

My Notes....

NATIONAL

NEW DRAFT OF ELECTRICITY AMENDMENT BILL

The Union power ministry has come out with fourth draft of the Electricity (Amendment) Bill since 2014, which seeks to set up an Electricity Contract Enforcement Authority (ECEA) having power of a civil court to settle disputes related to power purchase agreement between discoms and gencos. The draft provides that the ECEA will have sole authority to adjudicate matters related to specific performance of contracts related to purchase or sale of power, between power generation companies (gencos) and distribution companies (discoms).

What

1. The decision of the ECEA can be challenged at the Appellate Tribunal For Electricity (APTEL) and, subsequently, at the Supreme Court.
2. The ministry has sought the comments of the stakeholders on the Bill within three weeks from April 17.
3. The ministry had brought the first draft in 2014 that was introduced in the Lok Sabha seeking separate carriage and contend electricity distribution business.
4. The Bill could have given options to consumers to change their service providers like they do for their mobile phone service. But, unfortunately, that Bill lapsed after dissolution of the Lok Sabha.
5. The second and third drafts were circulated in 2018 and 2019.
6. The APEF has demanded to put the bill on hold saying, "While the economy of the whole nation is paralysed and administration is in doldrums, the timing is not suitable for introducing the enactment of amendments to any law under such conditions and thus Electricity Amendment Bill 2020 be put on hold."
7. The body has also shot off a letter to Power Minister R K Singh demanding that the proposed date of receipt of comments should be extended to September 30 as no discussion can take place due to the lockdown.
8. It also urged all state governments to seek extension in time for giving their proper reply.
9. The body is of the view that the central government is out to destroy the state sector despite the fact that during the COVID-19 crisis, only the state sector companies stood by the government, while private entities were nowhere visible in this bad time in the country.
10. The proposed amendments in the Electricity Act will increase the electricity tariff exponentially. Already due to private generators, average tariff across India is Rs 8 and with these proposals, it will rise to Rs 10, said Padamjit Singh, chief patron, APEF.

Flashpoint

1. The bill also proposes to restrict deferment of revenue recovery and reduction in cross-subsidy to bring in a cost-reflective tariff, simplified tariff.
2. It also proposes to bring in an Electricity Contract Enforcement Authority (ECEA) to deal with the issues of non-performance of contracts leading to uncertainty.
3. For the renewable sector, the draft bill proposes to bring National Renewable Energy Policy and may bring in a minimum percentage of the purchase for the states from renewable sources.

11. The Bill also provides that the Electricity Act would be applicable to the entire country, including the Union Territories of Jammu and Kashmir and Ladakh.
12. It also provides that the cross (power) border trade shall cover import or export of electricity from India and any other country. The transaction related to passage of electricity through India would be treated as transit between two other countries.
13. The draft law provides for introduction of power distribution sub-licensee or franchisee, which would not require a separate licence from state commission and providing information about them would be sufficient.
14. It also calls for creating a National Renewable Energy Policy by the central government in consultation with state governments.
15. It also provides additional roles to the National Load Despatch Centre that include scheduling and dispatch of power across the country in accordance with contracts.
16. The bill says that there would be no schedule or dispatch of electricity unless there is adequate security of payment as per the contract.
17. The bill enables state as well as central power regulators to specify transmission charges under open access. Earlier, both functions were with the central commission.

E-GRAM SWARAJ PORTAL AND SWAMITVA SCHEME

Prime Minister Narendra Modi on 24 April 2020 interacted with Sarpanchs from across the nation on the occasion of Panchayati Raj Day. Prime Minister also inaugurated e-Gram Swaraj portal and launched the Swamitva Scheme on the occasion. Addressing Sarpanchs via video conference, Prime Minister Modi said, Now, broadband has reached more than 1.25 lakh panchayats. Not only that, the number of common service centres in villages is also crossing three lakh.

e-GramSwaraj Portal

1. PM Narendra Modi inaugurated a unified e-GramSwaraj Portal and mobile application on the occasion.
2. The portal is a new initiative of the Panchayati Raj Ministry to provide all the gram panchayats with one single interface to prepare and implement their gram panchayat development plan (GPDP).

Swamitva Scheme

1. Swamitva Scheme will provide an integrated property validation solution for rural India.
2. The scheme is expected to boost the government's efforts to alleviate poverty in rural areas.
3. Under the scheme, the inhabited land will be demarcated in rural areas by using the latest surveying methods such as drone technology with collaborated efforts of the Survey of India, State Panchayati Raj Department, Ministry of Panchayati Raj and State Revenue Department.



About Panchayati Raj Day

1. The National Panchayati Raj Day is observed annually on April 24.
2. The Government in consultation with the states had decided to celebrate the day as National Panchayati Raj Day.
3. The observance marks the day the 73rd Amendment of the Indian Constitution came into effect.
4. The Constitution (73rd Amendment) Act, 1992, which gave constitutional status to Panchayati Raj institutions, came into effect from April 24, 1993.
5. The day marks a defining moment as it decentralised political power to the grassroots level.

INDIA IN GLOBAL PRESS FREEDOM INDEX

India has dropped two places on a global press freedom index to be ranked 142nd out of 180 countries in the annual Reporters Without Borders analysis released on 21 April 2020. 'The World Press Freedom Index 2020' said that with no murders of journalists in India in 2019, as against six in 2018, the security situation for the country's media might seem, on the face of it, to have improved. However, there have been constant press freedom violations, including police violence against journalists, ambushes by political activists, and reprisals instigated by criminal groups or corrupt local officials.

What

1. It attributed the decline in index to "pressure on the media to toe the Hindu nationalist government's line."
2. The "coordinated hate campaigns" waged on social networks against journalists who dare to speak or write about subjects that annoy Hindutva followers are "alarming".
3. The campaigns are particularly virulent when the targets are women," it said.
4. Paris-based Reporters Sans Frontieres (RSF), or Reporters Without Borders, is a non-profit organisation that works to document and combat attacks on journalists around the world.
5. South Asia in general features poorly on the index, with Pakistan dropping three places to 145, and Bangladesh dropping one place to 151.
6. Norway is ranked first in the Index for the fourth year running. China at 177th position is just three places above North Korea, which is at 180th.

About Reporters Without Borders

1. A reporter without borders is a non-profit organisation founded in 1985.
2. It works on safeguarding the right to freedom of information. The aim of the organisation is to promote independent, free, and pluralistic journalism as well as to defend media workers.
3. RSF has obtained a consultative status at UNESCO, United Nations, the Council of Europe, and the International Organisation of the Francophonie

IMD ISSUED NAMES FOR UPCOMING CYCLONES

The India Meteorological Department (IMD) on 28 April 2020 released a detailed list of names of tropical cyclones over north Indian Ocean, including the Bay of Bengal and the Indian Ocean. Worldwide, there are six Regional Specialised Meteorological Centres (RSMCs) and five regional Tropical Cyclone Warning Centres (TCWCs) which issue advisories and names of tropical cyclones.

What

1. The IMD is one of the six RSMCs to provide tropical cyclone and storm surge advisories to 13 member nations, which include Bangladesh, India, Iran, Maldives, Myanmar, Oman, Pakistan, Qatar, Saudi Arabia, Sri Lanka, Thailand, the UAE and Yemen.
2. The list comprises names of 13 cyclones each for the 13 member countries, totaling to 169. The names for India include Gati, Tej, Murasu, Aag, Vyom, Jhar, Probaho, Neer, Prabhanjan, Ghurni, Ambud, Jaladhi and Vega.
3. Some of the names for Bangladesh are Nisarga, Biparjoy, Arnab and Upakul.
4. The tropical cyclones forming over different Ocean basins are named by the concerned RSMCs & TCWCs.
5. For the North Indian Ocean including Bay of Bengal and Arabian Sea, the RSMC, New Delhi assigns the name to tropical cyclones following a standard procedure.
6. The WMO/ESCAP Panel on Tropical Cyclones (PTC) at its twenty-seventh Session held in 2000 in Muscat, Sultanate of Oman agreed in principle to assign names to the tropical cyclones in the Bay of Bengal and Arabian Sea.
7. After long deliberations among the member countries, the naming of the tropical cyclones over the north Indian Ocean commenced from September 2004.
8. This list contained names proposed by then eight member countries of WMO/ESCAP PTC, viz., Bangladesh, India, Maldives, Myanmar, Oman, Pakistan, Sri Lanka and Thailand. Almost all names except the last name (Amphan) from this list have been utilised till date.
9. During WMO/ESCAP PTC 45th Session held at Muscat, Oman in September, 2018 it was decided to prepare a fresh list of names of tropical cyclones including representation from five new member countries, viz., Iran, Qatar, Saudi Arabia, United Arab Emirates and Yemen (Total 13 member countries).
10. The WMO/ESCAP PTC in this session nominated Dr.Mrutyunjay Mohapatra, India Meteorological Department to act as Rapporteur to coordinate among the Panel member countries and to finalise the list of names following the standard procedure and suggest the implementation plan.
11. The report of the rapporteur was initially presented by India during the 46th Session of WMO/ESCAP PTC held in Nay Pyi Taw, Myanmar during 09-13, Sept., 2019.
12. After deliberations, the report was finally adopted by WMO/ESCAP PTC with consensus in April, 2020.

