

25.04.21

EXERCISE VARUNA – 2021



- The 19th edition of the Indian and French Navy bilateral exercise 'VARUNA-2021' is scheduled to be conducted in the Arabian Sea from 25th to 27th April 2021.
- The three day exercise will see high tempo-naval operations at sea, including advanced air defence and anti-submarine exercises, intense fixed and rotary wing flying operations, tactical manoeuvres, surface and anti-air weapon firings, underway replenishment and other maritime security operations.
- Units of both navies will endeavour to enhance and hone their war-fighting skills to demonstrate their ability as an integrated force to promote peace, security and stability in the maritime domain.
- On completion of exercise VARUNA-21, to consolidate accrued best practices and enhance interoperability, Indian Navy's guided missile frigate INS Tarkash will continue to exercise with the French Navy's Carrier Strike Group (CSG) from 28th April to 1st May 2021
- VARUNA-21 highlights growing bonhomie and showcases increased levels of synergy, coordination and inter-operability between the two friendly navies.
- These interactions further underscore the shared values as partner navies, in ensuring freedom of seas and commitment to an open, inclusive Indo-Pacific and a rules-based international order.

BREAKTHROUGH INFECTION



- The ICMR has reported that around two to four of 10,000 people given two doses of the COVID -19 vaccine have tested positive for the disease. Contracting COVID-19 after vaccination is known as breakthrough infection.
- Breakthrough infection are infections that occur in people who have been vaccinated.
- Such cases are not out of the ordinary as the vaccines that have been approved so far the world over are made to protect against disease and not the transmission of the virus.

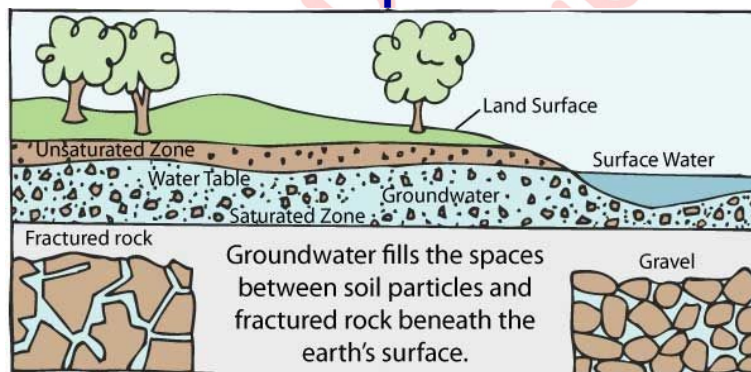
- Phase 3 clinical trials conducted before vaccines were approved showed a fairly constant proportion of infections among those vaccinated.
- In the AstraZeneca trial, for instance, 30 out of 5,807 vaccinated — about 0.5% — were symptomatic and tested positive 14 days after the second shot.

NATIONAL PENSION SYSTEM



- Started as the New Pension Scheme for government employees in 2004 under a new regulator called the Pension Fund Regulatory and Development Authority (PFRDA), the National Pension System (NPS) has been open for individuals from all walks of life to participate.
- The law regulating the NPS allows members to withdraw just 60% of their accumulated savings at the time of retirement.
- With the remaining 40%, it is mandatory to buy an annuity product that provides a fixed monthly income to retirees till their demise.
- Members who accumulate up to ₹2 lakh in their NPS account at the time of retirement are exempted from the mandatory annuitisation, and can withdraw the full amount.

Groundwater depletion



- Groundwater depletion may reduce winter cropping intensity by 20% in India.
- India is the second-largest producer of wheat in the world, with over 30 million hectares in the country dedicated to producing this crop.
- Some of the important winter crops are wheat, barley, mustard and peas.
- But with severe groundwater depletion, the cropping intensity or the amount of land planted in the winter season may decrease by up to 20% by 2025, notes a new paper.
- The international team studied India's three main irrigation types on winter cropped areas: dug wells, tube wells, canals, and also analysed the groundwater data from the Central Ground Water Board. They found that 13% of the villages in which farmers plant a winter crop are located in critically water-depleted regions.
- The team writes that these villages may lose 68% of their cropped area in future if access to all groundwater irrigation is lost. The results suggest that these losses will largely occur in northwest and central India.

