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ESE-2020

(Preliminary Examination)

Current Issues

(October - 2020)

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15 All India 1st Ranks in ESE

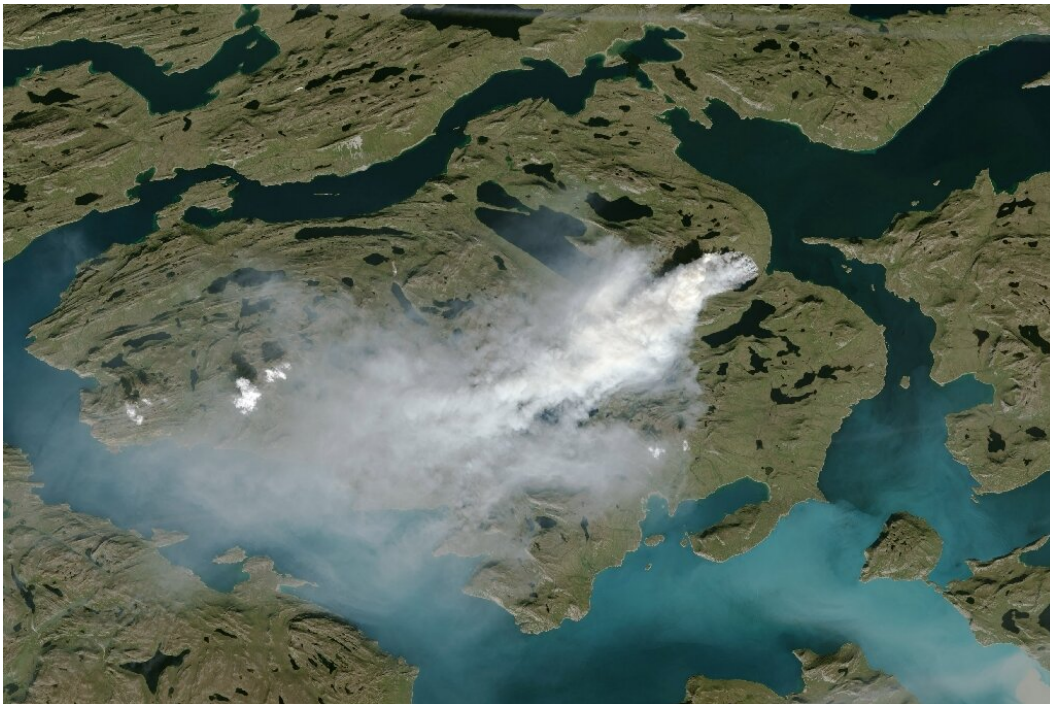
57 All India 1st Ranks in GATE

Current Issues

(October -2020)

“Zombie Fires”

- The fire regimes in the Arctic are changing rapidly, with ‘zombie fires’ becoming more frequent in addition to fires occurring in the once-frozen tundra, according to a new study.
- A ‘zombie fire’ is a fire from a previous growing season that can smoulder under the ground which is made up of carbon-rich peat. When the weather warms, the fire can reignite, according to the study.



- The second, even more worrying feature, is of fires in the Arctic spreading to areas which were formerly fire-resistant. The tundra — north of the Arctic Circle — is drying up and vegetation there like moss, grass, dwarf shrubs, etc are starting to catch fire, according to the study published in Nature Geoscience.

Postal Ballot for Elderly People and disabled

- The Election Commission of India (ECI) has come out with new instructions for people with disabilities. The form required for postal ballot is to be delivered at the residence of all those who are above 80 years of age.

- If the person opts for postal ballot, the Booth Level Officer will collect the filled form 12-D at his or her door step.
- The ballot is to be collected within five days of notification and deposited with the returning officer. The ballots are to be delivered and collected on pre-informed dates.
- This is applicable for Bihar Elections that is to be held on October 28, 2020 as well.
- The postal ballot facility introduced for elderly and the disabled are different from those that was in practice for service voters.
- Here, the people willing to use the facility will have to fill up a form. The official then carry the ballot to the residence of such voters and the voting process is video graphed to ensure transparency.

PM Svanidhi Scheme

- People in Delhi, Ahmedabad, Chennai, Indore and Varanasi will soon be able to have food from street vendors delivered at their doorsteps as the Centre has joined hands with food aggregator Swiggy to take these small businesses online.
- According to the Union Housing and Urban Affairs Ministry (MoHUA), this initiative has been launched in these five cities on a pilot basis by on-boarding 250 street food vendors and later, it will be rolled out in other parts of the country.
- Under the Prime Minister Street Vendor's AtmaNidhi (PM SVANidhi) Scheme, the move will give street vendors online access to thousands of consumers and help them grow their businesses
- It is a special micro-credit facility plan to provide affordable loan of up to ₹10,000 to more than 50 lakh street vendors, who had their businesses operational on or before 24 March 2020.
- The scheme is valid until March 2022.
- Small Industries Development Bank of India is the technical partner for implementation of this scheme.
- It will manage the credit guarantee to the lending institutions through Credit Guarantee Fund Trust for Micro and Small Enterprises.

Kamath panel report

- In August this year, RBI set up a committee headed by K.V. Kamath on restructuring of loans impacted by the Covid-19 pandemic.
- The Committee was tasked to recommend parameters for one-time restructuring of corporate loans.
- Recommendations made by the Committee:

- Graded approach to restructuring of stressed accounts based on severity of the impact on the borrowers- Banks can classify the accounts into mild, moderate and severe as recommended by the committee.
- Five financial parameters to gauge the health of sectors facing difficulties- total outside liabilities to adjusted tangible networth, total debt to earnings before interest, taxes, depreciation, and amortization, debt service coverage ratio (DSCR), current ratio and average debt service coverage ratio (ADSCR).
- 26 sectors have been identified including auto, aviation, construction, hospitality, power, real estate and tourism.
- The resolution under this framework is applicable only to those borrowers who have been impacted on account of Covid.
- Only those borrowers which were classified as standard and with arrears less than 30 days as at March 1, 2020 are eligible under the Framework.

Nobel Prize, 2020

- *Physiology or Medicine*: Drs. Harvey J. Alter, Michael Houghton and Charles M. Rice on Monday received the prize for their discovery of the hepatitis C virus. The Nobel committee said the three scientists had “made possible blood tests and new medicines that have saved millions of lives.”
- *Physics*: Roger Penrose, Reinhard Genzel and Andrea Ghez received the prize for their discoveries that have improved understanding of the universe, including work on black holes.
- *Chemistry*: The Nobel Prize in Chemistry was jointly awarded to Emmanuelle Charpentier and Jennifer A. Doudna for their work on the development of Crispr-Cas9, a method for genome editing.
- *Literature*: The Nobel Prize in Literature was awarded to Louise Glück, one of America’s most celebrated poets, “for her unmistakable poetic voice that with austere beauty makes individual existence universal.”
- *Peace Prize*: The Nobel Peace Prize was awarded to the World Food Program for its efforts to combat a surge in global hunger amid the coronavirus pandemic, which has swept around the world with devastating impact.

