russia, Brazil, Israel and the U.S. This has set the stage for India to forge an inclusive BRICS-driven pharma alliance, which could also actively explore the production of vaccines.

Workshop of The World

Despite allegations that it had delayed sounding the alarm about COVID-19 infections that had broken out in Wuhan, China has, subsequently, responded strongly in containing the pandemic, leveraging its position as the workshop of the world. Notwithstanding teething problems and quality concerns, China has steeled the transcontinental response to the disease by providing

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the "hardware" — masks, gloves, coveralls, shoe covers and testing kits — to hotspots across the globe. Under its Health Silk Road doctrine, the Chinese reached out to two of the worst global hotspots, Italy and Iran. A Chinese shipment of 31 tonnes, which included essential supplies and equipment, including respirators, protective suits, masks and medications, arrived on March 12 in Rome. Six days later another Chinese team flew directly to Milan. Soon China was running a medical air bridge bound for Europe. Despite fighting the virus at home, Russia too sent its doctors and virologists overseas, including the launch of the famous 'From Russia with love' air mission to Italy. At the request of U.S. President Donald Trump, a Russian Antonov-124, packed with medical supplies and experts, landed at New York's John F. Kennedy International Airport. Since Soviet times, Russia has top-of-the-line emergency services, which are equipped to handle any kind of emergency including biological attacks, nuclear radiation, and chemical weapon attacks. On the African continent, South Africa, the current rotating head of the African Union, is engaged in framing a pan-African response to COVID-19. *Among the BRICS nations, only Brazil's response may need a course correction, as its resistance to breaking the infection chains through travel bans, lockdowns, isolation and testing appears to have led to an infection surge.*

Time to Coordinate Efforts

Having demonstrated their comparative strengths as providers of Humanitarian Assistance and Disaster Relief (HADR), BRICS countries now need to pool and coordinate their efforts, in partnership with the WHO, and Europe and North America, both badly affected by the pandemic, as part of a global assault on the virus. But for seeding a robust institutional HADR response, the BRICS countries may have to reactivate an existing disaster response mechanism, and earmark resources and assets to combat a whole range of natural disasters, with special focus on the emerging economies and the global south. The Shanghai-based New Development Bank of the BRICS countries has already demonstrated the way forward to allocate financial resources to combat COVID-19. In April, during a meeting of the NDB Board of Governors, NBD President K.V. Kamath announced that apart from disbursing a $1 billion emergency loan to China, and subsequently to India, South Africa and Brazil, the NDB had the financial heft to provide $10 billion in "crisis-related assistance" to BRICS member countries. The NDB's financial model, demonstrated to address the pandemic, can now become a template to address natural disasters.

Resuscitating Multilateralism with India's Help (Amitabh Mattoo - Professor of International Relations at Jawaharlal Nehru University Amrita Narlikar - President of The German Institute for Global and Area Studies (GIGA))

➔ Even as the coronavirus pandemic unleashes its devastation across the globe, the great and the good have been quick to remind us of the value of multilateralism and the necessity to preserve it. And yes, they are right. To reduce the further spread of the virus, to develop effective medical treatments, and to curtail the worst effects of the inevitable recession that is already in the offing, cooperation among nations will be necessary. But there is a problem: multilateralism is possibly at its weakest today, when the need for it is more dire than ever before. Unless the fundamental problem is addressed, no meaningful fix will be possible. We believe that India may be uniquely positioned to help resuscitate multilateralism. With the United States facing multiple internal challenges including the prospects of a deeply divisive Presidential election in November, New Delhi (together with like-minded partners even beyond the usual suspects) could assume leadership in strengthening constructive transnational cooperation. At a time when China is facing a global crises of credibility, India may even

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consider a last-ditch attempt at mediation; to temper what is increasingly seen as Beijing's unilateralist revisionism; revive the promise of the gradual socialisation of China into the international system; and its acceptance of the norms and rules that regulate the principal multilateral institutions.

Deepened by The Pandemic

The malaise that afflicts multilateralism is not new. The paralysis of all three functions of the World Trade Organization (WTO) — negotiation, dispute settlement, and transparency — was one sign of that deep-rooted malaise; the severely dented credibility of the World Health Organization (WHO) is just another more recent indicator. The pandemic has heightened the crisis of multilateralism, not created it. And amidst the many cracks in the system, it has deepened one especially dangerous fault-line: multilateralism, in its current form, is incapable of dealing with misuse by "systemic rivals", and this goes beyond the personality of its current Director-General, Dr. Tedros Adhanom Ghebreyesus, and his perceived Chinese bias. The underpinning assumption of the post-war multilateral system was that peace and prosperity went hand in hand. Some like-mindedness and a commonly-held purpose was also assumed among members: increasing economic integration and shared prosperity would help enhance these affinities and contribute to peace. Countries with fundamentally different domestic systems of governance did not form a part of this multilateral order, as was the case with the Soviet bloc in the Cold War years. None of our multilateral institutions was built for a world where the ties of interdependence — which were supposed to enhance the well-being of all — could themselves be "weaponized" for nationalistic gain, at the expense of other players. The misuse of existing rules (or loopholes within the existing rules) by several countries, especially by China (e.g. via forced technology requirements, intellectual property rights violations, and subsidies), to gain an unfair advantage in trade relations was already attracting critique in the last years. But the pandemic has provided us with some even more alarming illustrations of how damaging the weaponization of global supply chains can be. As death tolls rose (in some cases, to catastrophic proportions) many countries responded with export restrictions on critical medical supplies. This was far from ideal, but almost inevitable given the absence of adequate stocks within countries, and little in the rules to curb export restraints. Recognising the shortages that countries were facing — masks, personal protective equipment, ventilators and more — to deal with COVID-19, China offered to sell these products to countries in need. For instance, when the European Union (EU) put up export restrictions, China stepped in at Serbia's request. But China's coronavirus diplomacy did not stop there. When India complained that test kits imported from China were faulty, China slammed it for "irresponsible" behaviour. When Australia indicated that it would conduct an independent investigation of China's early handling of the epidemic, China threatened it with economic consequences. Add to this the dangers of using faulty equipment on critical patients, plus the risks that several actors, including the EU and India, see of predatory takeovers of their companies by China. The pandemic is teaching countries, through bitter experience, that weaponised interdependence is not just a theory but a practice that is rapidly evolving. And it can have life and death consequences. Against this background, repeated calls by heads of governments and international organisations urging countries to remain committed to multilateralism ring hollow.

A Role for India

The current crisis in multilateralism could be a remarkable opportunity for India, a country whose pluralism, democracy, and liberalism have often been underestimated by the West. At an immediate level, the gains are obvious: India has also maintained a consistent reserve about a blanket entrenchment in global value chains. As some constituencies in the West seek a gradual decoupling from China, they would be well served to look toward India. To make use

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of the opportunities, for itself and for the provision of certain global public goods, India's cooperation with like-minded actors will be key. Here, India could work closely with the Alliance for Multilateralism (an initiative launched by Germany and France) to shape both the alliance itself and the reform agenda at large. Working together with a group of countries from the developed and developing countries could further amplify India's voice. But beyond these immediate gains could be a greater role for India. Not since Chernobyl has global public opinion lost as much faith in the competence and integrity of a great power as it has in China because of COVID-19 and the apparent malfeasance and the opaqueness with which it has dealt with the crises. While China may recover faster than most economically, and its military might remain intact, its image as a reliable partner has suffered a huge dent. Neither aid diplomacy nor the unleashing of Chinese soft power can easily recover the trust deficit that exists today between China and much of the rest of the world. While prudence may demand gradual decoupling, it is critical to not be seen as immediately isolating China; with fewer stakes in world order, Beijing's turn towards revisionism could be faster than anticipated. Instead, India could lead a coalition to bridge this deficit of trust through a regime of incentives and sanctions that seek to embed Beijing into a much more guided and directed socialisation into the rules of the international system. Clearly, the strategic and economic have, however, to be in consonance with each other. In the longer term then, whether multi-polarity is the only firm guarantor of a sustainable and fairer multilateralism requires further debate among scholars and practitioners alike.

Pandemics Without Borders, South Asia's Evolution (Kanak Mani Dixit, A Writer and Journalist Based In Kathmandu, Is Founding Editor Of The Magazine, 'Himal Southasian')

➔ Even if the COVID-19 pandemic spares South Asia the worst impact it has reserved thus far for the northern latitudes, it is certain that this region of nearly a fourth of the global population will be wounded gravely — economically, and as the process unfolds, socio-politically. Holding the largest volume and density of poverty in the world, the countries of South Asia are looking into an abyss of distress and discontent.

As a dire telegram sent by Earth to Humanity, COVID-19 has laid bare the demagoguery that marks the democracies of South Asia. The response of the regimes has been to entrench themselves further, and they are shifting blame on mal-governance to the pandemic even as they tighten state control through surveillance, repressive laws and radical populism backed by ultra-nationalism. The public's fear of the virus is allowing Presidents and Prime Ministers to press on with top-down rule, whereas the lockdown should be the time to generate momentum towards federal devolution and Gandhi's empowering 'gram swaraj' — a term that must be revived without a sense of embarrassment.

The unflinching lack of caring for the citizenry by governments in South Asia can only be reversed through a formula that incorporates the internal and external to the nation-states, a reformatting of relationships. Internally, power must devolve from the capital to the provincial units of the two larger countries (Pakistan and India), as well as empowerment of local governments all over (as done in Nepal under the 2015 Constitution, but not yet fully implemented). Externally, the countries of South Asia must bring down the hyper-nationalist mind barriers to allow porous borders, thereby reviving historical synergies in economy, ecology and culture. This is essential for both social justice and economic growth, and cannot happen without a palpable reduction in military expenditures that will come with abandonment of the national security state. South Asian regionalism requires resuming the evolution of the subcontinental polity that was terminated in 1947 with Partition. Regionalism would lead to collaborative battles against pestilence, and for wealth creation through trade, comparative

advantage, and economies of scale. Regionalism would help fight plastic pollution in our rivers, battle the air pollution that wafts across our frontiers, promote cooperation in natural and human-made disasters, and boost the economies of the geographical "periphery" of each country. The push for South Asia-wide thinking and planning need not be seen as a malevolent attempt to subvert India. Instead, it is the path for India's own socio-economic advance, and the way to garner international recognition of its soft power. Internal devolution and cross-border bonding have always been a necessity but impossible for some to contemplate. Hopefully, the shake-up of the COVID-19 pandemic will succeed where past exhortations have failed. The opinion-makers of India — economists, political scientists, philosophers, sociologists, diplomats and others — have tended to be New Delhi-centric, and, as a result, downright reluctant to address issues of both federalism within and regionalism without. They have thus far been unable to see the jungle for the trees.

Back Home

➔ After nearly two months, stranded Indians across the world will begin their journey home this week as aircraft and naval ships, in a government-coordinated plan, are to bring back about 15,000 nationals from 13 countries in the first week. The mammoth exercise, dubbed the "Vande Bharat" mission by the External Affairs Ministry, is expected to last for weeks, given the numbers of people who have registered with embassies in these countries. The stranded include business travellers and tourists who were unable to return in time; due to the pandemic, the last flights allowed to land with incoming passengers were on March 22. There are also students whose university hostels have shut down. Increasingly, those appealing to be allowed to return have included professionals and labourers who have lost jobs due to the economic impact of global lockdowns. With estimates of applicants ranging between 5,00,000 to 10,00,000, embassies and missions will have their task cut out prioritising lists of those who will return. According to the Standard Operating Procedures released by the Home Ministry, only those who have "compelling reasons to return" — people whose visas are expiring, who face deportation, with family emergencies, medical issues including pregnancy, and students who have lost their accommodation — will be allowed to return in the first phase, which is open to only Indian nationals at present. In addition, the government has also laid down stringent conditions which include "mandatory institutional quarantine" for 14 days. All those returning will also bear the costs for travel arrangements and accommodation.

USCIRF Report May Prompt Concerns

➔ The government has unequivocally dismissed the US Commission of International Religious Freedom's latest report, which ranks India on the lowest grade of "Countries of Particular Concern", citing the Citizenship (Amendment) Act and the proposed National Register for Citizens, both of which were announced by the government in the past year. In its statement this week, the External Affairs Ministry hit back at the USCIRF directly, calling it an "Organisation of Particular Concern", with no "locus standi" or official standing. The government's stand is consistent with its policy on the USCIRF, which it has refused to cooperate with, and has disallowed its officials to visit India since 2009. The bigger worry this year is the fact that the USCIRF has recommended that India be put on the CPC list by the State Department, which is due to publish its annual report on religious freedom in a few weeks, most likely in May or June. Former Indian Ambassadors to the U.S. point out that though a CPC designation is unlikely to make any difference to the U.S.-India bilateral relationship on other issues, it would be premature to dismiss the USCIRF's recommendation completely. "It's wrong to focus just on the statements of the USCIRF on CAA and NRC and other such issues. The question is, who has supported India [in the U.S.] on these issues? No one. One can say

that you don't expect there will be reactions to such [domestic Indian] policies. Frankly, that is wishful, unrealistic thinking," Ronen Sen, who was Ambassador in Washington in 2005 when India was removed from the State Departments' CPC list, told The Hindu. "There is a reputational issue involved, for India, as the world's largest democracy that draws strength from the protection of diversity," said former Ambassador to Washington Nirupama Menon Rao, stating that the report could not be "ignored outright". "To be clubbed with China and Burma, Pakistan and North Korea as a country of particular concern is unfortunate," she said.

More Punitive Steps

The decision before U.S. Secretary of State Mike Pompeo (who will act on behalf of President Donald Trump) on whether to designate India as a CPC is significant, as it could bring other punitive actions. According to the US IRF Act, the President is obligated to take one of 15 possible actions, ranging from a demarche to cancellation of bilateral exchanges, to travel sanctions against specified officials, within 3-6 months. It was under this determination that the U.S. had banned travel visas for PM Narendra Modi (then Gujarat Chief Minister) in 2005. Diplomats point out the State department hasn't always followed the USCIRF's recommendations. In December 2019, Mr. Pompeo designated nine countries including "Burma [Myanmar], China, Eritrea, Iran, North Korea, Pakistan, Saudi Arabia, Tajikistan, and Turkmenistan" that were on the recommended list, and put others like "Comoros, Russia, Uzbekistan, Cuba, Nicaragua, Nigeria, and Sudan to its 'Special Watch list', but left out Syria, Vietnam and Central African Republic, which were also on the USCIRF's list. The Office of International Religious Freedom (IRF) in the State Department and the USCIRF were created by the American "International Religious Freedom Act of 1998", but are separate entities and the USCIRF's recommendations are non-binding on the State Department. However, according to the State Department website, the U.S. Secretary of State, who makes the final recommendation on whether to designate a country as a CPC, "takes into account" the recommendation made by the USCIRF.

Who Was Riyaz Naikoo?

➔ Riyaz Ahmad Naikoo, the 35-year-old commander of the Hizbul Mujahideen who was killed in an encounter with security forces in South Kashmir's Awantipora, was relatively unknown until three years ago. In August 2017, a year after the killing of Hizbul Mujahideen commander Burhan Wani, security forces gunned down his successor, Yasin Itoo alias Mehmood Ghaznavi, in Shopian. The Pakistan-backed militant outfit turned to Naikoo, naming him chief of its operations in the Valley with the additional task of regrouping its ranks. Under Naikoo, who now went by the name of Mohammad bin Qasim, the Hizb soon returned to the centre-stage of militancy in the Valley and he showed up on the radar of every security agency. According to police, Naikoo was the man behind a string of attacks on police, security forces and civilians including the killing of six migrant labourers in Kulgam, fruit traders and a trucker in Shopian following the abrogation of J&K's special status last year and the killing of a sarpanch and two civilians. Police say Naikoo ordered the abduction of policemen and the looting of nine weapons from the Srinagar residence of a former PDP MLA. In 2018, he had ordered the abduction of family members of J&K police personnel in retaliation for the detention of his father, Assadullah Naikoo (70), by police. Over a dozen family members of policemen were kidnapped by militants from across South Kashmir. After his father was released, the kin of policemen returned home. Naikoo became one of the most wanted militants and the government announced a cash reward of ₹12 lakh for any information leading to him. From Beighpora village in Awantipora in south Kashmir, Naikoo acquired a degree in mathematics and taught the subject at a local school. But on June 1, 2012, he disappeared – his family alleged he was harassed and beaten by police. And when he resurfaced, he was carrying a

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gun. In the next five years, he rose up the Hizb ranks. Naikoo's elevation was also nudged by a churning within the militant outfit. When Hizb commander Zakir Rashid Bhat alias Zakir Musa swore allegiance to the al-Qaeda in the Indian Subcontinent (AQIS) and announced that he wanted to establish an Islamic caliphate, he pitted himself against the separatist leadership. The Hizb fielded Naikoo as its face with the instruction that he keep its ranks intact because a split seemed inevitable after Zakir Musa's decision to part ways. Naikoo began uploading photographs of militant recruits on social media and began the practice of offering gun salutes to militants killed in gunbattles.

India Flays Nod for Gilgit-Baltistan Polls

➜ The External Affairs Ministry issued a "strong protest" over an order by the Pakistan Supreme Court allowing the Imran Khan government to hold elections in the region of Gilgit-Baltistan of Pakistan-occupied Kashmir (PoK). India said it had issued a demarche to protest what it called Pakistan's attempt to make "material changes" to the disputed area, by bringing federal authority to Gilgit-Baltistan (G-B), which has functioned as a "provincial autonomous region" since 2009.

Centre Issues Demarche

As a result of the coronavirus lockdown, the demarche was issued via email to the Minister (Political) in Pakistan's High Commission in Delhi. "The Government of Pakistan or its judiciary has no locus standi on territories illegally and forcibly occupied by it. India completely rejects such actions and continued attempts to bring material changes in Pakistan-occupied areas of the Indian territory of Jammu & Kashmir. Instead, Pakistan should immediately vacate all areas under its illegal occupation," the Ministry spokesperson said in a statement. Pakistan's Ministry of Foreign Affairs (MoFA) responded to the demarche by referring to the government's decision in August last year to amend Article 370 as "illegal and in clear violation of UNSC resolutions". India's reaction is consistent with its previous objections against elections in G-B and in other parts of PoK, which it refers to as "Azad Jammu Kashmir".

Nation

It's Time for A Virtual Judiciary (R. Anand And V. Ranganathan - Chartered Accountants)

➜ During the nationwide lockdown imposed to contain the spread of COVID-19, it has become clear that many activities can simply be done online. Over the last decade, Indians have embraced technology in a greater way than ever before. We all have apps on our phones — Amazon, Flipkart, Swiggy, Uber, Ola, Zomato, etc. — that help us procure various goods and services. Today, in these exceptional circumstances, 'work from home' is a concept whose time has come like never before. Many offices are gearing up for the new normal of staying at home and working, as restrictions are expected to continue for an indefinite period. This brings us to the question; how can we use technology to ensure speedy disposal of cases?

Many Hurdles

The pendency of cases in various courts in India is staggering. The Economic Survey of 2019-2020 dedicates a chapter to pendency of tax cases and revenue cases. The Survey mistakenly argues for more court infrastructure and judges to solve the problem. On the contrary, the

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existing infrastructure is grossly under-utilised. There are tribunals such as the Income Tax Tribunal that function only half-day most of the time. To make matters worse, most courts are closed for Christmas and summer vacations. Judges are not accountable for efficiency and performance. Thousands of Indians cannot afford to go to court as legal costs are high and legal procedures are complicated. It is a fact that most tax matters do not necessitate personal hearings. Tax cases reach tribunals and higher courts after lower authorities record all the facts. The High Courts and the Supreme Court deal with issues or interpretation of the law. The bane of the court system is that lawyers on both sides need to be physically present in court. Cases are often adjourned due to various reasons. It is in this context that we make the case for a virtual judiciary. In such a scenario, we can submit all the papers via mail. The judge can decide the case based on all the available information. Wherever the judge requires clarifications, he or she can seek the same through email. Typically, the judge, after considering all the material available, can pass a draft order and send it to both sides for any comments which they may want to provide. Thereafter, the judge can, after considering the comments, pass the final order. This will enhance the quality of the judgment and also eliminate obvious errors.