RBI TO ISSUE CYBERSECURITY NORMS FOR PAYMENT SERVICES



- The Reserve Bank of India (RBI) will soon issue cybersecurity norms for payment service providers (PSPs), following a series of data breaches faced by operators including Mobikwik and payment aggregator JusPay.
- While the standards for fintech-driven payment services providers will be similar to cyber hygiene norms issued recently for banks and non-banking finance companies (NBFCs), the RBI is quite clear that firms will have to do more than observe the minimum standards to ensure safety as digital transactions gain further traction.
- The National Payments Corporation of India (NPCI) had laid down a framework for a more even distribution of share of third-party app providers in the UPI system.
- The National Payments Corporation of India (NPCI) is an umbrella organisation for operating retail payments and settlement systems under the ownership of Reserve Bank of India in India.

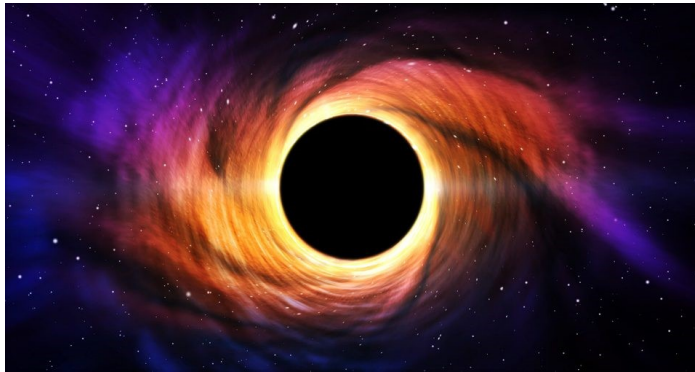
MOXIE



- NASA has extracted oxygen from the carbon dioxide in the thin Martian atmosphere.
- The unprecedented extraction of oxygen on Mars was achieved by a device called MOXIE aboard Perseverance, a six-wheeled science rover.
- MOXIE is short for Mars Oxygen In-Situ Resource Utilization Experiment.
- It produced about 5 grams of oxygen, equivalent to roughly 10 minutes' worth of breathing for an astronaut.
- NASA is planning that future human missions would take scaled-up versions of Moxie with them to the Red Planet rather than try to carry all the oxygen needed to sustain them.
- Mars' atmosphere is dominated by carbon dioxide (CO₂) at a concentration of 96 per cent.
- The expectation is that it can produce up to 10 grams of O₂ per hour.

- This is the first extraction of a natural resource from the environment of another planet.
- It is the second successful technology demonstration on the mission, which flew a mini-helicopter last Friday.

UNICORN



- Scientists have discovered what may be the smallest-known black hole in the Milky Way galaxy and the closest to our solar system.
- Nicknamed 'Unicorn' the researchers said the black hole is roughly three times the mass of our Sun, testing the lower limits of size for these extraordinarily dense objects.
- A luminous red giant star orbits with the black hole in a so-called binary star system named V723 Mon.
- The black hole is located about 1,500 light years - the distance light travels in a year, 5.9 trillion miles (9.5 trillion km) - from Earth. While it may be the closest one to us, it is still far away. By way of comparison, the closest star to our solar system, Proxima Centauri, is 4 light years away.
- Black holes like this one form when massive stars die and their cores collapse.
- The study is published in the Monthly Notices of the Royal Astronomical Society.