Bio-Decomposer spraying

- Chief Minister Arvind Kejriwal said the Delhi government will start spraying “Pusa bio-decomposer” solution from October 11 to prevent stubble burning in non-basmati rice fields in the national capital.
- Scientists at the Indian Agricultural Research Institute, PUSA, have found a low-cost, simple and effective way to deal with the problem of stubble burning, he said.

- They have developed ‘bio-decomposer’ capsules, which are used to prepare a liquid formulation. The solution, when sprayed in the fields, can decompose crop residue and turn it into manure.
- The solution increases soil fertility and reduces the use of fertilisers.
- It takes seven days to prepare the solution, which has jaggery and chickpea flour as ingredients.

Stockholm International

- The Union Cabinet approved ratification of the Stockholm Convention by banning seven hazardous chemicals that are harmful for health and environment. The seven banned chemicals are listed as Persistent Organic Pollutants (POPs) under the Stockholm Convention.
- The Stockholm Convention is a global treaty to protect human health and environment from POPs, which are identified chemical substances that persist in the environment, bio-accumulate in living organisms, adversely affect human health/environment and have the property of long-range environmental transport (LRET).
- Exposure to POPs can lead to cancer, damage to central and peripheral nervous systems, diseases of immune system, reproductive disorders and child development. POPs are listed in various Annexes to the Stockholm Convention after thorough scientific research, deliberations and negotiations among member countries.

Tree Transplantation Policy

- Delhi Cabinet has given its nod for ‘Tree Transplantation Policy’. With this, Delhi has become the first State in India to pass this policy.
- Agencies concerned will have to transplant 80 per cent of the trees affected by their projects to a new location.
- More importantly, 10 saplings will be planted in addition to the whole tree being dug up with the root intact and scientifically transplanted at another location instead of being felled.
- A dedicated panel of government agencies with track record and experience of tree transplantation is being formed under the policy.

111 fully grown trees, 15-20 years old, being transplanted at Delhi Technological University

85 already transplanted

HOW IT'S DONE

- 1 Trees identified and soil around it moistened for 3-4 days
- 2 Root ball to be covered with sack and watered during digging
- 3 Cranes lift trees by holding on to branches
- 4 Trees transported, placed in a pit of around 2m deep. Pit covered with soil and mud to prevent infection
- 5 Watered daily and closely monitored for 3 months

SPECIES
Kachnaar
Neem
Alstonia
Kanar
Papri
Jamun
Amaltash

HOW COSTLY } ₹7.5 Lakh Cost of the project | ₹6,844 spent to transplant each tree

- Payments for transplantation will be made after one year to ensure this, and if less than 80 per cent of the transplanted trees survive, payment will be deducted.
- The government will also form local committees, which will include citizens, for checking, monitoring and certification of the tree transplantation exercise.
- A dedicated Tree Transplantation Cell will also be formed by the Delhi government and local committees, which will include government officials, citizens to monitor the transplanted trees and to certify that the task has been done with due diligence.

SVAMITVA Scheme

- Prime Minister Narendra Modi will launch the physical distribution of property cards under the SVAMITVA (Survey of Villages And Mapping With Improvised Technology In Village Areas) scheme that enables rural masses to use property as a financial asset.
- The move will pave the way for villagers to use property as a financial asset for taking loans and other financial benefits.
- The Prime Minister's Office (PMO) said the launch will enable around one lakh property holders to download their property cards through an SMS link sent on their mobile phones, and this would be followed by the physical distribution of property cards by the respective state governments.
- These beneficiaries are from 763 villages across six states, including 346 from Uttar Pradesh, 221 from Haryana, 100 from Maharashtra, 44 from Madhya Pradesh, 50 from Uttarakhand and two from Karnataka.

- This is the first time that such a large-scale exercise involving the most modern means of technology is being carried out to benefit millions of rural property owners

Goa: First to become Har Ghar Jal State

- Goa has become the first 'Har Ghar Jal' state in the country by providing 100% tap water connections in rural areas covering 2.30 lakh households.
- In order to strengthen water testing facilities in the state, Goa is in the process of getting 14 water quality testing laboratories. The laboratories are to be accredited by National Accreditation Board.
- The Jal Jeevan Mission has made it compulsory to train five persons in every village to use field test kits. The priority to persons being trained were given to women.
- The State of Goa is now planning to install sensor-based service delivery monitoring system to monitor the functionality of water supply.

Fly Ash

- Popularly known as Flue ash or pulverised fuel ash, it is a coal combustion product.
- Depending upon the source and composition of the coal being burned, the components of fly ash vary considerably, but all fly ash includes substantial amounts of silicon dioxide (SiO_2), aluminium oxide (Al_2O_3) and calcium oxide (CaO), the main mineral compounds in coal-bearing rock strata.
- Minor constituents include: arsenic, beryllium, boron, cadmium, chromium, hexavalent chromium, cobalt, lead, manganese, mercury, molybdenum, selenium, strontium, thallium, and vanadium, along with very small concentrations of dioxins and PAH compounds. It also has unburnt carbon.
- All the heavy metals found in fly ash nickel, cadmium, arsenic, chromium, lead, etc—are toxic in nature. They are minute, poisonous particles accumulate in the respiratory tract, and cause gradual poisoning.
- For an equal amount of electricity generated, fly ash contains a hundred times more radiation than nuclear waste secured via dry cask or water storage.
- The breaching of ash dykes and consequent ash spills occur frequently in India, polluting a large number of water bodies.
- The destruction of mangroves, drastic reduction in crop yields, and the pollution of groundwater in the Rann of Kutch from the ash sludge of adjoining Coal power plants has been well documented.
- However, fly ash can be used in the following ways:
 - Concrete production, as a substitute material for Portland cement, sand.
 - Fly-ash pellets which can replace normal aggregate in concrete mixture.
 - Embankments and other structural fills.
 - Cement clinker production – (as a substitute material for clay).
 - Stabilization of soft soils.

- Road subbase construction.
- As aggregate substitute material (e.g. for brick production).
- Agricultural uses: soil amendment, fertilizer, cattle feeders, soil stabilization in stock feed yards, and agricultural stakes.
- Loose application on rivers to melt ice.
- Loose application on roads and parking lots for ice control.
- NTPC Ltd. under Ministry of Power, has started to collaborate with cement manufacturers across the country to supply fly ash as part of its endeavour to achieve 100% utilisation of the by-product produced during power generation.

Earthshot Prize

- Launched by PRINCE William and The Royal Foundation.
- It offers £50m (US\$65m) in funding for solutions to the environmental and climate crises.
- Aim is to provide an incentive to find solutions to repair the planet over the next decade.
- To improve living standards globally and find environmental solutions that work on every level through new ways of thinking, new technologies, systems, and policies.
- The prize is centred around five Earthshot challenges:
 - Protect and restore nature.
 - Clean our air.
 - Revive our oceans.
 - Build a waste-free world.
 - Fix our climate.
- The prize is open to anyone – individuals or teams – which could comprise engineers, activists, schools, economists, governments, banks, businesses, and regions. The prize money will be used to support the projects to help scale the work.