An Efficient Judiciary

The use of the court hall to decide such matters is superfluous. Not only will a virtual judiciary result in substantial savings in costs but will also lead to speedy disposal of cases. The productivity of lawyers will increase substantially as visits to courts and long waiting hours will be more an exception than a rule. If this practice is extended to other civil cases, efficiency will double, even treble, in judicial functioning. The fact that the jurisdiction of a court is defined by geography makes no sense in matters such as taxation and company law. The change to remote, non-personal electronic court hearings will change this. All judges should be empowered to handle any case, wherever it originates. This will result in multiple advantages — the principal one being better utilisation of manpower and infrastructure by equitably distributing the work. Also, malpractices will be limited as there will no longer be familiarity between lawyers and judges in a city. While India grapples with a crisis on the health and economic front, we need to think out of the box. We need a change in mindset regarding the way we work. Imagine the overall savings and extent of improvement of the judicial ecosystem if 70% of the cases get decided without going to court? If vested interests are kept aside and collective will to initiate what is for the common good takes' precedence, a virtual judiciary can become a part of our lives.

Conducting Elections During A Pandemic (S.Y. Quraishi - Former Chief Election Commissioner of India)

➔ As Maharashtra struggled to tackle the COVID-19 pandemic, its people were staring at a unique problem. The deadlock between the Governor of Maharashtra and Chief Minister Uddhav Thackeray looked like it would continue for long and cost Mr. Thackeray the post of Chief Minister. But thanks to the intervention of the Prime Minister and the prompt action of the Election Commission of India (EC), the impending constitutional crisis has blown over in Maharashtra.

Averting A Political Crisis

Mr. Thackeray, who took oath as Chief Minister on November 28, 2019, has to become a member of the legislature within six months, which ends on May 27. This would not have been a problem for him had the elections, scheduled to be held on March 26, not been postponed indefinitely due to the pandemic, by the EC, which used its powers under Article 324 of the

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Constitution, along with Section 153 of the Representation of the People Act, 1951. A double application of Article 164 (4) to extend this period for another six months was out of the question as the Supreme Court, in S.R. Chaudhuri v. State of Punjab and Ors (August 17, 2001), had declared that it would be tantamount to a subversion of the principle of representative government. Consequently, the Chief Minister was left to take the nomination route. In pursuance of this, the Cabinet, headed by Deputy Chief Minister Ajit Pawar, submitted a proposal to the Governor to nominate Mr. Thackeray to the Legislative Council. Article 171(3)(e) coupled with Article 171(5) empowers the Governor to nominate an individual with "special knowledge or practical experience". The Governor, however, put the proposal in limbo for over a fortnight. Given this situation, political analysts speculated whether Mr. Thackeray would knock on the door of the Supreme Court or follow the route Lalu Prasad took in Bihar in 1997 after being forced to resign following conviction in a criminal case. Instead of seeing the end of his political career, he brought his wife Rabri Devi to replace him as Chief Minister. Analysts wondered if Mr. Thackeray would similarly hand over the reins of power to his son, an MLA. However, better sense prevailed and the political leadership managed to avert a major crisis. The Prime Minister's intervention and the EC's prompt action averted the political impasse — polls to nine legislative council seats in Maharashtra will now be held on May 21. By deciding to hold elections during a pandemic, the EC has taken up a big responsibility. Though only the 288 members of the Vidhan Sabha will be voting in this election, the EC will have to ensure strict implementation of the Health Ministry's guidelines. Knowing the EC's capabilities and years of experience, this will be a cakewalk. South Korea just conducted its national election with 44 million voters in the midst of the pandemic. It is a good source of inspiration for the EC. But a bigger cause for concern for the EC are the upcoming Assembly elections for Bihar (which must be concluded by November 29, 2020), West Bengal (May 30, 2021), Assam (May 31, 2021), Kerala (June 1, 2021), Tamil Nadu (May 24, 2021) and Puducherry (June 8, 2021). *Unlike the Rajya Sabha/Legislative Council elections which can be postponed indefinitely, the EC can postpone elections to the Lok Sabha and State Legislative Assemblies for a period of only six months*, *the constitutionally defined limit between two sessions of the House/Assembly (Article 85(1) and Article 174(1) of the Constitution, respectively).* For a further period of extension, the ball is in the executive's court, which will be faced with two possibilities. The first is proviso to Article 172(1) whereby during a state of Emergency, an election can be postponed for one year in addition to a period of six months after Emergency is lifted. The rider, however, is that a state of Emergency can be declared only if there is a threat to the security and sovereignty of the nation, not if there is an epidemic or a pandemic. The second option is to declare President's rule in the State, enabled by Article 356(1) of the Constitution. But its limits have been repeatedly defined by the Supreme Court.

Lessons from South Korea

Some experts say that the COVID-19 pandemic could last for two years. Deferring elections for such a long time would be against the spirit of democracy and federalism, which are the basic components of the Constitution. As a result, holding elections seems to be the only way out. It is noteworthy that India will not be the only country to hold elections during this pandemic. According to the International Institute for Democracy and Electoral Assistance, nine countries have already held national elections and referendums during this public health crisis. Among them is South Korea, which, under strict guidelines, managed to pull off a near-perfect national election recording the highest voter turnout of 66.2% in 28 years. The EC could take into account the measures that South Korea took to prepare a foolproof plan. South Korea disinfected polling centres, and mandated that voters practise physical distancing, wear gloves and masks and use hand sanitiser. Voters had their temperatures checked on arrival at the booths. Those who had a temperature above 99.5 degrees Fahrenheit were sent to booths in secluded areas. The interests of infected voters and the interests of those suspected of

having the virus were not ignored: COVID-19-positive voters were allowed to mail their ballots, while self-quarantined voters were allowed to vote after 6 p.m. Unarguably, the population of States like Bihar (9.9 crore) is huge compared to South Korea's population (5.16 crore). The EC could adopt targeted measures for older voters who are more vulnerable to COVID-19. Options like proxy voting under a well-established legal framework, postal voting, and mobile ballot boxes can be explored. The EC has a difficult task of sticking to its goal of 'No Voter Left Behind' while also ensuring that the elections do not turn into a public health nightmare. The COVID-19 pandemic is a big threat to the established world order. It is quickly transforming fragile and vulnerable democracies into autocracies in the name of public safety. How India, a large and well-established democracy, responds to this crisis is the biggest challenge before it.

Vizag Gas Leak: What Styrene Is For, And How It Behaves

➔ The gas that leaked from a chemical factory on the outskirts of Visakhapatnam, leaving at least 11 dead and sending hundreds to hospital, is called styrene.

What Is Styrene?

Styrene is an organic compound with the formula C_8H_8, its molecular structure as pictured. It is a derivative of benzene (C_6H_6). It is stored in factories as a liquid, but evaporates easily, and has to be kept at temperatures under 20°C.

What Is Styrene Used For?

Styrene is the main raw material for synthesis of polystyrene, or $(C_8H_8)_n$. Polystyrene, in turn, is a versatile plastic that is used to make parts of various appliances such as refrigerators or micro-ovens; automotive parts; and parts of electronics such as computers; and also to manufacture disposable cups and in food packaging. Styrene is also used as an intermediate to produce copolymers — which are polymers derived from one or more species of monomers such as styrene.

What Happens If Someone Is Exposed to Styrene Gas?

Exposure to styrene gas affects the central nervous system. "Breathlessness, respiratory problems, irritation in eyes, indigestion, nausea, transient loss of consciousness, unsteady gait, giddiness are caused by exposure to it. In this incident, people were exposed to the gas for a short duration, so there may not be any long-term effects,". However, in people suffering from respiratory illness such as asthma, and those who have chronic obstructive pulmonary diseases, these conditions may get exaggerated. "Those suffering from diabetes or hypertension may have anxiety disorders." It is the mucous membrane that is mainly affected by exposure to styrene gas. In Visakhapatnam, the styrene gas leak caused acute breathlessness among many people, a few of whom asphyxiated to death.

What Are the Long-Term Effects?

Experts say that if people are exposed to the gas for a long period, there is a chance of their developing leukaemia and headaches. Studies on the effects on health due to occupational exposure to styrene have, however, been inconclusive. As per the United States Environmental Protection Agency, tests involving acute exposure of rats and mice have shown styrene to have low to moderate toxicity by inhalation and oral exposure. Animal studies have reported effects on the central nervous system, liver, kidney, and eye and nasal irritation from inhalation

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exposure to styrene. Liver, blood, kidney, and stomach effects have been observed in animals following chronic oral exposure.

What Was the Factory from Which Styrene Leaked?

Styrene gas leaked from a storage tank of LG Chem Polymers. The factory was established in 1961, originally as Hindustan Polymers, to manufacture polystyrene. It was merged with McDowell & Co of the UB Group in 1978, then taken over in 1997 by South Korea-based LG Chem, which renamed it LG Polymers. The factory manufactures general-purpose polystyrene and high-impact polystyrene, expandable polystyrene, and engineering plastics compounds. It is located at RRV Puram in Gopalapatnam, 15 km from Visakhapatnam city. A company official said 1,800 tonnes of styrene was stored in a tank of capacity 2,400 tonnes. The gas leaked from this tank when officials were preparing to reopen the factory that was shut for 44 days due to the lockdown. About half the gas leaked before it was contained.

Were Safety Protocols in Place?

As explained, styrene has to be stored in gas tanks under 20°C to keep it stable. The temperature has to be continuously monitored, and any exposure to light or heat may result in polymerisation. A team of 15 engineers and officials remained on duty at the factory throughout the lockdown period to monitor it. If temperature rises, inhibitors have to be added to keep the styrene stable. At LG Chem, an inhibitor tank is attached to the styrene storage tank but it failed to stabilise it in time. As a safety measure, the styrene tanks are never filled to capacity.

Why Could the Inhibitor Not Prevent What Happened?

As the styrene was stagnant for 44 days, officials said, it was possible that some gas accumulated at the ceiling of the storage tank and its temperature rose beyond the specified 20°C, and the styrene started vaporising and escaped. This is called auto-polymerisation. However, the exact cause is still being ascertained. The company has not explained how the storage tank ruptured and the gas escaped.

According to the National Disaster Management Authority (NDMA), in the recent past, over 130 significant chemical accidents have been reported in the country, which have resulted in 259 deaths and caused major injuries to more than 560 people. There are over 1861 Major Accident Hazard (MAH) units spread across 301 districts and 25 states and three Union Territories in all zones of the country. Further, there are thousands of registered and hazardous factories and unorganised sectors dealing with numerous ranges of hazardous material posing serious and complex levels of disaster risks.

What Are the Safeguards Against Chemical Disasters in India?

➔ **The Law in India Provides Protection to Victims of Such Chemical Disasters. Here's A Look at Some of These Provisions:**

At the time of the Bhopal gas tragedy, the Indian Penal Code (IPC) was the only relevant law specifying criminal liability for such incidents, reported PRS Legislative. The CBI had initially charged the accused in the case under Section 304 (culpable homicide not amounting to murder) of the Indian Penal Code (IPC). The charges were later framed under Section 304A, which deals with death due to negligence and imposes a maximum punishment of two years and a fine. The charges were re-framed after a 1996 Supreme Court judgment held that there was no evidence to show that the accused had knowledge that such a gas leak would happen and kill people. Soon after the tragedy, which had killed 2,000 people, the government passed

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a series of laws regulating the environment and prescribing and specifying safeguards and penalties. Some of these laws were:

1. Bhopal Gas Leak (Processing of Claims) Act, 1985, which gives powers to the central government to secure the claims arising out of or connected with the Bhopal gas tragedy. Under the provisions of this Act, such claims are dealt with speedily and equitably.
2. The Environment Protection Act, 1986, which gives powers to the central government to undertake measures for improving the environment and set standards and inspect industrial units.
3. The Public Liability Insurance Act, 1991, which is an insurance meant to provide relief to persons affected by accidents that occur while handling hazardous substances.
4. The National Environment Appellate Authority Act, 1997, under which the National Environment Appellate Authority can hear appeals regarding the restriction of areas in which any industries, operations or processes or class of industries, operations or processes shall not be carried out or shall be carried out subject to certain safeguards under the Environment (Protection) Act, 1986.
5. National Green Tribunal, 2010, provides for the establishment of a National Green Tribunal for effective and expeditious disposal of cases related to environmental protection and conservation of forests.

According to PRS Legislative, any incident similar to the Bhopal gas tragedy will be tried in the National Green Tribunal and most likely under the provisions of the Environment (Protection) Act, 1986. "…if an offence is committed by a company, every person directly in charge and responsible will be deemed guilty, unless he proves that the offence was committed without his knowledge or that he had exercised all due diligence to prevent the commission of such an offence," PRS states.

MPLADS, Its Suspension, And Why It Must Go (Jagdeep S. Chhokar - Former Professor, Dean and Director In-Charge of The Indian Institute of Management, Ahmedabad)

➔ All Opposition parties have been unanimous in their criticism of the government's recent move to suspend the Members of Parliament Local Area Development Scheme (MPLADS) for two years, approved by the Cabinet. The government's reason is this: to use these funds "to strengthen the government's efforts in managing the challenges and adverse impact of COVID-19 in the country". Such political unanimity is not very common but does happen whenever self-interest is involved.
➔ The argument that MPs only recommend projects, but the final choice and implementation rests with the district authorities is strange; there are hardly any authorities in the district who have the courage or the gumption to defy the wishes of an MP.
➔ There are wide variations in the utilisation of the MPLAD amount in various constituencies. A report published in IndiaSpend has some very interesting insights based on data made available to it by the Ministry of Statistics and Programme Implementation. Some of these are: "A year after they took office, 298 of 542 members of the 16th Lok Sabha — India's lower house of parliament — have not spent a rupee from the ₹5 crore that is set aside annually for them to develop their constituencies"; 508 MPs (93.55%) did not, or could not, utilise the entire MPLADS amount from May 4, 2014 till December 10, 2018, in 4 years and 7 months. Only 35 MPs of the Lok Sabha utilised the entire amount of MPLADS during this period; Though ₹1,757

crore had been released for MPLADs, only ₹281 crore had been utilised by all the 543 MPs till May 15, 2015. This means only 16% of the money had been spent in one year by all the MPs put together, because the Lok Sabha was constituted in May 2014; Since the MPLADS began in 1993, ₹5,000 crore was lying unspent with various district authorities by May 15, 2015. It is clear from the details above, as well as later experience, that most MPs use money under MPLADS quite haphazardly, and a significant portion of it is left unspent.

➔ Fourth, added to the data above is fairly widespread talk of money under MPLADS being used to appease or oblige two sets of people: opinion-makers or opinion-influencers, and favourite contractors. Sometimes these two categories overlap. An often-heard tale is that of the contractor being a relative, close friend, or a confidant of the MP, and the contractor and the MP being financially linked with each other. Finally, we come back to the legality or constitutionality issue which was mentioned earlier. The constitutional validity of MPLADS was challenged in the Supreme Court of India in 1999, followed by petitions in 2000, 2003, 2004, and 2005. The combined judgment for all these petitions was delivered on May 6, 2010, with the scheme being held to be constitutional. With due respect to the top court, it must be said that the Court does not seem to have been able to appreciate the situation in totality. It seems to have placed an unquestioned trust in the efficacy of the scheme of implementation of MPLADS drawn up by the government without an assessment of the situation prevalent in the field, evidence of which is available in audit reports wherein gross irregularities and infirmities in implementation have been pointed out. The possibility that implementation of a lot of schemes bears no relationship to how the schemes were intended to be implemented, seems to have completely escaped the attention of the Court. Common experience does not support this because of large, yawning gaps being found in actual implementation.

Cases of Misuse

Reports of underutilisation and misutilisation of MPLADS funds continue to surface at regular intervals but there seems to have been no serious attempt to do anything about it till now. There are innumerable instances of misuse of these funds; one prominent example is the construction of a fountain in the open space of an unauthorised settlement, or a jhuggi jhopdi colony, which did not have provision of drinking water. The general belief in the settlement was that the contractor who bagged the contract to build the fountain was related to the local Member of Parliament. Therefore, it would be in order to convert the two-year suspension into the complete abolition of this undesirable and unconstitutional scheme.

123 Years Ago, When Bubonic Plague Led to Country's Epidemic Diseases Act

➔ The Centre amended the Epidemic Disease Act, 1897, making attacks on healthcare workers a cognisable, non-bailable offence. It had invoked the Act in March itself to fight the Covid-19 outbreak. The colonial-era Act empowers the state governments to take special measures and prescribe regulations in an epidemic, defines penalties for disobedience of these regulations, and provides for immunity for actions taken under the Act "in good faith". How did the Act come to be? From 123-year-old proceedings of the Council of the Governor General of India, accessed by The Indian Express, a look at the circumstances and the debate on the legislation.

Why the Need Was Felt

Council member J Woodburn tabled the Epidemic Diseases Bill on January 28, 1897, during an outbreak of bubonic plague. "Plague which has taken root in Bombay has been gradually extending to other parts of the country, and it seems to the Government expedient that some measures should be promptly taken before the disease has attained large proportions elsewhere to hold it in check," Woodburn said. The Bill noted that municipal bodies,

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cantonments and other local governments had extraordinary powers to deal with such situations but felt those were "inadequate." The government of the day was also concerned that several countries were alarmed by the situation in India, and Russia had speculated that the whole subcontinent might be infected. The Bill called for special powers for governments of Indian provinces and local bodies, including to check passengers of trains and sea routes. It said existing laws were insufficient to enable municipal officers to deal with various matters such as "overcrowded houses, neglected latrines and huts, accumulations of filth, insanitary cowsheds and stables, and the disposal of house refuse."

How It Was Passed
The Bill was referred to a Select Committee headed by James Westland. The Committee submitted its report the very next week, on February 4, 1897, and the Bill was passed the same day, after a brief discussion. The Bill was passed amid concerns of the disease spreading, with crowds from Bombay having reached places all over India. The government was particularly worried about Calcutta, then the Indian capital. Among members who spoke, Rahimtula Muhammad Sayani and Maharaja of Darbhanga Lakshmishwar Singh said the Bill was being tabled and passed hurriedly. Yet the Maharaja of Darbhanga also described the situation as "one of the most dreadful scourges that have ever afflicted the human race". Woodburn himself observed, "I received a memorandum from the Editor (name not mentioned) of an intelligent and interesting native newspaper complaining that the Bill was being passed too hurriedly and conveyed no explanation of the Regulations that were to be made under the Bill."

Challenges Discussed
Babu Joy Gobind Law suggested that steps be taken with regard to pilgrimage to Mecca. "I need hardly say that pilgrimage is a great danger and requires drastic remedies." Alexander Mackenzie, Lieutenant Governor of Bengal, said he was surprised that no Muslim members had touched that issue, but clarified that his government was "unwilling to interfere with religious practices and prejudice". Sayani stood up and said, "The reasonable thing to do is that the persons desirous of performing the pilgrimage might be persuaded to put off their intention till the danger has passed." It was discussed that isolating women was particularly difficult. When Woodburn was told that "many of the (Indians) would rather die of the plague than allow themselves to be segregated or removed", he said, "We could not allow the whole town to run the risk of plague infection merely because the source of that infection happened to be a woman".

India Needs to Enact A COVID-19 Law (Manuraj Shunmugasundaram - Advocate at The Madras High Court, And Spokesperson, DMK)

➔ The nationwide lockdown has been central to the government's strategy to combat the COVID-19 pandemic. With businesses closed, supply chains disrupted, timelines extended and contracts terminated, this exercise has caused the organised sector unprecedented economic losses. In the unorganised sector, there has been a complete breakdown with little or no legal recourse for those who are affected. While the lockdown has helped contain community spread of the disease, a legal and legislative audit of this exercise has evaded scrutiny so far. As we are now in the seventh week of the lockdown, it is imperative and timely that we assess its underlying legislative soundness.