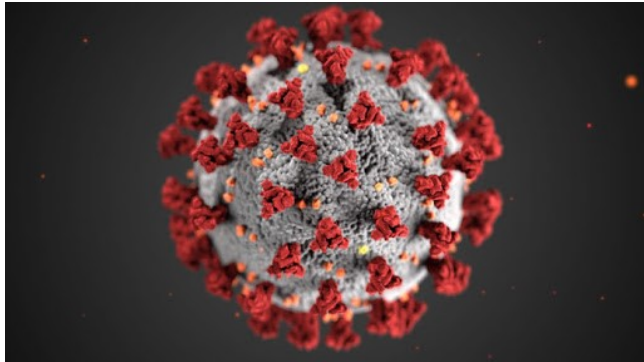
OXYGEN CONCENTRATORS



- With oxygen cylinders in short supply across several states, the Oxygen concentrator is among the most sought after devices for oxygen therapy, especially among patients in home isolation and for hospitals running out of oxygen.
- An oxygen concentrator is a medical device that concentrates oxygen from ambient air.
- Atmospheric air has about 78 per cent nitrogen and 21 per cent oxygen, with other gases making up the remaining 1 per cent.
- The oxygen concentrator takes in this air, filters it through a sieve, releases the nitrogen back into the air, and works on the remaining oxygen.
- This oxygen, compressed and dispensed through a cannula, is 90-95 per cent pure.
- A pressure valve in concentrators helps regulate supply, ranging from 1-10 litres per minute.

- According to a 2015 report by the WHO, concentrators are designed for continuous operation and can produce oxygen 24 hours a day, 7 days a week, for up to 5 years or more.

INDIAN SARS-COV-2 GENOMIC CONSORTIUM (INSACOG)



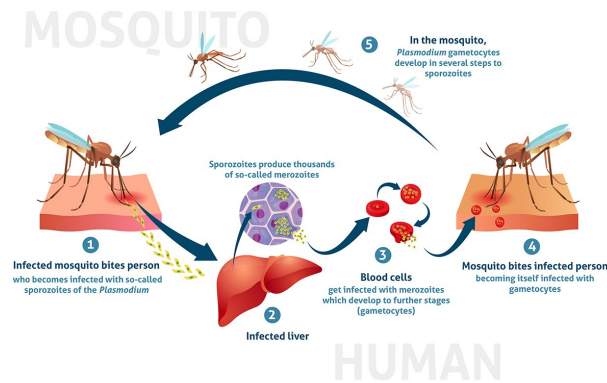
- In the backdrop of reports of emergence of variants of the SARS-CoV-2, in the world, the Government of India had established a national multi-agency consortium, Indian SARS-CoV-2 Genomic Consortium (INSACOG) in December 2020.
- It consists of ten laboratories of the Department of Biotechnology, Council of Scientific and Industrial Research (CSIR), Indian Council of Medical Research (ICMR) and Ministry of Health & Family Welfare (MoHF&W).
- It's overall aim is monitoring the genomic variations in the SARS-CoV-2 on a regular basis.
- The responsibility to correlate the clinical aspects and coordinate the collection of samples from states, for this purpose, was provided to National Centre for Disease Control (NCDC), MoHFW.
- INSACOG has a data repository at IGIB, New Delhi and NIBMG, Kalyani.

VIRAFIN



- Drug Controller General Of India (DCGI) gave a restricted emergency use approval to the Zydus Cadila's 'Virafin' for treating the patients showing moderate COVID-19 symptoms.
- Virafin is a pegylated interferon alpha-2b (PegIFN), which when subcutaneously injected to the patient in the early stages of infection, resulted in their faster recovery.
- For the development of Virafin, Zydus appreciated the support provided by DBT-BIRAC COVID 19 Research Consortium through NBM, for conducting the Phase II human clinical trial studies.
- The studies confirmed the safety, tolerability and efficacy of Virafin. The studies also reported that Virafin reduces viral load and aid in managing the disease in a better way, such as reduction in the need for supplemental oxygen, thereby reducing the respiratory tension caused due to low oxygen levels.
- About Zydus Cadila: Also known as Cadila Healthcare Limited is an Indian multinational pharmaceutical company headquartered in Ahmedabad, Gujarat.