INDIA'S POSITION IN BUDGET TRANSPARENCY

India has been placed at 53rd position among 117 nations in terms of budget transparency and accountability, according to the Open Budget Survey released on 29 April 2020. The survey, which was conducted by International Budget Partnership (IBP), has provided India's Union Budget process a transparency score of 49 out of 100, which is higher than the global average of 45. New Zealand tops the chart with a score of 87.

What

1. Some of the other large developing countries, with the exception of China, have got much higher transparency scores compared to India, news agency PTI reported.
2. South Africa (87), Mexico (82) and Brazil (81) are among the top six countries providing extensive information to the public for scrutiny.
3. If one compares India's performance in this global biennial survey, there is stagnation over the last few years. In the survey for 2019, India ranks 53rd among the 117 countries covered, said a press release on the survey.

4. India performs well in publishing timely and relevant information in the audit reports and in-year reports and has scored well and above many other countries.
5. However, the survey observed that absence of a published Pre-Budget Statement and not bringing out a Mid-Year Review in 2018-19 pulled down the transparency score for the Union Budget of India.
6. Centre for Budget and Governance Accountability (CBGA), which contributed research inputs towards developing an assessment of budget transparency for the efforts by the Union Government, noted that IBP draws attention to the importance of enhancing budget transparency and strengthening accountability for government budgets.
7. The survey, covering 117 countries, rates the level of budget transparency across countries on a scale of 0-100, based on several normative, internationally comparable indicators.
8. It evaluates for each country the availability of eight key budget documents of the Central or Federal Government, and assesses whether these are made public, in a timely manner, and provide comprehensive information.
9. Providing adequate space for public participation for priority setting in its budgets is also flagged by the OBS (Open Budget Survey) as an area of improvement required for India.
10. The survey report argues that the Union Government should also publish a Pre-Budget Statement, which can be scrutinised by the legislators and the public at large before the annual budget is presented. The CBGA said budget transparency is always an important parameter of fiscal governance.
11. The Open Budget Survey is part of the International Budget Partnership's Open Budget Initiative, a global research and advocacy program to promote public access to budget information and the adoption of accountable budget systems.

Flashback

1. The International Budget Partnership (IBP) was formed in 1997 to advocate for transparent, inclusive, and accountable government budget processes as a means to improve governance and reduce global poverty.
2. **IBP's work is focused on citizens and civil society**, and includes: strengthening the skills and knowledge of country-based civil society organisations; researching and monitoring the status of budget transparency, participation, and accountability around the world; engaging with international stakeholders to encourage them to play a greater role in budget issues; and building rigorous evidence to measure governments progress in becoming more open as well as the impact of IBP and its partners to inform more strategic and effective practices.
3. Since 2006 IBP has conducted the biannual Open Budget Survey (OBS), a unique, global, independent, and comparable measure of government practices in budget transparency, participation, and oversight. It's headquartered in Washington DC USA.

HIGH-LEVEL TASK FORCE ON CORONAVIRUS VACCINE

The government has formed a high-level task force for vaccine and drug testing for coronavirus disease (Covid-19) on 19 April 2020, as the death toll from the pandemic increased to 519 and the cases reached 16,116. The objective of the task force is to speed up national and international efforts towards vaccine development to treat Covid, Lav Agarwal, joint secretary, health ministry, said. The task force — co-chaired by Vinod Paul, member NITI Aayog, and Professor K Vijay Raghavan, principal scientific advisor to the government — will also include representatives of Ayush ministry, Indian Council of Medical Research (ICMR), department of biotechnology and drug controller

general of India, among others.

What

1. The department of biotechnology would act as a nodal agency “to identify the pathway for vaccine development, monitor progress of efforts at both national and international level in this area, and provide government facilitation, where needed”.
2. The task force would also form clinical cohorts, which would focus on long-term follow up of the disease and its management.
3. The government will collect bio-specimen that will form the basis for further drug and vaccine trials. This is different from sample testing protocol.
4. The government will take a decision on the relaxations that would be allowed in lockdown curbs in non-containment areas on April 20.
5. As on 19 April 2020, there were 54 districts where no new case had been reported in the past 14 days.

STRINGENT LAW FOR HEALTHCARE WORKERS

The Union Cabinet on 22 April 2020 promulgated an ordinance to protect healthcare workers who have been facing violent attacks in the line of duty during the coronavirus pandemic. Union minister Prakash Javadekar told reporters that the decision was taken during the Union Cabinet meeting today, saying that attacks against doctors and medical staff will not be tolerated.

Key points of the Union minister's address:

1. Health workers who are trying to save the country from this epidemic are unfortunately facing attacks. No incident of violence or harassment, against them will be tolerated, said the Union minister.
2. The proposed ordinance will amend the Epidemic Diseases Act, 1897.
3. Such crime will now be cognizable and non-bailable.
4. Investigation will be done within 30 days.
5. In case of grievous injuries to health workers, the accused can be sentenced from anywhere between 6 months to 7 years and can be fined Rs 1 lakh to Rs 5 lakh.
6. If damage is done to the vehicles or clinics of healthcare workers, then a compensation amounting to twice the market value of the damaged property will be taken from the accused.
7. Talking about whether the new changes in the law will be applicable even after the threat of COVID-19 is over, Javadekar said that the ordinance has been approved to amend the Epidemic Act.
8. The Ordinance will be implemented after the President's sanction.

NATIONAL SHIPPING BOARD RECONSTITUTED

The government has approved reconstitution of the National Shipping Board to be headed by former Director General of Shipping Malini Shankar. The National Shipping Board (NSB) is the highest advisory body on matters related to Indian shipping including the development there of and on such other matters arising out of the Merchant Shipping Act.

What

1. The shipping ministry has approved reconstitution of the 16-member NSB, which will be headed by former Director General of Shipping Malini Shankar, as per a communication from the ministry to the DG Shipping.
2. The members of the Board include DG Shipping Amitabh Kumar, Joint Secretary Shipping Satinder Pal Singh, one representative each of the Indian

- Navy and Indian Coast Guard, not below the rank of Directors, National Union of Seafarers of India representative Abdulgani Serang, Maritime Union of India representative Amar Singh Thakur and National ShipOwners' Association representative Anil Devli.
3. Indian Coastal Conference Shipping Association member Aditya Suklikar, International Maritime Federation representative Capt Sanjya Prashar, Coastal Container Transporters Association representative Rahul Modi, Federation of Indian Exporters' Organisation representative Ajay Shah and Association of Multimodal Transporters of India representative Shantanu Bhadkamkar are also the members of the Board.
 4. Besides, Capt Piyush Sinha, Balasubramaniam and Ishwar Achanta have been inducted as members of NSB.

SC DISMISSES PLEA SEEKING FREE TEST

The Supreme Court 21 April 2020 dismissed a plea seeking direction to the Centre, all states and Union territories to provide free of cost treatment for coronavirus infection till COVID-19 pandemic is contained, saying it is for the government to take a call on it. Government has to decide on who to give free treatment to. We do not have any funds with us, a bench headed by Justice N V Ramana said. "Do not create publicity interest litigation," the bench, also comprising Justices S K Kaul and B R Gavai, said.

What

1. The bench, which heard the matter through video-conferencing, observed that government hospitals across the country are giving free treatment to coronavirus infected patients.
2. The top court was hearing a plea filed by Delhi-based advocate Amit Dwivedi who had sought a direction to the authorities and others, including health care facilities, to "conduct tests, all subsequent tests, procedures and treatments in relation to COVID-19 disease free of cost for all citizens of India" till the pandemic is contained.
3. The apex court had earlier refused to entertain another prayer made in Dwivedi's plea seeking direction to the Centre, all the states and union territories to nationalise all healthcare facilities and related entities till the pandemic is contained in India.
4. The Centre had earlier told the apex court that government has taken appropriate steps to provide adequate health facilities to all the citizens.
5. The plea had claimed that the public health sector in India has remained in "shambles due to low budgetary allowances" but at the same time, the private health care sector has seen "tremendous growth".
6. India does not have sufficient public health care infrastructure to combat a pandemic like COVID-19 and as a last resort India needs to take help of the private health care sector, the plea had said.