Laws Governing Lockdown
The lockdown has been carried out by State governments and district authorities on the directions of the Union Ministry of Home Affairs under the Disaster Management Act of 2005,

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which was intended "to provide for the effective management of disasters and for matters connected therewith or incidental thereto". Under the Act, the National Disaster Management Authority (NDMA) was set up under the leadership of the Prime Minister, and the National Executive Committee (NEC) was chaired by the Home Secretary. On March 24, 2020, the NDMA and NEC issued orders directing the Union Ministries, State governments and authorities to take effective measures to prevent the spread of COVID-19, and laid out guidelines illustrating which establishments would be closed and which services suspended during the lockdown period. Taking a cue from the guidelines, the State governments and authorities exercised powers under the Epidemic Diseases Act of 1897 to issue further directions. For instance, the Health and Family Welfare Department of Tamil Nadu issued a government order on March 23, 2020, to impose social distancing and isolation measures which directed "suspected cases and foreign returnees" to remain "under strict home quarantine" and people "to stay at home and come out only for accessing basic and essential services and strictly follow social distancing norms".

The invoking of the Disaster Management Act has allowed the Union government to communicate seamlessly with the States. However, serious questions remain whether the Act was originally intended to or is sufficiently capable of addressing the threat of a pandemic. Also, the use of the archaic Epidemic Diseases Act reveals the lack of requisite diligence and responsiveness of government authorities in providing novel and innovative policy solutions to address a 21st century problem. Another serious failing is that any violation of the orders passed would be prosecutable under Section 188 of Indian Penal Code, a very ineffective and broad provision dealing with disobedience of an order issued by a public servant. In contrast, the U.K. enacted the Coronavirus Act, 2020, which is a comprehensive legislation dealing with all issues connected with COVID-19 including emergency registration of healthcare professionals, temporary closure of educational institutions, audio-visual facilities for criminal proceedings, powers to restrict gatherings, and financial assistance to industry. Similarly, Singapore has passed the Infectious Diseases Regulations, 2020, which provides for issuance of stay orders which can send 'at-risk individuals' to a government-specified accommodation facility. Both the U.K.'s and Singapore's laws set out unambiguous conditions and legally binding obligations. As such, under Singaporean law, the violators may be penalised up to $10,000 or face six months imprisonment or both. In contrast, Section 188 of the Indian Penal Code has a fine amount of ₹200 to ₹1,000 or imprisonment of one to six months. Even then, proceedings under Section 188 can only be initiated by private complaint and not through a First Information Report. As such, offences arising out of these guidelines and orders have a weak basis in terms of criminal jurisdiction thereby weakening the objectives of the lockdown.

Union-State Co-Ordination

In India, both Houses of Parliament functioned till March 23, 2020, when they were adjourned sine die. There were a number of interventions regarding COVID-19 by Opposition members through the session. However, the Union government showed no inclination towards drafting or enacting a COVID-19-specific legislation that could address all the issues pre-emptively. In fact, there has been little clarity on a road map to economic recovery after the announcement by the Union Finance Minister last month. Worryingly, a consolidated, pro-active policy approach is absent. In fact, there has been ad hoc and reactive rule-making, as seen in the way migrant workers have been treated. The flip-flop of orders regarding inter-State movement has left the fate of hundreds of thousands of migrant workers to be handled by district administrations with inadequate resources. This has also exposed the lack of co-ordination between the Union and State governments. In past instances, the Union government has not shied away from promulgating ordinances. These circumstances call out for legislative leadership, to assist and empower States to overcome COVID-19 and to revive their economic, education and public health sectors.

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Getting Over Pandemic Stage Fright (Dr. T. Jacob John - Retired Professor Of Virology, Christian Medical College (CMC), Vellore. Dr. M.S. Seshadri - Retired Professor of Medicine, CMC, And Now Medical Director, Thirumalai Mission Hospital, Ranipet, Tamil Nadu)

➔ This year, on World Health Day, April 7, a patient asymptomatic for COVID-19 was admitted with chest pain in a hospital in Maharashtra. Diagnosed with coronary artery disease, he was treated surgically. Five days later he developed COVID-19 pneumonia and eventually succumbed. Did he come infected or did he get infected in the hospital? Either way, evidence is clear for community transmission. The hospital was closed for containment of further transmission. Similar events have recurred across several parts of the country. At the All India Institute of Medical Sciences, New Delhi, many doctors, nurses and other staff became infected with SARS-CoV-2 and had to be quarantined, depleting a range of health-care professionals. On April 8, a government hospital in Jahangirpuri, Delhi, was closed after 14 doctors and nurses were found positive for the novel coronavirus infection. Recent reports indicate that one in 15 SARS- CoV-2 infected individuals in the national capital is a health-care worker. What about individual medical practitioners? On April 9, a 62-year-old physician in Indore, Madhya Pradesh, to whom many slum-dwellers came for care, died of COVID-19, despite treatment. The Chief Medical Officer (CMO) told the media that his contact history was unknown — most likely from a patient. Did the doctor lower his guard, as the official version was "no community transmission in India"? An Ayurvedic physician, aged 65, died of COVID-19 in Indore. Again, the CMO confessed that contact history was unknown: perhaps from some patient. Without proclamation of community transmission, respiratory precautions were perhaps deemed unnecessary by these doctors. In all these situations, a correct understanding of the nature of the epidemic and acknowledging community transmission would have alerted the medical profession and avoided a loss of lives.

Epidemiologically Important

What is community transmission? One infected person in the community, unaware that he is infected, infects others in the community. If A was infected by a known contact B, in epidemiology we say B infected A. When contact is unknown, we say 'someone in the community' infected A; hence the term "community transmission". When did community transmission begin in India? On March 18, Tamil Nadu reported the second infection in the State, an example of community transmission. A 20-year-old man travelled by train from Delhi and had no contact with any known infected person. In Chennai, he developed symptoms and tested positive on March 18. So, community transmission had started in India by, or before, mid-March 2020. Every pandemic emerges from a country of origin — the 2009 H1N1 influenza pandemic originated in Mexico and COVID-19, in China. For every other country, the initial infection would be "imported" from another country. Importation means that the traveller got infected in a foreign country but developed symptoms and got diagnosed in the host country. If secondary transmission occurs from the imported infection, it is qualified as contact of imported case. If the importation-contact further infects someone in the host country, such infection by in-country transmission is called "local", "indigenous" or "autochthonous" infection. This is epidemiologically important information. It indicates the start of in-country epidemic, in other words, when the imported infection becomes indigenous. As the epidemic advances, community transmission is natural and inevitable. If the intention is to intercept chains of transmission, then there should be acknowledgement of indigenous (community) transmission.

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Necessary Step

A country denies community transmission at its own peril. In times of epidemics, leaders may be tempted to deny the problem: but prudence is the better part of valour. Once community transmission of COVID-19 came to light on March 18, warning all medical professionals, coupled with strong recommendations for strict implementation of appropriate protective gear by all health professionals in all levels of health care, was the correct public health procedure. The lives of many health-care professionals need not and should not have been lost on account of semantic mis-interpretation of epidemiology. Admitting community transmission does not lower the honour of mother India in the eyes of foreigners; on the contrary it boosts the sagging morale of health-care professionals, prevents avoidable loss of manpower in the face of the epidemic, and preserves the integrity of the entire health-care system. Protecting the lives of health-care professionals by acknowledging community transmission and strict implementation of appropriate personal protective equipment will ensure that there is no attrition of the pool of health-care professionals needed to deal with the epidemic. Such a courageous step, taken with openness, only enhances national prestige.

India Enforced One of The Strongest Lockdowns

➔ It has been well understood that among various countries responding to the Covid-19 outbreak, India enforced one of the strongest lockdowns at an early phase of case growth. Now, an index created by the University of Oxford quantifies that. The Stringency Index has found that India indeed had one of the strongest lockdown measures in the world — at a 100 score since March 22. It was relaxed slightly on April 20 after the government eased norms for certain workplaces in regions outside the red zones.

What Is Stringency Index?

It is among the metrics being used by the Oxford COVID-19 Government Response Tracker. The Tracker involves a team of 100 Oxford community members who have continuously updated a database of 17 indicators of government response. These indicators examine containment policies such as school and workplace closings, public events, public transport, stay-at-home policies. The Stringency Index is a number from 0 to 100 that reflects these indicators. A higher index score indicates a higher level of stringency.

What Does the Stringency Index Tell Us?

It provides a picture of the stage at which any country enforced its strongest measures. Oxford provides an overlay of countries' death curve and their stringency score. Some countries saw their deaths just begin to flatten as they reached their highest stringency, such as Italy, Spain, or France. As China pulled stronger measures, its death curve plateaued. In countries such as the UK, the US, and India, the Oxford graphs find that the death curve has not flattened after strictest measures were enforced. From the highest death count at their strongest measures, the countries compared were France, Italy, Iran, Germany, UK, Netherlands, Sweden, Mexico, Canada, Belgium, Ireland, US, Turkey, Israel, China, India, and Switzerland.

How Does India Compare with Others?

When compared to other countries with similar or higher case load, India called its strict lockdown at a much earlier point on its case and death curves. These 18 other countries had more than 500 cases when they called their strictest lockdown, while India had 320. Again, India had only four deaths on March 22, when its score reached 100, while most countries had more deaths at that point (except Switzerland; no deaths). Spain called for its strictest

measures later in its case and death count than all others. Sweden has had the most liberal measures in this set, and Iran the second most liberal. Other countries with a 100 score are Honduras, Argentina, Jordan, Libya, Sri Lanka, Serbia, and Rwanda. India now has the highest number of cases in this set.

What Else Does This Resource Cover?

In a research note, these researchers examined if countries meet four of the six World Health Organization's (WHO) recommendations for relaxing physical distancing measures. These are: control transmission to a level the healthcare system can manage; the healthcare system can detect and isolate all cases (not just serious ones); manage transfer to and from high-risk transmission zones; and community engagement. India scored 0.7 (below Australia, Thailand, Taiwan, and South Korea) because it scored 0 for controlling its cases. The highest scorers on this index, at 0.9, were Iceland, Hong Kong, Croatia, and Trinidad & Tobago. Oxford found no countries meet the four measured recommendations, but 20 are close.

The Case for A Gradual Exit (Dr. Jayaprakash Muliyil - Epidemiologist And Former Principal Of Christian Medical College, Vellore And Dr. George Thomas - Orthopedic Surgeon At St. Isabel's Hospital, Chennai)

➡ COVID-19 has caused the world to slow down and, in many countries, completely shut down in a way not known in recent history. The impetus for the shutdown was driven in large part by a document from the Imperial College, London, which modelled options to handle the pandemic in high-income countries, specifically the U.K. and the U.S., which it called mitigation and suppression. Mitigation refers to methods to reduce the numbers infected and protect the most vulnerable. Measures advised are home isolation of suspect cases, home quarantine of those living in the same household as suspect cases, and physical distancing of those at most risk of severe disease. The measures described under suppression are more or less what have come to be called lockdowns but do not include complete shutdown of work. The aim of suppression is to prevent the infection from spreading to others. The authors said, in order to be effective, lockdowns needed to be in place for 12 to 18 months which is the time estimated for an effective vaccine to be available.

Waiting for Herd Immunity

The International Labour Organization reports that nearly 50% of the world's labour force is in immediate danger of losing their livelihood. The Secretary-General of the UN, Antonio Guterres, says women are especially suffering the deadly impact of lockdowns. At a conservative estimate, for over 50% of the world's population, a two-year lockdown would mean the end of their world. Due to conflicting statements from the scientific community and governments, there is widespread fear that lifting the lockdown would mean disaster. Proponents of the concept of herd immunity have been criticised for being irresponsible. Herd immunity to a particular infection is a situation when so many in the population have immune antibodies that, although the pathogen is still in circulation, it can rarely find a susceptible host, and so illness from that pathogen is uncommon and cannot spread. For SARS-CoV-2, estimates are that 60%-70% of the population needs to have antibodies for the herd effect to occur. Critics point out that with the current estimate of 1% of the infected dying, waiting for herd immunity will still result in a lot of deaths. This argument ignores four factors: first, the number of deaths can be brought below 1% if we protect the most vulnerable, which is easier than locking down the entire population. Second, as statistics show, lockdowns also result in a very large number of deaths. Third, the pandemic will end much sooner than two years if herd immunity occurs.

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Fourth, we do not know the actual number infected up to now, as no country has reliable data. Therefore, a gradual exit, using mitigation measures, will save the greatest number of lives. Critics also state that it is not certain if infection with this virus leads to immunity. This is based on the fact that a small number of people who tested positive were quarantined and allowed to leave quarantine after testing negative, only to test positive again later. There are other explanations for this phenomenon which are more robust than the 'no immunity' hypothesis. First, no test is absolutely fool-proof and false positives and false negatives, though infrequent, can occur with the RT-PCR test too. Second, it is possible, though unlikely, that for a small section of the population, the antibody response may be transient. Nearly all human infections produce a natural antibody response, which protects from reinfection. Some of these responses wane with time and require another challenge to establish a level high enough to be protective. In general, the antibody response to infection is more robust than the response to a vaccine. Vaccines are preferred because the much milder infections that they induce have a far lower mortality and morbidity than natural infection. There are very few infections, like the bacterial Haemophilus influenzae B, where the vaccine is engineered to produce a protective antibody response that the natural infection does not. *The best evidence that SARS-CoV-2 is able to induce protective antibody production in humans comes from the observation that most people get rid of the virus without the help of any medicines.*

The Most Effective Response

We are faced with two alternatives, both of which will lead to loss of lives. An effective complete lockdown requires physical distancing at a level not possible in India without tremendous resources from the government. It has to be continued till a vaccine is available. If the lockdown is continued in the way it is now being done, it will decimate the poor. Using force to isolate the poor is not acceptable in a democracy. Mitigation measures, taking the people into confidence, and facing the pandemic by deploying available resources in the best possible way is the most ethical and effective response.

Contempt for Labour

➡ At a time when everyone is awaiting an early end to the health and economic crisis caused by the global pandemic, the interests of labourers and workers are once again set to be sacrificed. The revival of business and economic activity after weeks of forced closure is indeed a key objective to be achieved. However, it is amoral and perverse on the part of some States to address this need by granting sweeping exemptions from legal provisions aimed at protecting labourers and employees in factories, industries and other establishments. Madhya Pradesh has embarked on a plan to give a boost to business and industry by allowing units to be operated without many of the requirements of the Factories Act — working hours may extend to 12 hours, instead of eight, and weekly duty up to 72 hours. Going by Chief Minister Shivraj Singh Chouhan's remarks, it appears the State has used Section 5 of the Act, which permits exemption from its provisions for three months, in the hope that the Centre would approve such suspension for at least a thousand days. However, this exemption can be given only during a 'public emergency', defined in a limited way as a threat to security due to war or external aggression. Uttar Pradesh has approved an ordinance suspending for three years all labour laws, save a few ones relating to the abolition of child and bonded labour, women employees, construction workers and payment of wages, besides compensation to workmen for accidents while on duty. Reports suggest that several States are following their example in the name of boosting economic activity.

Changes in the manner in which labour laws operate in a State may require the Centre's assent. One hopes the Centre, which is pursuing a labour reform agenda through consolidated codes for wages, industrial relations and occupational safety, health and working conditions, would

not readily agree to wholesale exemptions from legal safeguards and protections the law now affords to workers. The most egregious aspect of the country's response to the pandemic was its inability to protect the most vulnerable sections and its vast underclass of labourers from its impact. The emphasis in the initial phase was on dealing with the health crisis, even when the consequence was the creation of an economic crisis. While the country watches with horror the continuance of the collective misery of migrant workers well into the third spell of the national lockdown, the attitude of the ruling class towards labour remains one of utter apathy, bordering on contempt. Why else would a government relieve factories of even elementary duties such as providing drinking water, first aid boxes and protective equipment? Or suspend requirements such as cleanliness, ventilation, lighting, canteens, restrooms and crèches?

No Relief for The Nowhere People (Ravi Srivastava, Former Professor Of Economics At JNU, Is Now Honorary Director Of The Centre For Employment Studies, Institute For Human Development, Delhi)

➔ Jamalo Makdam, 12, died on April 18 walking back from the chilli fields of Telangana to her home in Chhattisgarh. She and a group of other workers decided to return home on foot, as many migrant workers did, after losing their jobs, incomes and even accommodation following the announcement of a nationwide lockdown. Her journey ended in death, possibly due to electrolyte imbalance and exhaustion, said health officials. In the past month, migrant workers have died, been lathi-charged, herded into shelters with minimum facilities, sprayed with dangerous chemicals, and denied entry into their home villages by the dominant elite. These reports and images have seared our conscience.

No Rights and Entitlements

The labourers — men, women and children — are the classic nowhere citizens of India. They have no rights and entitlements in the areas in which they work and to whose prosperity they contribute. Being from the poorest and the socially discriminated groups, they are also denied entitlements in the villages to which they belong. Not surprisingly, they have been invisible in policy discourse. There are no firm estimates of their numbers. Estimates prepared by this author and updated from time to time suggest that short-term and circular migrants in the informal wage economy could number 60-65 million. About 40% of these migrants work in the construction sector and 15% in agriculture. The rest are engaged in manufacturing, transport, and other services. With accompanying family members, their numbers would not be less than 100 million. About half these labourers are inter-State workers. We exclude in this estimate longer-term circular migrants who also work in the informal wage economy and as self-employed workers in the urban economy. Data from the National Sample Survey and the India Human Development Survey (IHDS) show that these migrant labourers are mainly from rural areas in poor regions and States, and belong to the poorest socio-economic classes. Scheduled Castes and Scheduled Tribes and Other Backward Classes are over-represented among them. They form the largest section of child, bonded and trafficked labour. They predominate in activities that are characterised by three Ds — dirty, dangerous, and difficult — and consistently face a fourth D — discrimination. Nearly 70% of migrants work in urban and peri-urban areas in and around growth centres in States in the north, west, and south of the country. Industry and employers are bemoaning, for the first time, the fact that activities in a number of crucial sectors and industries will not see revival without these workers. The lockdown imposed by the government has exposed the deep fault lines in India's labour market which operates in a sea of growing informal employment relations. We know that nearly 81%

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of wage workers even in non-agricultural sectors do not have any contract with their employers and enjoy no security of tenure. Many do not even know their final employer. The IHDS tells us that half the migrant labourers are hired through contractors. Their condition shows the dismal state of implementation of labour regulations, particularly with respect to inter-State migrants. With the government's sudden lockdown decision, wages for jobs already carried out remained unpaid. A large percentage of migrants remained saddled with debt taken as advances from their employers, contractors, or landlords. The government's announcement of a tepid relief package on March 26 did not address any of the concerns of this section as the frail social security net largely does not cover them. Crucially, the government side-stepped its major responsibility of paying compensatory wages to the informal workers for the lockdown, putting this onus on employers who are already hit hard by the lockdown. As the migrant workers tried to move to their homes, the government responded with a strict State and inter-district lockdown and ordered placing migrant workers in quarantines-cum-shelters, and the detention of workers who remained on the move. In a status report submitted to the Supreme Court on March 31, the government argued that the movement of these workers to rural areas constituted a serious risk of spread of COVID-19, a fact that has remained unsubstantiated. By the end of the first week of April, the government submitted that about 6.3 lakh workers were in shelters run by governments in different parts of the country, while another 4.5 lakh were in shelters run by NGOs and others. Nearly 10 million workers were receiving food assistance through governmental and non-governmental sources. About 5 lakhs to 6 lakh workers had reached their source States. As a matter of fact, reports from the ground suggest that a large proportion of intra-State migrants had trudged back home so the total returnees was probably closer to 25 million. At present, with about a million migrant workers in shelters or quarantines, at least 20 million such workers are still stranded at worksites or living in hovels. Most of these, as successive surveys attest, have not been able to avail of any food or cash assistance, and are on the brink of starvation.