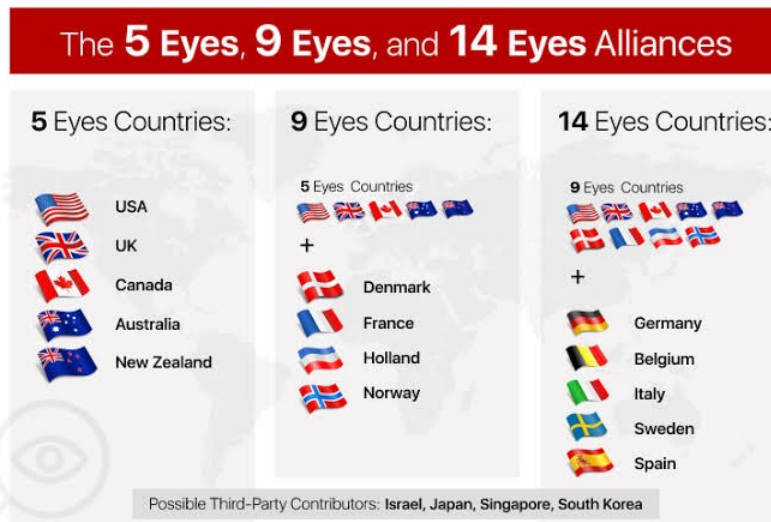
75th anniversary of FAO

- To mark the 75th anniversary of the Food and Agricultural Organization (FAO), Prime Minister Narendra Modi released a commemorative coin of Rs 75 denomination, as a testament to India's long-standing relationship with the global body.
- The Prime Minister also dedicated to the nation 17 recently developed biofortified varieties of eight crops.
- The Prime Minister talked about India's commitment to ensuring the Food Security Act translated into practice during the coronavirus pandemic, emphasising on the importance of Minimum Support Price(MSP) and government purchase for ensuring food security.



Fight against encrypted online messages

- India joins UK-led fight against encrypted online messages.
- The UK and India are joined by the US, Canada, Australia, New Zealand and Japan.
- It marks an expansion of the so-called “Five Eyes” group of nations, a global alliance on intelligence issues, to include India and Japan.

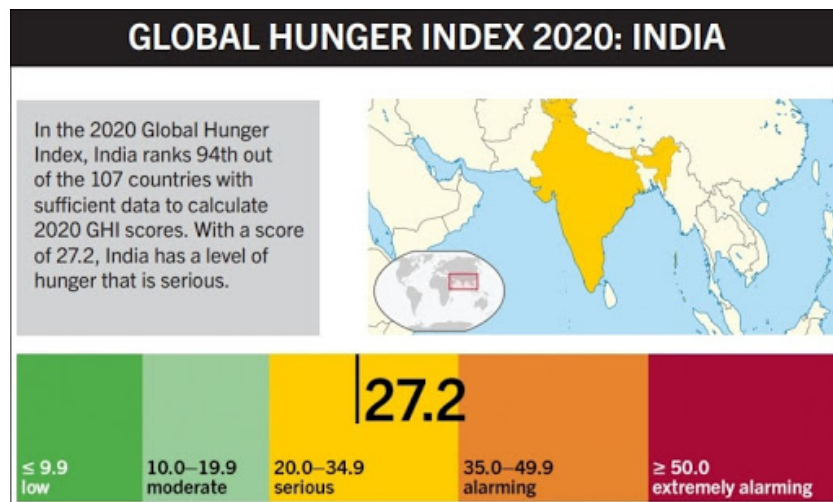


- The campaign is against end-to-end encryption of messages by social media giants such as Facebook, which they say hinder law enforcement by blocking all access to them.

- The countries also asked companies to not to “blind themselves” to illegal activity on their platforms, including child abuse images.
- End-to-end encryption means that the messages are visible only to the sender and the recipient, and not even to the tech company which provides it, for example, WhatsApp, or any third-party.
- When end-to-end encryption is applied with no access to content, it severely undermines the ability of companies to take action against illegal activity on their own platforms.
- It also prevents law enforcement investigating and prosecuting the most serious crimes being committed on these services such as online child sexual abuse, grooming and terrorist content.

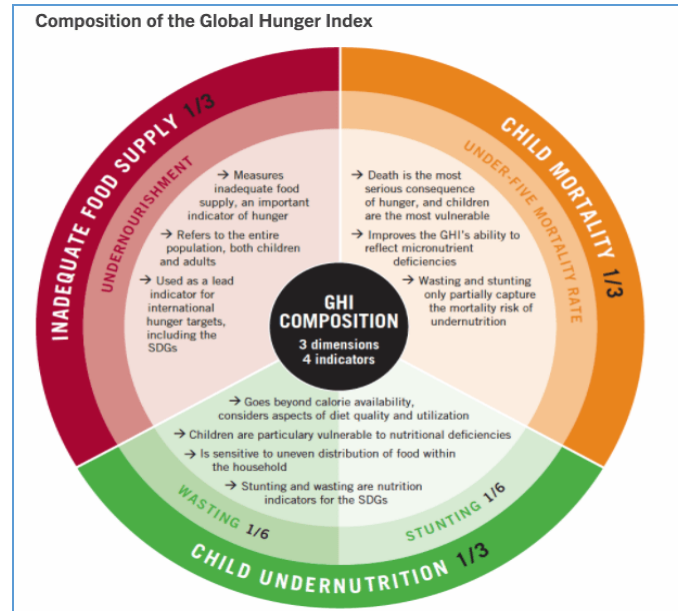
Global Hunger Index, 2020

- India ranked 94 among 107 countries in the Global Hunger Index 2020 and is in the ‘serious’ hunger category with a score of 27.2, according to report released on Friday. India’s rank was 102 out of 117 countries last year.
- In the index, India features behind Nepal (73), Pakistan (88), Bangladesh (75), Indonesia (70) among others. Out of the total 107 countries, only 13 countries fare worse than India including countries like Rwanda (97), Nigeria (98), Afghanistan (99), Liberia (102), Mozambique (103), Chad (107) among others.



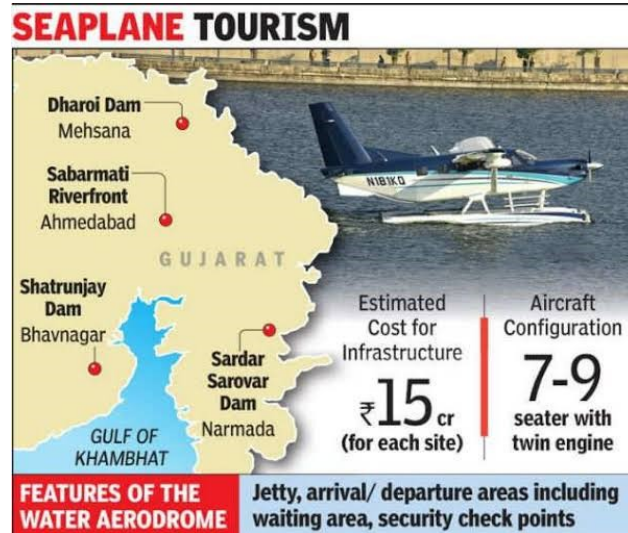
- According to the report, 14 per cent of India’s population is undernourished. It also says that the country recorded a child stunting rate of 37.4 per cent. Stunted children are those who have a “low height for their age, reflecting chronic undernutrition”.
- The Global Hunger Index is a peer-reviewed annual report, jointly published by Concern Worldwide and Welthungerhilfe, designed to comprehensively measure and track hunger at the global, regional, and country levels.