INTERNATIONAL

ISS CREW LANDS IN KAZAKHSTAN

A US-Russian space crew landed safely on 17 April 2020 in the steppes of Kazakhstan, greeted with extra precautions amid the coronavirus pandemic. Following a stint on the International Space Station (ISS), NASA astronauts Jessica Meir and Andrew Morgan and Russian Oleg Skripochka touched down as scheduled at 11:16 am on 17 April 2020. Their Soyuz landing capsule landed under a striped orange-and-white parachute about 150 kilometers (93 miles) southeast of Dzhezkazgan in central Kazakhstan.

What

1. They took stringent measures to protect the crew amid the pandemic. The recovery team and medical personnel assigned to help the crew out of the capsule and for post-flight checks had been under close medical observation for nearly a month, including tests for the coronavirus.
2. The space crew smiled as they talked to medical experts wearing masks. Following a quick checkup, the crew will be flown by helicopters to Baikonur, from where Skripochka will be taken to Moscow.
3. Morgan and Meir will have to be driven from Baikonur to Kyzyl-Orda, 300 kilometers (190 miles) away, to board a flight to the U.S. — a strenuous journey made necessary by **Kazakhstan's quarantine measures.**
4. On 16 April 2020, the Russian government coronavirus headquarters reported the first contagion at the Star City, which serves as the main hub for pre-flight training of U.S., Russian and other international crew members of the International Space Station. The Star City also has residential quarters for cosmonauts and support staff.
5. The crew returned to Earth exactly 50 years after the Apollo 13 astronauts splashed down in the Pacific after an oxygen tank explosion aborted the moon-landing mission.

Flashback

1. The International Space Station (ISS) is a multi-nation construction project that is the largest single structure humans ever put into space.
2. Its main construction was completed between 1998 and 2011, although the station continually evolves to include new missions and experiments. It has been continuously occupied since Nov. 2, 2000.
3. The ISS includes contributions from 15 nations. NASA (United States), Roscosmos (Russia) and the European Space Agency are the major partners of the space station who contribute most of the funding; the other partners are the Japanese Aerospace Exploration Agency and the Canadian Space Agency.

CHINA ANNOUNCED AN ADDITIONAL GRANT FOR WHO

China on 23 April 2020 announced an additional \$30 million grant to the World Health Organisation, days after Beijing expressed "serious concern" over US President Donald Trump's decision to freeze the funding for the global health agency over its handling of the COVID-19 crisis. The grant will be in addition to the \$20 million provided by China earlier to the WHO.

What

1. China hinted at stepping up its monetary contribution to the UN health agency on April 15. Beijing's response came a day after Trump announced to put a "very powerful" hold on US' funding to the WHO, accusing the UN agency of being "very China-centric" and criticising it for having "missed the call" in its response to the coronavirus pandemic.
2. China expresses serious concern over the US announcement to halt its funding to WHO, Chinese Foreign Ministry spokesman Zhao Lijian had said in response to Trump's announcement.
3. He said China will always support the Geneva-based WHO in playing an important role in international public health and global anti-epidemic response.
4. China has provided \$20 million to the WHO (to fight COVID-19) and we will study the

relevant matter", indicating that Beijing was considering increasing its contribution to the global health body.

5. Both China and the WHO faced serious criticism over lack of transparency especially about the discovery of the coronavirus in December last year and its silent spread in Wuhan until Beijing imposed lockdown in the city on January 23.
6. By that time, over five million people from Wuhan were reported to have left for holiday destinations at home and abroad to celebrate the Chinese new year, which many allege resulted in the spreading of the deadly virus worldwide.
7. China has denied the allegations of any cover-up, saying it was the first country to report the COVID-19 to the WHO.

How much does the U.S. give WHO?

1. The **U.S. is the WHO's largest contributor.**
2. The **organisation's funding is of two types** — assessments or member dues and voluntary contributions.
3. The total funds for the 2020-2021 biennium included \$957 million in assessments and \$4.9 billion in voluntary contributions.
4. Over the last decade, the **U.S.'s assessed contributions** have been in the \$107-\$119 million range while voluntary contributions have been in the \$102-\$402 million range, according to the Kaiser Family Foundation, a health-focused non-profit.
5. For the 2018 and 2019 biennium, the U.S. contributed **about 20% of WHO's budget**, according to a National Public Radio (NPR) report.
6. This money went as assessment fees (\$237 million) or pledges towards programmes (over \$656 million) from voluntary contributions.
7. The major share of the U.S. programmatic funding went towards polio eradication (\$158 million), increasing access to essential health and human services (\$100 million) and vaccine-preventable disease (\$44 million), according to the NPR.

JOINT ROADMAP FOR ECONOMIC RECOVERY

The Development Banks from Shanghai Cooperation Organisation (SCO) which includes Russia, India, China and most Central Asian states have decided to develop a joint road map including investment and infrastructure projects to overcome the economic crisis caused by coronavirus pandemic. This was decided at a video-meet of senior officials of SCO. The members of the SCO Interbank Consortium are taking every opportunity to reverse the economic downturn caused by the pandemic.

What

1. Development banks in all SCO countries are pillars of the governments' anti-crisis programs, and during a seminar held in Moscow on April 23-24 they exchanged in detail their experience and best practices in overcoming the crisis. Russia holds current SCO Presidency.
2. The parties agreed to start the development of a joint road map for overcoming the consequences of economies crises in the SCO countries.
3. It will include joint measures to strengthen epidemiological security, develop investment, trade and economic cooperation, and launch infrastructure projects designed to generate long-term economic growth and employment.
4. Indian Representative at the meet from Indian Infrastructure Finance Company Limited MD Pankaj Jain noted that in recent years, India's economy has

been one of the fastest growing in the world, but the current pandemic hit it hard.

5. The government has allocated \$22.5 billion to support the economy and the most vulnerable segments of the population, Jain said in his remarks at the meet.
6. India is actively developing infrastructure construction. \$1.7 trillion has been invested in this area since 2017.
7. In the next five years, we intend to increase this figure to \$4 trillion. The government is also preparing the implementation of CAPEX infrastructure projects worth \$1.45 trillion.

Flashback

1. The Shanghai Cooperation Organisation (SCO) is a permanent intergovernmental international organisation, the creation of which was announced on 15 June 2001 in Shanghai (China) by the Republic of Kazakhstan, the People's Republic of China, the Kyrgyz Republic, the Russian Federation, the Republic of Tajikistan, and the Republic of Uzbekistan. It was preceded by the Shanghai Five mechanism.
2. The Shanghai Cooperation Organisation Charter was signed during the St.Petersburg SCO Heads of State meeting in June 2002, and entered into force on 19 September 2003.
3. This is the fundamental statutory document which outlines the organisation's goals and principles, as well as its structure and core activities.
4. The SCO comprises eight member states, namely the Republic of India, the Republic of Kazakhstan, the People's Republic of China, the Kyrgyz Republic, the Islamic Republic of Pakistan, the Russian Federation, the Republic of Tajikistan, and the Republic of Uzbekistan;

CHINA NAMES ITS MARS MISSION

China on 24 April 2020 named its first Mars exploration mission to be launched later this year as Tianwen-1 as it celebrated 'Space Day' to mark the 50th anniversary of the launch of the country's first satellite Dong Fang Hong-1 in 1970. Aiming to catch up with India, US, Russia and the European Union to reach the red planet, China's Mars mission plans to complete orbiting, landing and roving in one mission.

What

1. China National Space Administration (CNSA) named the Mars mission as "Tianwen," which means Heavenly Questions or Questions to Heaven, a poem written by China's well known poet Qu Yuan (340-278 BC).
2. In "Tianwen," Qu Yuan raised a series of questions in verse involving the sky, stars, natural phenomena, myths and the real world, showing his doubts about some traditional concepts and the spirit of seeking the truth.
3. The CNSA said all of China's planetary exploration missions in the future will be named the Tianwen series, signifying the Chinese nation's perseverance in pursuing truth and science and exploring nature and the universe.
4. China in recent years has emerged as a major space power with manned space missions and landing a rover in the dark side of the moon.
5. It is currently building a space station of its own. However, China's attempts to send an exploratory probe to Mars called Yinghuo-1, in a Russian spacecraft in 2011 failed as shortly after the launch and it was declared lost and later burnt during re-entry.
6. The US, Russia, the EU besides India so far succeeded in sending missions to Mars regarded as the most complex space mission.
7. India became the first Asian country to have successfully launched its Mars orbiter mission, Mangalyaan which has entered the orbit of the red planet in 2014.