Shifting the Burden

On April 19, the Indian government issued a standard operating protocol on movement of stranded labour, permitting the movement and employment of stranded migrant workers in worksites only within the States in which they were involuntarily detained in shelters. On April 29, the Central government issued another notification finally permitting stranded labourers and populations to travel inter-State to their homes only by buses. On May 1, the Railways were permitted to run special trains for migrants with coordination and costs being borne by the States and, in some cases, fares being paid by the hapless migrants. The receiving States, it must be pointed out, are precisely those which have the weakest fiscal capacity. The ensuing confusion and delay have also increased the plight of the migrants. It goes without saying that it must be the responsibility of the Centre to coordinate the movement of the stranded populations by trains, air and buses, and to provide adequate resources, not only for transportation, but also for wages and food requirements of all such workers whose loss of jobs and incomes followed the national lockdown. The fight against the pandemic can only be built on a vision of a society that is inclusive, equitable, and non-discriminatory. India needs a unified labour market and universal social security system which can ensure security, safety, and dignity to all workers. Pandemics do not recognise artificial walls between living spaces and work spaces, and both have to be able to provide basic amenities and access to health security to all. However, it seems that current policy responses to the crisis and towards the migrants are still embedded in a short-sighted framework that recognises and reinforces the idea of two India's.

India's Disease Surveillance System Needs A Reboot (Maya John Teaches in Jesus And Mary College, University of Delhi, And Is Working on The History of Epidemics and Epidemiology)

➜ In a recent press briefing, the Ministry of Health and Family Welfare reported noticeable trends with respect to COVID-19 cases in India. Its data shows that 75.3% of deaths have been concentrated in the age group of 60 years and above, and in 83% of deaths, the deceased were battling pre-existing identified health conditions. Evidently, we have reason to fear the novel coronavirus for which we have no established cure. However, there is even more reason to fear a combination of COVID-19 with existing illnesses and medical complications. The disease is lethal for those with compromised immunity brought on by age, existing respiratory infections, or essentially, malnutrition. In technical medical terms, this is a situation of comorbidity, which in ways makes it difficult to differentiate between dying of COVID-19, or, dying with COVID-19.

Issue of Disease Watch

In comparison to many western countries combating the disease, India appears to have the advantage of a relatively young population. This is, of course, negated by the poor health conditions of the vast majority of Indians. It is then imperative that we do not ignore already prevalent diseases and illnesses. Unfortunately, the recent experiences of the public health-care system in India indicate the side-stepping of precisely this issue.

Many of the adverse medical conditions prevalent among the vast majority of our country are not even identified due to the lax disease surveillance system. The failure of disease surveillance requires explanation. For one, a significant number of the infected (poor and marginalised people) do not have access to health-care facilities and so fail to report their condition to certified medical practitioners. Even when an infected person has access to such facilities, their clinical case does not always culminate in the required testing (blood/serum, throat swab, sputum, stool, urine). Third, there is a widespread practice among pathological laboratories to categorise diseases on the basis of the pre-existing classificatory system, which results in failure to identify the definitive cause (aetiology) for an illness by differentiating and separating pathogens (disease-causing microorganisms) on the basis of variations in groups, subgroups, strains, etc.

Silent Epidemics

There is, consequently, pervasive non-identification of a definitive cause behind a number of illnesses. Many ailments are simply clubbed together and referred to by generic names such as 'Respiratory Tract Infection' (RTI), 'Urinary Tract Infection', 'Acute Febrile Illness (AFI)', 'Acute Undifferentiated Fever', 'Fever of Unknown Origin' (FUO). Certain of these undifferentiated illnesses are known to affect lakhs of people every year worldwide. They claim many lives, especially of the poor who are victims of low immunity and have limited access to health care. Sources claim that RTI kills over 900 people in India every day. Likewise, Acute Lower Respiratory Tract Infection (ALRTI), which affects mostly children below the age of five years, has been known to infect approximately 3.40 crore people every year worldwide. In recent years it has led to roughly 66,000 to 199,000 deaths. Shockingly, 99% of these deaths are reported from developing countries, and India has a larger share in it. The large number of hospitalisations, enormous deaths and suffering caused by contagious undifferentiated diseases indicate the prevalence of persistent but undeclared silent epidemics. Even if the definitive cause of an illness is identified, it does not necessarily gain the focused attention of scientific research. As the disease evolves but "interest" in it remains fleeting, the differences

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developing in the sub-groups, strains in genotype of the pathogen concerned fail to be consistently tracked. Knowledge of the pathogen, and, consequently, the required disease control soon lags behind. This overall process is due to the selective, biased approach of mainstream scientific research that is driven by the profits of private pharmaceutical companies, and is the fallout of the lack of priority that governments assign to general health care and diseases of the poor. Even when the identity of a contagious disease and its treatment are well known it does not mean that the disease's prevalence will generate the necessary reaction. TB is a suitable example. According to public health experts, one person in every 10 seconds contracts TB, and up to 1,400 people in India die every day of the disease. This indicates that TB has a R0 value (basic reproduction number) and fatality rate that is way higher than those attributed to COVID-19 so far. However, it is important to note that TB and many other contagious diseases are ignored as "ordinary", and elicit very low attention. In contrast, some diseases are quickly identified as epidemics of greater public concern. Diseases are being selectively discovered and have the propensity to be identified as an epidemic when they have a signalling effect for the scientific community. In a majority of instances, it is only when there is a threat of transmission to the well-to-do sections of society or wealthier regions that the disease actually has such a signalling effect. It is not a coincidence that a relatively downplayed disease such as TB is largely a poor man's disease. Clearly, we are confronted by a skewed relationship between our ways of knowing (social epistemology) and epidemiology. It is precisely in this context that COVID-19 has gained singular prominence over several other lethal diseases. Importantly, pre-existing diseases have the potential to combine with COVID-19, and with devastating consequences. It becomes imperative to identify the comparative fatality rates of many of the silent epidemics, which in their own right require urgent attention.

Hacker Sees Security Flaws in Aarogya Setu

➔ Ethical hacker Robert Baptiste alleged that security flaws in the coronavirus tracking app Aarogya Setu enabled him to see that five people at the Prime Minister's Office (PMO) and two at the Army headquarters were unwell. Mr. Baptise, who goes by Elliot Alderson on Twitter, also claimed that there was "one infected person at the Indian Parliament and three at the Home office". He tweeted that there were security issues with the app. Tagging the official account of Aarogya Setu, he said, "A security issue has been found in your app. The privacy of 90 million Indians is at stake. Can you contact me in private?"

'Rahul Was Right'
He went on to add that former Congress president Rahul Gandhi, who had termed the app "a sophisticated surveillance system", was right. In response to the issues raised by Mr. Baptise, the team of Aarogya Setu, in a statement, said no personal information of any user was proven to be at risk. "We were alerted by an ethical hacker of a potential security issue of Aarogya Setu… No personal information of any user has been proven to be at risk by this ethical hacker. We are continuously testing and upgrading our systems. Team Aarogya Setu assures everyone that no data or security breach has been identified," the statement said. Following this statement, Mr. Baptise tweeted that he was able to "… know who is infected, unwell, made a self-assessment in the area of his choice. Basically, I was able to see if someone was sick at the PMO or the Indian Parliament. I was able to see if someone was sick in a specific house if I wanted… This is the issue."

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Air Warriors Salute Braveheart's On the Ground

➔ Three formations of Su-30MKI, MiG-29 and Jaguar fighter jets and C-130 transport aircraft of the Indian Air Force performed a flypast on Rajpath which is otherwise only done during the Republic Day parade. The display was part of the efforts of the armed forces to show gratitude to all corona warriors. Fighter jets carried out flypasts over several cities across the country, while military helicopters showered petals on hospitals treating COVID-19 patients. "Two C-130J transport aircraft flew from Srinagar to Kanyakumari on the north-south leg. The east-west leg was done by three Su-30MKI jets from Dibrugarh to Ahmedabad," the IAF said in a statement. The aircraft flew between a height of 500 metres and 1,000 metres keeping aerospace safety in mind especially with respect to bird activity.

In all, the IAF said 35 aircraft were utilised — 10 fighters, four transport aircraft and 20 helicopters. IAF helicopters dropped flower petals on 20 cities and 58 hospitals across India. Navy personnel on board India's sole aircraft carrier INS Vikramaditya expressed their appreciation by forming a human chain saying "Indian Navy salutes corona warriors".

In all, 25 warships across nine port cities, including the Andaman and Nicobar Islands, were illuminated from 7.30 p.m. to midnight, the Navy stated. In addition, four mission-deployed ships took part to express their gratitude, while 15 helicopters and aircraft took part in showering flower petals and flypast in coastal cities. Coast Guard ships were illuminated at 25 locations covering the entire coastline of the country including Andaman and Nicobar and Lakshadweep and Minicoy islands, a statement said. A total of 46 ships and 10 helicopters took part, it said.

Army and IAF bands visited COVID hospitals and played tunes in an expression of gratitude. In New Delhi, helicopters showered petals on 12 hospitals. In a letter to the Chief of the Defence Staff Gen. Bipin Rawat, the Resident Doctors Association of the All India Institute of Medical Sciences appreciated the "morale boosting" gesture by the defence services in solidarity with them to fight the pandemic.

The Mark of Zero

➔ With containment strategies in place even before the first case of novel coronavirus was detected on January 30, Kerala appears to have finally hammered the curve flat. On May 1, for the first time, the State reported zero new cases, and again on two consecutive days — May 3 and May 4. Zero fresh cases on three days in May appear to be more than a blip. If in April there were early signs of Kerala gaining an upper hand over the virus, its control became clear from the fourth week of April. Since April 22, except on four days, the number of new cases reported has remained either the same or fewer than the number of recoveries. The small number of cases reported so far — 499 — demonstrates how excellent its containment efforts have been. What is more remarkable is that 462 of those infected have fully recovered, including an elderly couple, aged 93 and 88 years, and there have been just three deaths — a case fatality rate of 0.6% against the national average of 3.3%. The containment success can be traced back to how Kerala did not wait for directions from the Centre but instead led from the front. When the number of cases increased to 12 on March 10, a day before WHO declared the coronavirus a pandemic, Kerala shut down all educational institutions and entertainment centres, banned large gatherings and appealed to people to avoid visiting religious places. If it realised the merits of containing virus transmission by quickly tracing all the contacts during the 2018 Nipah outbreak, it repeated that to perfection this time. Little wonder that on May 2, the ICMR lauded the State for the "unparalleled" containment and testing strategies and referred to it as the "Kerala model". But under no circumstances can the State lower its guard as the outbreak can resurge by exploiting the weakest link, as was seen in the sharp spike in Singapore, in dormitories.

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Buddha Purnima: Why Ambedkar Converted to Buddhism

➔ On October 14, 1956, B R Ambedkar along with 3,65,000 of his Dalit followers made history when they decided to leave the folds of Hinduism and embrace Buddhism. Ambedkar's conversion to Buddhism gave new impetus to the Dalit movement in India, allowing the group to find a voice free from the shakles of the four-fold varna system in Hinduism. Ambedkar had for long been a critic of Hinduism and believed it to be a bigger threat to Indian society than the British. In May 1936, he had stated: "I tell you all very specifically, religion is for man and not man for religion. To get human treatment, convert yourselves." For 20 years thereafter, he contemplated deeply upon which religion would suit best his requirements. He was sure of the fact that his religion of conversion need be from the Indian soil. Finally, he chose Buddhism and came out with his own version of the Buddhist Dhamma, altering segments of the religion that he believed did not go in tune with the overall spirit of Buddhism. Scholars have ever since done a great deal of research to analyse Ambedkar's conversion to Buddhism. Some believe that it was a political move. He had for years been demanding separate electorates for Dalits, and was unsuccessful in his efforts. Further, cultural and historical figures are believed to have had important influence on Ambedkar, such as the Mauryan emperor Ashoka and the 12th century Dalit martyr of South India, Nandanar, who challenged the tenets of Hinduism. Most importantly though, Ambedkar truly believed that Buddhism carried within it a rational and modern spirit. Conversion to Buddhism is believed to have met with Ambedkar's complex requirements of reason, morality, and justice.

New Health Warnings on Tobacco Product Packs

➔ The Union Health Ministry notified a new set of images with specified health warnings for all tobacco product packs by making an amendment to the Cigarettes and other Tobacco Products (Packaging and Labelling) Rules, 2008. A Ministry release noted that all tobacco products manufactured or imported or packaged on or after September 1 shall display the first image and those manufactured or imported or packaged on or after September 1, 2021 shall display the second image. Violation of the provision is a punishable offence with imprisonment or fine as prescribed in Section 20 of the Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act, 2003.

Villagers in Assam Get Respite as Hanging Fence Deters Jumbos

➔ Elephants in Assam may have finally run into a barrier beyond their ability to bulldoze — a solar-powered hanging electric fence. Camera trap records show the elephants attempting unsuccessfully to enter areas near eight villages, which lie at the edge of a 350 sq. km reserve forest that was added to the Manas National Park in 2016, on at least 59 of the 65 occasions that the pachyderms had been sighted since October 14, 2019. The elephants, however, did manage to cross the fence without damaging it on eight occasions, due to a sudden discharge of the batteries powering it around midnight. But the villagers, who have borne the brunt of the elephant-man conflict, aren't ready as yet to call the latest barrier a success. For that, they would rather wait to see how the fence performs during the monsoon months ahead. The core area of Manas is about 140 km west of Guwahati. The earlier project entailed stringing a solar-powered fence between two ordinary 7 feet tall poles, set 10 metres apart. Elephants, however, would frequently uproot them for gorging on the granaries in the villages. The hanging fence involves sturdier metallic poles with a strong cable strung from the top. Wires arranged 3 feet apart dangle from this cable without touching the ground for letting smaller animals up to 1-

foot tall pass. The wires carry an average 9-kilovolt charge, the maximum being 11 kilovolts. "The wires are non-lethal," said Bhaskar Choudhury, regional coordinator of WTI. "An elephant coming in contact gets a mild shock that works as a deterrent. And because of the hanging design, elephants can neither break the pillar nor slam the wires with tree branches," he added. Three community-based committees have been entrusted with almost equal stretches of the fence. These are the most strategic of the eight villages dominated by the Bodo, Koch-Rajbongshi, Assamese and Bengali communities.

Documenting the Last Honey Hunting Group of Arunachal Pradesh

➔ Kezang D. Thongdok's 26-minute film Chi Lupo was adjudged the best documentary at the 10th Dada Saheb Phalke International Film Festival Awards 2020. But for the filmmaker from Arunachal Pradesh's West Kameng district, beneath the happiness is a deep sadness: The honey-hunting skill of the Sherdukpen community and the associated indigenous craftsmanship will fade away with the half-a-dozen subjects of his film.

Medicinal Properties

Chi means honey and Lupo is hunter in the dialect of the Buddhist Sherdukpen community, whose total population is estimated to be 4,500. They are concentrated in 12 villages in the district. "Our people used honey collected from the wild for its medicinal properties and for preparing delicacies in the not so distant past," Mr Thongdok told The Hindu from his hometown Rupa. "Very few ventures out now because of better connectivity and access to medicines and food stores and the young are not interested in learning the tough skill," he added. The six honey-hunters the 37-year-old film-maker had followed into deep jungles at about 6,000 ft above sea level are from Thongri and Jigaon villages that are about 25 minutes' drive from Rupa. While Thongri has some 70 houses, Jigaon has 100. Mr. Thongdok's four-member crew and the honey-hunters trekked for almost three hours from Thongri to a base camp where they stayed for the night. They walked for another two hours to reach the spot where clusters of beehives hung from protruding rocks on a steep mountain.

Body of Knowledge

"We shot the film over a few trips in June-July 2018. What struck me while filming was that smoking the bees out with certain leaves and twigs and collecting the beehives was not the only skill under threat. An entire body of knowledge of making ladders, spatula, tongs and baskets with forest produce would go with these six men, who were in the upper mid-50s then," he said. The honey harvesting — Mr. Thongdok prefers the "phonetically correct" Shertupken over the official Sherdukpen —has traditionally been done twice a year. The bees make honey from wild flowers in June-July and primarily from rhododendron in October-November. The winter variety has an intoxicating effect if consumed in larger doses, he said. During the course of filming, Mr. Thongdok noticed that the inside of the baskets used by the honey-hunters for collecting the beehives was lined with a kind of indigenous rubber. "It was neither factory-made rubber nor produced from the rubber tree. And I found out there aren't many around who know that art or the natural element from which it is made," he said. Mr. Thongdok intends to document the art before it dies with the latex makers.

Mass Hatching of Olive Ridley Turtles Begins

➔ Mass hatching of Olive Ridley turtles began at Odisha's Rushikulya rookery, a major nesting site of these marine turtles. Thousands of hatchlings came out of the nests buried in sand to crawl towards the sea to start their long journey. On an average 80 to 100 turtles hatch from

each nest. According to Berhampur Divisional Forest Officer (DFO) Amlan Nayak, the event marked the beginning of mass hatching at the rookery.

Set to Increase

The number of mass hatchings were expected to increase in the coming days. "In the past few days, the eggs collected from sporadic nesting spots to be incubated at artificial hatcheries of the Forest department along this coast have also started to hatch," he added. This year, 3,23,063 Olive Ridley turtles had nested at the Rushikulya rookery. The mass nesting process began in the wee hours of March 21 and continued till the night of March 28. Olive Ridley turtle eggs incubate on their own in the heat of the beach sand.

Temperature Matters

They hatch in 45 to 60 days, depending on the temperature of the sand and atmosphere during the incubation period. As mass nesting numbers had gradually increased to reach the peak and then decreased, mass hatching was also expected to take the same path, said the DFO. To protect the eggs from predators and humans, the Forest department had put up metal net fencing over 5 km from Gokharkuda to Bateswar, and the area was divided into 50 segments for regular watching. Rabindranath Sahu, president of the Rushikulya Sea Turtle Protection Committee (RSTPC), an organisation of villagers living near the rookery involved in protection of Olive Ridleys, said this year there was minimal human intervention during the mass nesting, incubation period and continuing hatching process. The lockdown due to COVID-19 had stopped outsiders from reaching the spot. "But high tides related to new moon on April 23 had washed away a large number of nests," Mr. Sahu said.

Water Wisdom During A Pandemic (Prakash Nelliyat - Chennai-Based Researcher)

➔ World Water Day was observed more online than in-person this year on March 22, given the guidelines notified by the WHO in the light of the ongoing COVID-19 pandemic, yet its broader aim remained constant: to raise awareness on the importance of freshwater and advocate for its sustainable management. More than any previous year, there was a recognition of the importance of water in handwashing and personal hygiene practices, an action that is as important as social distancing and nationwide lockdowns in breaking the circuit of coronavirus transmission. The choice of theme for the event this year, "Water and Climate Change" reflected the desire of policymakers to address the impact of climate change on the water sector. Water is the primary medium through which climate change impacts trickle down to the community and individual levels, primarily through reduced predictability of water availability. More broadly, climate change and water are inextricably linked. Growing populations and their demand for water increases the need for energy-intensive water pumping, transportation, and treatment. It contributes to the degradation of critical water-dependent carbon sinks such as peatlands. Due to climate change, water cycles experience significant change, which reflects in water availability and quality. A warmer climate causes more water to evaporate from both land and oceans; in turn, a warmer atmosphere can hold more water, roughly 4% more water for every 1°F rise in temperature.

Extreme Weather Events

These changes are expected to lead to negative consequences in the water sector, with increased precipitation and run-off (flooding) in certain areas and less precipitation and longer and more severe scarcity of water (droughts) in other areas. Hence, wet areas are expected to become wetter and dry areas drier. This influences almost all aspects of the economy including drinking water, sanitation, health, food production, energy generation, industrial

manufacturing, and environmental sustainability and ultimately the achievement of the Sustainable Development Goals (SDGs). In coastal areas when more freshwater is removed from rivers and aquifers, saltwater will move farther upstream into the river mouth and the aquifer, which will put pressure on the limited freshwater available on the coast, forcing water managers to seek costly alternatives like desalination plants. Water is a common pool natural resource that sustains ecosystems, biodiversity, food security, economies, and society; hence, its judicious use with balancing multiple water needs is significant. In developing countries like India, a large population depends on climate-sensitive sectors like agriculture, fisheries and forestry for its livelihoods. We cannot afford to let climate change-induced hydrological challenges overtake us.