- The GHI is calculated by using a three-step process and the indicators used are percentage of undernourished population, percentage of children under five years suffering from wasting and stunting, and child mortality.



India's first seaplane project

- India's first seaplane service in Gujarat is set to begin from 31 October, the anniversary of Sardar Vallabhbhai Patel.
- It will connect Sabarmati Riverfront in Ahmedabad to the Statue of Unity in Kevadia.
- The service will be operated by Spicejet Airlines.
- Given the large and small waterbodies that dot the country, India provides an ideal opportunity for seaplane operations.
- Unlike a conventional aircraft, a seaplane can land both on a waterbody and on land, thereby opening up more opportunities for business and tourism.
- Such projects provide faster and hassle free travel option for the long, treacherous and hilly regions of the country.
- During seaplane operations, there will be turbulence created in the water while takeoff and landing of seaplanes.
- This will lead to more operation process i.e. mixing of oxygen in the water.
- This will have a positive impact on the aquatic ecosystem near seaplane operations increasing oxygen content and decreasing carbon content in this system.



The Anti-Corruption Working Group

- Saudi Arabia is hosting the first-ever Ministerial Meeting of the G-20 Anti-Corruption Working Group (ACWG) virtually.
- ACWG was established by G20 Leaders at the Toronto Summit in 2010.
- Responsible for updating and implementing the G20 Anti-corruption Action Plan.
- It cooperates closely with and supports the work of relevant international organizations, including the Organization of Economic Cooperation and Development, the United Nations, the World Bank, the International Monetary Fund and the Financial Action Task Force.
- G20: Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, the United Kingdom, the United States and the European Union.
- G20+ : The G20 developing nations, also called G21/G23/G20+ is a bloc of developing nations which was established on August 20, 2003.
- Its origins can be traced to the Brasilia Declaration signed by the foreign ministers of India, Brazil and South Africa on 6th June 2003.
- The G20+ is responsible for 60% of the world population, 26% of the world's agricultural exports and 70% of its farmers.



Kamchatka Disaster

- An 'ecological disaster' of sorts is unfolding on a black volcanic beach of the Kamchatka Peninsula in the Russian Far East, according to a report in the media outlet Siberian Times.
- Three weeks ago, surfers on the Khalaktyrsky beach outside Petropavlovsk-Kamchatsky, the largest town in Kamchatka, had reported of burning eyes, throat ache, headache, fever and a fear of losing eyesight on emerging from the water, according to the outlet.
- Then, sea animals begin to die in large numbers, their bodies littering the beach. These included octopuses, seals, sea urchins, stars, crabs and fish. Examination of the sea water by the administration has shown that levels of phenols and oil compounds have spiked.
- Possible toxic waste pollution caused the death of almost 95% marine life off Russia's Kamchatka peninsula. That waste has now reportedly formed a moving slick stretching 40 kilometres (25 miles) along the Pacific coastline.



European Union - Emission cut

- EU capitals have been put under pressure to agree to reducing greenhouse gas emissions by 60% by 2030 compared with 1990, after the European parliament voted in favour of an “ambitious” climate law that would also oblige each member state to be carbon neutral by 2050.
- The World Wildlife Fund and other Non-Governmental Organizations were insisting on at least 65% emission reduction by 2030. The voting was held under the presidency of Germany.
- China is the largest carbon emitter in the world This is mainly because majority of Chinese energy comes from coal-based power plants. In September 2020, China pledged to become carbon neutral by 2060.
- The following are India’s NDCs (Nationally Determined Contributions)
 - To achieve the target of 40% of cumulative electric power installed from non-fossil fuel- based energy resources by 2030
 - To reduce emissions by 33% to 35% by 2030 as compared to that of 2005.

World Trade Organization

- For the first time in its 25-year history, the World Trade Organization will be led by a woman.

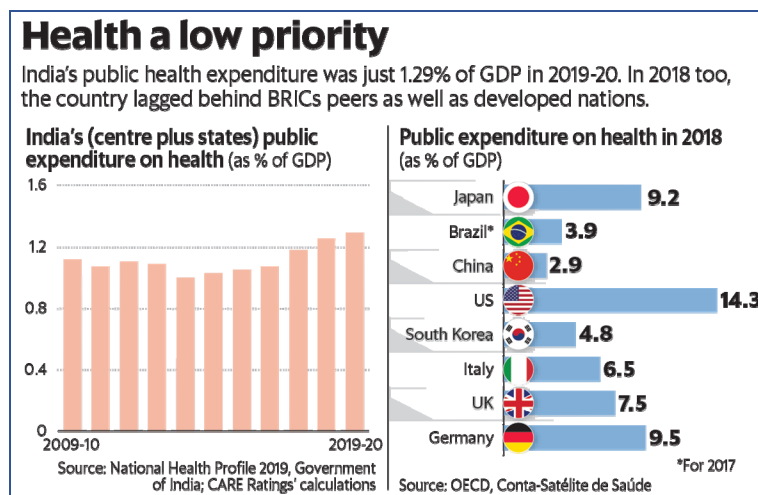
- The international trade agency announced that South Korea's trade minister and former Nigerian finance minister have qualified as the two finalists to become the next director-general.



The Geneva-based intergovernmental organization tasked with regulating global trade agreements announced that Ngozi Okonjo-Iweala of Nigeria and Yoo Myung-hee of South Korea were selected as the two finalists for the next director-general position.

Public health care expenditure

- The Union Health Minister Dr Harsh Vardhan announced that Government of India is to increase the health care expenditure in the country by 2.5% of GDP by 2025. Currently, the government is spending 1.15% of GDP to fulfil health care needs.
- The increase is being done based on the recommendation of the fifteenth finance commission high-level group. The information of increase was provided by the minister during his “Sunday Samvaad”.



- India is more vulnerable to epidemics as compared to Italy and China where the pandemic was at its peak. India ranked 57th in Global Health Security rank. India's spending on health is the lowest as compared to other advanced economies.

Vaccine portal launched in India

- The India Council of Medical Research (ICMR) on Monday launched a dedicated vaccine portal and national clinical registry of COVID-19 to address queries of the people on vaccine development.
- The National Clinical Registry for COVID-19 will collect systematic data on clinical signs and symptoms, laboratory investigations, management protocols, clinical course of COVID-19 disease, disease spectrum and outcomes of patients.
- The data will serve as an invaluable tool for formulating appropriate patient management strategies, predicting disease severity, patient outcomes etc.