- India also became the first country to have entered the Martian orbit in its first attempt.

VITAL DEVELOPED

NASA engineers have developed a new, easy-to-build high-pressure ventilator tailored specifically to treat COVID-19 patients. The device, called VITAL (Ventilator Intervention Technology Accessible Locally), passed a critical test this week at the Icahn School of Medicine in New York, an epicentre of COVID-19 in the US, NASA said. VITAL is designed to treat patients with milder symptoms, thereby keeping the country's limited supply of traditional ventilators available for patients with more severe COVID-19 symptoms.

What

- NASA is now seeking FDA approval for the device via an emergency use authorization, a fast-track approval process developed for crisis situations that takes just days rather than years.
- The NASA prototype performed as expected under a wide variety of simulated patient conditions.
- The team feels confident that the VITAL ventilator will be able to safely ventilate patients suffering from COVID-19 both here in the US and throughout the world.
- VITAL can be built faster and maintained more easily than a traditional ventilator, and is composed of far fewer parts, many of which are currently available to potential manufacturers through existing supply chains.
- Its flexible design means it also can be modified for use in field hospitals being set up in convention centres, hotels, and other high-capacity facilities across the country and around the globe.
- Like all ventilators, VITAL requires patients to be sedated and an oxygen tube inserted into their airway to breathe.
- The new device wouldn't replace current hospital ventilators, which can last years and are built to address a broader range of medical issues.
- Instead, VITAL is intended to last three to four months and is specifically tailored for COVID-19 patients, according to NASA.

SAUDI ARABIA ABOLISHES DEATH SENTENCE FOR MINORS

Saudi Arabia has banned the death sentence for minors, its state-backed Human Rights Commission said in a statement. It is the latest in a series of reforms pushed forward by the Saudi royal family. It comes a day after the kingdom abolished flogging as a punishment. The commission said that the latest reform would ensure that no-one who committed crimes as minors could receive the death sentence for those crimes. Instead, the individual will receive a prison sentence of no longer than 10 years in a juvenile **detention facility, the commission's chairman, Awwad Alawwad said.**

What

- Human rights organization Amnesty International lists Saudi Arabia as one of **the world's most prolific executioners**, after Iran and China.
- In its latest report, it said the kingdom had executed 184 people in 2019, including at least one person charged with a crime committed as a minor.
- Capital punishment for crimes committed by people under the age of 18 runs contrary to the U.N. Convention on the Rights of the Child – which Saudi Arabia has ratified.
- This is an important day for Saudi Arabia, Awwad Alawwad said. The decree helps us in establishing a more modern penal code **and demonstrates the kingdom's**

commitment to following through on key reforms across all sectors of our country.

5. Under the new rules, the lives of six men from the **country's minority** Shiite community could be spared. There is a possible exception for people who carried out terrorism-related crimes as minors.

6. The conservative Islamic kingdom has no codified system of law to go with the texts making up sharia, or Islamic law, allowing individual judges to

interpret religious texts and come up with their own sentences.

A program of reforms

1. Crown Prince Mohammed bin Salman has overseen a series of social and economic reforms aimed at modernising the country.
2. **The country's Human Rights Commission** announced no more convicts were sentenced to flogging. Criminals are set to now receive fines or prison terms instead.
3. Despite the reforms, Saudi Arabia still practices public executions and other forms of corporal punishment such as amputation for theft.
4. **The kingdom's rights record has also been widely** criticized for the continued repression of dissidents and activists, and the brutal murder of journalist Jamal Khashoggi inside the Saudi consulate in Istanbul in October 2018.

ECONOMY

NEW FDI GUIDELINES COME INTO EFFECT

The Latest changes to the Foreign Direct Investment (FDI) came into effect from 23 April 2020 midnight with all direct investment from China now requiring mandatory government approval. The Department of Economic Affairs on 22 April 2020 issued the updated the Foreign Exchange Management (Non-debt Instruments) (FEMA) Rules, 2019 which includes the latest FDI norms.

What

1. The routine update to the FEMA rules mean that from now on, all incoming funds from China, as well as all nations with which India shares a land border - including Pakistan, Bangladesh, Bhutan, Nepal and Myanmar, will now face close inspection. Earlier, this was true for only Pakistan and Bangladesh.
2. The sudden move by the government has been attributed to the rising possibility of “opportunistic takeovers” **of Indian firms** by cash rich Chinese corporates, as the ongoing Covid-19 pandemic wreaks havoc on the domestic economy.
3. The pitch for curbing Chinese investments in India picked up pace recently after the **People's Bank of China (PBoC)** increased its shareholding in Housing Development Finance Corporation (HDFC) amid a sharp correction in the stock of **India's largest mortgage lender**.
4. While existing investments shall remain unaffected, any fresh infusion by Chinese firms in existing investments or any transfer of investments by existing investors to Chinese firms will be hit.
5. Further, any transfer of investments, future FDI resulting in beneficial ownership falling with Chinese firms will also require prior approval, however, the mode of **determination of 'beneficial ownership' is still uncertain**.
6. This will have repercussions for FDI by PE firms, banks and other sovereign funds based out of China or having Chinese partners and the sectors where Chinese players have a substantial presence or are looking to expand (eg- personal electronics,

automobile, manufacturing etc) may also see some impact.

7. The latest notification now makes it clear that the FEMA notification does not cover Foreign portfolio investment or Foreign Venture Capital Investment.

Flashback

1. The government on 22 April 2020 notified changes to the foreign direct investment (FDI) policy and put into effect the requirement of prior clearance for investments from countries with which India shares its land border.
2. The Department of Economic Affairs notified the new norms under the Foreign Exchange Management Act (FEMA), days after the Department for Promotion of Industry and Internal Trade (DPIIT) issued Press Note 3 detailing the changed rules.
3. Provided also that in the event of the transfer of ownership of any existing or future FDI in an entity in India, directly or indirectly, resulting in the beneficial ownership falling within the restriction or purview of the above provisos, such subsequent change in beneficial ownership shall also require government approval.
4. The move, aimed to curb opportunistic takeover due to the Covid-19 pandemic, especially from China, **now puts all investments from India's neighbors** under the approval route.

GOVT NOTIFIED IFSCA

The finance ministry has established the International Financial Services Centres Authority (IFSCA) through a notification. The body will be headquartered in Gandhinagar in Gujarat, as per the notification. With this, the government has established a unified authority to regulate all financial services in International Financial Services Centres (IFSCs) in the country.

What

1. Currently, the banking, capital markets and insurance sectors in IFSC are regulated by multiple regulators such as Reserve Bank of India (RBI), Securities and Exchange Board of India (SEBI) and Insurance Regulatory and Development Authority of India (IRDAI).
2. The notification brings into effect certain provisions of the IFSCA Act, 2019, related to its functioning,

Flashback

1. The International Financial Services Centres Authority Act 2019 will apply to all International Financial Services Centres (IFSCs) set up under the Special Economic Zones Act, 2005.
2. It set up the International Financial Services Centres Authority. It will consist of nine members, appointed by the central government.
3. The Authority will regulate financial products (such as securities, deposits or contracts of insurance), financial services, and financial institutions which have been previously approved by any appropriate regulator (such as RBI or SEBI), in an IFSC.
4. The Act sets up the International Financial Services Centres Authority Fund. The following items will be credited to the Fund: (i) all grants, fees and charges received by the Authority, and (ii) all sums received by the Authority from various sources, as decided by the central government.

envisaged in the Act.

3. While allowing for the appointment of its members and other employees, setting up of funds and exemption from taxes, the government has not affected provisions pertaining to the regulation of financial products, financial services and financial institutions in IFSCs and its abilities to transact in foreign currencies and make rules.
4. The main function of the authority will be to regulate financial products such as securities, deposits or contracts of insurance, financial services, and financial institutions which have been previously approved by any appropriate regulator in an IFSC.
5. As per the Act, the regulators include SEBI, RBI, IRDAI and the The Pension Fund Regulatory and Development Authority.
6. The IFSCA will comprise a chairperson, and one member each nominated by the regulators mentioned earlier. There will also be two members from the central government and full-time or part-time members.

SECOND TRANCHE OF LIQUIDITY BOOST

The RBI on 17 April 2020 announced a second tranche of liquidity boost for the economy with a 25 basis point reverse repo cut taking it to 3.75 per cent from 4 percent earlier. The move has been taken to allow banks to lend more. A TLTRO 2.0 of Rs 50,000 crore specifically targeted at NBFCs has been announced. It also announced relaxation of asset classification norms. Those accounts that have availed the moratorium facility, the period of moratorium will be excluded from the 90-day NPA classification norms of the RBI.