E-2025 Initiative



- The World Health Organization (WHO) has identified 25 countries, including three from Africa, with the potential to eradicate malaria by 2025 under its 'E-2025 Initiative', ahead of World Malaria Day 2021.
- The countries were part of the World Health Organization's E-2020 campaign, which began in 2016 and is operating in 21 countries across five regions to eliminate malaria by 2020.
- The World Health Assembly adopted a new Global Technical Strategy for Malaria 2016-2030 in May 2015, setting ambitious targets to significantly reduce the global malaria burden over the next 15 years, with benchmarks to monitor progress along the way.
- Malaria removal in at least 10 countries that had the disease in 2015 is a crucial achievement for 2020.
- Countries must register zero indigenous cases by 2020 to achieve this target.
- According to an analysis published by the World Health Organization in 2016, 21 countries have the ability to eradicate malaria by 2020.
- They were chosen based on an overview of the probability of being eliminated based on three main criteria:
 - ⇒ Malaria case incidence patterns from 2000 to 2014;
 - ⇒ Malaria targets have been set by affected countries; and
 - ⇒ Experts in the field from the World Health Organization (WHO).
- These 21 malaria-free countries are part of the E-2020 programme, which is funded by WHO and other partners and aims to eradicate malaria in an ambitious but technically feasible time frame.

Dampa Tiger Reserve



- On April 8, 2021, around 140 wildlife guards employed on contractual basis at Dampa Tiger Reserve (DTR) in Mizoram went on a strike protesting against the non-payment of salaries
- Dampa Tiger Reserve or Dampha Tiger Reserve is a tiger reserve of western Mizoram, India.
- It covers an area of about 500 km² in the Lushai Hills at an altitude range of 800–1,100 m.

- It was declared a tiger reserve in 1994 and is part of Project Tiger.
- The tropical forests of Dampa Tiger Reserve are home to a diverse flora and fauna.
- It consists of forest interpolated with steep precipitous hills, deep valleys, jungle streams, ripping rivulets, natural salts licks.
- Dampa Tiger Reserve is not easily accessible unlike other parks where you can ride on a four wheeler but one has to walk through the forest if one wishes to sight animals.
- In the tiger census of 2018, no tiger was found in this reserve.
- Rare floral species have been found in Dampa Tiger Reserve including rare ginger species *Globba spathulata* and *Hemiorchis pantlingii*.
- Dampa Tiger Reserve hosts Indian leopard, sloth bear, gaur, serow, barking deer, wild boar, hoolock gibbon, Phayre's leaf monkey, gray langur, Rhesus macaque and slow loris.
- Four Bengal tigers were recorded in 1994 but none were recorded in 2019.
- Dampa Tiger Reserve has one of the highest clouded leopard populations in South and South East Asia.
- In 2012, tiger presence was confirmed through Scat samples.
- No tiger was recorded in Dampa Tiger Reserve in the years 2018–2019.
- Bird species sighted in Dampa Tiger Reserve include great hornbill, wreathed hornbill, oriental pied hornbill, scarlet-backed flowerpecker, red-headed trogon, Indian cuckoo, Asian barred owlet, green imperial pigeon, mountain imperial pigeon, emerald dove, crested serpent eagle, Malayan night heron, long-tailed broadbill, Asian fairy bluebird, blue-winged leafbird.

Mudumalai Tiger Reserve



- After nearly five months, Mudumalai Tiger Reserve (MTR) officials arrested two residents of Masinagudi for allegedly killing a nine-year-old tigress by poisoning.
- The Mudumalai National Park and Wildlife Sanctuary, also a declared tiger reserve, lies on the northwestern side of the Nilgiri Hills (Blue Mountains), in Nilgiri District, about 150 kilometres north-west of Coimbatore city in Tamil Nadu.
- Mudumalai Tiger Reserve is situated in Tamil Nadu's Nilgiris District, at the crossroads of three states: Karnataka, Kerala, and Tamil Nadu.
- It is part of the Nilgiri Biosphere Reserve, India's first, which includes Wayanad Wildlife Sanctuary in Kerala, Bandipur National Park in Karnataka, Mukurthi National Park, and Silent Valley in the south.