“Health in India” report

- The Ministry of Statistics and Programme Implementation recently released a report titled “Health in India”. The main objective of the report was to gather quantitative information on India’s health sector.
- The report said that around 7.5% of Indians suffered from ailments. In rural India, around 6.8% suffered from ailments. In Urban India, the numbers were 9.1%.
- Among all the religions, the Zoroastrians were the most susceptible to ailments. According to the National Sample Survey that was released in July 2020, around 31.1% of Zoroastrians reported that they suffered from ailments. The percentage of people sick in other communities were as follows:
 - Jains: 11.2%
 - Sikhs: 11%
 - Christians: 10.5%
 - Muslims: 8.1%
 - Buddhists: 8%
 - Hindus: 7.2%
- The survey has also found that women remained more susceptible to suffering than men.

PARAM Sidhi-AI: India’s fastest AI Super Computer

- The Centre for Development of Advanced Computing (C-DAC) is going to commission India's largest HPC-AI supercomputer, 'PARAM Siddhi – AI'.
- This initiative will put India among the top countries in global AI supercomputing research and innovation.
- The initiative has been spearheaded by Abhishek Das, Scientist and Program Director (HPC-AI Infrastructure Development) at C-DAC, who conceived the idea and designed the architecture for the largest HPC-AI infrastructure in India.

International Day of Rural Women

- Every year International Day of Rural Women is celebrated on October 15 by the United Nations and various other international organizations. This year, the International Day of Rural Women is being celebrated under the following theme
- Theme: Building Rural Women's resilience in the wake of COVID-19
- The day mainly focuses on the indigenous population and aims to enhance rural development.
- The resolution to mark October 15 as International Day of Rural Women was adopted by the United Nations in 2007. The day was marked for the first time in 2008.



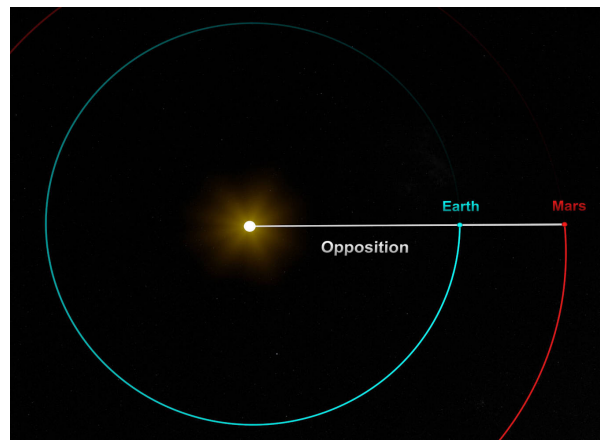
- The measures to improve lives of rural women are supported by UN Women, International Labour Organization, Food and Agriculture Organization.
- The day recognises the services of rural women.

EpicVacCorona

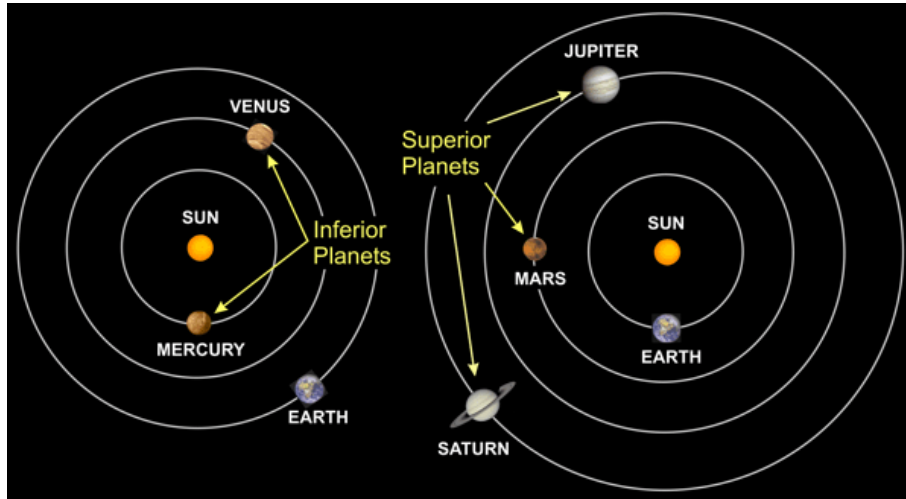
- The Russian Authorities have approved a new COVID-19 vaccine called “EpicVacCorona”. It is a two shot vaccine.
- EpiVacCorona is a peptide-based vaccine. Sputnik V was the first vaccine developed by Russia. Russia is to conduct the vaccine trial of EpicVacCorona on 40,000 volunteers.
- India is to use more than one vaccine against COVID-19. Currently three COVID-19 vaccines are under trial in India. They are COVAXIN, ZyCoV D and the Oxford University Vaccines. India is to prioritise Occupational hazard and exposure risk factors while administering the vaccine.

Opposition Effect

- In October 2020, Mars is to look bigger and brighter due to ‘Opposition Effect’.
- Opposition Effect is the circumstance where two celestial bodies will appear in opposite directions in the sky. For instance, a full moon is said to be in opposition to the sun. The earth is then approximately between them.
- The opposition effect positions of the planets are the best time to observe the planets, especially the superior planets that are far away from the earth. A superior planet is said to be in opposition with the earth when the earth passes between the planet and the sun.
- The planets such as mercury and venus that are smaller than the earth can never be in opposition to the sun.



Superior planets are those planets in the solar system that are further from the sun than the earth. These are Mars, Saturn, Jupiter, Uranus, Neptune. Mercury and Venus are the inferior planets.



- According to NASA, Mars made its closest approach to the earth in 2003. It wont be this close till 2287. This is because the orbits of Mars and Earth are not perfectly circular and their shapes change because of gravitational pulling by other planets.

“Kamadhenu Deepawali Abhiyan”

- On October 12, 2020, the Rashtriya Kamadhenu Aayog (RKA) began the nation wide campaign called “Kamadhenu Deepawali Abhiyan”.
- The campaign aims to promote extensive use of cow dung during the Diwali season. The RKA will promote cow dung based Diyas, dhoop, Agarbatti, swastika, wall-pieces, idols of goddess Lakshmi and Lord Ganesha.
- The aim of the campaign is to reach to 11 crore families and ignite 33 crore diyas made of cow dung. The initiative is being implemented by the Ministry of Fisheries, Animal Husbandry and Dairying.



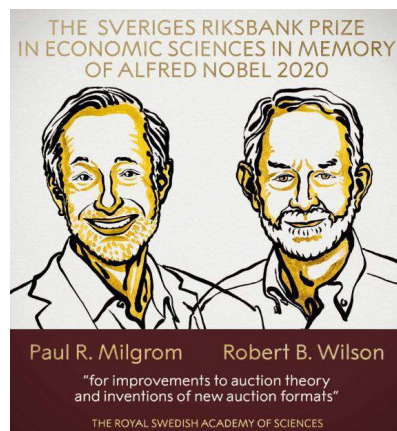
- The initiative will ignite 3 lakh diyas in Ayodhya, 1 lakh in Varanasi.