What

1. The RBI said that it will continue to monitor the situation closely and its objective is to keep the financial sector moving smoothly.
2. These liquidity measures are over and above the Rs 3.74 lakh liquidity boost announced in the last week of March.
3. Those included a Targeted Long Term Repo Operations (TLTRO) window of Rs one lakh crore for banks to invest specifically in corporate bonds and commercial papers.
4. It also reduced the repo rate by 75 basis points and the reverse repo by a larger margin of 90 basis points, thereby making it less lucrative for banks to park money with the RBI.
5. It also reduced the CRR by 100 basis points, thereby leaving more money in the hands of the banks to lend to customers.
6. It had also announced a moratorium of three months for term loans but a lot of NBFCs were struggling to meet their obligations as the moratorium norms were being interpreted differently by different banks.

Liquidity measures:

1. TLTRO 2.0: A second tranche of TLTRO worth Rs 50,000 crore has been announced specifically targeted at the NBFC sector considering the financial pressure faced by them. Around 50% of it should go into the investment grade papers of smaller NBFCs.
2. Investments should be made within one month. These may be classified as HTM. Exposures not to be reckoned under a large exposure framework. TLTRO of Rs 25,000 crore to be conducted today.
3. Reverse Repo cut: Amount under reverse repo window is at Rs 6.9 lakh crore as on April 15. That much of surplus is available with banks.
4. To encourage banks to deploy these funds for lending purposes, the RBI reduced reverse repo by 25 bps from 4% to 3.75%. Policy repo rate remains unchanged at

4.4%.

More money for state

1. States had been demanding more funds to fight the Covid-19 pandemic. The RBI has increased the limit under Ways and Means Advances for states to avail short-term funds to 60 per cent of the existing limit.
2. This will help states to avail more funds to fight the Covid-19 pandemic and plan their borrowings in a better way even as they grapple with a crunch in their finances owing to stalled economic operations.

For Banks & financial institutions

1. The Liquidity Coverage Ratio has been brought down to 80 percent from 100 per cent earlier. This will be restored in phases by April 2021.
2. Banks shall not make any dividend payments until further orders. The RBI also announced measures to boost liquidity of financial institutions like NABARD, SIDBI and NHB. A special refinance facility of Rs 50,000 crores to meet sectoral credit requirements has been announced for them.
3. This will include Rs 25,000 crore to NABARD for refinancing RRBs, co-operative banks and micro-finance institutions, Rs 15,000 crore to SIDBI and Rs 10,000 crore to National Housing Bank (NHB) for supporting Housing Finance Companies (HFCs).
4. Loans given by NBFCs to realty firms will hold similar benefit as given by scheduled commercial banks.

SCIENCE AND TECHNOLOGY

CHITRA GENELAMP-N

A low-cost diagnostic test kit that can confirm Covid-19 in just two hours has been developed by the Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST). The test kit, funded by the Department of Science and Technology, called Chitra GeneLAMP-N, is highly specific for SARS-CoV-2 N-gene and can detect two regions of the gene which will ensure that the test does not fail even if one region of the viral gene undergoes mutation during its current spread.

What

1. The tests performed at NIV Alappuzha — authorized by ICMR — show that Chitra GeneLAMP- N has 100% accuracy and matches with test results using RT-PCR.
2. This has been intimated to ICMR, the authority to approve it, for Covid-19 testing in India, following which a license needs to be obtained from the Central Drugs Standard Control Organisation (CDSCO), for manufacture.
3. Current PCR kits in India enable detection of the E-gene for screening and RdRp gene for confirmation. Chitra GeneLAMP-N gene testing will allow confirmation in one test without the need for a screening test and at much lower costs.
4. The detection time is 10 minutes and the sample-to-result time — from RNA extraction in swab to RT LAMP detection time — will be less than two hours. A total of 30 samples can be tested in a single batch in a single machine allowing a large number of samples to be tested each day.
5. Prof Ashutosh Sharma, secretary GST, said that the development of a novel, inexpensive, rapid confirmatory for the diagnosis is a compelling example of how a creative team of clinicians and scientists working together seamlessly can leverage knowledge and infrastructure to make relevant breakthroughs..
6. According to SCTIMST, the testing facility can be easily set up even in the laboratories of district hospitals with limited facilities and trained laboratory

technicians.

7. The results can be read from the machine from the change in fluorescence. The cost of testing with the new device for LAMP testing and the test kit for two regions of N-gene(including RNA extraction) will be less than Rs 1,000/test for the laboratory.
8. Sree Chitra has also additionally developed the specific RNA extraction kits along with GeneLAMP-N test kit and testing device.
9. The technology was transferred for manufacture to Agappe Diagnostics Ltd, Ernakulam, a leading company in In-vitro diagnostics with national and international operations.

DRDO RAMPS UP THE FIGHT AGAINST COVID-19

The Defence Research and Development Organisation (DRDO) has been continuously using the existing technology and developing products that would help the country tackle the COVID-19 pandemic more effectively. Earlier, it had created Personnel Sanitisation Enclosure (PSE), sanitisers, personal protective equipment (PPE), detection kits as well as ventilators to better equip the country in dealing with the disease. The DRDO has now enhanced its list of products and included two more technologies – automatic mist-based sanitiser dispensing unit and UV sanitisation box and hand-held UV device, the military research organisation said.

Automatic Mist-Based Sanitiser Dispensing Unit

1. The **DRDO's Centre for Fire Explosive and Environment Safety (CFEES)**, Delhi, applied the mist technology it uses in fire suppression to develop an automatic sanitiser dispenser, a contactless unit which sprays alcohol-based handrub sanitiser to be used at the entrances of offices and buildings.
2. The water mist aerator technology has been used in the dispensing unit and the technology was designed to conserve water.
3. The unit is activated without contact with the help of an ultrasonic sensor. The mist is dispensed from a single nozzle and the rate of flow is low in order to minimise wastage.
4. The dispenser releases 5-6ml of solution over 12 seconds in one go, and the dispensation is in the shape of a cone so that both the hands are covered with the solution.
5. The compact unit also has the option to fill it in bulk, hence making it more economical for the establishments, and can be mounted on a wall or kept on a platform.
6. Moreover, an LED light illuminates the spray of the mist to indicate operation. A unit has been installed at the DRDO Bhawan.

UV Sanitisation Box and Hand-held UV Device

1. **Two of DRDO's Delhi laboratories** – Defence Institute of Physiology and Allied Sciences (DIPAS) and Institute of Nuclear Medicine and Allied Sciences (INMAS) – have developed sanitisation box and hand-held device, both based on Ultraviolet-C (UV-C) light, which consists of a shorter wavelength particularly good at destroying the genetic material in COVID-19, the DRDO release said. The UV-C radiation warps the structure of the RNA, preventing the coronavirus from multiplying.
2. The DRDO said that sanitisation of items using the UV-C-based items would help users in avoiding the harmful effects chemical disinfection can have, adding that their technology is environment friendly and also contactless.
3. Furthermore, while the box has been designed for disinfection of personal items like mobile phones, purse, tablets, currency, office file covers, etc, the hand-held device can be used to disinfect objects such as chairs, food packets, postal delivered packages and files etc in office as well as the households.

FELUDA FOR COVID-19 TEST

Scientists at the CSIR's Institute of Genomics and Integrative Biology have come up with a low-cost coronavirus test that will not require any expensive machines for detection of the pathogen. Named after 'Feluda', the detective character in legendary filmmaker Satyajit Ray's stories, the test has been developed by Debojyoti Chakraborty and Souvik Maiti as a simpler way of detecting SARS-coV2 presence in clinical samples, IGIB Director Anurag Agarwal said. CSIR is a department under the Union Ministry of Science and Technology.

What

1. It starts the same way as a normal real time reverse transcription- polymerase chain reaction (RT-PCR), which is extraction of ribonucleic acid (RNA) and its conversion to deoxyribonucleic acid (DNA).
2. It then differs by using a specifically designed PCR reaction to amplify a part of the viral nucleic acid sequence. Then a highly specific CRISPR, FnCAS9, developed at IGIB, binds to that sequence.
3. Using the innovative chemistry on a paper strip, the CRISPR complex, bound to that specific sequence, can be visualised as a positive band - like one sees in simple pregnancy tests. The total time required for the test is less than one hour.
4. In the RT-PCR tests, the RNA is converted to DNA by using specific primers and probes, with fluorescent reporters, to amplify and detect viral nucleic acid presence. It requires expensive Real Time PCR machines which are available at specialised sites.
5. If successfully commercialised, which depends upon all its components being available at scale and the commercial product being successfully validated by regulatory agencies, it would allow the test to be done in local path-labs that do not have expensive real time PCR machines, but simple cheap thermo-blocks used for conventional PCR.
6. When asked why the test was named after Feluda, Agarwal said the researchers at MIT and University of California, Berkeley also use CRISPR, but different technologies.
7. They have named the tests as 'Detector' and 'Sherlock', so Feluda was an Indian version.