Mitigation Strategies

India has come up with climate change adaptation and mitigation strategies and appropriate policy measures. The government is implementing the 'National Action Plan on Climate Change' through eight National Missions, including the Water Mission. However, effective policies need the support of the local governments, corporates and NGOs. Water resources planning must be given due consideration while dealing with climate impacts. As tanks and ponds can store and recharge the excess rainwater to the aquifer, their rejuvenation (desilting) facilitates flood and drought management. We need to revisit our rich tradition and culture of water wisdom in water resources management. More public awareness on the need for climate-resilient actions, including protecting carbon sinks like oceans, wetlands, peatlands, and mangroves, adopting climate-smart agricultural techniques, rainwater harvesting, waste-water reuse, and judicious use of water, should be generated and inculcated in each citizen.

Business & Economics

RBI Cancels CKP Co-Op Bank's License

➔ The Reserve Bank of India (RBI) has cancelled the licence of Mumbai-based The CKP Cooperative Bank Ltd., with effect from the close of business on April 30, 2020, as the lender's financial position had deteriorated and it was not in a position to repay depositors. "The Registrar of Co-operative Societies, Pune, Maharashtra, has also been requested to issue an order for winding up the affairs of The CKP Cooperative Bank Ltd., Mumbai, and appoint a liquidator for the bank," RBI said in a statement. The depositors of the bank will get a maximum of ₹5 lakh from the Deposit Insurance and Credit Guarantee Corporation (DICGC), as per law. The deposit insurance cover was increased to ₹5 lakh from ₹1 lakh earlier this year. The bank has a deposit base of ₹485.56 crore, as on November 2019. "The financial position of the bank is highly adverse and unsustainable. There is no concrete revival plan or proposal for merger with another bank. Credible commitment towards revival from the management is not visible," the RBI said, giving reasons for the decision. The bank has negative net worth of ₹239.2 crore. It has a customer base of 1,34,167 and has eight branches spread across Mumbai and Thane districts. The banking regulator said the bank did not satisfy the requirement of minimum capital and reserves and was not in a position to pay its present and future depositors.

States Scrape the Barrel as Revenues Dry Up

➔ The nationwide lockdown to prevent the spread of COVID-19 has left the finances of the State governments in a precarious position. States have to depend on the Centre for devolution of funds under various heads. Revenues from own taxes account for just under half of the total

revenues of the States, according to a Reserve Bank of India study; central transfers account for 47.5%. Of the own tax revenues, 90% comes from taxes on liquor, petroleum products, stamp duty and registration of vehicles. All of these are now under strain. There have been no new vehicle and property registrations since the lockdown began and also no sale of liquor. Petroleum sales have dropped by about half. Resultantly, own tax revenues of the States have plunged by 80-90%. Meanwhile, they have been called upon to spend more to ease the burden on the poor with direct cash transfers to the needy and on beefing up health infrastructure, apart from the expenses on testing, quarantining and treating of patients. Entreaties to the Centre to hasten the transfer of GST compensation, increase fiscal deficit limits from 3% to 4.5-5% and for higher ways and means advances (WMA) limits have all fallen on deaf ears till now.

Boost Wages to Stimulate India's Growth (Jayan Jose Thomas Teaches Economics at The Indian Institute of Technology Delhi)

➡ Impoverishment among English workers during the early years of the Industrial Revolution had prompted Leicester framework knitters to frame this resolution in 1817: "… if liberal Wages were given to the Mechanics in general throughout the Country, the Home Consumption of our Manufactures would be immediately more than doubled, and consequently every hand would soon find full employment". One of the moving images from today's India is of migrant workers suddenly feeling desolate in their places of work and desperate to return to their villages, in the aftermath of the COVID-19 outbreak. The helplessness felt by the workers as seen from those images calls for nothing short of a radical rethink. We need to plan for an economic growth driven by rising — and not stagnant — wages, and a development model that is dispersed far and wide across the country, and not centred in a few big cities.

Patchy Data

Out of India's total workforce of 471.5 million, only 12.3% are regular workers receiving some form of social security, while the rest are mostly casual workers or petty producers surviving under various degrees of informality. A vast majority of migrant workers belong to the category of informal casual workers. Available data on the size of the migrant workforce in India are rather patchy. According to the 2011 Census, there were 54.3 million persons (workers as well as non-workers) in the country who migrated from one State to the other. The 'heartland' States of Uttar Pradesh, Bihar, Rajasthan and Madhya Pradesh accounted for 48.9% of these inter-State migrants, much higher than their combined share in India's population. Workers migrate from villages to urban centres as the growth of rural incomes has not kept pace with the rising numbers and aspirations of the young in the countryside. Those engaged in agriculture and allied activities as a share of the combined workforce in U.P., Bihar, Rajasthan and Madhya Pradesh fell to 49.1% in 2018 from 64.1% in 2005. This meant that, between 2005 and 2018, 19.3 million persons left agricultural work in these four States alone and sought job opportunities elsewhere. Workers' shift out of agricultural occupations as well as out of their rural bases is set to accelerate, unless new economic opportunities are created in the countryside. A majority of the workers who leave villages find themselves in the bottom rung of the urban economy, earning a precarious living as drivers, factory workers, security guards and domestic helpers. Their livelihoods are directly or indirectly linked to economic activities that cater to the demand from the relatively affluent in India and abroad (such as from industries producing sophisticated IT products).

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Widening the Demand Base

Even as they work long hours often under exploitative conditions, informal workers manage to earn and consume only very little. According to the official consumption-expenditure surveys (for 2011-12), the richest 5% accounted for as much as 64.4% of the value of overall consumption of durable goods (such as of furniture or refrigerators) in urban India. The share of the poorest 50% was only 13.4%. The COVID-19 pandemic is set to cause long-term disruptions to the existing structure of demand dominated by the consumption of a privileged few. Economic activities have now been halted for weeks on end, and no end seems to be in sight for the downward slide in export demand, which began with the U.S.-China trade tensions. Businesses in India and elsewhere are concerned that even after the lifting of the lockdown, they will have to operate at a fraction of their installed capacities due to the sagging demand conditions. The crisis in the economy can be overcome only by widening the sources of demand, by raising the consumption of and investment for the poor. Consider, for instance, the setting up of industries linked to food processing or affordable housing in rural areas. The multiplier effects of such investment will be huge. Food processing can help boost farmer incomes, reduce food spoilage, create rural employment and, above all, improve the availability of nutritious food to the needy. Broadening the demand base requires policies that differ fundamentally from conventional economic ideas. The mainstream argument has been that firms should try to reduce costs by squeezing wages. But cutting wages will shrink markets further and deepen the crisis during a depression. Instead, firms should assist in raising workers' wages and incomes, and thereby, in enlarging the size of the markets. Even with higher wages, profit rates will not dip because the larger demand allows firms to utilise their capacities better.

Increase Government Spending

For rejuvenation of demand, it is critical that governments increase spending on the economy, in areas such as infrastructure and innovation. Government spending can boost the "animal spirits" of the private investors, as had been suggested by John Maynard Keynes amidst the great depression of the 1930s. The ideas of Keynes and his followers had helped to fuel an unprecedented economic boom in the U.S. and European countries for almost three decades after the end of the Second World War in 1945. A striking feature of this 'golden age of capitalism' was that the real wages kept rising, providing the much-needed succour to the working classes, who had long suffered due the war and the inequalities of the depression years. Battered by an oppressive economic system and now by an unpredictable virus, India's working classes deserve long-lasting relief and comfort. What is needed is a massive expansion in government spending, which will uplift workers' skills as well as their incomes and purchasing power. This will include investments in healthcare, education, roads, rural infrastructure, agricultural research, public transport, and so on — perhaps similar in scale and ambition to the post-war reconstruction efforts in western nations following the Second World War. A grave challenge to future growth is the ageing demographic structures in most parts of the globe. In such a context, the rising numbers of the young in India, especially in its northern and eastern States, offer a potentially new source of demand that could sustain the economy over the next few decades. Lifting the wages and the spirits of the wearied Indian worker could just be the dose required to bring cheer to the Indian and the global economies.

A War-Like State and A Bond to The Rescue (Rangarajan Mohan Kumara Mangalam - Angel Investor and Working President of The Tamilnadu Congress Committee)

➔ Politicians and epidemiologists across the world have used the word "war" to describe the situation the world is currently in. As we wage a united war against this virus, it would be

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interesting for us to look at war-time methods of raising financing. One such method that has been used as early as the First World War is the Consol Bond. In 2014, the British government, a century after the start of the First World War, paid out 10% of the total outstanding Consol bond debt. The bonds, which paid out an interest of 5%, were issued in 1917 as the government sought to raise more money to finance the ongoing cost of the First World War. Citizens were asked to invest with the advertising messaging: "If you cannot fight, you can help your country by investing all you can in 5 per cent Exchequer Bonds. Unlike the soldier, the investor runs no risk." One cannot help but wonder how successful a Consol Bond issue would be for the Indian government if the Prime Minister had made a similar call to every citizen of our country to invest in them instead of making donations to PM-CARES, or the Prime Minister's Citizen Assistance and Relief in Emergency Situations Fund. After all, most of the Consol bonds in the United Kingdom are owned by small investors, with over 70% holding less than £1,000. Furthermore, unlike PM-CARES, the proceeds of the bonds could be used for everything — from Personal Protective Equipment for doctors to a stimulus for small and medium-sized enterprises.

Why It Is A Better Option

There is no denying the fact that the traditional option of monetising the deficit by having the central bank buy government bonds is one worth pursuing. However, given an as yet hesitant (to raise debt) Prime Minister's penchant for making citizens active participants to his missions, he might view a Consol Bond as a more compelling alternative. Furthermore, with the fall of real estate and given the lack of safe havens outside of gold, the bond would offer a dual benefit as a risk-free investment for retail investors. When instrumented, it would be issued by the central government on a perpetual basis with a right to call it back when it seems fit. An attractive coupon rate for the bond or tax rebates could also be an incentive for investors. The government can consider a phased redemption of these bonds after the economy is put back on a path of high growth — a process that might take that much longer for every day we extend this lockdown.

Pathways to A More Resilient Economy (Arun Maira - Former Member, Planning Commission)

➔ **Challenging Principles**

The COVID-19 catastrophe has challenged the tenets of economics that have dominated public policy for the past 50 years. Here are seven radical ideas emerging as pathways to build a more resilient economy and a more just society.

i. "De-Growth". The obsession with GDP as the supreme goal of progress has been challenged often, but its challengers were dismissed as a loony fringe. Now, Nobel laureates in economics (Joseph Stiglitz, Amartya Sen, Abhijit Banerjee, Esther Duflo and others) are calling upon their profession to rethink the fundamentals of economics, especially the purpose of GDP. A five-point 'de-growth' manifesto by 170 Dutch academics has gone viral amidst the heightened Internet buzz during the lockdown. Goals for human progress must be reset. What should we aspire for? And how will we measure if we are getting there?

ii. Boundaries between countries are good. Boundary-lessness is a mantra for hyper-globalisers. Boundaries, they say, impede flows of trade, finance, and people. Therefore, removing boundaries is good for global growth. However, since countries are at different stages of economic development, and have different compositions of resources, they must follow different paths to progress. According to systems' theory, sub-systems within complex systems must have boundaries around them, albeit

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appropriately permeable ones, so that the sub-systems can maintain their own integrity and evolve. This is the explanation from systems science for the breakdown of the World Trade Organization, in which all countries were expected to open their borders, which caused harm to countries at different stages of development. Now COVID-19 has given another reason to maintain sufficient boundaries.

iii. Government is good. Ronald Reagan's dictum, "Government is not the solution... Government is the problem", has been up-ended by COVID-19. Even capitalist corporations who wanted governments out of the way to make it easy for them to do business are lining up for government bailouts.

iv. The "market" is not the best solution. Money is a convenient currency for managing markets and for conducting transactions. Whenever goods and services are left to markets, the dice is loaded against those who do not have money to obtain what they need. Moreover, by a process of "cumulative causation", those who have money and power can acquire even more in markets. The "marketization" of economies has contributed to the increasing inequalities in wealth over the last 50 years, which Thomas Piketty and others have documented.

Justice and Dignity

v. "Citizen" welfare, not "consumer" welfare, must be the objective of progress. In economies, human beings are consumers and producers. In societies, they are citizens. Citizens have a broader set of needs than consumers. Citizens' needs cannot be fulfilled merely by enabling them to consume more goods and services. They value justice, dignity, and societal harmony too. Economists' evaluations of the benefits of free trade, and competition policy too, which are based on consumer welfare alone, fail to account for negative impacts on what citizens value.

vi. Competition must be restrained: Collaboration is essential for progress. Faith in "Darwinian competition", with the survival of only the fittest, underlies many pathologies of modern societies and economies. From school onwards, children are taught to compete. Companies must improve their competitive abilities. Nations too. Blind faith in competition misses the reality that human capabilities have advanced more than other species' have, by evolving institutions for collective action. Further progress, to achieve the Sustainable Development Goals for example, will require collaboration among scientists in different disciplines, and among diverse stakeholders, and collaboration among sovereign countries. Improvement in abilities to share and govern common resources have become essential for human survival in the 21st century.

vii. Intellectual property belongs to the public. The earth's resources must be conserved. We are living in an era of knowledge. Just as those who owned more land used to have more power before, now those who own knowledge have more power and wealth than the rest. Intellectual property monopolies are producing enormous wealth for their owners, though many were developed on the back of huge public investments. Moreover, powerful technologies can be used for benign or malign purposes. It is imperative to evolve new institutions for public ownership of technologies and for the regulation of their use.

Purpose of Enterprises

The paradigm shift necessary after the crisis will not be easy. There will be resistance to shifts in social, economic, and political power towards those who have less from those who have more within the present paradigm. The financial crisis of 2008 was a crisis of liquidity in the system. Recovery was achieved by putting more fuel into the system. The system then moved on; in basically the same shape it was before. COVID-19 has revealed structural weaknesses

in the global economy. Putting fuel in the tank will not be sufficient. The vehicle must be redesigned too. While global attention understandably is focused on relief and recovery, this is the time to design for resilience. The economic system cannot be redesigned by domain experts devising solutions within their silos. Such as, trade experts recommending new trade policies, intellectual property experts recommending reforms of intellectual property rights, and industry experts recommending industry policies. All the pieces must fit together. Most of all, they must fit into the new paradigm, which will be very different to the one in which the experts had developed their domain knowledge. Innovations are required at many levels to create a more resilient and just world. Innovation is essential in the overall design of the economy. Innovations will be required in business models too, not just for business survival but also to move businesses out of the 20th century paradigm that "the business of business must be only business". Changes will also be necessary in our life patterns, our work and consumption habits, and in our personal priorities. The redesign of economies, of businesses, and our lives, must begin with questions about purpose. What is the purpose of economic growth? What is the purpose of businesses and other institutions? What is the purpose of our lives? What needs, and whose needs, do institutions, and each of us, fulfil by our existence?

COVID-19 And India's Fiscal Conundrum (Ramkishen S. Rajan - Yong Pung How Professor at Lee Kuan Yew School of Public Policy, National University of Singapore, And Sasidaran Gopalan - Senior Research Fellow at The Nanyang Business School, Nanyang Technological University)

➔ As the COVID-19 pandemic continues to ravage economies across the world, policymakers are desperately seeking effective ways to mitigate its economic effects. The immediate future appears dire for large emerging markets including India, which recently saw its growth forecast for 2020 slashed by the International Monetary Fund (IMF) to 1.9% from the previously estimated 5.8%. In April, the World Bank estimated that India would grow 1.5% to 2.8% in 2020-2021, the lowest since the start of the 1991 economic reforms. Dim as these projections are, what is of concern is that these are already starting to look overly optimistic considering that India has extended the lockdown.

Fiscal Stimulus Efforts

Given the severity of the crisis, the Reserve Bank of India (RBI) has responded proactively and aggressively to ease liquidity concerns although the credit easing policy does not seem to have been transmitted yet to many firms. It has also granted regulatory forbearance relating to asset classification to support economic activity, though some socialisation of losses might be inevitable over time. In contrast, the Indian government's fiscal stimulus efforts have paled in comparison to the rest of the world's initiatives. India's fiscal stimulus to date, estimated at ₹1.7 trillion, is less than 1% of the country's GDP, which is paltry compared to the magnitude of stimulus injections undertaken by many East Asian countries such as Japan (20%), Malaysia (16.2%) and Singapore (12.2%). With the Indian economy in the ICU, there has understandably been a lot of criticism regarding the gross inadequacy of the government's fiscal response to date. Several observers have emphasised the need for India to roll out a revival package of at least 5% of the GDP (₹10 trillion) to support the health and economic well-being of the most vulnerable (slum dwellers and migrant workers) as well as micro, small and medium-sized enterprises (MSMEs). Some other lower-income countries have been reluctant to impose nationwide lockdowns as they recognise that this policy works best in countries that are sufficiently well endowed to offer appropriate compensatory resources to the most vulnerable.

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Relief Packages in Asia

While the case for an aggressive fiscal stimulus is clear in these exceptional circumstances, the options to finance it do not appear to be straightforward. On the one end, most advanced economies can manage such financing by issuing bonds given their global demand. On the other, over 50 struggling low-income countries with limited resources to tackle the crisis have turned to the IMF for help. The G7 countries have in principle agreed to offer debt relief to low-income countries by suspending their debt service payments. The ones caught in between are mostly the middle-income emerging markets in Asia and elsewhere, like India. To date, the Asian Development Bank and the World Bank have committed to offering relief packages worth $1.5 billion and $1 billion, respectively, to India, while there are reports that the country has sought further multilateral assistance from the Asian Infrastructure Investment Bank. While certainly helpful, these would be a drop in the bucket as such assistance can at best only be supplementary to the larger underlying stimulus package that India may need to roll out. However, with a government debt of around 72% of GDP, which is comparatively higher than all other emerging markets in the region, India's fiscal room to opt for a massive stimulus appears much more limited. Any aggressive stimulus spending will not only result in a surge in India's gross public debt but will also negatively impact its credit ratings, highlighting the country's fiscal conundrum. Even if the Fiscal Responsibility and Budget Management constraints are relaxed, given India's limited demand for domestic bonds, there is a need to seek capital flows to finance its additional stimulus by encouraging foreign investment in government securities. However, it is unclear how much the recently liberalised norms in this area will be of help, given the heightened risk aversion and short-term capital outflows from India and other emerging markets. In fairness to the government though, other large middle-income Asian emerging markets like Indonesia have also lagged in their fiscal response, despite being hard-hit by COVID-19. Some richer countries in the Asian region like Singapore have managed to tap into their deep reserve kitty benefiting from the significant role played by their sovereign wealth funds. While India does not have that luxury, it has been suggested that some of the country's $476 billion of foreign exchange (FX) reserves be used towards this purpose. However, this is an extremely risky option in light of India's sizeable current account deficits and heavy dependence on short-term capital inflows. Given the likely pressure on its balance of payments moving forward, utilising FX reserves does not seem to be viable at the moment. A radical financing option would be to monetise the deficits by allowing the RBI to print money to buy the government bonds as long as inflation remains under check, though this might set a dangerous precedent (something the RBI stopped doing in 1997) moving forward. India has worked hard to move away from such money-financed fiscal stimulus polices that led to weak budget constraints and macroeconomic instability.

This crisis has made clear the critical importance for countries to build adequate fiscal space to manage future economic distresses. Given the acute constraints on fiscal policy in India, there is clearly a need to start re-prioritising expenditures away from low-priority, unproductive areas towards greater spending on health and social safety nets for low-income households.