Digitalization in Public Education

- Chief Minister Pinarayi Vijayan has declared the state public education sector completely digital as Kerala has become the first state in the country to have high-tech classrooms in all its public schools.
- “In the last 5 years, 5 lakhs students joined in government schools. Peoples attitude towards public education system has changed. Our mission was to develop our schools into international standards in academic and other areas. A school in our village should have the same standards as the best school in any part of the world,” the chief minister said.
- The Chief Minister said that schools will be re-opened at the appropriate time.
- According to an official release, public education rejuvenation missions were implemented in the State as part of the Public Education Rejuvenation Mission.
- Over 3.74 lakh digital equipment were distributed in 16,027 schools for the smart classroom project. In the first phase, 45,000 high-tech classrooms for classes 8 to 12 were readied in 4,752 government and aided high schools and higher secondary schools.
- The project was launched on January 21, 2018. High-tech labs were started in 11,275 primary and upper primary schools for classes 1 to 7. The programme was started on July 5, 2019

Nobel Prize for Economics, 2020

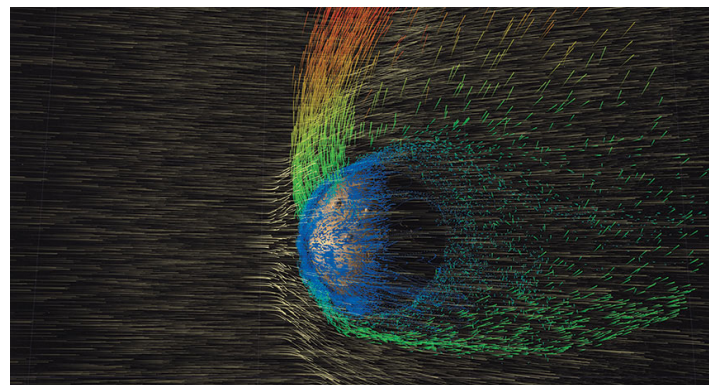
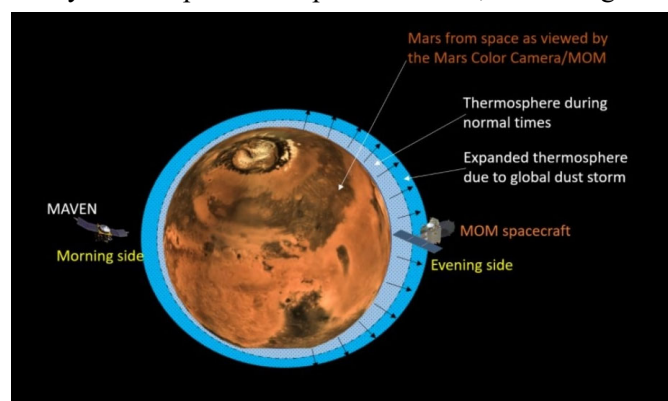
- The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel (popularly known as the Nobel Prize in Economics) was awarded to the former student–teacher duo of Paul Milgrom and Robert Wilson for their pioneering work in auction theory.
- The work done by Milgrom and Wilson has advanced auction theory and they were instrumental in taking auction theory to many applications. To quote the Swedish Academy: “They have also used their insights to design new auction formats for goods and services that are difficult to sell in a traditional way, such as radio frequencies. Their discoveries have benefitted sellers, buyers and taxpayers around the world.”



- Auction theory and different auction formats have been used by governments throughout the world to sell assets ranging from radio spectrum to minerals.

MOM Study by ISRO

- Mars is losing its atmosphere to outer space at a faster rate, a study of data and images sent by ISRO's Mars Orbiter Mission (MOM) and Nasa's Mars orbiter Mars Atmosphere and Volatile Evolution (Maven) has found.
- Though other terrestrial planets in the solar system are also constantly losing their atmospheres to outer space, the rate at which this loss happens is determined mainly by the size of a planet and temperature of its upper atmosphere.
- As Mars being a relatively smaller planet compared to Earth, it is losing atmosphere fast.



- In the first week of June 2018, a global dust storm, also called a “planet-encircling dust event”, started growing on Mars and it had grown to its mature phase by the first week of July.
- Such a storm significantly heated and expanded the Martian upper atmosphere. The heating and expansion of the global dust storm led to a part of Mars atmosphere quickly reaching the exobase altitude (which lies at 220 km).
- Any hot gases above the exobase altitude are more likely to move to further higher altitudes and subsequently escape to outer space.

- Hence, from the results of the present study it can be inferred that the 2018 global dust storm resulted in enhanced escape of the Martian atmosphere.

India-Israel Water Attache

- Israel Embassy will have a separate 'Water Attache' from January 2021 to help share their country's best practices and technologies for advancements in India's water management and agriculture sectors.
- The Israeli envoy also said that in January his country for the first time is going to nominate a 'Water Attache' who will join the 'Agriculture Attache' who has been here for many years and together they will go to the centres of excellence for agriculture established as part of Indo-Israel collaboration and bring to India technology and systems in water management and agriculture.
- He said as many as 29 such centres of excellence have already been established across India and nearly 1.5 lakh farmers have been trained at these centres in just one year.
- In another significant development, Israel will soon nominate an honorary Consul in the North-East with the aim to increase its presence and collaboration in that region.

International Labour Organization - leadership

- India has assumed the chairmanship of the governing body of the International Labour Organisation (ILO) after a gap of 35 years.
- Labour secretary Apurva Chandra has been elected as the chairperson of the governing body of the organisation for the period October 2020- June 2021.
- The governing body is the executive body of the ILO. It meets thrice a year, in March, June and November.
- It takes decisions on ILO policy, decides the agenda of the International Labour Conference, adopts the draft programme and budget of the organisation for submission to the conference, and elects the Director-General.
- At present, ILO has 187 members. Chandra will be presiding over the upcoming meeting of the governing body to be held in November 2020.

Tubarial salivary glands

- Researchers at the Netherlands Cancer Institute have identified a set of salivary glands deep in the upper part of the throat and have named them “tubarial salivary glands”.

- The discovery may be important for cancer treatment. So far, this nasopharynx region — behind the nose — was not thought to host anything but microscopic, diffuse, salivary glands.
- The newly discovered glands are about 1.5 inches (3.9 centimeters) in length on average and are located over a piece of cartilage called the torus tubarius, Live science reported.



- According to the researchers, the glands probably lubricate and moisten the upper throat behind the nose and mouth.
- Doctors using radiotherapy for treating cancers in the head and neck try to avoid the main salivary glands as damaging them could make eating, speaking or swallowing difficult for patients.
- However, in this case, the newly discovered glands were getting hit by radiation as doctors were not aware of their existence in the human body. Thus, the new discovery may result in fewer side effects for cancer patients.

“COVIRAP” test

- A team of researchers at the Indian Institute of Technology in Kharagpur has developed a low-cost portable unit for rapid diagnostics of coronavirus, which produces results in under an hour.
- According to the IIT team, the unit called COVIRAP has been approved by the Indian Council for Medical Research and various commercial units have already approached them for technology licensing.
- The young researchers also claim that the testing facility, can be housed anywhere and an air-conditioned lab is not required.