UNIFIED GEOLOGIC MAP OF THE MOON

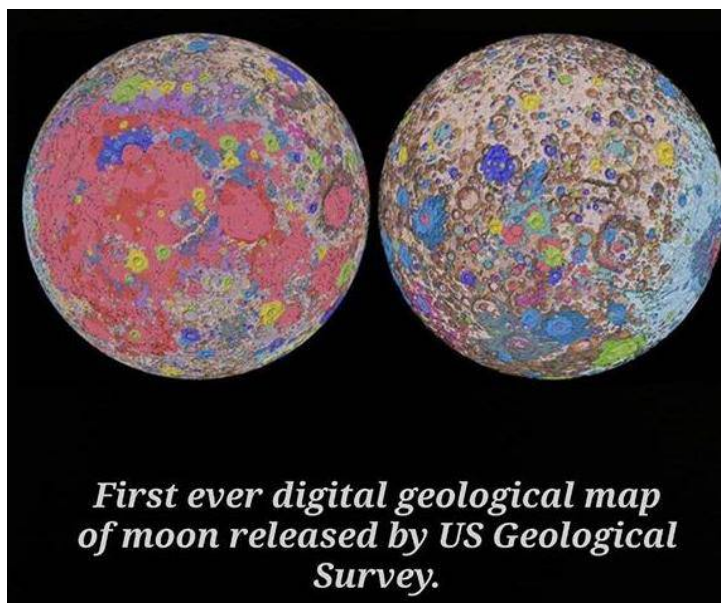
United States Geological Survey (USGS) in partnership with NASA and the Lunar Planetary Institute has released a new comprehensive map of the Moon, called the 'Unified Geologic Map of the Moon'. **It states that this new map will serve as the "definitive blueprint of the Moon's surface geology for future human missions."** The new map showcases the Moon in a 1:50,00,000-scale size, and is being claimed to come handy to researchers, scientists, students and the general public. It will come handy to NASA very soon, considering that it is planning to send astronauts once again to the moon after a long time, by 2024.

What

1. The Unified Geologic Map of the Moon **is currently available on USGS's official website**. The organisation claims that it will come handy to understand the surface of the Moon. It adds that the map will also help researchers learn the history behind the formations **located on the Moon's surface**.
2. The map has been created with the help of the information gathered from six Apollo-era regional maps. **That's not it, it also uses data from recently held satellite missions to the Moon**. Thus providing the public with the most updated and accurate map of the Moon available of now.
3. USGS used all of the data sets acquired by them to draw up the final map. Apart from this, the organisation also unified the description of the rock layers, to

bring consistency to the names and ages of the rocks.

- The USGS website is also hosting a public domain video, showcasing a rotating globe of the new Unified Geologic Map of the Moon. The shaded topography seen has been made with the help of the Lunar Orbiter Laser Altimeter (LOLA).



- The near side of the Moon, which is the most explored side can be seen full of pink colours that show the Imbrian era formation.

- This formation according to the USGS took place around 3.5 billion years ago, **when the Moon's surface was hit by many asteroids, causing irregular formations.**

CORONAVIRUS IMMUNITY PASSPORT

Prolonged phases of COVID-19 lockdown across the world have severely affected the economies and the governments have their task cut out to choose lives or livelihoods. Some governments, such as the United Kingdom, **have come up with an idea of 'immunity Passport' or 'risk-free certificate' that will enable people who have recovered from the Covid-19 infection to return to work.**

What

- The idea of Immunity passport or risk-free certificate is built on the premise that people who have developed antibodies adequate enough after warding off Coronavirus can neither catch infection again nor spread the disease further.
- The World Health Organization (WHO), the global body overseeing the Covid-19 response across the world has said that there is not enough data and substantial evidence to claim that people **once infected and recovered from Coronavirus can't** be reinfected with it.
- It argues that the body targets the virus inside the body by the combined process of development of specific antibodies that bind with the virus and the action of T-cells to destroy cells infected with the virus.
- Most of these studies show that people who have recovered from infection have antibodies to the Coronavirus. However, some of these people have very low levels of neutralizing antibodies in their blood, suggesting that cellular immunity may also be critical for recovery.
- As of 24 April 2020, no study has evaluated whether the presence of antibodies to SARS-CoV-2 confers immunity to subsequent infection by this virus in humans", said the WHO in its briefing.
- The WHO too agrees that if this combined response is strong enough, it will provide resistance against re-occurrence of the Covid-19 infection.
- WHO has said that there are not enough studies available on the amount of neutralising antibodies **after a patient's recovery from Coronavirus and in some cases it may be too less to expose to infection all over again.**

8. Subsequently, the WHO has warned that the move such as issuing Immunity passports may lead to continuation of transmission.
9. **WHO's advisory can be put in context by the fact that hundreds of people who had tested negative in South Korea turned out to test positive for Covid-19 later.**
10. The WHO has said that the issue of false negative and false positive both hinder the efforts to stop the public transmission of the disease and in the circumstances when accuracies of different models of testing across different countries are not 100 per cent, the issuance of Immunity passport will further deepen the crisis.

NEW 'SUPER EARTH' IN SIX-PLANET SYSTEM

Scientists have discovered a six-planet system — a “super-Earth” and **five “mini-Neptunes”** which **display an** exceptionally regular spacing, hinting at how the system may have formed. The planets revolving the star HD 158259 in the Draco constellation were found using the SOPHIE spectrograph installed at the Haute-Provence Observatory in the South of France, according to the study published in the journal Astronomy & Astrophysics.

What

1. The discovery of this exceptional system has been made possible thanks to the acquisition of a great number of measurements, as well as a dramatic improvement of the instrument and of our signal processing techniques.
2. SOPHIE observations showed that the planet that is closest to HD 158259 and the five outer planets present masses of two and six times that of the Earth, respectively.
3. The system has been found to be compact, in the sense that the distance of the outermost planet to its star is 2.6 times smaller than the distance between Mercury and the Sun.
4. **NASA's TESS space telescope observed a decrease of the star's brightness** as the innermost planet transited between the observer and the star.
5. The TESS measurements strongly support the detection of the planet and allow it to **estimate its radius, which brings very valuable information on the planet's internal structure.**
6. The researchers noted that hundreds of multi-planetary systems are known, but only a dozen contain six planets or more.
7. The presence of six planets orbiting HD 158259 thus already makes this system remarkable, but it is not its most interesting feature: what makes it exceptional is its regularity.
8. The period ratio of any two subsequent planets is close to 3:2. This means that as the first planet — the one closest to the star — completes three orbits, the second one completes about two. As this second planet completes three orbits, the third completes about two, and so on.
9. This situation is better understood in the **general framework of “resonances”**, which plays a key role in the architecture of planetary systems.
10. Several planets are said to be in resonance when they find themselves in the same configuration periodically, after completing a potentially different number of orbits.
11. This is comparable to several musicians beating distinct rhythms, yet who beat at the same time at the beginning of each bar.

SECOND EARTH DISCOVERED

Reanalyzed data from NASA's Kepler Space Telescope, being used by a team of scientists, has led to the discovery of an Earth-size exoplanet. Habitable zone is that area around a star where a rocky planet can support liquid water, the agency further explained.

What

1. The exoplanet is about 300 light years away from the Earth and is the most similar to our planet in size and temperature out of all the planets identified using Kepler, NASA said.
2. The planet, being called Kepler-1649c, was discovered by the team when they were looking through the data of previous observations from the Kepler telescope, which had been retired by NASA in 2018.
3. Kepler-1649c is only 1.06 times the size of Earth. Moreover, the amount of light the exoplanet receives from its star is about 75% of the amount of light Earth receives from the Sun, indicating a temperature similar to that of ours.
4. NASA is also looking at the discovery with excitement due to the fact that while Kepler-1649c in itself is similar to Earth in size and temperature, it also provides its system a whole new view.
5. In their system, for every nine times that the outer planet orbits the host star, the inner planet revolves around the star almost exactly four times, which means that their system is extremely stable and is likely to last for long.

Why did Kepler-1649c come to light now?