- The protected area is home to several endangered and vulnerable species including Indian elephant, Bengal tiger, gaur and Indian leopard.
- There are at least 266 species of birds in the sanctuary, including critically endangered Indian white-rumped vulture and long-billed vulture.
- The Western Ghats Nilgiri Sub-Cluster of 6,000 square kilometres including all of Mudumalai National Park, is under consideration by the UNESCO World Heritage Committee for selection as a World Heritage Site.
- The Moyar river flows downstream into the Mudumalai Tiger Reserve and is the natural line of division between Mudumalai and Bandipur Sanctuary.
- The Reserve has tall grasses referred to as “Elephant Grass”, timber species like Teak, Rosewood.
- The Reserve is home to tall grasses known as “Elephant Grass.”
- Giant bamboo, as well as important timber species such as Teak, Rosewood, and others
- There are many native flora species.
- Tiger and Asian Elephant are the two flagship species.
- Other animals include the Indian Gaur, Spotted Deer, Common Langur, Malabar Giant Squirrel, Wild Dog, and Jungle Cat.
- More than 260 different bird species can be found in the reserve.
- Mudumalai is home to 8% of all bird species found in India.
- Rare birds such as the Malabar grey hornbill, Malabar pied hornbill, and Malabar laughing thrush are included.

India closer to building world's biggest nuclear plant



- French energy group EDF took Friday a key step towards helping to build the world's biggest nuclear power plant in India, a project blocked for years by nuclear events and local opposition.
- The company said it had filed a binding offer to supply engineering studies and equipment to build six, third-generation EPR reactors at Jaitapur in Maharashtra.
- Once finished, the facility would provide 10 gigawatts (GW) of electricity, roughly enough for 70 million households. Construction is expected to take 15 years, but the site should be able to start generating electricity before its completion.
- State-owned Nuclear Power Corporation of India controls the national nuclear energy sector, and the EDF offer was submitted to the country's nuclear operator NPCIL.

- It faced opposition however from local inhabitants since the idea was first floated around 20 years ago, and was delayed after the 2011 nuclear disaster in Fukushima, Japan.
- Shiv Sena, which is powerful in Maharashtra, campaigned against the plan, though it has become less vocal recently.
- Russia - India's traditional ally - supplies nuclear fuel and has built reactors in the country, for example.
- At present, there are 22 functioning nuclear reactors in India, most of them pressurized heavy water reactors, providing about three percent of the country's power.

U.S. Commission on International Religious Freedom (USCIRF)



- The U.S. Commission on International Religious Freedom (USCIRF), an independent bi-partisan commission, has released its 2021 annual report.
- The report designated 14 countries as “countries of particular concern (CPCs)” as “their governments are engaged in or tolerate “systematic, ongoing, and egregious violations of religious freedom.” This includes India.
- This year, USCIRF said that religious freedom conditions in India “continued their negative trajectory”.
- The government promoted Hindu nationalist policies resulting in systematic, ongoing, and egregious violations of religious freedom.
- It particularly noted the passage of the “religiously discriminatory” Citizenship Amendment Act.
- The report indicated that there was seeming police complicity in the Delhi riots.
- Further, the report alleged that “government action including the acquittal of all individuals accused of demolishing the Babri Masjid mosque—as well as government inaction to address religious violence contributed to a culture of impunity for those promulgating hate and violence toward religious minorities.
- Recommendations made by USCIRF:
 - The administration should impose targeted sanctions on Indian individuals and entities for ‘severe violations of religious freedom’.
 - It should promote inter-faith dialogue and the rights of all communities at bilateral and multilateral forums “such as the ministerial of the Quadrilateral [the Quad].”
 - Raise issues in the U.S. – India bilateral space, such as by hosting hearings, writing letters and constituting Congressional delegations.