Novel solution

A look at how the new COVID-19 testing device works



Virus alert: Researchers with the COVIRAP device at IIT Kharagpur.
• SPECIAL ARRANGEMENT

- COVIRAP machine resembles a box and comes with a kit
- Kit has three master mixes which are markers of different genes to confirm the virus
- RNA samples are extracted from **nasal swabs** and mixed with the master mix in tubes
- Tubes are put in the machine which is set at a specific temperature and programmed to run for a fixed period
- Once the heating is over,

it's mixed with another solution and reheated

- A paper strip is dipped into reaction product
- Coloured lines develop, like in a pregnancy kit, to indicate presence or absence of virus
- A smartphone app can grab image of the strip and convey results
- COVIRAP can deliver results in an hour

DIFFERENCES WITH RT-PCR

- While RT-PCR machines can cost up to ₹25 lakh, the COVIRAP machine cost the IIT researchers only **₹5,000**
- COVIRAP test kits cost about **₹500**
- RT-PCR needs to be operated by a molecular biologist
- COVIRAP can be operated with minimal training

- This new testing method implements a highly reliable and accurate molecular diagnostic procedure, conducted in an ultra-low-cost portable device unit and costs only around ₹500 per test.
- It can also check for other diseases, including influenza, malaria, tuberculosis, and dengue, among others.

Anaemia Mukht Bharat Index

- The Union Ministry of Health and Family Welfare along with UNICEF launched the anaemia Mukht Bharat index. The anaemia Mukht Bharat is an initiative to reduce the prevalence of anaemia in India.

- Haryana topped the anaemia free India index or the anaemia Mukht Bharat Index with a score of 46.7
- The state of Haryana has achieved 93% of immunization in the year 2019-20. It is one of the 11 states of India that has achieved the national health policy targets well before 2020. The institute deliveries of the state has increased to 93.7 percentage.
- Anemia Mukht Bharat scheme aims to reduce the prevalence of anaemia in India. It provides bi weekly iron Folic acid supplementation to all under five children through Asha workers. Also, it provides biannual Deworming for children and adolescents. The scheme also establishes institutional mechanisms for advanced research in anaemia. It also focuses on non-nutritional causes of anaemia.



Heeng Cultivation in Indian Himalayas

- Heeng, or asafoetida, is one of the key spices used in Indian cuisine to add flavour to various dishes. India which was till now importing the herb will start growing the heeng in the country itself. For the first time in the country, heeng is being cultivated by scientists at CSIR-Institute of Himalayan Bioresource, Palampur (IHBT) in the Indian Himalayas.
- Heeng thrives in dry and cold desert conditions. The plant of this herb stores the maximum amount of its nutrients inside its deep fleshy roots.
- The CSIR signed an MoU with the agriculture ministry of Himachal Pradesh to cultivate heeng for over the next five years in the state.



- Since heeng grows best in dry and cold conditions, the agriculture ministry of Himachal Pradesh has identified four locations in the valley and has distributed heeng seeds to seven farmers in the region.
- The cultivation of heeng will cost farmers nearly Rs 3 lakh per hectares over the next five years. They will be getting a net return of minimum of Rs 10 lakh from the fifth year onwards.
- India consumes nearly 40 percent of the world's production of heeng.

KAPILA Campaign

- The Union Education Minister Ramesh pokhriyal nishank recently launched KAPILA campaign. It is Kalam Programme for Intellectual Property Literacy and Awareness campaign.
- The campaign was launched to celebrate the 89 birth anniversary of former President Dr APJ Abdul Kalam. His birth anniversary is celebrated as World Students Day all over the world.
- Under the campaign, the Government of India will spread awareness about the importance of patenting and invention. This will help to lead India towards self-Reliance.
- The ministry of education will also celebrate intellectual property literacy week between October 15 and October 23 to promote awareness in patenting. Also, the ministry will conduct awareness programmes about the system and the process involved in applying for a patent.
- The campaign will provide information to students pursuing higher education in the country through their respective institutions.
- The Institution Innovation Council report was published during the event. Also, the Institution Innovation Council website was launched.

Life Expectancy in India increases

- The recently published Lancet medical report says that the life expectancy of India has increased since 1990.
- The life expectancy of India has increased from 59.6 years in 1992 to 70.8 years in 2019. Kerala has the highest life expectancy. In Kerala life expectancy has increased to 77.3 years.
- The report says that the maternal mortality in India is coming down. However, maternal malnutrition and child malnutrition are still the major factors of illness and death in India.
- The top five risk factors of death in India are air pollution, high blood pressure, tobacco use, poor diet and high blood sugar.

Top 10 countries on life expectancy		
	Country	Life Expectancy in years
1	Hong Kong	85.29
2	Japan	85.03
3	Macao	84.68
4	Switzerland	84.25
5	Singapore	84.07
6	Italy	84.01
7	Spain	83.99
8	Australia	83.94
9	Channel Islands	83.6
10	Iceland	83.52

India bans import of refrigerators, Air Conditioners completely

- India recently banned the import of refrigerants and air-conditioners completely tightening norms on “non-essential” imports. This has been done to reduce imports from China and tighten local manufacturing.
- This says that an importer cannot fill in the refrigerant outside India. Thus, he will have to create assembly units using the local work force. This will increase employment in the country.
- India had already imposed import ban on TV sets, tyres and Agarbattis to boost their domestic production.
- After Ladakh stand off, India has been reducing its reliance, on China especially in terms of trade.

World biggest Zinc Smelter Project

- The Hindustan Zinc Limited is to invest Rs 10,000 crores to set up the biggest zinc smelter in the world. The smelter is to be set up in the industrial region of South Gujarat. The smelter is capable of producing 300 kilo tonnes per annum.
- The project will provide employment opportunities for the youth in the state. Also, the smelter to be erected will be the lowest cost smelter in the world. The facility is to be constructed in an area of 415 hectares.

- Smelting is the process by which heat is applied to extract a metal from its ore. The process is used to extract copper, iron, silver, zinc and other base metals. During heating, apart from the metal, several other chemical components are emitted. Of these, sulphur dioxide and hydrogen dioxide pollute the atmosphere.
- The waste products of smelting are released into water supplies. Such waste contains lead and chromium that are hazardous to plant and animal life.
- Acid rains are common in the regions of smelting plants. Acid rain erodes land and makes it unfit for cultivation.

UN Global Climate Action Award

- An Indian organisation that leverages tourism and technology to help remote communities access solar energy has won a prestigious UN award for its efforts to combat climate change amid the COVID-19 pandemic.
- The Global Himalayan Expedition (GHE) is among the winners of the 2020 UN Global Climate Action Award.
- GHE is one of the world's first organisations using tourism and technology to bring solar energy to remote communities.
- In the Hindu Kush Region, there are more than 16 million people without access to basic energy mainly due to their geographic remoteness.
- GHE conducts Impact Expeditions to remote Himalayan villages and uses a portion of the expedition fee to fund the capital cost of the hardware, transportation, installation and training of village-scale solar micro-grids.
- The micro-grid infrastructure set up by GHE is owned and operated by the community.
- To date, the GHE has solar electrified more than 131 villages in three regions of India, directly impacting the lives of more than 60,000 villagers. More than 1,300 travellers from 60 different countries have been a part of these expeditions.
- Enabling livelihood through homestay tourism has generated over USD 114,000 in income for the villages, which represents a 45 per cent increase in the annual household income, the statement said.