1. The Kepler telescope had been retired in 2018, and had actually stopped collecting **data from space in 2013. Therefore, we are left wondering how the exoplanet's existence came to the fore now.**
2. The agency explained in the statement that the planetary body had previously been misidentified while being searched by a computer algorithm, this team of researchers took a second look and identified it as a planet.
3. A computer algorithm, named Robovetter, was used by the space agency to sort through the huge data collected by the Kepler telescope, which looked at stars and searched for planets by observing the dips in their brightness as planets passed in front of them.
4. However, most often, the dips in brightness were caused by bodies other than planets, like a change in the brightness of the star or maybe comets passing.
5. The scientists created Robovetter to identify the 12% of the dips that were actually caused by planets and not other bodies. The algorithm labelled what it assessed as **non-planetary dips in the brightness with the signature "false positive"**.
6. Since the scientists were aware of the chances that the algorithm would likely give out errors at some point, a dedicated team known as Kepler False Positive Working Group was tasked with rechecking the false positive signatures to ensure **that they weren't missing out on any** exoplanet and a subsequent discovery.
7. **It was when this group was rechecking the algorithm's false positives that it found that Kepler-1649c was in fact one of the errors made by Robovetter.**

MISCELLANEOUS

GOVT DISMISSES FORCE REPORT

The government has dismissed a report by some officers of the Indian Revenue Services (IRS) that suggested higher taxes on high earners and levy of wealth tax to raise resources to battle Covid-19, as it instituted an inquiry in the matter. It is

unequivocally stated that CBDT (Central Board of Direct Taxes) never asked IRS Association or these officers to prepare such a report, CBDT said in a statement. It is reiterated that the impugned report does not reflect the official views of CBDT/Ministry of Finance in any manner, the statement said, dismissing the report that was widely circulated on social media.

What

1. **The report entitled 'FORCE', which was released through IRS Association's website, suggested raising income tax rate to 40% for those who earn over Rs 1 crore a year and re-introduction of wealth tax on those with net wealth over Rs 5 crore.**
2. The report, compiled by a group of 50 officers, also suggested a one-time Covid-19 relief cess of 4% on taxable income of over Rs 10 lakh besides a three-year tax holiday for all corporates and businesses in the healthcare sector.
3. It estimated that the one-time cess can mobilise Rs 15,000-18,000 crore in tax revenue, which can in turn be used for financing capital investment towards relief work.
4. No permission was sought by the officers before going public with their personal views and suggestions on official matters, which is a violation of extant Conduct Rules.
5. **The IRS Association said, "The paper FORCE by 50 young IRS officers suggesting policy measures had been forwarded by IRSA to CBDT for consideration. It does not purport to represent the official views of the entire IRS or the IT Dept".**
6. **The report is "ill-conceived" and "an irresponsible act" of a few officers, a finance ministry source said, adding the concerned officials will be asked to explain their conduct to CBDT.**
7. **These officers would have to explain the "indiscipline" in their actions and "violation of conduct rules" as officers are specifically prohibited to go to media with their personal views on official matters, the source, quoted above, said.**
8. The group also suggested an increase in surcharge on higher income foreign companies having a branch office or permanent establishment in India, and mooted higher capital gains accruing out of the inherited properties of overseas citizens.
9. It even advocated a **higher rate of equalisation levy or 'Google tax' from the 6% in the Finance Bill 2020.**

TRENDS IN WORLD MILITARY EXPENDITURE 2019

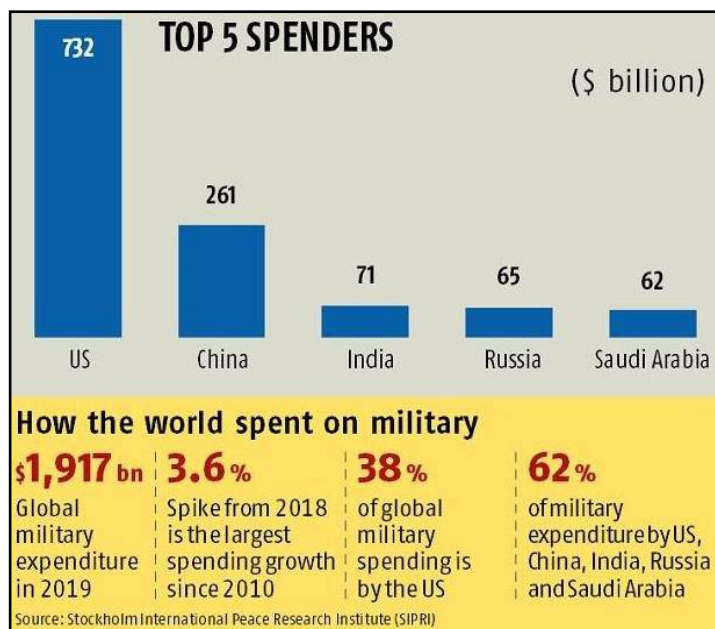
The global military expenditure rose to \$1917 billion in 2019 with India and China emerging among the top three spenders, according to a report by a Swedish think tank, Stockholm International Peace Research Institute (SIPRI). In 2019, China and India were, respectively, the second- and third-largest military spenders in the world.

What

1. **China's military** expenditure reached \$261 billion in 2019, a 5.1% increase compared with 2018, while **India's grew by 6.8% to \$71.1 billion**, the report said.
2. In 2019, the top five largest spenders — U.S. (\$732 bn), China, India, Russia (\$65.1 bn) and Saudi Arabia (\$61.9 bn) — accounted for 62% of the global expenditure.
3. **The annual report 'Trends in World Military Expenditure, 2019' was released by the SIPRI on 27 April 2020.**
4. **India's tensions and rivalry with both Pakistan and China are among the major drivers for its increased military spending, the report quoted SIPRI Senior Researcher Siemon T. Wezeman.**
5. The \$71.1 billion spent by India on defence in 2019 was 2.4% of its Gross Domestic Product (GDP). India was at the fourth position in 2018 with Saudi Arabia

at the third.

6. **India's expenditure in 2019 was 6.8% more than that in 2018, the report says the country's military expenditure has risen significantly over the past few decades.**
7. It grew by 259% over the 30-year period of 1990–2019, and by 37% over the decade of 2010–19. However, its military burden fell from 2.7% of GDP in 2010 to 2.4% in 2019.
8. **While India's defence spending excluding pensions, which constitute a significant part, has been growing in absolute terms, it has been going down as a percentage of its GDP as noted by the report.**
9. For instance, the defence allocation in the latest budget for 2020-21 which was ₹3.37 lakh crore, excluding defence pensions, accounts for about 1.5% of the country's GDP, the lowest in recent times.
10. In comparison, **Pakistan's** military expenditure rose by 70% over the decade 2010–19, to reach \$10.3 billion while the military burden increased from 3.4% of GDP in 2010 to 4% in 2019, says the report. Pakistan was at the 24th position in 2019 compared to 19th in 2018.
11. Global military spending in 2019 represented 2.2% of the global GDP and this was an increase of 3.6% from 2018 and the largest annual growth in spending since 2010, the report stated.
12. In Asia and Oceania, other than India and China, Japan (\$47.6 bn) and South Korea (\$43.9 bn) were the largest military spenders.



THE GOVT BETS ON ARTIFICIAL INTELLIGENCE

The corporate affairs ministry is betting on artificial intelligence and data analytics as key elements in the fight against the menace of shell companies as it works to put in place an ecosystem that will have "zero tolerance" for non-compliance with regulations. Continuing efforts to have a robust corporate governance system and ensure high level of compliance, the ministry is also in the process of having an advanced MCA 21 portals. The portal is used for submission of requisite filings under the **companies' law and is also a repository of data on corporates in the country.**

What

1. Corporate Affairs Secretary Injeti Srinivas said that once the third version of MCA 21 becomes fully operational, the portal would make it "almost impossible for a shell company to survive."
2. Generally, shell companies are those which are not complying with regulations and many such entities are allegedly used for money laundering and other illegal activities. Noting that the third version of the portal might be fully operational in a year from now, the secretary said the ecosystem would have zero tolerance for non-compliance.
3. MCA 21 system was started in 2006 and currently, the second version is operational.
4. There are nearly 12 lakh active companies in the country. Active companies are

those that are in compliance with various regulatory requirements under the Companies Act.

5. Over the past two to three years, the ministry has been deregistering the names of companies from official records for prolonged non-compliance.
6. Now, more and more companies are becoming compliant. Compliance levels in terms of filings has crossed 80 per cent.
7. The latest fresh start scheme for companies and settlement scheme for LLPs (Limited Liability Partnerships) are expected to further improve compliance levels; it should soon cross 90 per cent.
8. At the end of February, there were around 19,89,777 registered companies in the country. Out of them, 7,44,014 companies were closed, 41,974 entities were in the process of being struck-off and 2,170 were assigned dormant status, as per data compiled by the ministry.
9. According to the ministry, there were 11,95,045 active companies as on February 29.