Life & Science

China Launches New Rocket, Spacecraft

➔ China successfully launched a new rocket and prototype spacecraft, state media said, in a major test of the country's ambitions to operate a permanent space station and send astronauts to the Moon. 'The Long March 5B' rocket took off from the Wenchang launch site in the southern island of Hainan and eight minutes later an unmanned prototype spaceship

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successfully separated and entered its planned orbit, according to the Xinhua news agency. A test version of a cargo return capsule also separated from the rocket; Xinhua added. The spaceship will one day transport astronauts to a space station that China plans to complete by 2022 — and eventually to the Moon. It will have capacity for a crew of six.

The United States is so far the only country to have successfully sent humans to the Moon. But Beijing has made huge strides in its effort to catch up, sending astronauts into space, satellites into orbit and a rover to the far side of the Moon. The successful maiden flight of the 54-metre Long March 5B — which has a take-off mass of about 849 tonnes — should reassure China, following failures of the 7A model in March and 3B model in April. Assembly of the Tiangong space station is expected to begin this year and finish in 2022. China plans to send an astronaut to the Moon in about a decade and then build a base there.

3 Indian Photographers Win Pulitzer Prize

➔ The New York Times picked up the most awards as the 2020 Pulitzer Prize winners were announced virtually owing to the COVID-19 outbreak. Prize board administrator Dana Canedy declared the winners from her living room via livestream on YouTube rather than at a ceremony at New York's Columbia University. The Times collected three awards, including for Brian M. Rosenthal's investigative report into New York City's taxi industry which revealed predatory loans that took advantage of vulnerable drivers. It also won the international reporting prize for a series of stories on Russian President Vladimir Putin's regime. Reuters won the breaking news photography award for pictures of the Hong Kong protests. The Associated Press was awarded the feature photography prize for images showing life in Kashmir as India revoked its semi-autonomous status. Three photographers — Mukhtar Khan, Yasin Dar and Channi Anand —were named for the award. "A proud moment for all in our tribe across Jammu and Kashmir and beyond," veteran journalist Yusuf Jameel said.

Tiger population in Sundarbans rises to 96

➔ The latest estimation of tiger numbers in the Indian Sundarbans indicate an increase in the population of big cats. According to the West Bengal Forest Department, the tiger count for the year 2019-20 rose to 96, from 88 in 2018-19. The Sundarbans delta, spread over India and Bangladesh, is the only mangrove forest in the world inhabited by tigers. Giving details of the tiger estimation exercise, West Bengal Forest Minister Rajib Banerjee said that the increase in the number by eight was significant as it was the biggest annual jump reported from the Sundarbans. Previously, the highest yearly increase of tigers in the Sundarbans had been seven, he added. The estimation revealed that of the 96 tigers, 23 were identified as male and 43 as female, while the sex of 30 big cats could not be determined. The survey also revealed the presence of 11 tiger cubs. "For the first period, a total of 1,156 Cuddeback camera traps (578 pairs) were installed in the Sundarbans Tiger Reserve and during the second period, 272 camera traps (136 pairs) were installed in the 24 Parganas (South) Division," the State Forest Department said. The Sundarbans mangrove forest is spread over 2,585 sq. km and includes the Sundarbans Tiger Reserve and the 24 Parganas (South) Division. Estimation of the number of tigers in the Sundarbans, a world heritage as well as a Ramsar site, has always been a challenge because of the difficult terrain that comprises dense mangrove forests, with creeks and rivulets, and floods twice a day during the high tides.

Even Cobra Hatchlings Are Lethal, Caution Experts

➔ It doesn't require an adult cobra to snuff the life out of you; even hatchlings are capable of it, warn herpetologists. Snake specialists sounded caution on handling snakes after a video of a

Malayalam actor holding the hatchling of a cobra on her palm went viral on social media. The hatchling, a few centimetres in length, could be seen holding its hood up in the video and launching itself forward as if to strike. Oblivious of the risk, the actor continued speaking on video the about the compassion to be shown towards such small guests. The actor was also seen introducing the snake to some children.

'Enough Venom'

"The young cobra has enough venom, fully developed fangs and a poison delivery system sufficient enough to kill an adult person or cause serious health risks. The cobra venom is neurotoxic. It was suicidal on the actor's part to hold the snake on her palm and go for a video recording," said Jose Louies, an IUCN specialist on snakes. Cobra is one of the four venomous snakes that accounts for most of the snakebite deaths in the country. Russell's viper, Saw-scaled viper and the Common krait are the other members of the lethal league. The venom in the cobra hatchling would be of high concentration. The striking distance between the snake and the human body was a few centimetres in this case. With its agility, the young snake could strike at any angle with lightning speed, said Mr. Louies, also the founder of Indiansnakes, a website that tracks snakes and snakebites. Snakes hatch towards the end of summer months and the chance of encountering them were higher during the monsoon period. Most cases of snakebite occurred during monsoon, he said. Ideally, one should stay away from snakes.

Steps to Be Taken

If confronted in an unavoidable situation, the movement of the snake could be restrained by covering it with a bucket and then waiting for snake rescuers to arrive. In case of a hatchling, they should be removed from the area safely, Mr. Louies suggested.

A New Concern: Early Locusts

→ On April 11-12, scientists at the Locust Warning Organisation (LWO) observed groups of grasshoppers at Sri Ganganagar and Jaisalmer districts of Rajasthan. But far from ordinary hoppers, these were desert locusts — the same destructive migratory pests currently devouring acres of maize, sorghum and wheat crops in East Africa. While locusts are seen in India as well, that is normally only during July-October and mostly as solitary insects or in small isolated groups. Their being spotted along the India-Pakistan border before mid-April this time — and coming after the damage they caused to the growing rabi crops along western Rajasthan and parts of northern Gujarat during December-January — has raised the alarm bells, and comes at a time when the country is battling the more high-profile novel coronavirus pandemic.

What Exactly Are Locusts?

The desert locust (Schistocerca gregaria) is a short-horned grasshopper that is innocuous while it is in a "solitary phase" and moving about independently. These winged insects differ from normal hoppers, and become dangerous only when their populations build up rapidly and the close physical contact in crowded conditions triggers behavioural changes. They, then, enter the "gregarious phase", by grouping into bands and forming swarms that can travel great distances (up to 150 km daily), while eating up every bit of vegetation on the way. If not controlled at the right time, these insect swarms can threaten the food security of countries.

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Kenya is already reporting its worst locust outbreak in 70 years, while Ethiopia and Somalia haven't seen one this bad in quarter of a century.

How Seriously Should the First Sightings of The Locusts by The LWO Be Viewed?

There's nothing much to worry right now, as the rabi crop has already been harvested and farmers are yet to commence plantings for the new kharif season. The LWO (Locust Warning Organization - part of the Union Agriculture Ministry's directorate of plant protection, quarantine & storage and with its field headquarters at Jodhpur in Rajasthan) has since the second fortnight of April detected "gregarious" hopper groups, including at Fazilka in Punjab adjoining the Pakistan border. But these have been low-density nymphs in "2nd to 4th instar" stages or immature winged adults. No breeding or swarm movement has also been seen so far. The timing, though, is cause for concern. The normal breeding season for locusts in India is July-October. But this time, they have been sighted by mid-April. Last year, too, they were seen towards end-May as isolated grasshoppers. They could, nevertheless, breed to high enough populations for forming swarming and wreaking havoc during the rabi season in Rajasthan (especially Ganganagar, Hanumangarh, Bikaner, Jaisalmer, Jodhpur, Nagaur, Jalore and Sirohi) and Gujarat (Banaskantha). The longer time to breed is more conducive for build-up of gregarious insect swarms, as opposed to solitary, innocuous hoppers.

What Kind of Damage Can They Cause?

Locusts are polyphagous, i.e. they can feed on a wide variety of crops. Secondly, they have an ability to multiply rapidly. A single female desert locust lays 60-80 eggs thrice during its roughly 90-day life cycle. K L Gurjar, deputy director of LWO, estimates that a 1-square-km area can accommodate 40-80 million of these insects, making the growth of their swarms' exponential quite like the Covid-19 virus. The damage potential of locusts has been limited in India only because of the country hosting a single breeding season — unlike Pakistan, Iran and East Africa, where they also multiply during January-June.

What Is the Genesis of The Present Locust Upsurge, Particularly in East Africa?

It lies in the Mekunu and Luban cyclonic storms of May and October 2018 that struck Oman and Yemen, respectively. These turned large desert areas in remote parts of the southern Arabian Peninsula into lakes, which allowed the insects to breed undetected across multiple generations. The swarms attacking crops in East Africa reached peak populations from November onwards, while building up since the start of this year in southern Iran and Pakistan (Balochistan and parts of the Indus Valley and Punjab). Widespread rains in East Africa in late March and April have enabled further breeding. According to Keith Cressman, senior locust forecaster at the Food and Agricultural Organization of the UN, a part of the new generation of swarms forming there in late-June/July may migrate from the Horn of Africa across the Indian Ocean to the desert areas along both sides of the India-Pakistan border. Prior to that, the locusts from spring breeding areas of southwest Pakistan and southern Iran would arrive in Rajasthan and Gujarat during May-June. They would, then, breed with the onset of the southwest monsoon rains and continue doing so through the kharif cropping season.

What Can and Should Be Done?

If the monsoon is good, and in the absence of control operations, the magnitude of attack could be worse than in the 2019-20 rabi season. Gurjar points out that last year's locust incursions were the first and most significant since 1993. Local authorities in Rajasthan and Gujarat had to treat over 4.30 lakh hectares of infested areas with sprayers mounted on tractors and other vehicles. Thankfully, even old generation *organophosphate* insecticides such as *Malathion* (96% ultra-low volume aerial application) are effective against locusts.

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About one litre of the chemical is necessary to treat a hectare of their breeding areas, including trees where they halt for the night. Gurjar says that there is ample stock of pesticides to control any swarms. Control operations also require procurement of equipment, training of field teams, prepositioning of supplies in key breeding areas and updating contingency plans. These operations are technically not restricted under the current lockdown regime. But there is not much time to waste either.

What Is African Swine Fever Reported in India For the First Time?

➜ Amid the coronavirus pandemic, another disease outbreak is affecting thousands of animals in Assam. Since February, over 2,900 pigs have died in the state due to African Swine Fever (ASF), which does not affect humans but can be catastrophic for pigs. This is the first time that an ASF outbreak has been reported in India. In September 2019, the outbreak of the disease swept through pig populations in China — which is the largest exporter and consumer of pork — leading to large scale cullings. As a result, the prices of pork shot up by over 50 per cent in the country over pre-outbreak levels.

How Did the Current Outbreak Start?

As per the latest update issued by the UN Food and Agriculture Organisation (FAO), the current outbreak of ASF has affected China, Mongolia, Vietnam, Cambodia, Myanmar, the Philippines, Republic of Korea and Indonesia among others. In China, the first ASF outbreak was confirmed in August 2018 and since then more than 1 million pigs have been culled in the country. In Vietnam, the ASF outbreak was confirmed in February 2019 and since then over 6 million pigs have been culled. Officials believe ASF came into India through Tibet into Arunachal Pradesh and then into Assam, the state with the highest population of pigs in the country. "This virus can be carried by wild pigs too, so one cannot say for sure how and where exactly it entered Assam since we still have not been able to determine the route yet." The Assam government decided to ban the slaughter and sale of pork awaiting test results of samples that were sent to the National Institute of High Security Animal Diseases (NIHSAD) in Bhopal. It was later confirmed that the samples were positive for ASF. Pigs from two districts of Arunachal Pradesh have also tested positive as per the NIHSAD test results. According to DR ND Minto, Director of the Animal Husbandry, Veterinary & Dairy Development (AHV&DD), over 1,000 pigs have died in the state. According to the World Organisation for Animal Health (WOAH), between 2018 and 2019, the disease spread was notified in three countries in Europe and 23 countries in Africa.

What Is African Swine Fever (ASF)?

ASF is a severe viral disease that affects wild and domestic pigs typically resulting in an acute haemorrhagic fever. The disease has a case fatality rate (CFR) of about 100 percent. Its routes of transmission include direct contact with an infected or wild pig (alive or dead), indirect contact through ingestion of contaminated material such as food waste, feed or garbage or through biological vectors such as ticks. The disease is characterised by the sudden deaths of pigs. Other manifestations of the disease include high fever, depression, anorexia, loss of appetite, haemorrhages in the skin, vomiting and diarrhoea among others. It is important that determination of ASF is made through laboratory testing and it is differentiated from *Classical Swine Fever (CSF),* whose signs may be similar to ASF, but is caused by a different virus for which a vaccine exists. Even so, while ASF is lethal, it is less infectious than other animal diseases such as *foot-and-mouth* disease. But as of now, there is no approved vaccine, which is also a reason why animals are culled to prevent the spread of infection. Any country with a pig sector is at risk of the spread of the disease and its spread is most likely via meat arriving aboard ships and planes, which is incorrectly disposed of and by meat carried by individual

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travellers. The ASF causing virus is believed to have entered Europe for the first time in 1957 when it was introduced into Portugal from West Africa.

How Is ASF Different from Swine Flu?

Swine influenza or swine flu is a respiratory disease of pigs, which is caused by type A influenza virus that regularly causes outbreaks of influenza in pig populations. According to the US Centres for Disease Control and Prevention (CDC), while the swine flu causing virus leads to a high number of infections in pig herds, the disease is not as fatal and causes few deaths. Specific swine influenza vaccines are available for pigs. The swine flu viruses are spread among pigs through close contact and through contaminated objects moving between infected and uninfected pigs. Symptoms include fever, depression, coughing, discharge from the nose and eyes, eye redness or inflammation. Further, while swine flu viruses don't typically infect humans, cases have been reported in the past (for instance during the 2009 H1N1 pandemic), most commonly when humans have contact with infected pigs. When humans are infected with swine flu viruses, the symptoms are similar to human seasonal influenza and include fever, lethargy, lack of appetite and coughing.

How Is the Assam Government Planning to Deal with The Disease?

Since ASF has no vaccination, it is advisable that the infected pigs are culled. "Culling is the only option but we are not doing that right now," said Bora, adding that they would if the "situation demanded it." Currently, the dead pigs are undergoing deep burials, with salt and bleaching powder. However, cases of pig carcasses floating down rivers have been reported from districts in Assam. In Kaziranga National Park, seven carcasses were detected floating down the Brahmaputra. The authorities have advised all pig farmers to contain the spread through bio-security. "Pig farms along with one km around it is considered containment zones," said Bora. This is one form of quarantine for the pigs.

Pig farmers in Assam describe the outbreak as a "double whammy" since the COVID-19 lockdown was already impacting sales negatively. The export of pork from the states has been banned since the disease was reported.

Is the Government Trying to Help the Farmers?

Bora said that the government was trying to formulate a plan to help the pig farmers who have suffered losses because of the disease. Sonowal also directed the Veterinary and Animal Husbandry Department to find out how many entrepreneurs were engaged in the sector so that the government can announce a bailout package for them.

States with High Swine Flu Rate Record Most COVID-19 Cases

➔ Five States — Maharashtra, Gujarat, Rajasthan, Delhi, Tamil Nadu — account for about 70% of India's confirmed COVID-19 cases. However, data from the Health Ministry's National Centre for Disease Control (NCDC), show that these are also States that consistently accounted for the bulk of swine flu cases, or seasonal influenza (H1N1) since 2015. Last year, Rajasthan, Gujarat, Delhi and Maharashtra accounted for 15,580 cases of confirmed H1N1 — or 54 % of the confirmed infections. In 2018 again, Tamil Nadu, Maharashtra, Rajasthan and Gujarat, made up 65% of H1N1 cases. In 2015, which saw 42,592 cases, the largest spike in cases since the swine flu pandemic of 2009-10, Maharashtra, Rajasthan, Gujarat and Delhi polled 63% of the cases. Excluding 2016, Maharashtra and Gujarat have either led or been among the top three in India's swine flu count.

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Using Human Sweat as Diagnostic Tool and Source of Power

➔ Recall those early days when the family physician was called home to treat a patient. The first thing he'd do was to touch the skin on your face, temples and chest. This would let him diagnose quickly. If the skin feels hotter than usual, you have fever; if it is paler than the usual, you are dehydrated and must drink more water; if it has a bluish tinge, you need to breathe more oxygen; and if it feels wet, you need to exercise less or cut your physical stress and so on. Then you are given what he considers the appropriate medicine as pills or potion, or an injection. Alas, we have now replaced him with a doctor sitting in a clinic, who asks you to go to a commercial centre for diagnostics and prescribes the medicine based on the report. Skin-based diagnosis is a gone thing for general practitioners. These days, skin specialists do an interesting procedure, in which they attach a thin polymer-based sheet which contains the desired drug, stick it to the skin on your arm or chest and deliver the drug past the sweat fluid directly into the body, using a tiny electric current on the patch. This is thus a wearable technology for personalised medicine — no pills or potions. And with the advent of microelectronics and bio-compatible polymers, we now have 'electronic skin' (e-skin), and nanoscale wires that can be attached and an external electric power supply using micro-scale batteries.

Role of Sweat

Notice in all this, the active body fluid, namely, the sweat, is ignored or treated as an inert carrier of no other value. The role of sweat fluid in our body and the chemicals it contains are becoming increasingly understood and utilised only recently. Sweat comes out of three types of glands distributed across all over our skin, secreting water and substances that help keep our body at the optimum temperature of 37 degrees C (or 98.4 degrees F). Our brain has temperature-sensitive nerve cells (neurons) which control the sweat glands in releasing the fluid depending on the temperature and physical and metabolic activity of the body. Sweat is thus our body's thermo-regulator. What does sweat contain? It is 99% water containing sodium, potassium, calcium, magnesium and chloride ions, ammonium ions, urea, lactic acid, glucose and other minor components. An analysis of the sweat fluid in a patient and how it compares with that of a 'normal' individual will thus be of diagnostic value (just as much as other body fluids do). For example, in the illness called cystic fibrosis, the ratio of the sodium to chloride ions in the sweat is different from that of a normal individual. Likewise, the amount of glucose in the sweat of a diabetic is higher than normal. But the problem is the amount of sweat available from the skin.

Diagnosis Based On E-Skin

It is here that modern-day technology has become of value. Now that microelectronics and e-skin patches are both available, scientists have been using them for real-time measurements of some chosen component in the sweat, using the appropriate probe (sensor) in the patch in order to detect and measure the level of the component. But would it not be much better if we can measure as many components as we desire if the e-skin patch be loaded with probes not for one but several components simultaneously? A breakthrough on this was made by a group of biologists, material scientists, computer experts and electrical engineers from California (Stanford and Berkeley), and was published with the title: "Fully integrated wearable sensor arrays for multiplexed in situ perspiration analysis". They put in not just one but six sensor probes — for Na, K, Cl ions, lactate, glucose and the temperature of the sweat — all six of them embedded on a e-skin patch, such that a stable sensor-skin contact is maintained. Signals coming from each sensor measuring the sweat component as a tiny electrical signal are then converted into a digital form, and sent to a micro-controller, and from there to a Bluetooth transceiver, which can be seen on a mobile phone or other screen, and passed on through

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SMS, email, or uploaded to the Cloud interface. Since the amount of sweat accessible in sedentary people is too low, the group resorted to what is called *iontophoresis*, wherein one can stimulate local secretion of sweat at chosen sites, thus getting enough of the fluid, analysing its relevant components in normal (control) individuals, and people with cystic fibrosis and also monitoring glucose levels in the sweat — all this in a similar integrated platform as was used in their Nature paper. In a control individual, they found 26.7 mM of Na ions and 21.2 mM of Cl ions (note that the Na level is higher than Cl level here), while in a CF patient, Na level was 2.3 mM and Cl level 95.7 mM (far higher than the Na level), in keeping with what CF specialists have found in their routine ("classical") practice. The group further found that oral glucose consumption while fasting led to increased glucose levels in sweat and in blood.