Two New Ramsar sites designated in India

- The Kabartal Wetland in Bihar and Asan Conservation Reserve in Uttarakhand have been designated as Ramsar sites, building them 'Wetlands of International Importance'.

- Kabartal Wetland also called as Kanwar Jheel. It protects the 2,620 hectares of the Indo-Gangetic plains in the Begusarai district of Bihar. It acts as important flood buffer for the area other than giving livelihood chance to local communities. Five important endangered species live in the site, including three vultures – the red-headed vulture (*Sarcogyps calvus*), white-rumped vulture (*Gyps bengalensis*) and Indian vulture (*Gyps indicus*) – and two waterbirds, the sociable lapwing (*Vanellus gregarius*) and Baer's pochard (*Aythya baeri*).
- ACR is a 444-hectare stretch of the Asan River running down to its convergence with the Yamuna River in Dehradun district of Uttarakhand. It is Uttarakhand's first Ramsar Site. These habitats keep up 330 type of birds as well as the carelessly endangered red-headed vulture (*Sarcogyps calvus*), white-rumped vulture (*Gyps bengalensis*) and Baer's pochard (*Aythya baeri*).

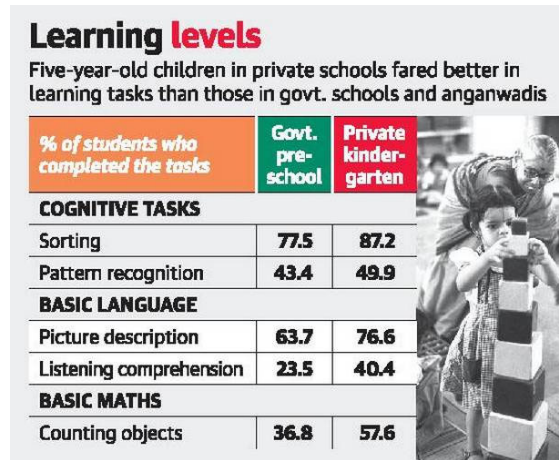
20th Amendment of Sri Lankan Constitution

- The Sri Lankan Parliament recently passed the 20th Amendment of Sri Lankan constitution.
- The 20th amendment of the Sri Lankan Constitution has expanded the powers of the President and also have increased the immunity of the President.
- Under the 20th amendment, the President gets the power to dissolve the parliament after two years and six months after being elected. It has weakened the powers of the prime minister.
- The amendment empowers the President to appoint any person to the Government office without having need of getting consent from members of the parliament. This includes public services, election officials, human rights, police, corruption investigation commissions, bribery, etc.
- The amendment allows the president to hold any ministries and also appoint and fire ministers.
- This amendment rolls back the 19th amendment of Sri Lanka.
- 19th amendment introduced was introduced to weaken the powers of the president.

Annual Status of Education Report for Rural India

- The Annual Status of Education Report for Rural India was recently released by Pratham Education Foundation. The survey was conducted in 26 states and four Union Territories.
- According to the survey, only one-third of the surveyed children had access to online learning. Only 11% of the surveyed children had access to live online classes. Around 24.3% of children did not receive learning material from the school.
- 3% of rural children were not enrolled in school in 2020. Around one in three children were not involved in learning activity.

- Only 47.4% of surveyed children had access to smartphones in West Bengal. Around 77.1% of children in Jammu and Kashmir had access to smart phones. It was 88% in Punjab, 90% in Himachal Pradesh, 82.3% in Haryana. The children in Kerala topped the list. Around 94.3% children in Kerala had access to smart phones.
- In East India, more than 98% of children had access to text books. Less than 35% had access to text books in Andhra Pradesh.



Public Affairs Index

- Kerala was adjudged the best governed state in the country while Uttar Pradesh ended at the bottom in the large states category, according to the Public Affairs Index-2020 released by the Public Affairs Centre.
- Four southern states, Kerala (1.388 PAI Index point), Tamil Nadu (0.912), Andhra Pradesh (0.531) and Karnataka (0.468) stood in the first four ranks in the large state category in terms of governance.

PUBLIC AFFAIRS INDEX	
BEST	WORST
LARGE STATE CATEGORY	
Kerala	UP
Tamil Nadu	Odisha
Andhra Pradesh	Bihar
SMALL STATE CATEGORY	
Goa	Manipur
Meghalaya	Delhi
Himachal	U'khand
<p>■ Chandigarh the best governed UT, followed by Puducherry and Lakshadweep</p> <p>■ Dadra and Nagar Haveli, Andaman, J&K least performers</p>	

- Uttar Pradesh, Odisha and Bihar were at the bottom of the ranking, scoring negative points in the category. They got - 1.461, -1.201 and -1.158 points respectively.
- In the small state category, Goa ranked first with 1.745 points, followed by Meghalaya (0.797) and Himachal Pradesh (0.725).
- Worst performers who scored negative points are Manipur (-0.363), Delhi (-0.289) and Uttarakhand (-0.277), according to the PAC report.

“Meri Saheli” Initiative

- Indian Railways started another great initiative named "Meri Saheli" to provide more safety and security to women passengers during their entire journey.
- Under the initiative, a team of lady officer and staff have been formed. The team will visit all of the passenger coaches including ladies coaches to identify women passengers.
- Details of their journey like, coach number & seat number will be noted down by the team, especially if a lady is travelling alone in the train. The passengers will be briefed about RPF Security Helpline No. 182, GRP Security Helpline No. 1512 and other precautions for example, not to take food from strangers, buying food from IRCTC authorized stalls only & taking care of luggage.
- The team will also advise them to feel free to contact the train escort party and dial 182 in case of any emergency. The details of the passengers will be conveyed to enroute Divisions & Zones to meet the passengers at their convenience till they reach their final destination.
- The 'Meri Saheli' initiative was started as a pilot project in the South Eastern Railway in September 2020 and after getting positive response from women passengers, it was extended to all zones.

MSP for vegetables

- Kerala has become the first state in the country to fix the minimum support price (MSP) for vegetables.
- The state also announced the floor price for 16 varieties of vegetables.
- The scheme would come into effect from November 1.
- The MSP will be 20 per cent above the production cost of the vegetable. Even if the market price goes below the floor price, the produce will be procured at the MSP from the farmers. The produce will be graded as per the quality and the floor price will be fixed based on the quality. As many as 16 varieties of vegetables would be covered in the first phase and there is a provision to revise the MSP price on a regular basis.
- Local Self Government bodies would have an important role to play in this scheme as they would be coordinating the procurement and distribution of vegetables.
- The scheme also envisages setting up the entire supply chain process like cold storage facilities and refrigerated vehicles for transporting the produce.