Flashback

1. MCA21 is an e-Governance initiative of the Ministry of Company Affairs (MCA), Government of India that enables an easy and secure access of the MCA services to the corporate entities, professionals and citizens of India.
2. The MCA21 application is designed to fully automate all processes related to the proactive enforcement and compliance of the legal requirements under the Companies Act, 1956, New Companies Act, 2013 and Limited Liability Partnership Act, 2008. This will help the business community to meet their statutory obligations.

GRAVITATIONAL WAVES FROM BLACK HOLES DETECTED

In a first, a team of astronomers has detected gravitational waves emerging from the merger of two Binary Black Holes (BBH) with significantly unequal masses.

Named GW190412, the merger was collectively detected on April 19, last year. The highly-sensitive signals were detected using Laser Interferometer Gravitational wave Observatory (LIGO) and Virgo, located in the US and Italy, respectively. It was 2015 when gravitational waves were first detected on Earth and since then, observatories have been scanning the skies for more traces in the form of some signals.

What

1. However all discoveries of BBH mergers, by far, were those involving black holes of comparable or near equal masses, making this detection a rare event.
2. A Couple of weeks after these detectors were up and functioning for the third operational cycle in April 2019, they picked up gravitational waves emerging from this merged BBH, believed to be located some 2.3 billion light years away from earth.
3. While one of the components weighed 30 solar masses, the other was nearly 3.6 times lighter, and weighed just about 8 solar masses.
4. The duo is said to be unique in the manner that they merged, confirming that astrophysical BBH comprises systems with unequal masses, knowledge of which was only limited to theories till date.
5. Moreover, the difference in masses of the two BBH unions sent out gravitational waves with subtle variations in the form of higher 'harmonics' in the waveform.
6. **These variations, which appear as higher 'harmonics' in the waveform**, have been observed for the first time in this event. What this essentially means is that the mass difference produces specific signal modulations, as predicted by theory.
7. In fact, the mass imbalance produces an unusually high intensity of gravitational

radiation in the so-called 'Higher Order Modes', which were detectable in GW190412 and provide yet another confirmation of the validity of **Einstein's** General Relativity.

8. The possibility of more such mergers involving unequal BBHs in future cannot be ruled out, said Somak Raychaudhury, director of the Inter University Centre for Astronomy and Astrophysics (IUCAA), which is one of the Indian institutes involved in gravitational wave research representing the Indian consortium of LIGO.
9. It is under extremely complicated scenarios that BBH mergers occur. These mergers could be a result of several possibilities. Since we have, so far, detected mergers of equal mass BBHs, it looks like those of unequal masses are more rarer.
10. The operations of LIGO and Virgo were suspended on March 26, following the outbreak of COVID-19. As per the original schedule, the cycle was scheduled till the end of April, before shutting down temporarily for an upgrade planned over the next one year.

BATS, CORONAVIRUSES EVOLVING TOGETHER

Different groups of bats have their own unique strains of coronavirus, a family that includes the COVID-19 causing virus, according to a study which reveals that the flying mammal and coronaviruses have been evolving together for millions of years. The study, published in the journal Scientific Reports, noted that while bats do a lot of good for the world such as pollinating plants, eating disease-carrying insects, and dispersing seeds of tropical forest trees, they are also natural carriers of coronaviruses.

What

1. To understand this diverse family of viruses, scientists, including those from Chicago's Field Museum in the US, compared the different kinds of coronaviruses living in 36 bat species from the western Indian Ocean and nearby areas of Africa.
2. We found that there's a deep evolutionary history between bats and coronaviruses, said study co-author Steve Goodman from Chicago's Field Museum.
3. Developing a better understanding of how coronaviruses evolved can help us build public health programs in the future, Goodman said.
4. According to the researchers, there are a vast number of types of different coronaviruses, potentially as many as bat species, and most of them are unknown to be transferred to humans and pose no known threat.
5. The coronaviruses carried by the bats part of the study are different from the one behind COVID-19, the scientists cautioned, adding that learning about these viruses in bats can help better understand the pandemic causing virus.
6. They said that all animals have viruses living inside them, and bats, as well as a range of other mammal groups, happen to be natural carriers of coronaviruses.
7. While these coronaviruses don't appear to be harmful to the bats, the researchers warned that there's potential for them to be dangerous to other animals if the viruses have opportunities to jump between species.

100TH DEATH ANNIVERSARY OF MATHEMATICS GENIUS

Srinivasa Ramanujan was a self-taught mathematician who contributed to the theory of numbers. Born in Erode, Tamil Nadu, in 1887, Ramanujan grew up in poverty, his father working as an accounting clerk, while his mother earned a small amount as a temple singer. The mathematician died on April 26, 1920, with this year marking his 100th death anniversary.

Facts about S Ramanujan

1. At the age of 15, Srinivasa Ramanujan obtained a copy of Synopsis on Elementary

Results in Pure and Applied Mathematics, which contained 5,000 theorems, but had either brief proofs or did not have any. C Ramanujan then took to solving each of the theorems, eventually succeeding.

2. Ramanujan had obtained a scholarship for the University of Madras, but he ended up losing it because he neglected his studies in other subjects in favour of mathematics.
3. Srinivasa was in such poverty that he often sustained on minimal foods and did not even have enough money to obtain paper for his studies. As a result, he used slates for his mathematics and cleaned them with his elbow, leading to bruises and marks.
4. Even with little formal training in mathematics, Ramanujan published his first paper in the Journal of Indian Mathematical Society in 1911.
5. In 1913, Ramanujan started communicating with Godfrey H Hardy, a British mathematician. This led him to obtaining a scholarship from University of Madras and a grant from Trinity College in Cambridge, after which he travelled to England and started to work on some research with Hardy.
6. Even as Ramanujan did not have much knowledge about modern mathematics due to no formal guidance, no living mathematician equaled in his knowledge of continued fractions.
7. After his advances, especially in the field of partition of numbers, and the publication of his papers in several English as well as European journals, he was elected to the Royal Society of London in 1918.
8. After contracting tuberculosis, the mathematician recovered enough in 1919 to return to India, but died the following year, without much recognition. However, the mathematics community recognised him as a genius without peer.
9. The genius mathematician left as his legacy three notebooks and a huge bundle of pages, which contained unpublished results which were being verified by mathematicians many years after his death.

Flashback

1. The International Center for Theoretical Physics (ICTP) has awarded the 2018 Ramanujan Prize for Young Mathematicians from Developing Countries to Professor Ritabrata Munshi of the Indian Statistical Institute, Kolkata, India and the Tata Institute of Fundamental Research, Mumbai, India.
2. The Ramanujan Prize is awarded annually to a researcher from a developing country who is less than 45 years of age.
3. Researchers working in any branch of the mathematical sciences are eligible. ICTP administers the award jointly with the Department of Science and Technology of India and the International Mathematical Union.

INDIAN NAMED NASA'S FIRST MARS HELICOPTER

NASA's first Mars helicopter has a name now and the credit goes to 17-year-old Indian-origin girl Vaneeza Rupani. Rupani, a high school junior from Northport, Alabama, earned the honour of naming the helicopter after she submitted her essay into NASA's "Name the Rover" contest. Destined to become the first aircraft to attempt powered flight on another planet, NASA's Mars Helicopter officially named: Ingenuity, as suggested by Rupani.

What

1. While NASA announced in March that its next rover would be named Perseverance based on seventh-grader **Alexander Mather's essay**, the agency decided to also choose a name for the helicopter that will accompany the rover to Mars.

2. **Rupani's entry was among 28,000 essays submitted by K-12 students from every US state and territory, according to NASA, which made the announcement on 29 April 2020.**
3. The ingenuity and brilliance of people working hard to overcome the challenges of interplanetary travel are what allow us all to experience the wonders of space exploration, Rupani wrote in her essay.
4. Ingenuity is what allows people to accomplish amazing things, and it allows us to expand our horizons to the edges of the universe, it said. Rupani has been interested in space science since she was a young child, according to her mother Nausheen Rupani.
5. Ingenuity and Perseverance are scheduled to launch in July and land next February **at Mars' Jezero Crater, the site of a lake that existed 3.5 billion years ago.**
6. While the rover collects samples of Mars, the helicopter will attempt to fly and if successful, it will enable future Mars **missions to "add an aerial dimension to their explorations, according to NASA.**