Sweat as Power Supply

Note that in all these assays, the probes and sensors need to be powered externally using micro-batteries. On a patch on the individual's e-skin patch they added the enzyme Lox which would react with the lactate in the sweat and oxidise it to pyruvate in a bioanode, and reduce the oxygen into water in a biocathode, thus generating electrical energy that is sufficient to drive the patch with no external energy source. Finally, in these COVID-19 days, it is good to know that sweat does not carry any pathogen (bacteria or virus); on the contrary it carries a germ-killer protein called *dermcidin*. One wonders if dermcidin or its modification can be anti-viral.

NIAB Develops Portable Coronavirus Detection Kit

➔ Adding support to the Health Minister's promise that India will be able to produce RT-PCR and antibody test kits by the end of May, researchers from the National Institute of Animal Biotechnology (NIAB), Hyderabad, have developed a biosensor that can detect the novel coronavirus in saliva samples. Biosensors have been currently used across the world to detect toxins, narcotic drugs, and are also considered as a reliable tool to detect infectious diseases.

New Device

The new portable device named eCovSens, can be used to detect the presence of novel coronavirus antigens in human saliva within 30 seconds using just 20 microlitres of the sample. The in-house built biosensor consists of a carbon electrode and the coronavirus antibody. The antibody is capable of binding with the spike protein found on the outer layer of the virus. An electrical signal is generated when the antigen and antibody binds. Electrical components in the device further amplify this signal, process it, convert it to digital readings on an LCD display. The device can also be connected to a computer or cell phone via Bluetooth and studied. The signal's intensity was found to be proportional to the concentration of the antigen in the sample.

It is yet to be peer-reviewed and published in a scientific journal.

Saliva from Home: How US-Approved Test Works

➔ Rutgers University announced that the United States Food and Drug Administration (FDA) has given emergency approval to testing for SARS-CoV2 on saliva samples sent by people themselves, from home. The test has been developed by Rutgers University's RUCDR Infinite Biologics lab, in collaboration with Spectrum Solutions and Accurate Diagnostic Labs.

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What Is Different

The standard test for SARS-CoV2 infection is done on throat or nasal swabs (RT-PCR). These look for the presence of the virus in the swabs. Various countries also have provisions for testing blood samples for antibodies, including India which allows it in certain hotspots. Rutgers University and its collaborators have developed an approach that uses saliva as the primary test biomaterial for SARS-CoV2. The approach recently got approval of the FDA; this was for healthcare workers collecting saliva from individuals at testing sites. The FDA amended the emergency use authorisation for the first SARS-CoV2 test that will allow people to collect their own saliva at home and send to a lab for results, Rutgers University announced in a statement.

How It Helps

Collection of nose and throat swabs at a healthcare facility, or testing location, requires physical interaction with a healthcare professional. The new at-home saliva self-collection assay allows for broader screening, Rutgers said. The RUCDR lab has also launched a genetic testing service. This can test thousands of samples daily, Rutgers said; with the new saliva tests and expanded collection strategy, that number can increase to tens of thousands of samples daily. "Protecting both patients and healthcare professionals from any unnecessary exposure is of paramount importance and saliva home collection addresses almost all issues around testing quality, safety and availability," Andrew Brooks, chief operating officer and director of technology development at RUCDR, said in the statement. The approval also means that healthcare professionals need no longer be put at risk for infection by performing swab collections, he said.

Can Antibody Tests Help Tackle COVID-19?

➔ What Do Antibody Tests Reveal?

Given that they are not useful for directly detecting the presence of the virus, antibody tests can be used to gauge the extent of infection in a community or a large group of people who may have had exposure to the virus. Much like pregnancy detection kits, rapid-test kits change colour when particular molecules are detected. Two kinds of antibodies result from an infection: Immunoglobulin M and Immunoglobulin G (IgM and IgG). In response to an infection, the IgM is first produced within a week of infection. Two weeks later, the levels of IgM reduce and are replaced by IgG. The latter is a longer-lasting antibody and, depending on the infectious agent involved, can offer different durations of immunity. Antibodies to the chickenpox virus last for decades. Those to influenza viruses and even other coronaviruses (that cause the common cold) last no more than a year or two. This is why people need flu shots at regular intervals, and one of the reasons why it is practically pointless to have a vaccine for the common cold. It is too early in the course of the COVID-19 pandemic to determine how long immunity lasts. Nevertheless, the presence of IgM, IgG can in a sample of the population determine whether the virus is present in certain clusters. Ideally, this can help government authorities decide on what regions in a lockdown can be opened up if the aim is to get regular life back on track as soon as possible.

Studies in India have shown that for every symptomatic positive, there are two asymptomatic or pre-symptomatics (those who do not visibly manifest the disease). Thus, antibody tests could also be used for such estimates in India. The ICMR had laid out the strategy to use antibody tests to gauge the degree of COVID-19 presence in the country. The plan involved using a combination of both RT-PCR and antibody tests to establish infection levels.

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What Happened to India's Rapid Testing Plan?

Two Chinese companies, Wondfo and Livzon, got licences to sell 500,000 rapid antibody kits to the ICMR. Several of these were to be given to States and some were for the ICMR's own use. A first batch was deployed in some States and soon complaints began pouring in over inaccurate results. The ICMR then asked States to stop using these kits for two days. After two days, the ICMR advised States to stop using the kits altogether. The Health Ministry has cancelled the licences given to the companies that were importing these kits from China. So far, the ICMR has not clarified what was wrong with the kits. The Chinese companies have also claimed that the kits were validated by the ICMR's expert body, the National Institute of Virology (NIV). However, the NIV only clears batches of kits that are submitted for testing. It is possible that even if a company's kits get cleared, it ends up supplying kits on the field that are not up to the mark. Another feature of the kits is their sensitivity (in percentage terms, the times the tests correctly identify people as positive for an infection) and specificity (in percentage terms, the times the test correctly rules out those not carrying the virus). Specificity refers to its ability to accurately distinguish between the target virus and other viruses. It is a well-established feature of tests that in regions of low actual prevalence of a disease, they can, depending on the kit's specificity and sensitivity, miscategorise vast numbers of those tested. It is not clear if these were factored in in tests using kits blamed as faulty by States. India is not the only place where complaints over Chinese kits have been raised. The United Kingdom and Spain have also raised such issues with these kits. In either event, there is no clarity if the ICMR has ordered more kits. The Health Minister, Dr. Harsh Vardhan, has said that by the end of May, the country will have kits that are made in India for antibody and RT-PCR tests.

Indian-Owned Company Develops Test Kit

➔ After the United States, Italy and Europe, India might soon see the deployment of antibody ELISA (Enzyme Linked Immuno-Sorbent Assay) kits to know if a person has actually recovered from the COVID-19 coronavirus without even knowing that he or she had been infected, thus returning to a normal life without restrictions. The kits will be put to use after they receive the approval of the Central Drugs Standard Control Organisation, the national regulatory body for pharmaceuticals and medical devices. They have been developed by scientists from India, the U.S. and the U.K. for Erba Mannheim, a company founded by Mumbai-based businessman Sunil Vazirani.

'Not Going Away'

"Our kits help identify individuals who had COVID-19, were asymptomatic and recovered without even knowing. They can thus confidently return to work and bring back normalcy to life, while reducing the stress on the frontline warriors," Mr. Vazirani said. Italy is testing 5 lakh people a day using the kits developed by Erba Mannheim. Each kit can be used to perform 100 tests, Mr. Vazirani said. The kits took a month-and-a-half to develop. After first receiving the European CE approval, Erba Mannheim also received the U.S. Food and Drug Administration's nod for the advanced method of testing antibodies, which it claims is much faster than the rapid testing kits from China. Mr. Vazirani claims that his COVID-19 antibody ELISA kits can test 100 samples an hour, with an accuracy rate of 98%. Research tells us that the SARS-CoV-2 viral antigens stimulate the body's immune system to produce antibodies that can be detected with IgM and IgG antibody tests. ERBA Mannheim's kit, called ErbaLisa® COVID-19 ELISA kits, can detect both antibodies. Through group company TRANSASIA India, Mr. Vazirani's team has applied for permissions to use the kits in India, for which 500 sample kits have been imported. "Antibody tests are important to do. India imported rapid test kits from China which, as per the Indian Council of Medical Research, have a 6-30% [rate of] accuracy,"

he explained. A team that includes Drugs Controller General of India Dr. V G Somani and others is looking into approvals for the antibody kits.

Existing Plants
Once the approval is obtained, Mr. Vazirani plans to produce the kits at existing TRANSASIA India plants in Daman and Sikkim, which will further the setting up of a COVID-19 unit making only testing kits for the virus. This plant in Andhra Pradesh's Med Tech Zone is backed by the World Health Organisation (WHO) and is awaiting necessary regulatory approvals and on-ground permissions. For the future, Mr. Vazirani believes that the kits will help individuals test themselves, and also help companies test their employees in a big way.

Dead Fragments of Novel Coronavirus Led to False Positives in Recovered Patients

➔ In early April, South Korea announced that patients who were declared as COVID-19 recovered have once again tested positive, suggesting that it could be a case of reinfection or reactivation (where the virus is not completely cleared once again begins to replicate). By the end of April, South Korea had recorded 263 such cases. China too reported such cases.

Cause of Concern
This news caused concern as it highlighted the issue of low levels of immunity in people who have recovered and the short duration of protection offered by antibodies developed in response to the infection. If natural infection shows only a short duration of protection, it raised concerns about the duration of protection that vaccines can offer. But on April 30, infectious disease experts in South Korea confirmed that dead virus fragments still present in recovered people had led the people numbering over 260 to test positive again for the novel coronavirus even weeks after marking full recovery. Addressing a press conference a few days earlier, Zhong Nanshan, China's top respiratory expert had said the same — recovered persons can test positive because fragments of the disease remained in their body.

The molecular test cannot distinguish between dead and live genetic fragments and hence cannot make out whether the virus is alive or not. Korea Centres for Disease Control and Prevention (KCDC) deputy director Kwon Joon-wook told CNN that so far there is no indication that patients who retest positive are contagious, even though about 44% of them showed mild symptoms.

The KCDC had investigated three cases from the same family where patients tested positive after recovering. But scientists were unable to grow (culture) the virus. Culturing the virus is typically done for testing and producing vaccines. The inability to grow the virus in a cell culture confirmed that live virus was not present. "The respiratory epithelial cell has a half-life of up to three months, and RNA virus in the cell can be detected with PCR testing one to two months after the elimination of the cell," Oh told Korea Herald.

When Will A COVID-19 Vaccine Be Ready?

➔ ### How Do Vaccines Work?
These are biological products that, when introduced in the body, teach the immune system to identify a disease-causing pathogen and store in memory which fightback options are the most effective. Some vaccines are live pathogens, whose ability to cause harm has been muted but whose essential identifying features have been retained so that the body can learn to recognise it. For example, the yellow fever vaccine is a live, weakened yellow fever virus; the BCG vaccine too is a live attenuated strain derived from an isolate of Mycobacterium bovis used widely as a vaccine for tuberculosis. The polio vaccine has the killed virus. Still other vaccines bank on teaching the body to identify the toxins released by the pathogen and act.

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➔ On April 23, Oxford University initiated a phase-1 human clinical trial of its vaccine — ChAdOx1 nCoV-19 — against the novel coronavirus, SARS-CoV-2. A single dose of the candidate vaccine will be administered to 1,112 healthy volunteers to study the safety, ability to produce immune response and efficacy of the vaccine. Oxford University is optimistic of a positive outcome of the candidate vaccine and has planned to get millions of doses of the vaccine before the end of the year even as results of the final phase of the trial (phase-3) are awaited. The vaccine candidate was developed by the University's Jenner Institute which began trials in humans on April 23 jointly with the University's Oxford Vaccine Group.

How Was the Vaccine Being Tested Constructed?

The vaccine, ChAdOx1 nCoV-19, uses the common cold virus (adenovirus) that causes infections in chimpanzees. The adenovirus has been genetically altered so that it does not grow once injected. The construct carries the genetic material of the novel coronavirus that makes the spike protein. By introducing the genetic material of the spike protein, the candidate vaccine will help the body recognise it and make antibodies against the spike protein. The antibodies produced will help mount an immune response and prevent the virus from entering the human cells and causing an infection. Oxford University has used vaccines made from the adenovirus construct to over 320 people and has found it to be safe and well tolerated. It does cause transient side effects such as a fever, headache or a sore arm but is otherwise safe.

Has It Been Tested on Animals?

The adenovirus construct has been used by Oxford University researchers to test safety for both the 2002 Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS). Once the safety of the MERS vaccine was proven in a trial carried out in the U.K., a trial began in December last year in Saudi Arabia, where MERS outbreaks occur frequently. The safety of the candidate vaccine was earlier tested on six rhesus macaque monkeys. A single dose protected all the six animals for nearly a month even when exposed to high levels of the virus, boosting the confidence of the researchers.

What Is the Process of The Clinical Trial?

Up to 1,112 healthy volunteers from Oxford, Southampton, London and Bristol have been recruited for the phase-1 trial. Volunteers, both male and female between 18-55 years, are being recruited for the trial. A single dose of the candidate vaccine will be administered to volunteers. The participants will be randomly assigned to receive either the candidate vaccine (ChAdOx1 nCoV-19) or a 'control', the MenACWY vaccine, for comparison. Oxford University is using the MenACWY vaccine — that protects against four strains of meningococcal bacteria — rather than a saline control. The participants will not know if he or she received a candidate vaccine or not. The university researchers will also be testing two doses of the candidate vaccine given four weeks apart on a small group of 10 volunteers to assess the dosage and immune response.

For the Control Group, Why Is A Vaccine for Meningococcal Bacteria Being Used and Not Saline?

The MenACWY vaccine is a licensed vaccine given routinely to teenagers in the U.K. since 2015. The MenACWY vaccine is being used as an "active control" vaccine to help understand participants' response to ChAdOx1 nCoV-19. The reason for using this vaccine, rather than a saline control, is because researchers expect to see some minor side effects from the ChAdOx1 nCoV-19 vaccine such as a sore arm, headache and fever. Saline does not cause any of these side effects. If participants were to receive only this vaccine or a saline control, and went on to develop side effects, they would be aware that they had received the new vaccine.

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It is critical for the study, says Oxford University, that participants remain blinded to whether or not they have received the vaccine, "as, if they knew, this could affect their health behaviour in the community following vaccination, and may lead to a bias in the results of the study". While all participants will be told how to reduce infection risk, it is necessary that participants receiving both vaccines are exposed to the virus and some get infected. Only then will it become possible to understand if the vaccinated group remained protected or not compared with the control arm. For this purpose, keeping the participants in the dark about the vaccine received makes the trial robust.

What Is the Timeline for The Trial?
The phase-1 trial is expected to be completed in end-May if transmission remains high in the community. The phase-2 trial may be completed by August-September. According to Suresh Jadhav, Executive Director of the Pune-based Serum Institute of India Pvt. Ltd., phase-2 and phase-3 trials may get combined if the phase-1 trial results are encouraging.

When Will Pune's Serum Institute Start Manufacturing the Vaccine?
According to Mr. Jadhav, the company will start manufacturing the vaccine the moment the phase-3 trial or the combined phase-2/phase-3 trial begins. If the last two stages of the trial are combined then it would start manufacturing the vaccine by end-June and be ready with millions of doses by the end of the year. The company is confident of manufacturing 60-70 million vaccine doses by the end of the year. He says, "Since we will begin manufacturing when the last phase of the trial is initiated, we will have millions of vaccine doses ready by the time the trial ends."

How Much Will It Cost?
In a tweet on April 30, Oxford University said it is partnering with AstraZeneca to manufacture and distribute the vaccine as quickly as possible. It said the vaccine will be made available on a "not for profit basis for the duration of the coronavirus pandemic".
Israel recently announced a "significant breakthrough" in development of monoclonal antibodies (those created from a single clone of cells) to treat Covid patients. Vaccines are important because a lot of resources are saved in preventing a disease and not having to treat it. Vaccines have been key to the elimination of once dreaded diseases such as smallpox.

In Antibodies from Llamas, Scientists See Covid-19 Hope

➔ In a llama named Winter, researchers have found an unlikely ally in the hunt for an effective treatment for COVID-19, the University of Texas at Austin said in a statement. The researchers linked two copies of a special kind of antibody produced by llamas and created a new antibody, which binds tightly to a key protein on the novel coronavirus SARS-CoV2. This protein is the spike protein, shaped like a corona (crown) that gives coronaviruses their name. It is also the protein that allows the virus to break into human and animal cells. Initial tests with the new antibody and cultured cells indicated the antibody blocks viruses with this spike protein from infecting cells. The researchers are from the University of Texas at Austin, US National Institutes of Health and Ghent University in Belgium. The team is now preparing to conduct preclinical studies in animals such as

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hamsters or nonhuman primates, with the hopes of next testing in humans. The goal is to develop a treatment that would help people soon after infection with the virus. Winter, the llama, is 4 years old, female, and living on a farm in the Belgian countryside along with approximately 130 other llamas and alpacas.

Phase-2 Trial with Three Drugs Offers Hope

➔ A phase-2 trial involving participants with mild to moderate COVID-19 illness found no detectable virus within an average seven days of starting treatment with a three-drug regimen compared with 12 days in people in the control group. Clinical improvement was also significantly better in those who received the three-drug regimen. Complete alleviation of symptoms was achieved in four days in the intervention group and eight days in the control group. The average hospital stay was also significantly shorter (nine days) in participants who received the three-drug therapy than in the control group (14.5 days). The three-drug regimen was found to be safe. Analysis of secondary outcomes revealed that 52 participants in the intervention group who started treatment less than seven days after onset of symptoms showed better clinical and virological outcomes than in the control group consisting of 24 participants. The trial was carried out in six public hospitals in Hong Kong between February 10 and March 20. The team of researchers was led by Prof. Kwok-Yung Yuen from the University of Hong Kong, and the results were published in The Lancet. The safety and efficacy of the three-drug regimen have to be tested in a phase-3 trial involving more people.

Randomly Assigned

The 127 participants were randomly assigned to either the intervention group or a control group. The intervention group had 86 participants and the control group had 41. Participants in the intervention group received oral lopinavir-ritonavir, ribavirin and injectable interferon beta-1b, while the control group received only lopinavir–ritonavir. Treatment in both groups started within seven days of symptoms showing up. Lopinavir-ritonavir is used for treating HIV, ribavirin for treating chronic hepatitis C virus, and injectable interferon beta-1b is used by multiple sclerosis patients.

Broad-Spectrum Antiviral Inhibits Novel Coronavirus

➔ Broad-spectrum antivirals for emerging zoonotic infections become particularly important when specific interventions do not yet exist. Researchers have found that a ribonucleoside analogue (beta-D-N4-hydroxycytidine or NHC) that has previously shown to be effective against influenza and Ebola is also potent against coronaviruses, including the novel coronavirus that is currently causing the pandemic. The drug was found to be effective in both cell lines and primary human airway epithelial cultures against SARS, MERS and SARS-CoV-2. It was also effective against three closely-related bat coronaviruses that were capable of replicating in human cells without undergoing any adaptation, suggesting potential direct transmission from bats to humans.

In Vitro Analysis

The NHC drug is highly active against all three coronaviruses — 2002 SARS, MERS and the novel coronavirus. While it was not toxic to human cells, there was a dose-dependent reduction in SARS, MERS and novel coronavirus infectious virus production in human airway epithelial cell cultures. The team led by researchers Timothy P. Sheahan and Ralph S. Baric from the University of North Carolina at Chapel Hill in a paper published in Science Translational Medicine found that the antiviral activity of NHC arises from increased mutation rate in viral

genomic RNA. In the case of MERS, treatment with 1 microMolar of NHC resulted in three-fold increase in error rate and 138-fold decrease in virus titer. When the amount of NHC used was increased to 10 microMolar, the error rate increased sixfold and virus titer reduction increased 26,000-fold. Explaining the process that leads to increased mutation rates, the authors say that NHC gets incorporated during RNA synthesis and then subsequently misread leading to enhanced mutation.

The authors have not been able to test the efficacy of the drug against novel coronavirus using animals' models. Also, it is known that disease severity increases with age, but the authors were not able to test the drug against coronavirus using aged mouse models.

Spotlight on Remdesivir

➔ The US Food and Drug Administration (FDA) gave emergency approval to use the drug remdesivir for critical COVID-19 patients. A study published in The Lancet put a question mark about the benefits of using the drug. What is it about remdesivir that holds promise, and why is it debated?

In all the debate over the efficacy of remdesivir in treating COVID-19 patients, what has been clear is the way the drug acts — or is meant to act — against the novel coronavirus SARS-CoV2. Remdesivir is designed to obstruct the stage of replication, when the virus creates copies of itself, followed endlessly by the copies creating copies of themselves. Research last month concluded that remdesivir indeed works this way, and a new paper last week described the exact mechanism of interaction between the virus and the drug.

How Does Replication Take Place?

Once the virus enters the human cell, it releases its genetic material, which is then copied using the body's existing mechanism. At every stage of infection, various human proteins, virus proteins, and their interactions come into play. At the replication stage, the key viral protein at play is an enzyme called *RdRp* (an enzyme is a kind of protein that speeds up chemical reactions within a cell). It is RdRp that makes the copies, by processing components of the RNA of the virus. University of Alberta researchers called it the "engine" of the virus in a paper last week, in which they described the action of remdesivir against this "engine". Again, researchers at the Max Planck Institute of Biophysical Chemistry in Germany described the same enzyme as the "copy machine" of the virus when they imaged the architecture of this "machine" in 3D. In scientific literature, such an enzyme is called a polymerase (the p is RdRp stands for polymerase) or a replicase. In any case, this is the enzyme that is targeted by remdesivir.

And How Exactly Does Remdesivir Target This Enzyme?

In order to replicate, the copy machine processes raw material from the virus RNA, broken down by another enzyme with that specific function. When a patient is given remdesivir — the inhibitor — it mimics some of this material, and gets incorporated in the replication site. With remdesivir replacing the material it needs, the virus fails to replicate further.

How Far Has This Action Been Established?

This is what the University of Alberta researchers reported in the Journal of Biological Chemistry. Using insect cells, they expressed RdRp complexes of SARS-CoV (the coronavirus responsible for SARS) and SARS-CoV2 (which causes COVID-19). They found that an active compound in remdesivir inhibits the copy machines of both viruses with the same potency and mechanism of action. Previously, the same team had found similar results for remdesivir

action against the coronavirus that causes MERS. The drug itself was designed to act against the Ebola virus, which is not a coronavirus.

Who All Are Studying It?

There are six major trials or studies under way for remdesivir. It is one of the lines of treatment being investigated under the Solidarity trials under the aegis of the World Health Organization (WHO). Other investigations include Gilead's own SIMPLE study, the US NIAID's trials, the French institute Inserm's DisCoVeRy study, and two clinical trials in China. The SIMPLE trial is looking at whether a five-day course of remdesivir works as effectively as a 10-day course. Phase-3 results showed that it is indeed so. The trial evaluated 397 patients hospitalised for severe COVID-19 infection.

What Benefits Have Been Found So Far?

Initial trial results made public by NIAID found that mortality rate was 8 per cent in COVID-19 patients administered remdesivir, as opposed to 11.6 per cent in another arm of patients not given this drug. Recovery time improved from 15 to 11 days. The full trial results are yet to be published. NIAID director Fauci, an immunologist and a member of the US task force against COVID-19, told the media in the White House: "The data shows that remdesivir has a clear cut, significant, positive effect in diminishing the time to recover. Although a 31 per cent improvement does not seem like a knockout 100 per cent, it is a very important proof of concept. What it is proving is that a drug can block this virus." Dr Jagmeet Singh, professor of cardiology in Harvard Medical School, suffered from COVID-19 and required ICU support for pneumonia. He is a participant in one of the US trials for remdesivir, although he does not know in which arm, he was placed and whether he received the drug. "My response to this drug is somewhat lukewarm. While the drug certainly reduces days of hospitalisation by over 30 per cent and there seems to be some directional evidence in reduction of mortality rate, there is still lack of statistical data to confidently draw conclusions. The Gilead study had no control arm; if it is directional it lacks scientific purity," he said.

Why Is Not Everyone Optimistic?

Some of the trials were limited in scope. Then there was the study in The Lancet on April 29, about a clinical trial of 237 COVID-19 patients in 10 hospitals in China. "In this study of adult patients admitted to hospital for severe COVID-19, remdesivir was not associated with statistically significant clinical benefits," it said. The study found adverse drug reaction in 18 people and stopped remdesivir treatment prematurely in them. It said that there were adverse events in 66% of the remdesivir-treated patients.

To What Extent Is Remdesivir Being Used in India?

Dr V Ravishankar, chief operating officer in Lilavati Hospital, Mumbai, who until last week had 25 COVID-19 patients, most of them on intensive care support, said doctors in his team are trying ritonavir, lopinavir, and even immunosuppressant tocilizumab, but not remdesivir. "We came across some global reports of adverse reaction of remdesivir in COVID-19 patients. If patients are already critical, we can't risk experimenting at this stage," he said.

Does Nicotine Help Fight COVID-19? The Science Behind A Novel Hypothesis

➔ Smoking kills. So does COVID-19, and if a smoker contracts the disease, conventional wisdom should suggest that he or she faces a higher risk of severe illness or death. Now, researchers in France have turned that conventional wisdom on its head. They have put forward a

hypothesis that the presence of nicotine actually equips the body to fight COVID-19. And they are conducting trials to test the hypothesis.

What Is the Basis of The Hypothesis?

"The researchers' hypothesis is based on the combination of two different but complementary scientific approaches," Institut Pasteur said in a statement. One of these two approaches is based on a statistical analysis of COVID-19 deaths in a French hospital, and the other on the biochemistry of the human body.

What Are the Statistics-Based Approach?

It draws from an observation of the proportion of smokers among patients who died of COVID-19. These were patients at Pitié Salpétrière University Hospital, Paris. "In the hospitalised in-patients vs less severe out-patients, a smoking rate of 4.4% vs 5.3% was found, both very low against 25.4% in the general population. This finding has been confirmed by an independent study," neuroscientist Jean-Pierre Changeux of Institut Pasteur said in an interview published by the European research initiative Human Brain Project.

What Is This Chemical Structure?

It is a kind of "receptor". In the conversation around COVID-19, we have been hearing a lot about receptors. These are structures composed of protein, and they receive signals that may be integrated into the body. These signals can come from various substances, such as a hormone, a drug, or an antigen. For example, the surface of the human cell has receptors called ACE2, which open the door for the novel coronavirus SARS-CoV2 to enter the body. At the centre of the nicotine hypothesis is a receptor that responds to nicotine as well as a chemical called acetylcholine. Hence its name: "nicotinic acetylcholine receptor", abbreviated as nAChR. It is found in parts of the nervous system, muscle and certain tissues of organisms including humans.

How Does This Receptor Fit into The Hypothesis About Nicotine?

Since nicotine is known to bind with the nAChR receptor, the second part of the hypothesis goes like this: If nicotine is present on the receptor, and the novel coronavirus arrives, then the nicotine would block the interaction. In existing scientific knowledge, there is a possible pointer. The rabies virus is known to bind with the same receptor, and this interaction is driven by a sequence of genetic material that exists in the envelope around the rabies virus. "Amazingly there is a rather similar sequence in the envelope of SARS-CoV2. Its role is presently under investigation," Changeux said in the interview.

And How Will the Researchers Test Their Hypothesis?

It will involve groups of healthcare workers and patients wearing nicotine patches, and other groups wearing placebo patches. There will be 1,500 healthcare professionals in the trial, which will seek to assess whether those wearing the nicotine patches are more resistant to COVID-19 than those wearing the placebo patches.

How Does This Hypothesis Sit Against Conventional Views About Smoking?

The widely accepted view is that the lungs of smokers are already compromised to various extents, hence they are likely to be more vulnerable to a disease that attacks the respiratory system. Some researchers have suggested, in fact, that the lower mortality rate among women patients of COVID-19 is a fallout of the fact that men tend to smoke more. Again, the nicotine hypothesis involves the nAChR receptor, when SARS-CoV2's main interactions are with a

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different receptor: ACE2. A study last month, in fact, looked at the expression of ACE2 among smokers and non-smokers. People who have smoked showed a 25% increase in ACE2 expression as compared to non-smokers, researchers reported in the American Journal of Respiratory and Critical Care Medicine. They suggested that smoking increases entry points for the novel coronavirus.

Can Novel Coronavirus Spread Through Wastewater?

➔ The response to the global pandemic has focused upon preventing person-to-person transmission. Now, experts have stressed that the virus could also be spread in wastewater. A new paper by Professor Richard Quilliam of the University of Stirling, UK, warns that the sewerage system could pose a transmission risk. Prof Quilliam said in a statement: "We know that Covid-19 is spread through droplets from coughs and sneezes, or via objects or materials that carry infection. However, it has recently been confirmed that the virus can also be found in human faeces — up to 33 days after the patient has tested negative for the respiratory symptoms of Covid-19. *It is not yet known whether the virus can be transmitted via the faecal-oral route, however, we know that viral shedding from the digestive system can last longer than shedding from the respiratory tract.* Therefore, this could be an important — but as yet unquantified — pathway for increased exposure." The paper presents the example of the SARS outbreak in 2002-03, when the SARS-CoV1 virus (closely linked to the SARS-CoV2 virus that causes Covid-19) was detected in sewage discharged by two hospitals in China. Professor Quilliam highlighted that, as most Covid-19 patients are asymptomatic or experience just mild symptoms and remain at home, and not in hospitals, there is significant risk of "widespread" distribution through sewers. The authors added that the structural makeup of the virus suggests that it will behave differently in aqueous environments. There is currently limited information on the environmental persistence of Covid-19, but other coronaviruses can remain viable in sewage for up to 14 days. On the risk of human exposure, the authors said: "The transport of coronaviruses in water could increase the potential for the virus to become aerosolised, particularly during the pumping of wastewater through sewerage systems, at the wastewater treatment works, and during its discharge and the subsequent transport through the catchment drainage network. Atmospheric loading of coronaviruses in water droplets from wastewater is poorly understood but could provide a more direct respiratory route for human exposure, particularly at sewage pumping stations, wastewater treatment works and near waterways that are receiving wastewater." Risk could be further increased in parts of the world with high levels of open defecation, or where safely managed sanitation systems are limited and waterways are used as both open sewers and sources of water for domestic purposes.

What Is 'Covid Toe' Condition That Has Left Researchers Puzzled?

➔ The most common symptoms of Covid-19 are well known by now, these include fever, dry cough, sore throat and muscle pain among others. But emerging research has pointed out some other symptoms as well, which include the loss of smell and taste, confusion, stroke and seizures reported in a small subset of patients infected with the virus. Now, a paper published in the British Journal of Dermatology talks about "unexplained" skin manifestations in Covid-19 patients. Researchers have described five clinical patterns, including the so-called 'Covid toe', that they observed in 19 per cent of the cases examined.

What is 'Covid toe'?

'Covid toe' is a kind of rash being reported as a manifestation in some Covid-19 patients' toes. In the aforementioned study, it was seen in 19 per cent of the cases and the researchers have likened it to pseudo-chilblain lesions. Of the 71 cases that had these pseudo-chilblains, 29 (41

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per cent) had confirmed SARS-CoV-2, the virus strain that causes Covid-19. Chilblains are small, itchy, red patches that appear on the toes and fingers after a person has been exposed to the cold. A person with chilblains may see their toes and fingers swell up and become red. The condition occurs due to inflammation in the small blood vessels in the skin, a response to repeated exposure to cold air. Chilblains usually clear up within one-three weeks on their own. In the study, pseudo-chilblain affected younger patients and lasted for 12.7 days on average and was associated with less severe disease in terms of hospital admission, ICU admission and pneumonia. The chilblain-like lesions caused pain in 30 per cent of the cases and itching in 32 per cent of them.

So Then, How Is 'Covid Toe' Linked to Coronavirus Infection?

Research is only still emerging and it cannot be said with certainty if these pseudo-chilblain lesions are associated with Covid-19. In the study, researchers have said that the lesions could be associated with the disease since they presented themselves in patients during warm weather, dermatologists perceived a greatly increased incidence and these patients frequently had Covid-19 contacts. Further, only one of the 71 patients with pseudo-chilblains had a previous history of the disease. However, researchers caution that since these lesions appear later in the evolution of the disease and are "less commonly associated with virologic confirmation", it is possible that the condition may not be related to Covid-19 at all. Therefore, for skin rashes such as "Covid toe" to be used for diagnosis, more such studies are required to establish a link between the two, if any.

Are Skin Conditions Common in Viral Diseases?

A 1966 paper published in Microbiology and Molecular Biology Reviews says that rashes accompanying infectious diseases date back to ancient times and are one of the most characteristic and "readily observed" signs of disease. For instance, chickenpox, which is a contagious viral disease causes itchy, fluid-filled blisters on the skin. Measles is another viral disease, which may lead to a breakout of skin rashes, which usually begin as flat red spots on the face and spread downward to the neck, trunk, arms, feet and legs. Rubella, another viral disease also leads to skin rashes, which are typically the first sign of infection among children.

Covid-19 Deaths in Cancer Patients

➔ A new study in the US has assessed the mortality rate among cancer patients infected with COVID-19. Described as the largest study that makes this kind of assessment so far, it found people with cancer are much more likely to die from COVID-19 than those without cancer. Conducted by physician-researchers at Montefiore Health System and Albert Einstein College of Medicine, the study was published in the online edition of Cancer Discovery. The study involved 218 cancer patients who tested positive for COVID-19 from March 18 to April 8 at Montefiore Medical Center, New York. Of them, 61 died from COVID-19, a fatality rate of 28%, as compared to the overall mortality rate of 5.8% for COVID-19 in the United States (as per the World Health Organization). These patients were treated at a time when testing was mostly done in symptomatic patients who required hospitalisation. This, the researchers said, may partially explain the high fatality rate within the study's cancer population. However, even when compared to mortality rates in non-cancer patients across New York City during the same time period, cancer patients demonstrated a significantly higher risk of dying from COVID-19. As a group, COVID-19 patients with blood cancers, such as leukaemia and lymphoma, had the highest mortality rate: 37% (20 of 54 patients). For patients with solid malignancies, the mortality rate was 25% (41 of 164). Striking differences were observed among specific solid cancers: the mortality rate for patients with lung cancer was 55% and colorectal cancer was 38%, compared with mortality rates of 14% for breast cancer and 20% for prostate cancer.

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AC in The Time of COVID: The Apprehensions, And What the Guidelines Say

➔ With summer having arrived during an outbreak, a question being asked is whether people should be careful about using air-conditioners. A number of researchers have predicted that the novel coronavirus is unlikely to survive high temperatures. Additionally, a study by Chinese researchers has concluded that droplet transmission was prompted by air-conditioned ventilation. Not many other studies, however, have associated AC use with coronavirus spread. The government has issued general guidelines on the use of air-conditioners. These are limited to temperature and relative humidity in the context of the virus.

What Are the Guidelines?

The guidelines compiled by the Indian Society of Heating Refrigeration and Air Conditioner Engineers (ISHRAE) say a temperature between 24-30°C should be maintained while operating ACs at home, and that relative humidity levels in the range of 40%-70% is considered most suitable. ISHRAE cites data from a study which examined the transmission of the coronavirus in 100 cities of China. The study had indicated that high temperature and high humidity "significantly reduce the transmission of influenza". "Studies conducted at various RH levels have shown that using viral culture methods low temperatures (7–8°C) were optimal for airborne influenza survival, with virus survival decreasing progressively at moderate Temperatures (20.5–24 °C) and further decreases at higher (greater than 30 °C) temperatures. As per some recent studies, SARS-CoV-2 has been found highly stable on surfaces for 14 days at 4°C; one day at 37°C and 30 minutes at 56°C was needed to inactivate the virus," ISHRAE states.

What Is the Significance of The Humidity Range Stipulated?

Relative humidity is believed to affect infectivity of the coronavirus. Moisture in the air plays a primary role in proving protection against respiratory infection. In the upper respiratory tract, moist surfaces with mucous layers collect larger particles before they enter the trachea and pharynx; in the lower respiratory tract, the bronchi and alveoli trap small particles. When we breathe dry air, the mucous membrane in the lungs also become dry; the fluid over the lining of the cells becomes more viscous, and cilia, the little hair that protects our lungs from deep settling of particles, are rendered dysfunctional so that particles settle more deeply in the lungs. Humidity levels of 40-70% are considered the most ideal range for humans to fight pathogens. ISHRAE also notes that studies indicate that 80% relative humidity tend to neutralise the COVID-19 virus. The guidelines state that in dry climate, relative humidity should not be allowed to fall below 40%. Water evaporating from a pan kept should be kept in the room; this will increase humidity if it falls below 40%. Among other guidelines, recirculation of cool air by room air-conditioners must be accompanied by outdoor air intake through slightly open windows and exhaust by natural exfiltration.

DRDO Develops A Disinfection Tower

➔ The Defence Research and Development Organisation (DRDO) has developed an ultraviolet (UV) disinfection tower for rapid and chemical-free disinfection of high infection-prone areas. The equipment named UV Blaster is "useful for high-tech surfaces like electronic equipment, computers and other gadgets in laboratories and offices that are not suitable for disinfection with chemical methods. The product is also effective for areas with a large flow of people such as airports, shopping malls, metros, hotels, factories and offices," a DRDO statement said. It was designed and developed by Laser Science & Technology Centre (LASTEC) based in Delhi

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with the help of New Age Instruments and Materials Private Limited, Gurugram. For a room of about 12 ft x12 ft dimension, the disinfection time is about 10 minutes.

What Is A Pulse Oximeter, And Why Is It Now Sought After?

➔ As healthcare systems around the world struggle to test as well as treat people for Covid-19, some experts have advocated the use of a medical device called the 'pulse oximeter' for testing those who have the disease, or those suspected of having it. The device, used to measure oxygen levels in the blood, is being recommended for the early detection of 'Covid pneumonia', a potentially deadly condition seen among the most severe coronavirus cases.

What Is A Pulse Oximeter?

According to John Hopkins Medicine, "Pulse oximetry is a test used to measure the oxygen level (oxygen saturation) of the blood. It is an easy, painless measure of how well oxygen is being sent to parts of your body furthest from your heart, such as the arms and legs." The device is generally used to check the health of patients who have known conditions that affect blood oxygen levels, such as heart and lung conditions, and for those who show symptoms such as shortness of breath. The device measures the saturation of oxygen in red blood cells, and can be attached to a person's fingers, toes, nose, feet, ears, or forehead. It can be reused or disposed of after use. Based on the information from the blood oximeter, a healthcare provider can take a decision about whether a person needs extra oxygen.

Why Is the Device Sought After During Covid-19?

According to an opinion piece in The New York Times by physician and inventor Richard Levitan, a pulse oximeter can help identify a potentially deadly condition in Covid-19 patients called 'Covid pneumonia' sooner and more effectively, and thus help save more lives. Among those who contract the novel coronavirus, the most severe cases are those who develop Covid pneumonia. This disease affects the lungs' ability to transfer oxygen. It also causes difficulty in breathing. When a person cannot inhale enough oxygen and exhale enough carbon dioxide, the pneumonia can lead to death. Compared to other kinds of pneumonia, Covid pneumonia is especially severe as it completely affects the lungs instead of small parts. Also, most other types of pneumonia that are known are bacterial, and treated using antibiotics. This is not the case with Covid pneumonia, as it is viral. Patients are required to be put on ventilator support in such severe cases to ensure adequate circulation of oxygen in the body. In the NYT piece, Levitan has said that a pulse oximeter could help in the early detection of 'silent hypoxia', a form of oxygen deprivation that is known to precede Covid pneumonia. Using the device, those who have Covid-19 or those suspected of having it, can check their oxygen levels early on. A fall in oxygen levels, caused by the silent hypoxia, can serve as a signal for seeking additional treatment immediately, and not wait for a coronavirus test. The same method of early detection of hypoxia worked in the case of the British Prime Minister Boris Johnson, the article said.